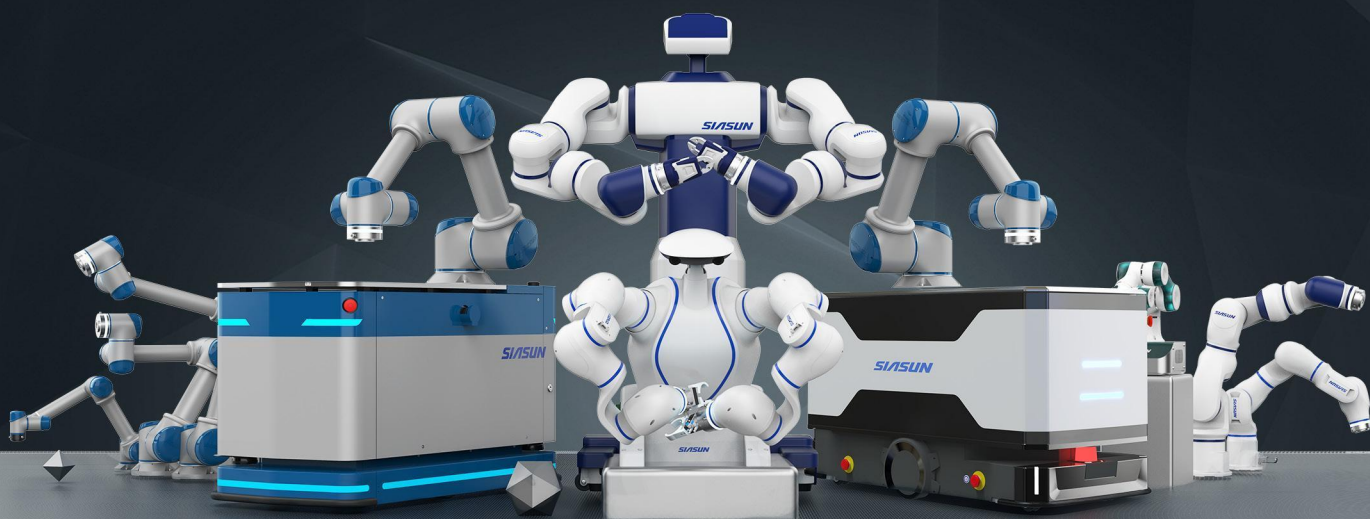


DUCO®多可® 智能机器人

INTELLIGENCE COLLABORATES ROBOTS WITH MORE

协手智能，更多可能



新松多可®智能机器人产品样册

SIASUN DUCO® Intelligent Robot Product Sample Book

中国，上海

Shanghai, China

09
2021

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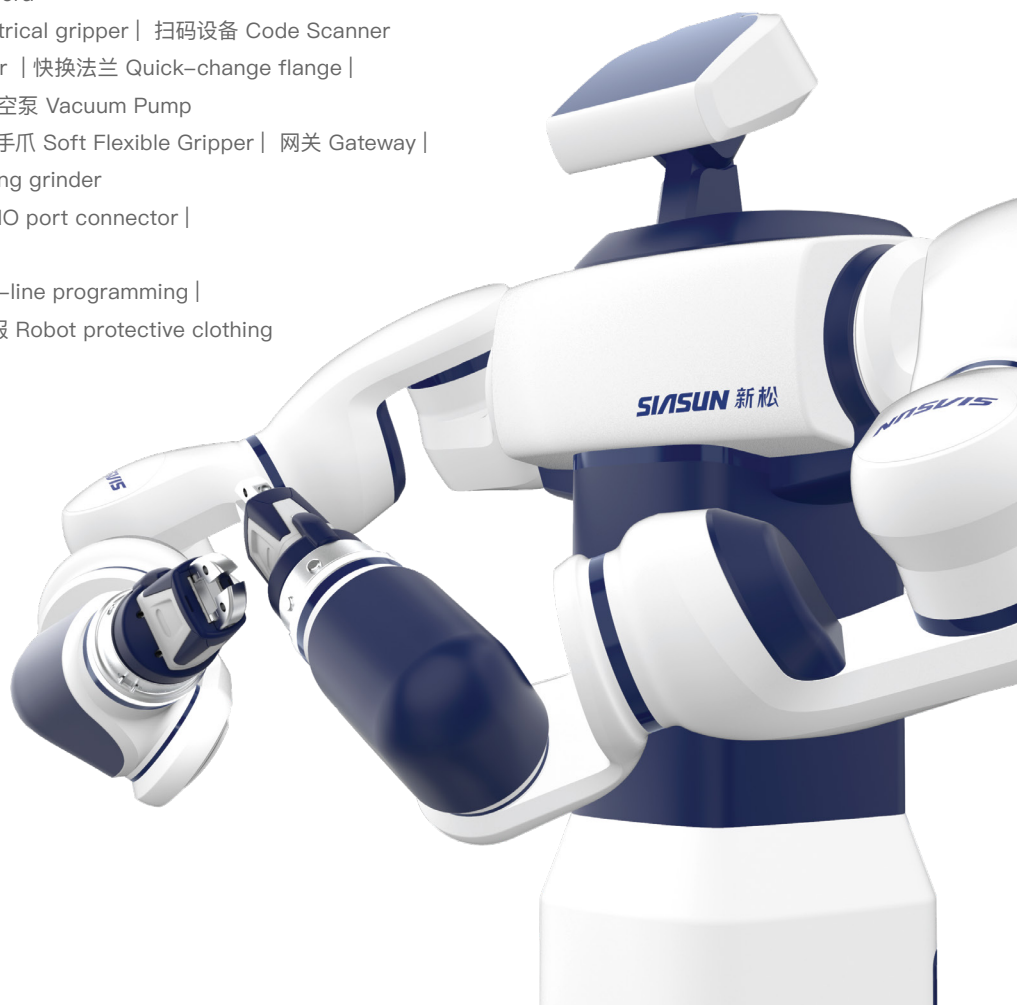
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GCR Series Cobot

