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ESTUN CoDroid

Collaborative Robot Product Brochure

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www.codroid.ai







COGNITIVE Collaborative Coexisting

ESTUN CODROID WAS ESTABLISHED IN JULY 2022 AND ITS FOUNDERS HAVE SENIOR AND SEASONED EXPERIENCE IN BOTH AI AND ROBOT INDUSTRIES.

Taking "Operational Embodied AI" as the core technology route and relying on Estun's abundant application scenarios and customer resources, we're aiming to provide next generation embodied AI robots and services with Hand-Foot-Eye-Feel-Control Coordination.

By empowering robots with cognition-decision cerebrum and fell-control cerebellum, company is committed to reform the human-robot interactions and programming patterns of traditional industrial robots.

MISSION

Cocreate the Human-CoDroid Future

VISION To be the vita

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To be the vital promoter of embodied AI technologies and applications





Multiple safety features, innovative UI and programming, and deep integration of AI - the S-series cobot builds flexible production processes, which are smarter and safer, more efficient and reliable, for human-robot collaboration in industries.

TRUSTED SAFETY



Brakes built into all axes.

EASY AND FLEXIBLE TO USE

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Built-in torque sensor, supporting by wizard force control kit.

- Teaching precise points and paths by agile manual guidance.
- Graphical UI for easy programming that can be mastered in 1 hour by novice
- Integrated vision system, capable of running in unstructured and dynamic automation.

PERFORMANCE



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- Paired with the speed of a traditional industrial robot.
- Precision upgraded to industrial robot level through accurate calibration and compensation technology.

QUALITY SYSTEM

• Comprehensive manufacturing quality management system.

- Rigorous and consistent quality control.
- Kinematic calibration before shipment to ensure absolute accuracy.
- 100+ design type tests, 20+ delivery inspections, 120 hours continuous no failure operating before shipment.

*Will be certified in Q4 2024

- Identification and compensation of high precision kinematic models ensure both accurate trajectory and smooth movement.





Torque sensors built into all axes, performance of safety and manual guidance improved completely

More sensitive to collisions in all positions

- Compliant hand guide
- Supporting hand guide with fixed gestures

Easy programming by end display and customizable buttons, without teaching pendant.

Encoder upgraded from 19-Bit A 20-Bit for more accurate position detection.

Drive performance improved again

• **A** Rigidity 50% • **A** Lifespan 20%

New software architecture brings the latest achievements

Supporting extensions of force control kits

New features added are accessible from updating





Specifications

S-Eco				
Model	S3-60 Eco	S5-90 Eco	S10-140 Eco	S20-180 Eco
DOF		6	5	
Payload (kg)	3	5	10	20
Reach (mm)	575.8	919	1400	1777.5
Repeatability (mm)	±0.03	±0.03	±0.03	±0.1
Weight (kg)	14	21	37	58
Safety	Hand guide, adjustable collisiondetection			
Certification	EN ISO 13849-1 PLd Cat.3 & EN ISO 10218-1			
IP Classification	IP54			
Max. Speed at Tool End (m/s)	2	2.5	2.5	3.2
Working Range		Axis1/2/4/ Axis3:	15/6: ±360° ±160°	
Max. Speed	[S3/S5/S10]] Axis 1/2/3: 150 °/s Axis 4/5/	[S20] Axis1/2: 110°. ′6: 180°/s	/s Axis3: 150°/s
Mounting	Any orientation			
Operating Temp.	0 – 50 °C			
Operating Humidity	70% RH			
Flange Connector	[S3/S5/S10]IS	SO 9409-1-50-4-M6	[S20] ISO 9409-1-50-6	5-M6
Flange Communication		2 DI, 2DO, 24VDC, M	10DBUS RTU, RS485	

S-Pro				
Model	S3-60 Pro	S5-90 Pro	S10-140 Pro	S20-180 Pro
DOF		6		
Payload (kg)	3	5	10	20
Reach (mm)	575.8	919	1400	1777.5
Repeatability (mm)	±0.03	±0.03	±0.03	±0.1
Weight (kg)	14	21	37	58
Torque Sensor Accuracy - Con	nposition Error (F.S)	<2%	6	
Torque Sensor Accuracy - Rep	eatability Error (F.S)	<0.2	%	
Safety	Safety Hand guide, adjustable collisiondetection			
Certification	EN	ISO 13849-1 PLd Ca	t.3 & EN ISO 10218-1	
IP Classification		IP5	4	
Max. Speed at Tool End (m/s)	2	2.5	2.5	3.2
Working Range		Axis1/2/4/5/6: ±36	0° Axis3: ±160°	
Max. Speed	[\$3/\$5/\$10]	Axis1/2/3: 150 °/s Axis4/5/6	[S20] Axis1/2: 110 5: 180 °/s)°/s Axis3: 150°/s
Mounting		Any orie	ntation	
Operating Temp.		0 - 5	O°C	
Operating Humidity		70%	RH	
Flange Connector	ISO 9409-1-50-4-M6			
Flange Communication	2	DI, 2DO, 24VDC, M	IODBUS RTU, RS485	

