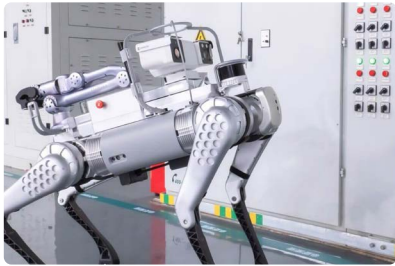


B1



# Unitree B1



## HIGH PAYLOAD

Maximum payload: 80 kg  
Walking payload: 20 kg



## ALL-WEATHER

Operating in any kind of weather  
and low visibility conditions



## COMPLEX TERRAIN

B1 can be used in rough terrain, it  
overcomes steps up to 20 cm high.



## PERCEPTION

All around 3d capturing with Intel  
RealSense D430\*5



## COMPUTING POWER

Intel i5 main control CPU and  
NVIDIA Jetson XavierNX\*3



## IP68 WATERPROOF

Optionally B1 can even be built for  
underwater use.

B1 has applications in industries and agriculture, for surveys and exploration, specific security patrols, public rescue and many others.

Size	Standing L × W × H 1126 × 467 × 636 mm	Folded L × W × H 1202 × 467 × 297 mm
Weight	Total including battery ~50 kg	Battery only ~5 kg
Load	Continuous walking load 20 kg	Maximum standing load 80 kg
Endurance	Standing 2.5 h	Continuous walking without load 2 h
Control & Sensing Disposition	Main Control CPU Intel i5-1135G7  Sensing Sensor Intel RealSense D430*5	Sensing Calculation Platform Jetson XavierNX*3
Battery	Type Lithium Battery  Rated Voltage 51.8 V  Charge Limit Voltage 58.8 V	Rated Capacity 18000 mAh  Rated Energy 932.4 Wh  Charge Time 1-2 h
Output	Standard Output Power 12 V / 24 V	Expansion Board Gigabit Interface*7/RS485*4/USB*5/CAN*4
Working Temperature	Battery -5°C to 45°C	
Others	Maximum Step Height 20 cm	Protection Temperature / Current

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Z1



# Unitree Z1



## COMPACT & LIGHTWEIGHT

Weight Z1 Air: 4.3 kg  
Weight Z1 Pro: 4.5 kg



## DEXTEROUS & FLEXIBLE

DOF: 6 axis  
Reach: 740 mm



## HIGH PAYLOAD

Payload Z1 Air: 2 kg  
Payload Z1 Pro:  $\geq 3$  kg



## ACCURATE

Repeatability:  $\sim 0.1$  mm  
(depending on test conditions)



## COMPLEX TASKS

The manipulator can cooperate with Aliengo, the B1 robot and other mobile robots to complete complex tasks and explore various application scenarios.



## OPEN CONTROL INTERFACE

The control program and control interface will be successively opened and different actuators can be quickly replaced at the end of the manipulator.

DOF	6 axis
Weight	4.5 kg (Z1 Pro) 4.3 kg (Z1 Air)

Payload	$\geq 3$ kg (Z1 Pro) 2 kg (Z1 Air)
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Reach	740 mm
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Repeatability [1]	$\sim 0.1$ mm
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Power Supply	Voltage 24 V Current $> 20$ A
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Interface	Ethernet
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User Operating System	Ubuntu
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Power	Max 500 W
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Force Feedback and Collision Detection	Provide
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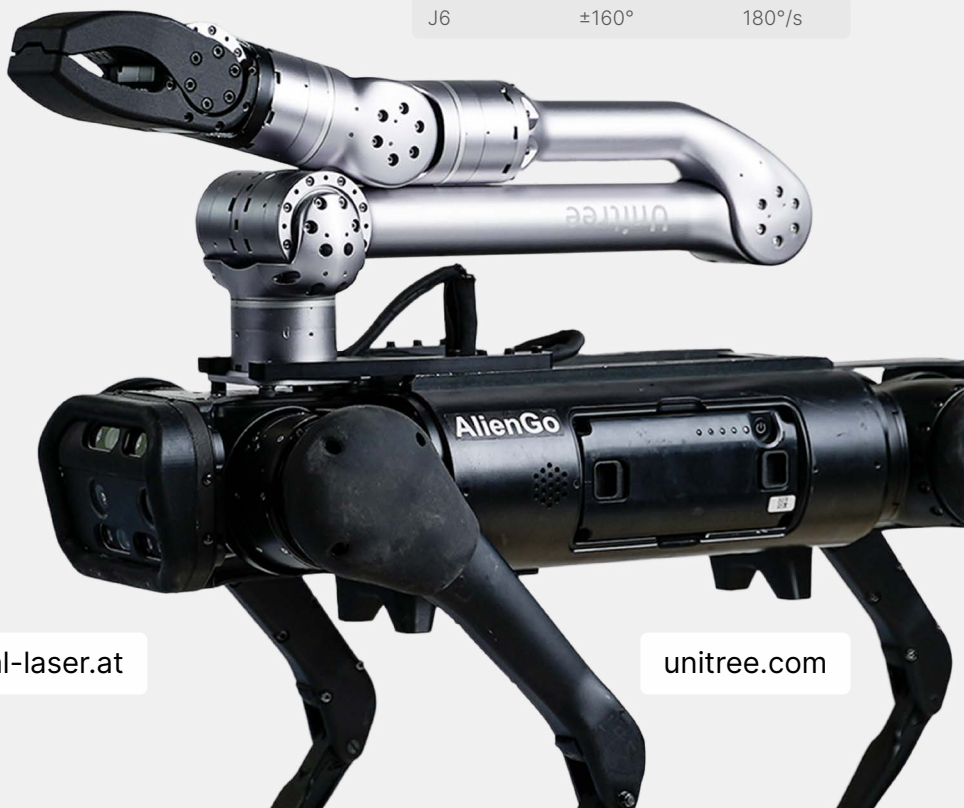
Control Interface [2]	Position + Force Control
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[1] Repeatability depends on test conditions.

[2] The low joints reduction ratio leads to low position control stiffness of Z1. This can cause position control errors and shaking when the manipulator moves if the control mode is not optimized.

Errors and technical modification subject to change.

Joint	Range	Max Speed
J1	$\pm 150^\circ$	$180^\circ/\text{s}$
J2	$0-180^\circ$	$180^\circ/\text{s}$
J3	$-165^\circ-0$	$180^\circ/\text{s}$
J4	$\pm 80^\circ$	$180^\circ/\text{s}$
J5	$\pm 85^\circ$	$180^\circ/\text{s}$
J6	$\pm 160^\circ$	$180^\circ/\text{s}$



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