GCR系列协作机器人

此系列包括GCR3-620、GCR5-910、GCR10-1300、GCR14-1400和GCR20-1100五款协作机器人产品，负载与工作半径的显著优势使其能够适应更广泛的应用需求，同时具有安全、易于操作、快速部署、低功耗等协作机器人特性。

There are five types of 6-axis cobot: GCR3-620, GCR5-910, GCR10-1300, GCR14-1400, GCR20-1100. With significant advantages—higher payload and working range, and features of cobot such as collaborative safety, easy-to-use and energy-saving, these robots can adapt to more application needs.

产品特性 | PRODUCT FEATURES



碰撞检测功能，人机协同作业，更安全

Safer: Collision Detection Function enables Human Robot Collaboration.



负载3kg-20kg，工作半径620mm-1400mm，应用更广泛

Widely Applied: Payload 3kg-20kg, Working Range 620mm-1400mm.



拖拽示教式编程，降低使用门槛，易操控

Easier-to-use: With Traction Teach Programming, Less limitation to robot user.



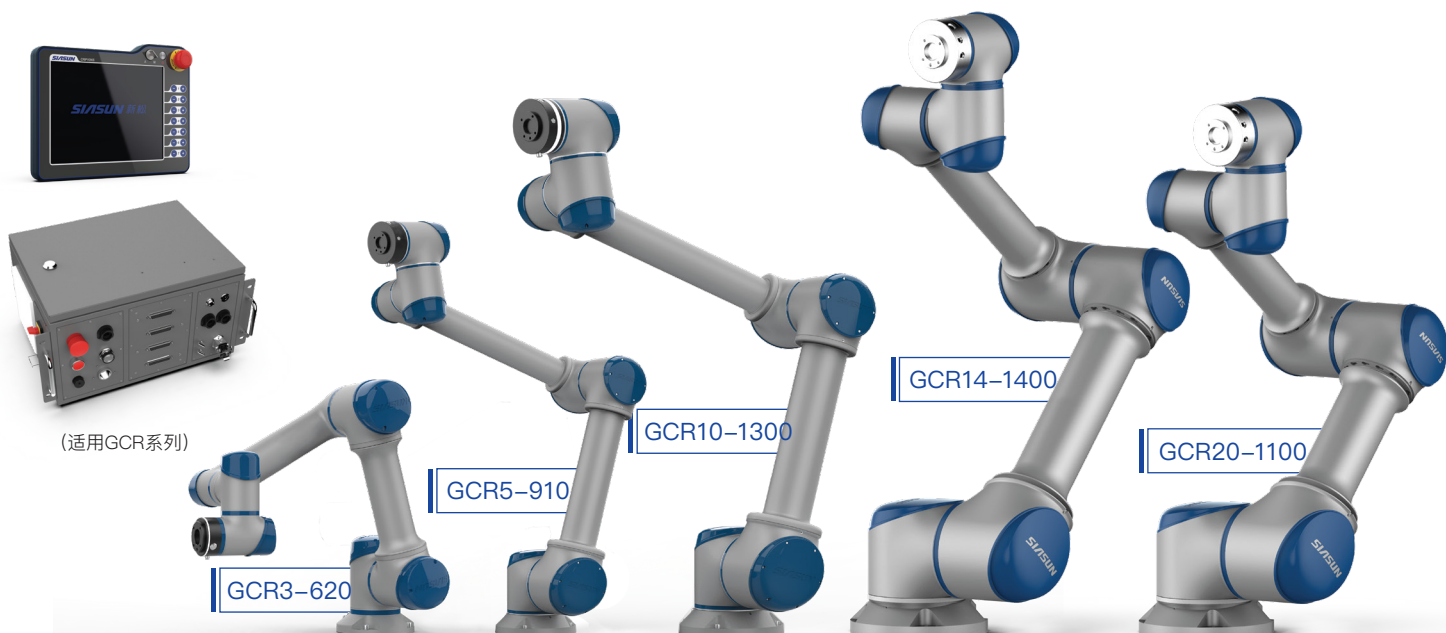
轻量化设计，可快速部署并适应产线，更高效

Lightweight & Space-saving: Can be quickly deployed and redeployed to adapt to production line changes.




机体可防静电ESD，更好地满足特定行业需求

ESD Antistatic: Better meet the demands of specific industries.



技术参数 | TECHNICAL PARAMETERS

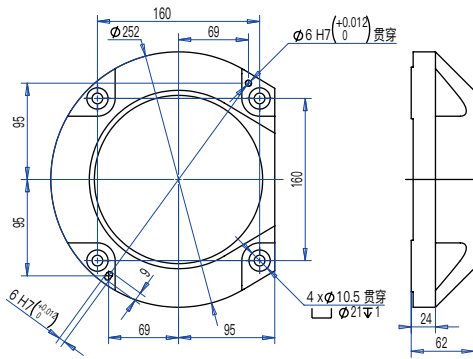


		GCR3-620	GCR5-910	GCR10-1300	GCR14-1400	GCR20-1100	
最大负载 Max Payload		3kg	5kg	10kg	14kg	20kg (22kg*1)	
自由度 Degrees of Freedom		6	6	6	6	6	
末端最大速度 Max TCP Speed		1m/s	3.6m/s	3.8m/s	2.2m/s	2m/s	
末端最大直线速度 Max Straight-line Speed		0.8m/s	1.5m/s	1.5m/s	1.0m/s	1.0m/s	
有效工作半径 Reach		620mm	917mm	1300mm	1400mm	1100mm	
重复定位精度 Repeatability		±0.02mm	±0.03mm	±0.05mm	±0.05mm	±0.05mm	
	关节 Joint	运动范围 Range	最大速度 Max Speed				
	J6	±360°	360°/s	225°/s	225°/s	160°/s	160°/s
	J5	±360°	360°/s	225°/s	225°/s	160°/s	160°/s
	J4	±360°	360°/s	225°/s	225°/s	160°/s	160°/s
