G1 Remote Control

User Manual V1.1

Unitree

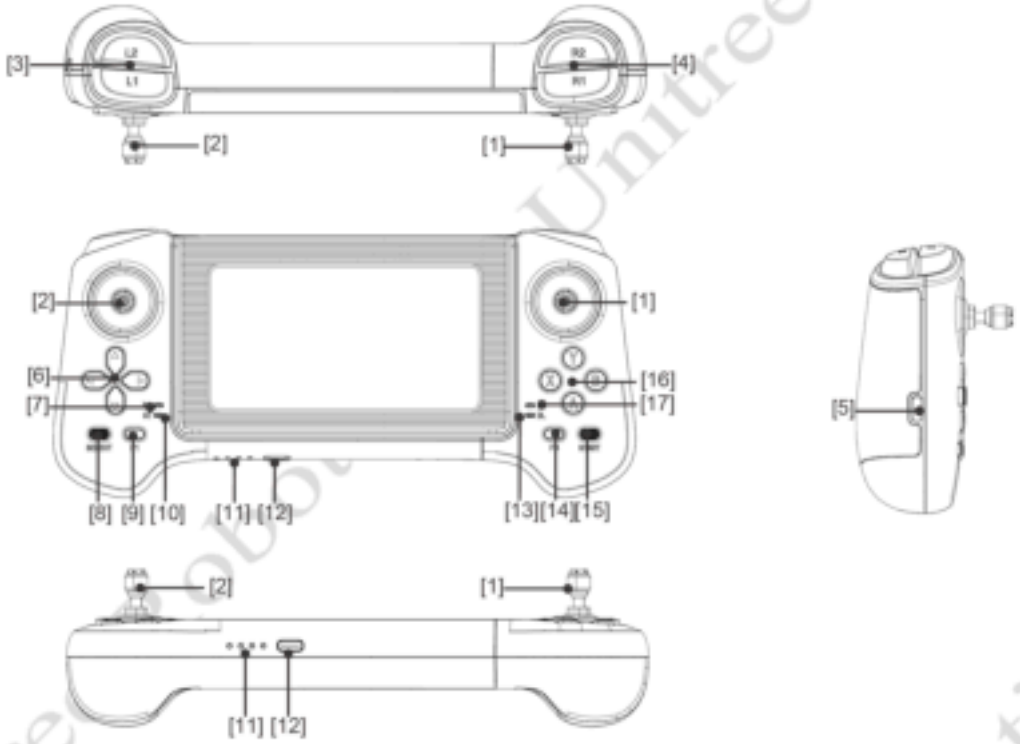
This product is a civilian robot. We kindly request that all users refrain from making any dangerous modifications or using the robot in a hazardous manner.

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

Introduction

The R3 remote control is part of the G1 remote control module, and the remote control handle is equipped with a digital transmission module and a Bluetooth module. The robot and the remote control are bound through the Unitree Explore App, and once successfully bound, they can be connected upon powering on. It can control the robot to achieve 3-axis posture and 3-axis position stability when standing, and can also control the robot to move forward, backward, left, right, turn in place, and walk according to certain rules (straight line, circular, linear, rectangular) on flat ground, as well as go up and down slopes/steps. The remote control handle adopts a more ergonomic design for easier grip, providing a more comfortable feel.

Parts Name



[1] Right Rocker [2] Left Rocker [3] Key L1/L2 [4] Key R1/R2 [5] Type C Charging Interface

[6] Left Key [7] Power Connect Indicator [8] SELECT [9] F1 (Function Setting Key)

