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New Generation High Performance Collaborative Robots

New Generation Collaborative Robots Fully Enhanced Performance



Cycle Time Improved by 25%



Automatic Brake at Power Outage



Simplistic UI Design













24-way PNP/NPN General Purpose I/O Ports

IP54 Dust & Water Resistance

Dual CPU for Better Safety

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Why Cobots

Why Collaborative Robots?



Quick Deployment

Compact, lightweight and supports upright and inverted installation.



Simple Operation

small batch and flexible production.

Safe Collaboration

Multiple protection features including machine halt before collision and at power outage to work safely with workers without the need for safety fences.



Plug-and-play ecosystem accessories and solutions can greatly lower the cost for automation transformation.

Improved Efficiency

productivity.

Consistent Quality

Cobots are highly reliable and perform repetitive tasks at high accuracy to deliver consistent production quality.













Simple coding allows quick adjustments to be made easily, satisfying the needs for

Workers collaborating with high performance cobots can more than double their

01/02

Key Features









Fast & Efficient

- High performance harmonic drive reducers with high load capacity.
- Highly integrated motor, drive reducer and encoder.
- Modular design allows quick disassembly for easy maintenance.

Accurate & Reliable

- By using the micron-level anti-vibration technology, the robot can stop quickly and stably under high speed operation.
- Optimized DH parameters compensation allows for spot on positioning accuracy.
- TrueMotion function ensures trajectory accuracy during complex curved operations.

Safe for Collaboration

- Dual CPUs monitor the status of robot's position, speed and safety I/O and more.
- Collision detection, SafeSkin and virtual boundaries provide multiple layers of safety.
- The CRA series has 22 safety features built-in and is ISO13849 and TS15066 certified.

Expandable

- Integrated EtherCAT for reliable real-time microsecond response.
- Supports Modbus, Ethernet/IP and Profinet communication.
- Connects seamlessly with industrial automation systems including the PC, PLC, HMI and more.







CRA Series

Highly Adaptive & Flexible Productivity

The CRA series is a new generation of high-performance collaborative robots developed by Dobot. It has improved safety, stability, and scalability thanks to the brand new controller and system software and is much easier to operate. It satisfies the performance required by industrial clients, including speed, accuracy and reliability, allowing more efficient human-machine collaboration in industrial scenarios.



Easy Operation

Intuitive graphical user interface with in-built automation simulation. Control robots with PC, tablets, smartphones, teaching pendant and more. Graphical and script programming are available to accommodate users of diverse background.

Multiple Layers of Protection for Collaboration

The robot has 5 levels of adjustable collision detection settings to meet the safety requirements of different application scenarios. Built-in virtual boundaries to setup operating space. Supports robot halt and deceleration to ensure the safety of nearby workers. With 10-way safety I/O ports, it can meet the needs of most safety control requirements with external devices.

2.5D Vision for Accurate Positioning

Self-developed 2.5D vision positioning feature means that even slanted objects can be picked up accurately. Graphical programming allows users to build solutions quickly. Supports 2D vision feature expansion such as positioning, measurement, detection, and identification.

Electromagnetic Brake Ensures the Safety of Workers and Products

Brakes are auto-engaged 18 ms upon power outage, preventing robotic arms to fall more than 1 mm. No displacement in the case of sudden stops, power on and off.