	J3	±360°	225°/s	225°/s	225°/s	120°/s	120°/s
	J2	±360°	225°/s	225°/s	180°/s	120°/s	120°/s
	J1	±360°	225°/s	225°/s	180°/s	120°/s	120°/s
工具接口 Tool Interface		GB/T 14468.1-50-4-M6 (eqv ISO 9409-1)					
I/O	控制柜 Control Box I/O	16 Dig I/O, 24V, 0.5A	14 Dig I/O, 24V, 0.5A	16 Dig I/O, 24V, 0.5A	14 Dig I/O, 24V, 0.5A	14 Dig I/O, 24V, 0.5A	
	末端 End Joint I/O	2 Dig I/O, 24V, 0.6A	2 Dig I/O, 24V, 1A	2 Dig I/O, 24V, 0.6A	2 Dig I/O, 24V, 1A	2 Dig I/O, 24V, 1A	
电源 Power Supply		230VAC(-15%~+10%), 50-60Hz					
功耗 Power Consumption		典型工况约200W Typical Power Consumption 200W	典型工况约400W Typical Power Consumption 400W	典型工况约600W Typical Power Consumption 600W			
机器人外形尺寸 Robot Dimensions		778x315x150mm	1100x330x200mm	1512x388x205mm	1640x420x290mm	1320x420x290mm	
控制柜尺寸 Control Box Size		500x345x275mm	530x480x180mm	500x345x275mm	540x520x225mm	540x520x225mm	
安装方式 Installation		置地式、倒挂式、悬臂式 Installed in any Direction					
环境温度 Ambient Temperature Range		0°C~45°C	-10°C~45°C	-10°C~45°C	-10°C~45°C	-10°C~45°C	
存储温度 Storage Temperature Range		-40°C~55°C	-40°C~55°C	-40°C~55°C	-40°C~55°C	-40°C~55°C	
IP等级 IP Class		IP54	IP54	IP54	IP54	IP54	
通讯方式 Communication Protocol		TCP/IP, MODBUS/TCP, Profinet, EtherCAT, CAN, 485支持多种通讯协议拓展 Support Various Communication Protocols Expansion					
机器人包装尺寸 Robot Package Size		526x325x416mm	698x588x450mm	952x509x516mm	985x550x725mm	985x550x725mm	
净重/毛重 Net/Gross Weight		11.6kg/22kg	22kg/33kg	37.8kg/50kg	56kg/70kg	55kg/69kg	
控制系统包装 Control System Package Size		621x391x556mm	698x588x450mm	608x534x500mm	985x550x725mm	985x550x725mm	
净重/毛重 Net/Gross Weight		17kg/28kg	24kg/34kg	18.6kg/30kg	31kg/52kg	31kg/52kg	