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SESTUN CoDroid | Collaborative Robot Eco Series-Technical Drawings



SESTUN CoDroid | Collaborative Robot Pro Series-Technical Drawings





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Series-Control Cabinet



COCB-E03/05/10/20

Demonstrator	PC/laptop/tablet/smart phone/teach pendant		
Safety device	1 hand-held enable channel, 1 hand-held E-stop channel		
Hand guide	Cartesian space/axis space; Teaching method: point/continuous path		
High dynamic force control	Cartesian space/axis space impedance control		
IP classification	IP20		
I/O ports	16DI(PNP), 16D0(PNP), 4AI, 4AO, five E-stop inputs		
I/O power supply	24VDC, 2A		
Communication	MODBUS RTU, MODBUS TCP, CAN, RS485 EtherNET, EtherCAT, Profinet slave (optional), EthernetIP slave (optional)		
Power supply	[E03、E05、E10]AC:100~240V47-63Hz/DC:48 [E20]AC:180~240V,47~63Hz/DC:48V		
Box dimensions	[E03、E05、E10]402*270*149mm [E20]420*290*200mm		
Weight	13kg		
Material	SPCC		
External control interface	Underlying force/position control interface; Robot control API		
	Robot-Controller 3m		
Cable length	Controller power cable 3m		
	Manipulator handle 6m		

PAD Teach Pendant optional	
Teach Pendant	
Weight	
Display Size	



End Effectors

Various end effectors can be quickly switched to match multiple industry applications

Screw fastening





Handling

Polishing

Application Scenarios













Welding

Spraying







Featured with advanced laser SLAM and navigation technology, visual sensing technology, and motion control, M-series provide a Hands-Feet-Eyes integrated control by combining cobot and AMR. It is intelligent to recognize environment and perform precise route planning to ensure that the operation process is accurate and consistent, which can also avoid obstacle and people independently.

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FUNCTIONAL SAFETY HUMAN-ROBOT SHARED SPACE

- Autonomous obstacle avoidance
- Multiple functional safety

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Human-Robot collaboration

PRECISE AND EFFICIENT **INTEGRATED HANDS, FEET, AND EYES**

- Hands (Arm): Agile operations, smooth interaction, easy programming
- Feet (AMR): Rapid mapping, autonomous navigation, obstacle avoidance
- Eyes (2D/3D Vision): Open integration, intelligent recognition, dynamic sensing

CLOUD+ EDGE INTERGRATION ENHANCED MANAGEMENT EFFICIENCY

- Real-time feedback of robot data
- Edge data consolidation
- Cloud data visualization

FLEXIBILITY INTELLIGENT ENVIRONMENT SENSING

- Modular tooling for rapid deployment
- Plug-and-play end effectors
- L-shaped design for more space
- Various communication interfaces, adaptable for extended applications



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Specification				
Model	M5-B	M10-B	M5-L	M10-L
DOF	6	6	6	6
Arm Payload (kg)	5	10	5	10
Reach (mm)	919	1400	919	1400
Arm Weight (kg)	21	37	21	37
Navigation Mode		Laser SLAM navigation, refle	ector navigation	
Drive Mode		Differential drive of	f double wheel	
L*W*H (mm)		1056*692	*750	
Ground Clearance (mm)		30		
Turning Diameter (mm)		1200)	
Total weight (kg)		200		
Mobile Platform Payload kg)	217	233	212	228
Min. Passage Width (mm)		700		
Position Accuracy of Navigation	on (mm)	±5		
Angle Accuracy of Navigation	(°)	±0.5		
Obstacle Clearance Height (m	m)	10		
Gap Width (mm)		30		
Speed (m/s)		<1.5		
Gradeability (°)		5		
Battery (V/Ah)		50		
Running Time (h)		≤8		
Charging Time (10-80%)(h)		≤1.5		
Charging Mode		Manual charging, ba	ttery quick swap	
Wi-Fi		Yes		
Laser Reflector Navigation		Yes		
DO		16		
DI		16		
AO		4		
Al		4		
E-stop Interface		4-OULP	ul	
Ethernet		4 KJ45 EUTET		
Laser Sensor		no r	2	
		yau/p		
Sneeker		Voc		
Status Light		Yes		
		Yes		