[10] Charging Status Indicator [11] Power Connect Indicator [12] Power Button

[13] Data Transmission Indicator Light [14] F3 (Function Setting Key) [15] START

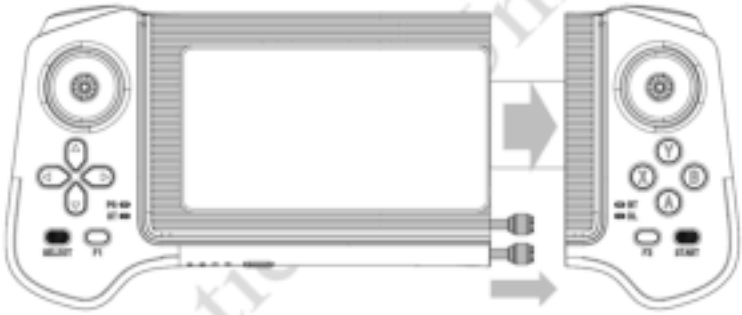
[16] Right Key [17] Bluetooth Signal Indicator Light

Technical Specifications

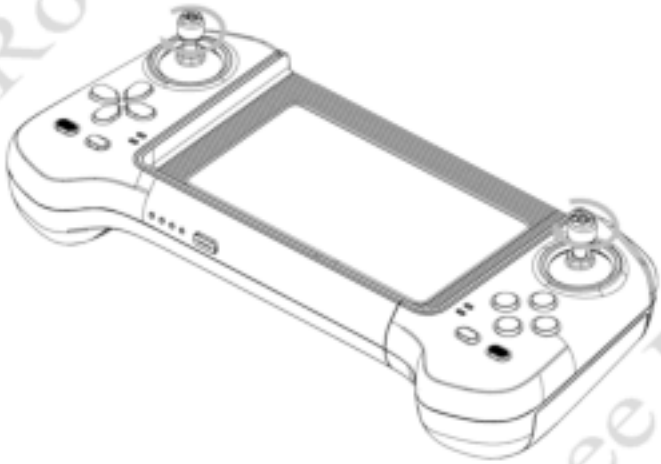
Parameter	Specification	Remarks
Charging Voltage	5.0V	
Charging Current	700mA	
Lithium Battery Capacity	780mAh	
Communication Mode	Data Transmission Module, Bluetooth	
Running Time	5h	
Remote Control Distance	Above 100m	Open Environment

Install the joystick

Step 1: Take out the joystick. As shown in the picture, use your right hand to pull out the remote control smoothly and slowly, and remove the two joysticks from the storage slot.



Step 2: Install the remote control. As shown in the figure, secure the remote control to the remote control in a clockwise direction and tighten it.



● If you need to store it, please remove the remote control and place it in the storage slot.

Remote Control Handle Rocker Calibration

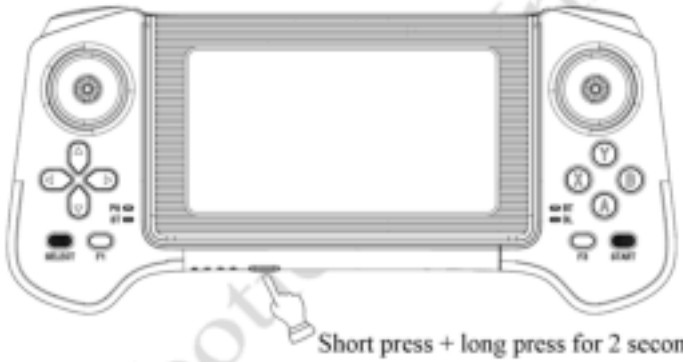
Hold the remote control without touching the rocker, press the upper buttons F1 and F3 on the remote control and release them at the same time. At this time, the remote control will emit a continuous "beep~beep~" sound (1 time/sec) to indicate that it has entered the calibration mode. After entering the calibration mode, the users need to turn the left and right rockers to full rudder and rotate several times until the sound of "beep~beep~" stops, and the calibration is ready. Press F3 once to make the calibration take effect and complete the calibration.

Attention! When calibrating the remote rod, please do not touch the rocker before calibration. The rocker can only be moved after entering the calibration mode.

Remote Control Turnon/Turnoff

Turn on the handheld remote control: Shortly press the power button once, then long press the power button for more than 2 seconds, and hear two "beeps", which means the remote control is turned on.