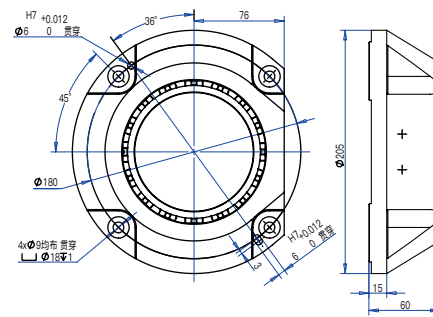
*1.在一定工况下, 机器人负载可以达到22kg, 如负载有需要提高至此, 请联系我们。

*1. On certain conditions, Robot max payload is able to be 22kg, please contact us if needed.

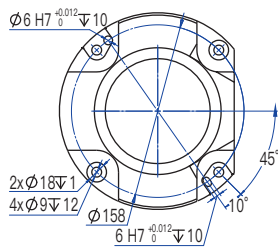
底座法兰 | BASE FLANGE



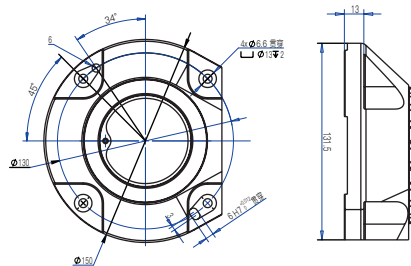
GCR20-1100 / GCR14-1400



GCR10-1300

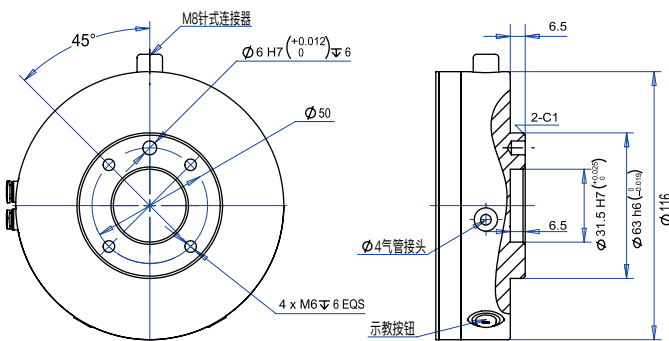


GCR5-910

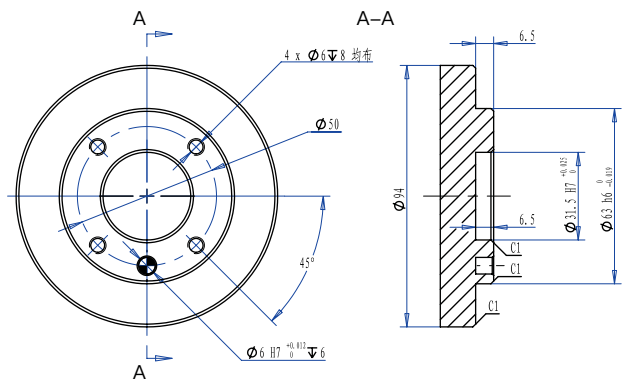


GCR3-620

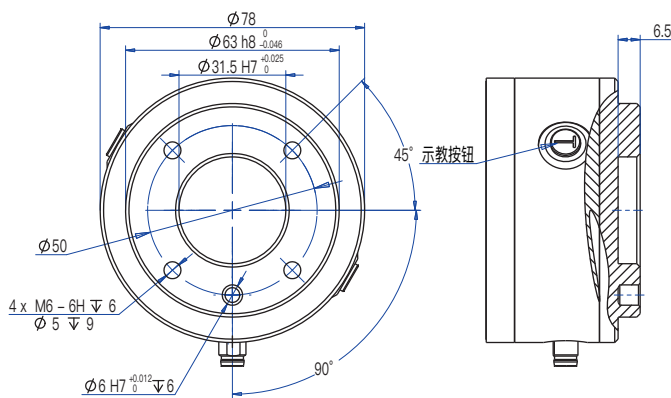
工具法兰 | TOOL FLANGE



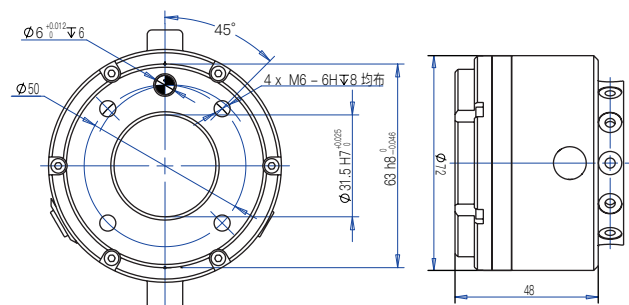
GCR20-1100 / GCR14-1400



GCR10-1300

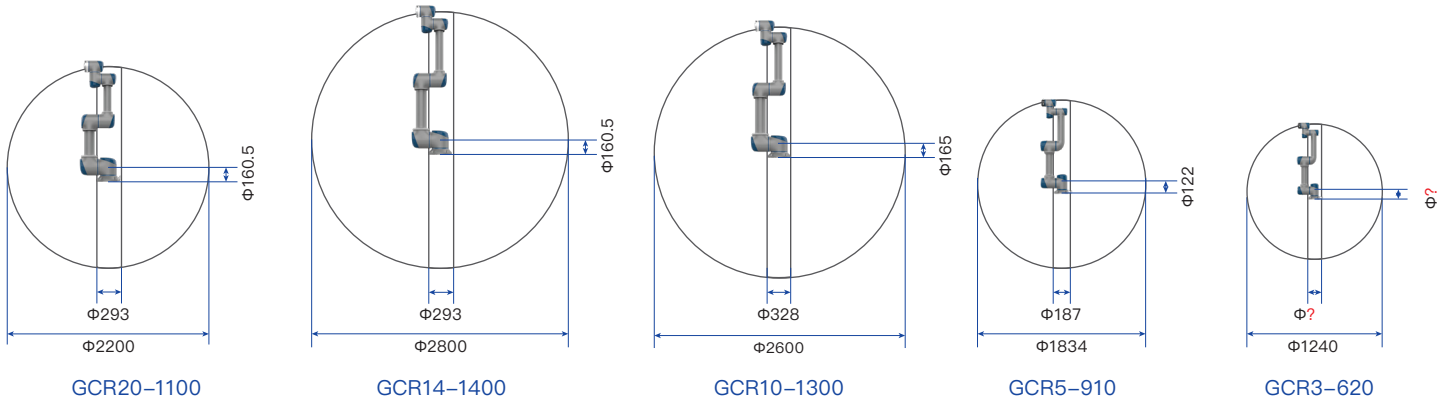


GCR5-910

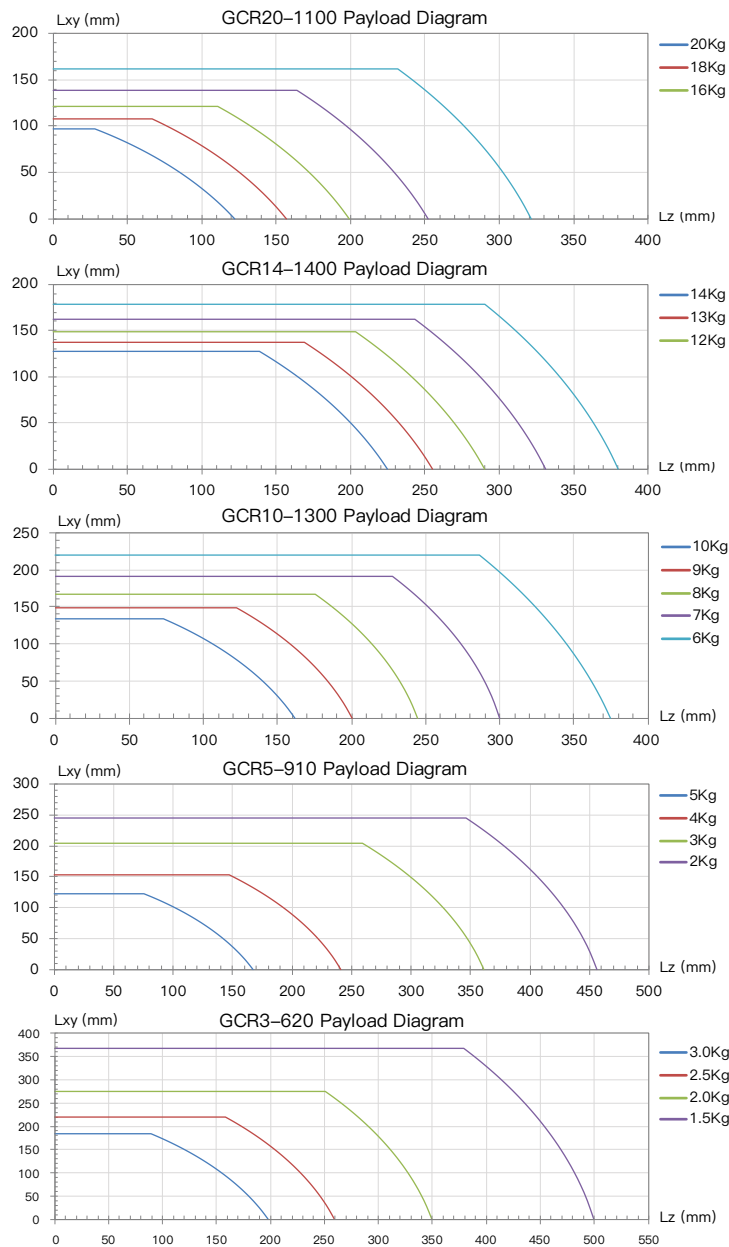


