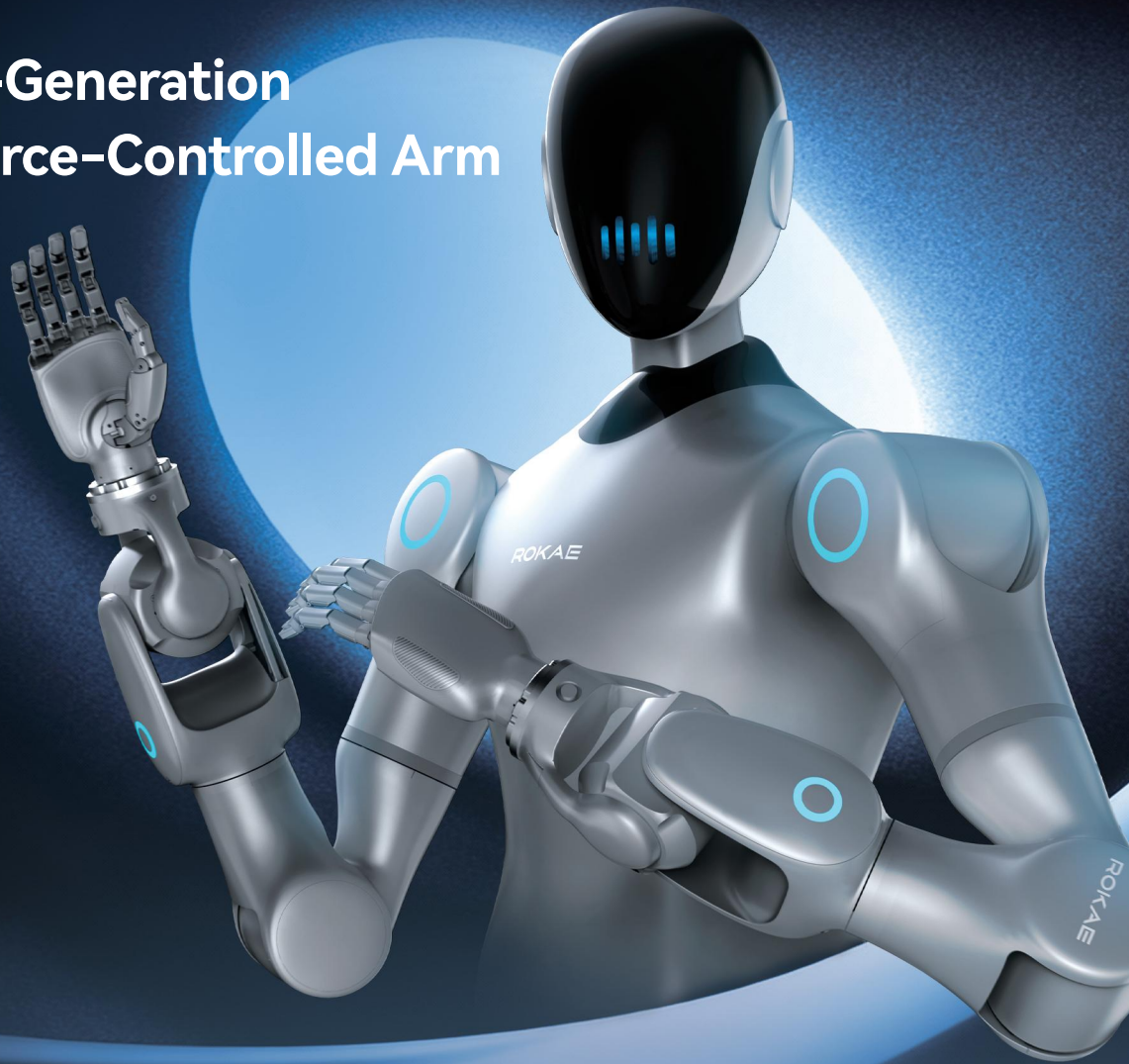


ROKAE

ROKAE New-Generation Humanoid Force-Controlled Arm

AR Series



Ultra-lightweight · Humanoid Arm

New-Generation HSA Series
Ultra-lightweight Integrated Force-Controlled Joint

Full-series
payload-to-weight
ratio of

1:2

payload range

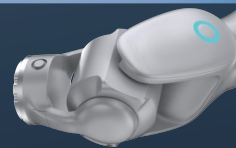
3kg–10kg



7 DoF · Bionic Design

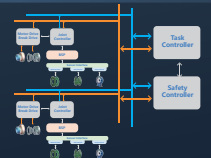
Crossed-Axis Wrist

Directly maps human arm movements



Industrial-Verified Product · High Safety & Reliability

Based on world's top-selling full force-controlled cobot
Electromagnetic Brake, Sensitive Collision Detection, 22 TÜV-Certified Safety Functions