Turn off the handheld remote control: Shortly press the power button once, then long press the power button for more than 2 seconds, and hear three "beeps", which means the remote control is turned off.



Short press + long press for 2 seconds or more

Vibration/sound switching

Switching vibration: Quickly press the F3 button 3 times to switch to vibration mode.

Switch sound: Quickly press the F3 button 3 times to switch to sound mode.

Press F3 button 3 times quickly

Vibration/Sound Switch

Turn off vibration/sound: Quickly press the F1 button 3 times to turn off vibration/sound.

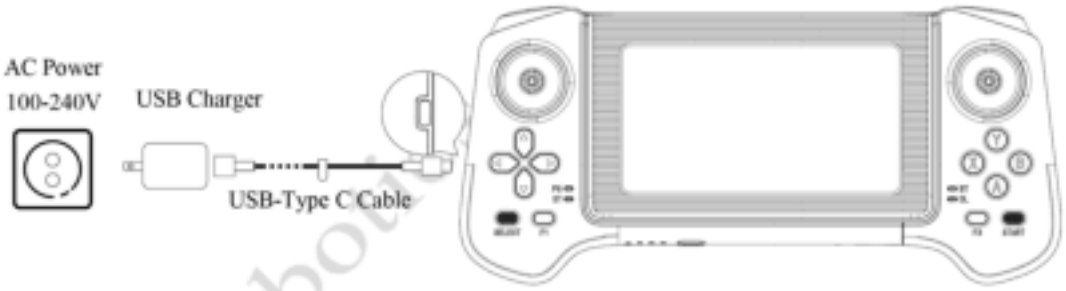
Turn on vibration/sound: Quickly press the F1 button 3 times to turn on vibration/sound.

Press F1 button 3 times quickly

● After modifying the remote control feedback function, it is not saved by default. If you want the changes to take effect the next time you turn on the remote control, hold down the F1 button during shutdown to save the current mode.

Remote Control Charging

When the handheld remote control battery indicator shows low power, the handheld remote control should be connected to the charger, as shown in the figure below:



a) We recommend you to use a 5V/2A USB charger which meets FCC/CE standard.

b) Ensure that handheld remote control is switched off before charging it.

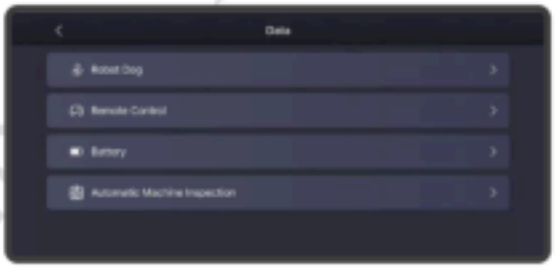
c) The power indicator light will flash at 1Hz (1 second/time) in charging status and indicate the current power level.

d) When the power indicator light is all on it means the battery pack is full, please remove the charger to finish charging.

Charging Indicator Light				
LED1	**LED2**	**LED3**	**LED4**	**Current Battery**
☼	○	○	○	0%-25%
☼	☼	○	○	25%-50%
☼	☼	☼	○	50%-75%
☼	☼	☼	☼	75%-100%
☼	☼	☼	☼	Full Charged

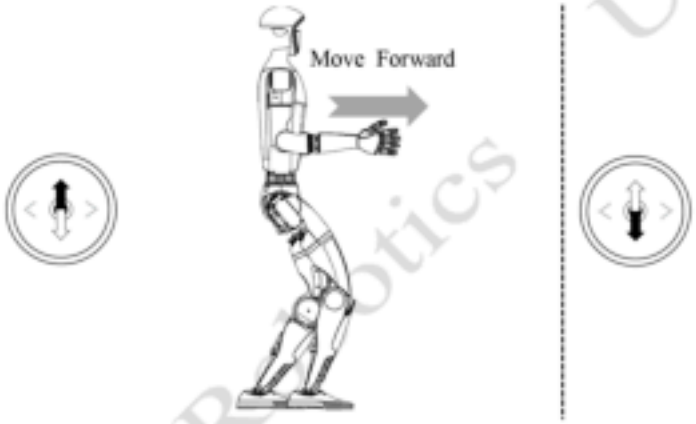
Remote Control Basic Operation

To use the remote control for the first time, you need to bind the remote control in the Unitree Explore App. Go to [Settings], turn on the remote control switch, enter the corresponding remote control code, and then the remote control can be bound to the digital transmission module on the robot.