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Welding Solutions

SELF-DEVELOPED CORE TECHNOLOGIES, ENHANCING PROGRAMMING EFFICIENCY



- Swing welding: Providing triangular, sinusoidal, circular, and figure-eight swing patterns, allowing adjustment of swing frequency, swing amplitude, left-right dwell time, and other parameters to meet welding seam dimensions and forming requirements.
- Multi-layer, multi-pass welding: For middle thickness plate, as the relevant points of first weld seam have been taught by manual guidance, the remaining points will be calculated according to the offset parameters, which greatly shortens the programming time, and the parameters can be saved and recalled for next operation.
- Stitch welding: Suitable for single-pass fillet welding and stitch weld seams. This process only requires the relevant points of weld seam through manual guidance, and the welding parameters will choose appropriate weld length, gap length and welding sequence, which simplifies programming logic significantly.

INTELLIGENT ALGORITHMS, OPTIMIZING WELDING QUALITY

- Position search: Providing wire/laser position search to ensure the accuracy of repetitive work.
- Seam tracking: Providing arc/laser tracking to ensure great precision and consistency.
- Welding database: The core database offers professional parameters at any time.

ACCESSORY FUNCTIONS ENSURE CONSISTENT WELD QUALITY



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- Fine turning: The parameters such as current, voltage, speed, swing, etc., and also the relative position of welding torch can be adjusted during welding process.
- Weld Resumption: When the program is interrupted due to external interference, it can be resumed from paused place without repeating the previous path.

Product Features





Iodel	QINEO StarT 406
Velding output	20A/15V-400A/34V
0% duty cycle of welding current	400A
00% duty cycle of welding current	350A
Operating voltage	380V-400V/3-phase
Dimensions	1270*765*960 mm

LASER WELDING	
Model	RFL-C2000H
Rated output power	2000W
Working mode	Continuous/Modulated
Modulation frequency	1-5000Hz
Fiber core diameter	50µm
Operating voltage	220±10%VAC、50/60Hz
Dimensions	1270*765*960 mm

Interlocking signals between the welding machine and the robot ensure absolute safety.

Modular welding procedure calling, which can be divided into single-pass welding programs, multi-layer,

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Palletizing Solutions

READY TO USE, RAPID DEPLOYMENT

Plug and play, requiring only power and air supply connections for setup within 30 minutes. meeting fast-paced production without professionals to configure.

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TERMINAL COMPATIBILITY, UNLIMITED CONNECTION

Supporting PC, tablet, and mobile devices to connect and log in directly via the web to teach pendant interface freely.

GRAPHICAL PROCESS KIT, EASY PROGRAMMING

Professional palletizing package with graphical guidance and no-code programming. Complete palletizing program setup with drag teaching, enabling easy programming in just "3 minutes" with "zero experience".

CUSTOMIZABLE STACK PATTERNS, ENSURING STABILITY

Define stack patterns through animated interactions, achieving tighter stacking with leaning palletizing.

MORE FLEXIBILITY, EASY TO MOVE

Compatible with various sizes, weights, and materials of boxes, supporting mixed-size stacking. Easy to move among different production lines, making it ideal for various production and logistics scenarios.

Rapid Palletizing Deployment With Unmatched Speed

Specifications

Model	Co-Palletizer 20 (Fixed)		Co-Palletizer 20 (Elevating)
Payload(kg)		20	
Working Radius		1777.5	
Horizontal Distance(Pallet Size	e)(mm)	1200*1200	
Max. Joint Speed		Axis1/2: 110 °/s Axis3: 150 °/s Axis4/5/6: 180	°/s
Repeatability(mm)		±0.1	
Communication	Analog, Dig	ital, MODBUS RTU, MODBUS TCP,	CAN, RS485
IP Classification		IP54(arm)	
Operating temp.(°C)		0 - 50	
Weight(kg)	270		300
Footprint(mm)		1530*1480	
Rated Voltage(V)		220	
Max. Power Consumption(W)		3000	
Palletizing Speed		8-12/min	
Palletizing Height(mm)	1930		2430
Compatible surfaces		Cardboard, smooth surfaces	



