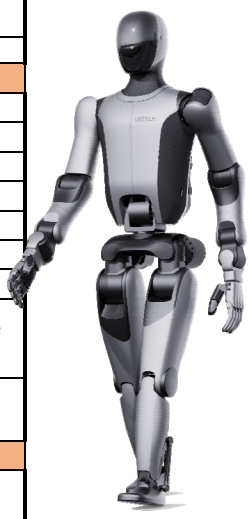
Walker S2 Hardware Specifications



Appearance	
Product styling	Large bipedal humanoid robot
Product color	Star Rock Gray + Obsidian Black
Product size	Height: 176cm; Shoulder width (at the widest point of the arms): 580mm; Chest depth: 277mm
Wingspan	68cm (from the shoulder servo axis to the end of the six-dimensional force)
Spread your arms	177 cm (excluding hands) / 225 cm (including hands)
Product weight	About 70kg (excluding hands); 73Kg (opening template, excluding hands)
Material	High-strength aluminum alloy 3D printing structure, ABS+PC shell, elastic material.
Active degrees of freedom	30 (only the robot body without the dexterous hand), 42 (with the 3rd generation dexterous hand), 44 (with the 4th generation dexterous hand)
Total degrees of freedom	52 (42 active degrees of freedom, 10 passive degrees of freedom) (with 3rd generation dexterous hand) 52 (44 active degrees of freedom, 8 passive degrees of freedom) (with 4th generation dexterous hand)
Dexterous Hands	**Self-developed dexterous hand**
Active degrees of freedom	6 active degrees of freedom (3rd generation dexterous hand) 7 active degrees of freedom (4th generation dexterous hand)
Total degrees of freedom	11 (6 active degrees of freedom, 5 passive degrees of freedom) (3rd generation dexterous hand) 11 (7 active degrees of freedom, 4 passive degrees of freedom) (4th generation dexterous hand)
sensor	Configure array tactile pressure sensor (optional)
Intelligent control domain	**Self-developed integrated intelligent control domain**
Processor (1)	Intel i7-1185G7
Number of cores	Quad-core, eight threads, frequency ≥ 3GHz
RAM capacity	4GB LP-DDR4
Internal storage (ROM) capacity	128GB
operating system	Ubuntu, Linux RT Preempt
Processor (2)	NVidia Jetson AGX Orin 64GB
Hashrate	275TOPS (INT8 computing power)
DRAM capacity	64GB
operating system	Ubuntu + ROSA2.0
network	
Support Type	Wifi/5G communication; Bluetooth communication
power supply	
Battery capacity	Two 48V 7AH lithium iron phosphate batteries (BYD)
Whether to replace the battery	Supports autonomous battery replacement by robots.
Charging time	Robot charging: Charging (10%-90%) < 2.5h, full charge time ≤ 3h Battery swap cabinet: Charging (10%-90%) < 1.5h, full charge time ≤ 2h
Battery life	Maximum battery life: ≥3H (stepping condition) (100%-0%) (may be adjusted, need to be tested, BYD version) Typical battery life: ≥2H (moving box condition) (100%-0%) (may be adjusted, need to be tested, BYD version)
Interaction	
Screen	4-inch circular display on the face (resolution 720*720)
microphone	4 array microphones
trumpet	2 speakers
Optics	
Camera	4 1-megapixel cameras
Depth camera	2 RGBD depth cameras
sensor	
Internal sensors	High-precision attitude sensor*2 Six-axis force sensor*2
other	
Peripheral Interface	Gigabit Ethernet port + USB3.0
Operating temperature	0℃～40℃
walking speed	Maximum speed 7.2km/h (may be adjusted, need testing)
Weighted walking speed	≤2.5km/h
Double arm load	Maximum 15kg
Navigation accuracy	Site navigation comprehensive accuracy ±2cm
Recognition accuracy	≤2cm
transportation	
Transport packaging method	Robot flight case, robot display stand (carton packaging)
Total weight of flight case (including robot)	170KG
Display stand packaging size	Length: 1505mm Width: 705mm Height: 380mm
Robot display stand weight	35KG