05/06

Model		CR3A	CR5A	CR7A	CR10A	CR12A	CR16A	CR20A
Weight		16.5 kg	25 kg	24.5 kg	40 kg	39.5 kg	40 kg	70 kg
Payload		3 kg	5 kg	7 kg	10 kg	12 kg	16 kg	20 kg
Working Radius		620 mm	900 mm	800 mm	1300 mm	1200 mm	1000 mm	1700 mm
Maximum Speed of TCP		2 m/s	2 m/s	2 m/s	2 m/s	2 m/s	2 m/s	2 m/s
Range of Motion	J1/J2	± 360°	± 360°	± 360°	± 360°	± 360°	± 360°	± 360°
	J3	± 155°	± 160°	± 160°	± 160°	± 160°	± 160°	± 165°
	J4/J5/J6	± 360°	± 360°	± 360°	± 360°	± 360°	± 360°	± 360°
Maximum Joint Speed	J1/J2	180° /s	180° /s	180° /s	150° /s	150° /s	150° /s	120° /s
	J3	223° /s	180° /s	180° /s	180° /s	180° /s	180°/s	150° /s
	J4/J5/J6	223° /s	223° /s	223° /s	223° /s	223° /s	223° /s	180° /s
End-Effector I/O Interface	DI/DO/AI	2 4						
	RS485	Supported						
Repeatability		± 0.02 mm	± 0.02 mm	± 0.02 mm	± 0.03 mm	± 0.03 mm	± 0.03 mm	± 0.1 mm
IP Rating					IP54			
Noise		70dB(A)						
Temperature Range		0°C ~ 50°C						
Power Consumption		120W	150W	150W	350W	350W	350W	500W
Installation Method		Any						
Cable length from main body to control box		5 m				6 m		
Materials		Aluminum alloy、ABS plastic						

I CRA Series Specifications

I CRA Series Control Box Specifications

Product Name		CC262	CC263			
Control Box Dimensions		345 mm x 345 mm x 145 mm	400 mm x 400 mm x 175 mm			
Weight	AC Version	9.5 kg	15 kg			
	DC Version	8.5 kg	/			
Input Power	AC Version	100 ~ 240V, 47 ~ 63Hz				
	DC Version	30 ~ 60V	/			
I/O Power		24V, Max 3A, Maximum 0.5A for one way				
DI/DO		24 Way (NPN/PNP)				
I/O Ports	AI/AO	2 Way, 0 ~ 10V, 4 ~ 20mA				
Remote On/Off		Supported				
Communication	WAN	2, for TCP/IP, Modbus TCP, Ethernet/IP communication				
	USB	2, for document import and export				
	485 Port	1, for RS485, Modbus RTU communication				
	Encoder	1, for ABZ incremental encoder				
Temperature		0 ~ 50°C				
Environments	Humidity	≤ 95%, Non-condensing				
IP Rating		IP20 (IP54 available upon choice)				
Cooling Method		Fan cooling				
Teaching Method		PC, App (Android/ iOS), teaching pendant				
Compatible Models		CR3A ~ CR16A	CR20A			



Device Dimensions





R = 900 mm



 CR10A









09/10

Device Dimensions

CR12A



R = 1,200 mm



Control Box











CRAS Series

Pre-collision Detection for Efficiency and Safety

The CRAS series is the upgraded version of the CRA series. It has the same characteristics and performance of the CR series, and is further improved by the addition of the SafeSkin for pre-collision detection to achieve better safety and collaboration efficiency. The CRAS series has 3 kg, 5 kg and 10 kg payloads to offer both safety and efficiency to end users.

15 cm Proactive Protection Range

The CRAS series senses obstacles that come within 15 cm, and performs emergency stop or automatic evasion to avoid damages caused by collisions.

10 ms Instant Response Time

Within 0.01 second after sensing obstacles, it automatically activates reaction procedures predetermined by the users, whether it is to stop or evade. The result is a highly responsive and safe interaction.

360° Safety Protection

The SafeSkin is industry's first wearable accessory made of silicon. It is soft on contact to reduce collision impact. With excellent anti-interference characteristics, the SafeSkin's performance is not affected by intermediate materials such as clothes and plastic gloves. It is wrapped around the robotic arm to offer all-round safety protection.

4 Times Efficiency Gains

With fewer collisions and operation halts, humanmachine collaboration speed can be increased to 1 m/s, four times the international standard of 0.25 m/s.





13/14



<u>C</u>m

Accurate Positioning

Self-developed 2.5D spatial compensation technology with an accuracy of ±0.5 mm to identify the height and tilt of objects to deal with complex grabbing tasks. For example, in scenarios such as uneven or inclined surfaces, have AMMR robots can carry out tasks accurately.

Quick Deployment

Compatible with DobotStudioPro robot operation software, with guided steps on operation settings and graphical programming, even users with no prior programming knowledge can complete building solutions easily.



Integrated algorithms to enable object sensing, measurement, text and image identification, fulfilling the majority needs of robotic vision applications.