Comprehensive Functions · Open Ecosystem

Comprehensive Advanced SDK Algorithm Functions
Rich End Interfaces & Support for Mainstream Protocols (EtherCAT, CAN FD, RS485)

Full-joint high-precision force sensing & high-dynamic force control tech

Overall force control bandwidth

>30Hz

Overall force control accuracy

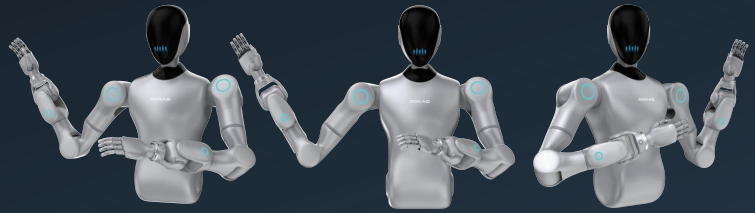
≤0.15N, ≤0.05N.m

Full-Joint Torque Sensing Technology



Supports built-in camera cables
Visual sensing plug-and-play

Parameter Specifications



Parameter Category		AR3	AR5	AR10
Specifications	Rated load	3 kg	5 kg	10 kg
	Weight	7 kg	10 kg	18 kg
	DoF	7	7	7
	Operating radius	650 mm	683 mm	760 mm
	Repeated positioning accuracy	±0.1 mm	±0.1 mm	±0.1 mm
	Absolute positioning accuracy	±1 mm	±1 mm	±1 mm
	TCP maximum speed	≥2 m/s	≥2 m/s	≥2 m/s
	Joint hollow aperture	6 mm	9 mm	10 mm
	IP rating	IP54	IP54	IP54
Range of motion	Axis 1	±360°	±178°	±360°
	Axis 2	±120°	±120°	±120°
	Axis 3	±178°	±178°	±178°
	Axis 4	-60°~+145°	-60°~+145°	-60°~+145°
	Axis 5	±178°	±178°	±178°
	Axis 6	±110°	±60°	±110°
	Axis 7	±180°	±90°	±180°
Brake	Brake	Joint with the brake		
Force control	Joint torque sensor	Standard configuration		
	End 6-DoF force sensor	Supports (range 200 N/7 Nm, accuracy ≤ 2% F.S.)		
	Force control accuracy	≤0.15 N, ≤ 0.05 Nm (reference value)		
	Force control resolution	≤0.05 N, ≤ 0.02 Nm (reference value)		
	Overload capacity of force sensor	≥300% F.S.		
	Comprehensive accuracy of force control	≤1% F.S.		
	Sampling frequency of force sensor	≥5 kHz		
	Torque closed loop	In initial scheme, controller performs torque closed loop, while in advanced scheme, joint performs torque closed loop		
	Admittance control	Single arm admittance is used alone. Update admittance control parameters in real time during admittance execution		
	Load recognition	Automatic recognition of load		
Input power supply	Power voltage	48 V DC(±15%)		
Communication	Communication mode	EtherCAT (Cycle 1±0.1 ms)		
Noise	Noise	≤60 dB		
Temperature	Operating temperature	0°C-50°C, The temperature rise shall not exceed 30°C, and the overall temperature of the machine shall not exceed 60°C		
Humidity	Operating humidity	10%-90% RH (non-condensing)		
Vibration	Vibration resistance	Refer to GB/T 4798.5-2007 Severity: 5M2		
	Impact strength	Refer to GBT39266-2020 Impact acceleration: 10 g		

Application

Applicable to humanoid robots, dual-arm wheeled robots; for AI, data collection, learning & training, factory applications, etc.



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