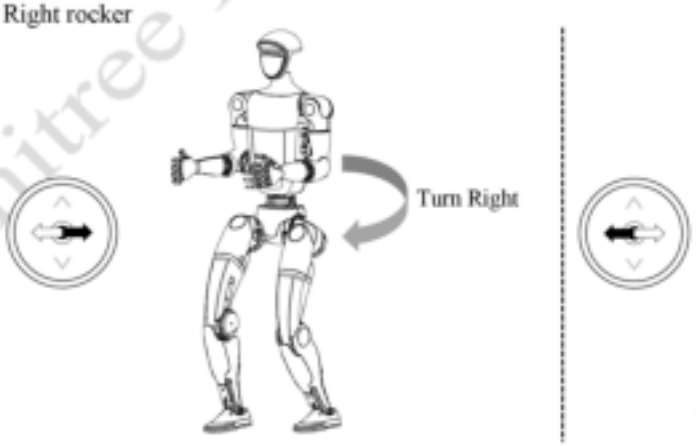


Once the remote control is powered on and successfully connected to G1, the right DL indicator light is on. This indicates that the remote control is connected to the G1 digital transmission module, and you can now control G1 with the remote control. When using the remote control to maneuver G1 with the joysticks, the control methods are as follows:

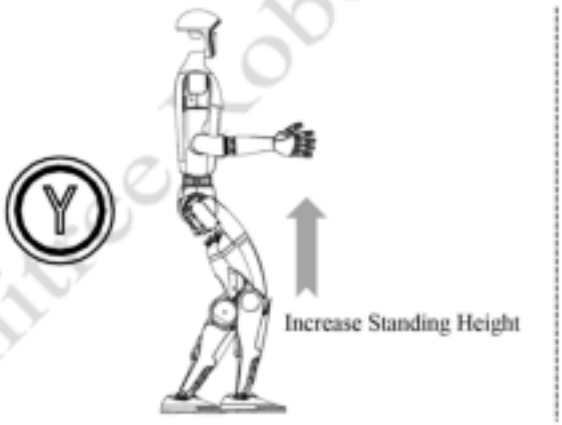
Left rocker

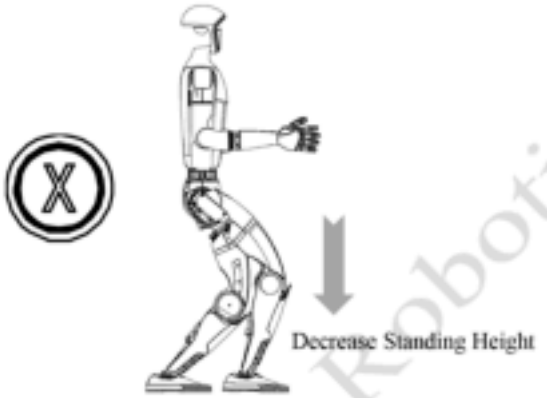


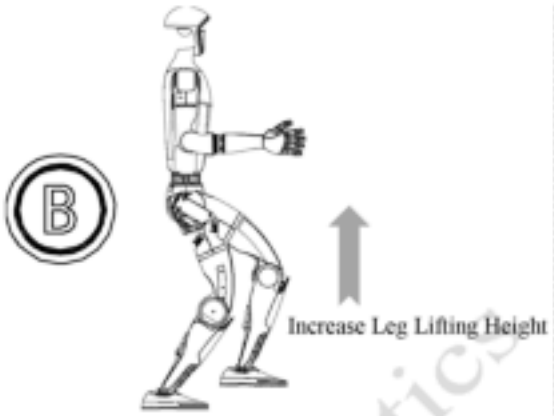
Right rocker

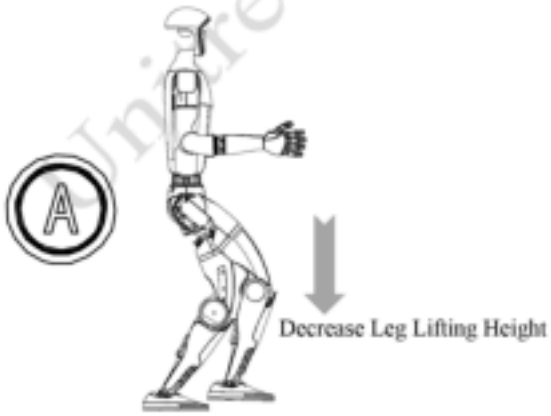


Key









Switch between continuous walking mode/standing mode

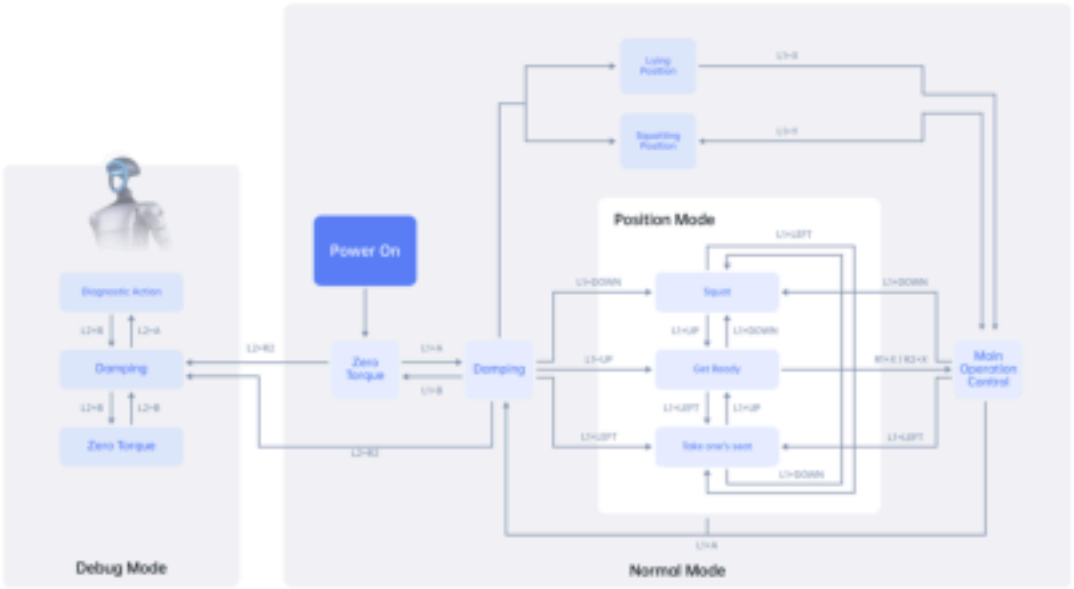
- Rocker back to center/neutral position: The rocker of the handle is in the middle position.
- Rocker amount: The deviation of the remote Quadruped control rocker from the center of the rocker.
- Walls, doors, and other obstacles greatly weaken the signal between the robot and the remote control module. Please be sure to operate the robot in an open space.

Concept Description:

Concept	Description
Zero Torque Mode	All motors of the robot stop active motion, and there is no damping feeling when swinging.
Damping Mode	All motors of the robot stop active motion, and there is a clear damping feeling when swinging, which can enter the ready mode.
Ready Mode	The robot will slowly swing out the preparatory posture before the motion mode within 5 seconds.
Squat mode	The robot will slowly enter a squat position within 5 seconds (no balance control).
Seating mode	The robot will slowly assume a seated position within 5 seconds (no balance control).
Motion Mode	A mode in which the robot can be controlled to move by a remote control.
Continuous Walking Mode	The robot is always in a stepping state.
Standing Mode	In this mode, when the joystick instruction is zero, the robot stops stepping and enters the standing state; when the joystick instruction is not zero, or the robot is disturbed and difficult to maintain balance, the robot will start to take steps.
Debug Mode	For bottom-level development. When you need to use the SDK for development and debugging, please make sure that G1 has entered the debug mode to stop the motion control program from sending commands, which can avoid potential command conflicts. You can press L2+A to confirm whether you have entered the debug mode.