CRV500 Specifications

Camera				
Sensor Type	CMOS, global shutter			
Pixel Size	3.2 μm × 3.2 μm			
Sensor Size	1/1.7"			
Resolution	2368 × 1760			
Pixel Format	Mono 8			
Color	Black & white			
Components				
Lens Connector	M12 mount, mechanical focusing			
Focal Length	12.4 mm			
Light Source	Light Source 14 LED: White			

Black & White Smart Camera

12 mm lens, 5 Megapixel HD imaging 14 LED for balanced light source

CRV500 2.5D Vision for Accurate Picking

With a built-in high performance vision system and an operating software, anyone can familiarize themselves easily. The vision kit can carry out tasks such as grabbing, assembly, transportation and even loading and unloading.



Dobot+ Open Ecosystem of Accessories

Dobot+ actively cooperates with ecosystem partners to offer various end effector and peripheral accessories to simplify the deployment process while allowing secondary development for different needs.

- Supports over 100 plug-and-play end effectors for quick automation deployment.
- Provides a one-way RS485 port to end effector and control box each, for flexible third-party accessory expansion.
- Provides standard SDK and rich demo source code for efficient project development.

Onrobot

Hex 6 Axis Force Torque Sensor

XJCSENSOR XJC-3F

Adaptive 3-Axis Force Sensor

Grippers



Mobile Platforms







2D/3D Cameras





Force Sensors

Robotiq

Kunwei

Force Sensor

FT 300-S Force Torque Sensor

KWR75B Multi-dimensional





AccuPick 3D

SOLOMON





ATI

Multi-Axis Force

Link-touch

ST Six-Axis Force Sensor

/ Torque Sensors







ROBOTIQ 2F-85 & 2F-140v



ROBOTIQ 2F-85 & 2F-140

OnRobot 3-Finger Gripper



SCHUNK Co-act EGP Series

DH-Robotics PGE Series



DH-Robotics PGC Series



Youibot Trans Mobile Robot



AGILE.X HUNTER 2.0

Solutions

We have developed specially process package software for screwdriving, welding and palletizing. Through simple setups, automation processes can be built. This significantly reduce the amount of time and labor cost needed for project development. These process packages work with ecosystem accessories, users can choose the right accessories for their



Welding Solution

Setup arc/laser welding applications quickly with the welding process package and welding machine.



Deploy in 30 Minutes

Supports Various Arc Patterns



Collision Protection Without Fence



Screwdriving process package and electric screwdriver allow flexible customization of various screwdriving tasks.





Simple Setup, Easy to Familiarize

S^c

AMMR Solution

between multiple stations and inspections.



Palletizing Solution

Complete task building in 2 to 4 hours with plug-and-play accessories and the palletizing process package.







Supports External Light Curtains



Remote Tracking of Live Status





Laser SLAM Navigation



Calibration in 2 Steps

Consistent Quality & Capable Performance

Collaborative robot and AMR work together to carry out tasks such as transportation, loading and unloading



2.5D Vision

Completes Route Planning in 5 Minutes

Diverse Application Scenarios

The CRA series has 3 kg, 5 kg 10 kg, 12 kg, 16 kg and 20 kg payloads to offer both safety and efficiency to end users. Covers over 15 major industries including consumer electronics, automotive, semiconductor, food & beverage, chemical, healthcare and retail.



PCB Board Loading & Unloading



PCB Board Burn-in Transportation



Semiconductor Plastic Packaging Loading and Unloading



Automotive Parts Assembly





Loading & Unloading CNC Machine Tools (SafeSkin)



Metal Workpieces Processing







Inspection of Dangerous Chemicals



Robot Noodle Store



Laptop Back Case Polishing, Loading & Unloading



Automotive Oil Pipe Joint Installation



Electronic Parts Inspection

Gearbox Screwdriving



Windshield Gluing



Automotive Joint Sealing Ring Installation



Energy Storage Screwdriving



Loading & Unloading New Energy Battery



















Machine Tools Loading & Unloading



Loading & Unloading by AMMR



Depalletize Plastic Bottles



Loading & Unloading Plastic Caps



Inspection of Toilet Bowls



Eyeglasses Polishing



Latte Art Coffee Stand



Laboratory Assistant