GCR3-620

工作空间 | WORKSPACE



负载曲线 | PAYLOAD DIAGRAM



SCR Series Cobot

SCR系列协作机器人

SCR系列协作机器人具备快速配置、拖拽示教、碰撞检测等功能，适用于布局紧凑、精准度高的柔性化生产线，满足精密装配、产品包装、打磨、检测、机床上下料等工业操作需要。其高灵活性、高精度和高安全性的产品特征，将开拓新的工业生产方式，步入人机协作新时代。

SCR series Cobot has various functions such as rapid deployment, traction teaching and collision detection. It is particularly suitable for flexible production lines with compact layout and high precision to conduct precision assembly, product packaging, polishing, testing, machine loading and unloading and other industrial operations. SIASUN Collaborative Robot, with its high flexibility, precision, and safety, will open up a brand new way of industrial production and lead the new era of human-machine collaboration.

产品特性 | PRODUCT FEATURES



七自由度，丰富姿态适应狭小空间，更灵活

More Flexible: With 7 degrees of freedom, the robot can work well in compact space.



碰撞检测功能，人机协同作业，更安全

Safer: Collision Detection Function enables Human Robot Collaboration.



拖拽示教式编程，降低使用门槛，易操控

Easier-to-use: With Traction Teach Programming, Less limitation to robot user.



重复定位精度 $\pm 0.02\text{mm}$ ，更可靠

More Accurate: Repeatability up to $\pm 0.02\text{mm}$.



能耗低至250W，低碳更经济

Economic Efficient: Power Consumption 250W




技术参数 | TECHNICAL PARAMETERS



SCR3



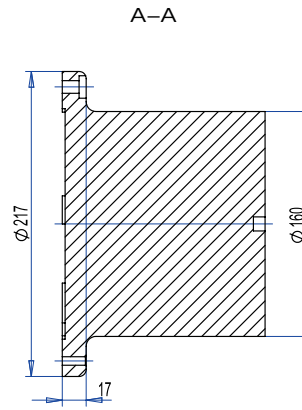
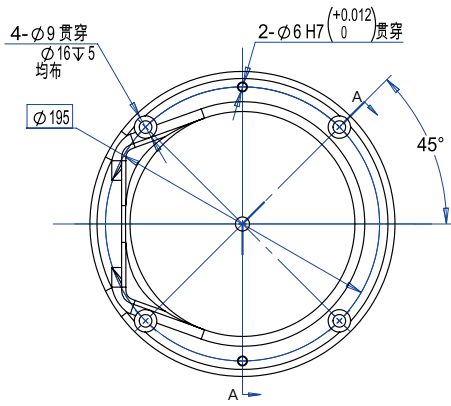
SCR5