⚠ ● The robot's current walking mode does not include the function for climbing stairs. Please avoid having the robot climb stairs at will to prevent damage to the robot.

Mode switch:



⚠ ● After switching back to the Squatting position through L1 + Y from the Main Operation Control, if you want to switch back to the Main Operation Control mode without shutting down the device, you need to enter the damping mode through L1 + A, and then switch back to the Main Operation Control through L1 + Y.

Key Description:

Posture Switch	Button
Debug mode	Hold L2 + Click R2
Zero torque mode	Hold L1 + Click B
Damping mode	① Hold L1 + Click A
Lock stand	② Hold L1 + Click UP
Seated mode	④ Hold L1 + Click LEFT
Squat mode	Hold L1 + Click DOWN
Lying and standing	⑤ Hold L1 + Click X
Squat switch	⑥ Hold L1 + Click Y

Interactive function	Button
Wave Hand	Hold SELECT + Click Y
Handshake	Hold SELECT + Click A
Turn around and waves hand	Hold SELECT + Click X

⑤ R2 + X(Run Control)	Button
Increase the lift height	Click B
Decrease leg lift height	Click A
Increase standing height	Click Y
Decrease standing height	Click X
Slow Running	R1 + left rocker
Fast Running	R2 + left rocker

⑧ R1 + X (Main Opertain Control)	Button
Keep stepping (not recommended)	Double click START
Standing	Click START
Low speed mode	Double-Click L2
High speed mode	Double-Click L1
Offset Compensation	Left Offset: Hold R1+ Click → Right Offset: Hold R1+ Click ← Forward Offset: Hold R1+ Click ↓ Backward Offset: Hold R1+ Click ↑

⑦ R1 + Y (Only Used For 3-DOF Waist Structure)	Button
Keep stepping (not recommended)	Double-click START
Stand	Click START
Low speed mode	Double Click L2
High speed mode	Double Click L1
Offset Compensation	Left Offset: Hold R1+ Click → Right Offset: Hold R1+ Click ← Forward Offset: Hold R1+ Click ↓ Backward Offset: Hold R1+ Click ↑

⑧ R2 + Y (Only Used For 3-DOF Waist Structure)	Button
Increase the lift height	Click B
Decrease leg lift height	Click A
Increase standing height	Click Y
Decrease standing height	Click X
Keep stepping (not recommended)/ standing	Click START
Waist Control	Hold SELECT + Right Rocker

Remote Control Settings	Button
F3 (Pressed 3 times)	Sound/Vibration Toggle
F1 (Pressed 3 times)	Sound/Vibration Switch

- ⑦, ⑧ Only Used For 3-DOF Waist structure, recommended to use R1 + Y mode
- regular boot process: boot->①->②->③->demo->④(chair seat)-> turn it off
- lying boot process: (make sure that the boot device crotch post with the ground flat)->①->⑤->demo->⑥-> turn it off
- Squatting boot process: Boot (squatting)->①->⑥->Demo->⑥-> turn it off
- Switch on and off the machine using the protective rack, please refer to G1-User Manual
- If the R3 remote control is not connected to the robot or phone after turning on, it will automatically shut down within 10 minutes if there is no operation. If you need to connect and use it, please turn it on again.

- Starting in lying position and starting in squatting position is only suitable for flat and hard ground. There is a risk of standing instability in other scenes. Please do not try it at will.
- Equipped with dexterous hand equipment, please be careful to start the device in the lying or squatting position, which may cause damage to the dexterous hand.