		SCR3	SCR5		
最大负载 Max Payload		3kg	5kg (5.5kg*1)		
自由度 Degrees of Freedom		7	7		
末端最大速度 Max TCP Speed		2.5m/s	2.0m/s		
末端最大直线速度 Max Straight-line Speed		1.0m/s	1.0m/s		
	关节 Joint	运动范围 Range	最大速度 Max Speed	运动范围 Range	最大速度 Max Speed
	J7	无限旋转 infinite rotating	180°/s	±180°	180°/s
	J6	±120°	180°/s	±110°	180°/s
	J5	±180°	180°/s	±180°	180°/s
	J4	±120°	180°/s	±115°	180°/s
	J3	±180°	180°/s	±180°	180°/s
	J2	±115°	180°/s	±105°	120°/s
J1	±180°	180°/s	±180°	120°/s	
有效工作半径 Reach		600mm	800mm		
重复定位精度 Repeatability		±0.02mm (GB/T 12642-2013 eqv ISO 9283)	±0.02mm (GB/T 12642-2013 eqv ISO 9283)		
工具接口 Tool Interface		GB/T 14468.1-50-4-M6 (eqv ISO 9409-1)	GB/T 14468.1-50-4-M6 (eqv ISO 9409-1)		
I/O	控制柜 Control Box I/O	14 Dig I/O, 24V, 0.5A	14 Dig I/O, 24V, 0.5A		
	末端 End Joint I/O	2 Dig I/O, 24V, 1A	2 Dig I/O, 24V, 1A		
电源 Power Supply		230VAC(-15%~+10%), 50-60Hz	230VAC(-15%~+10%), 50-60Hz		
功耗 Power Consumption		典型工况约 250W Typical Power Consumption 250W	典型工况约 400W Typical Power Consumption 400W		
机器人外形尺寸 Robot Dimensions		1035mm x 232mm x 202 mm	1285mm x 220mm x 240 mm		
控制柜尺寸 Control Box Size		530mmx480mmx180mm	530mm x 480mm x 180mm		
安装方式 Installation		置地式、倒挂式、悬臂式 Installed in any Direction	置地式、倒挂式、悬臂式 Installed in any Direction		
环境温度 Ambient Temperature Range		-10°C ~45°C	-10 °C ~45°C		
存储温度 Storage Temperature Range		-40°C ~55°C	-40°C ~55°C		
IP等级 IP Class		IP54	IP54		
噪声 Noise		≤ 75dB(A)	≤ 75dB(A)		
通讯方式 Communication Protocol		TCP/IP, MODBUS/TCP,支持多种通讯协议拓展 Support Various Communication Protocols Expansion			
机器人包装尺寸 Robot Package Size 净重/毛重 Net/Gross Weight		尺寸Size: 735mm x 635mm x 350mm 净重/毛重Net/Gross Weight: 21.8kg/28kg	尺寸Size: 735mm x 635mm x 350mm 净重/毛重Net/Gross Weight: 33.8kg/40kg		
控制系统包装 Control System Package Size 净重/毛重Net/Gross Weight		尺寸Size: 698 x 588 x 450mm 净重/毛重 Net/Gross Weight: 24kg/34kg	尺寸Size: 698 x 588 x 450mm 净重/毛重 Net/Gross Weight: 24kg/33kg		

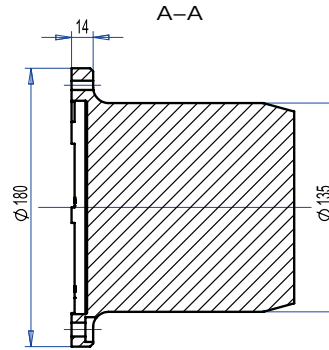
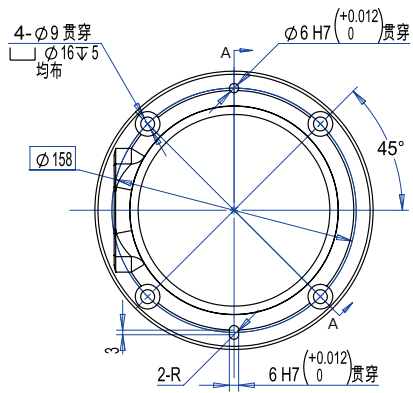
*1.在一定工况下,机器人负载可以达到5.5kg,如负载有需要提高至此,请联系我们。
*1.On certain conditions,Robot max payload is able to be 5.5kg, please contact us if needed.

底座法兰 | BASE FLANGE

SCR5

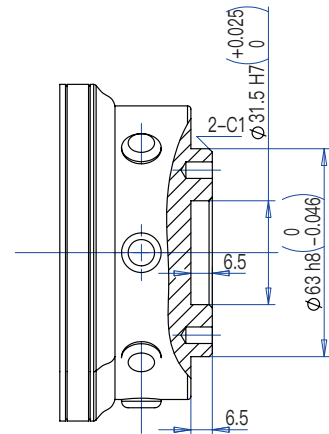
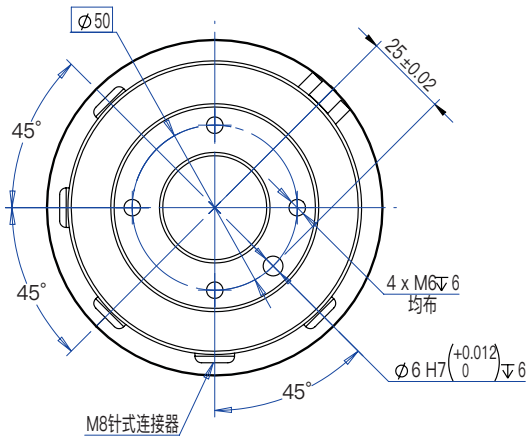


SCR3

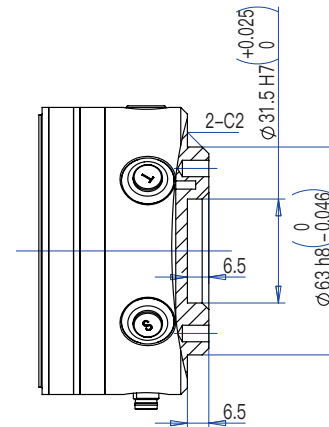
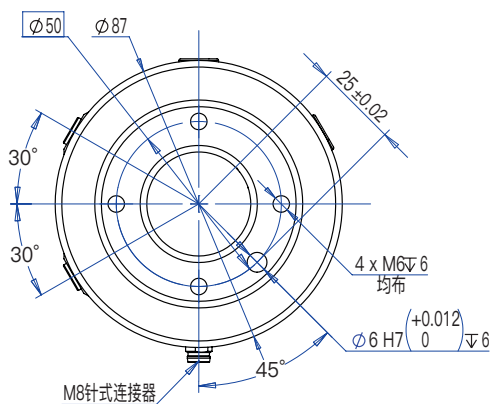


工具法兰 | TOOL FLANGE

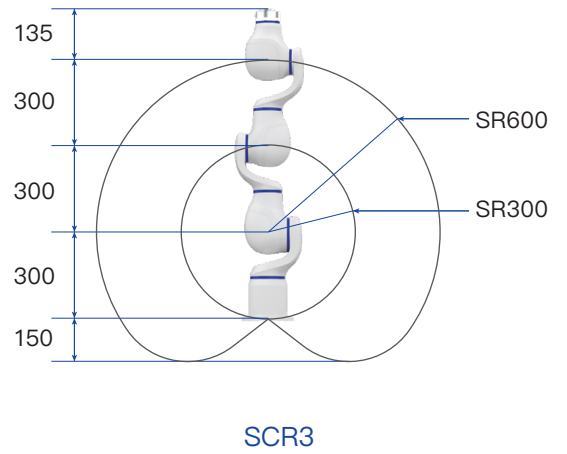
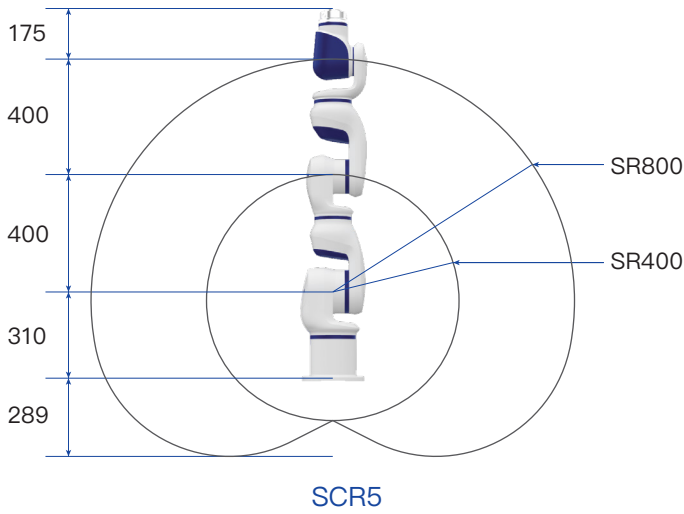
SCR5



SCR3

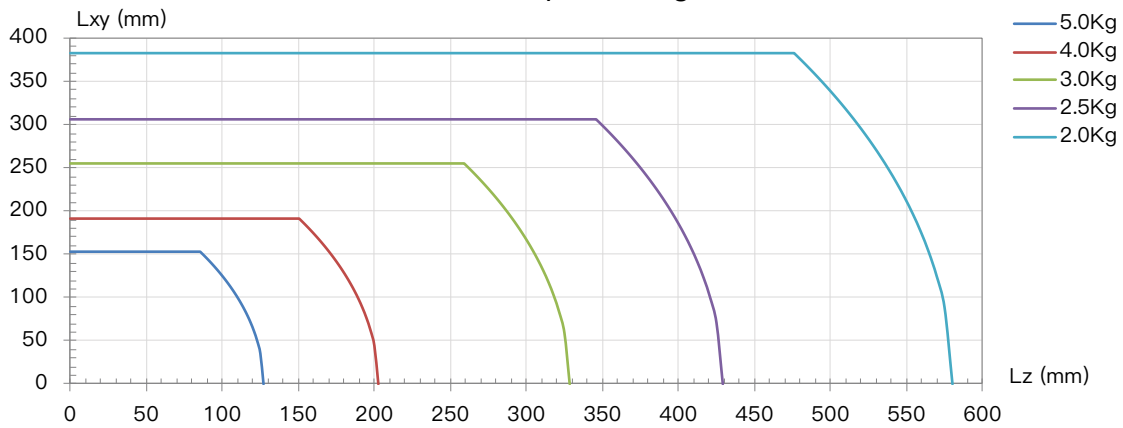


工作空间 | WORKSPACE

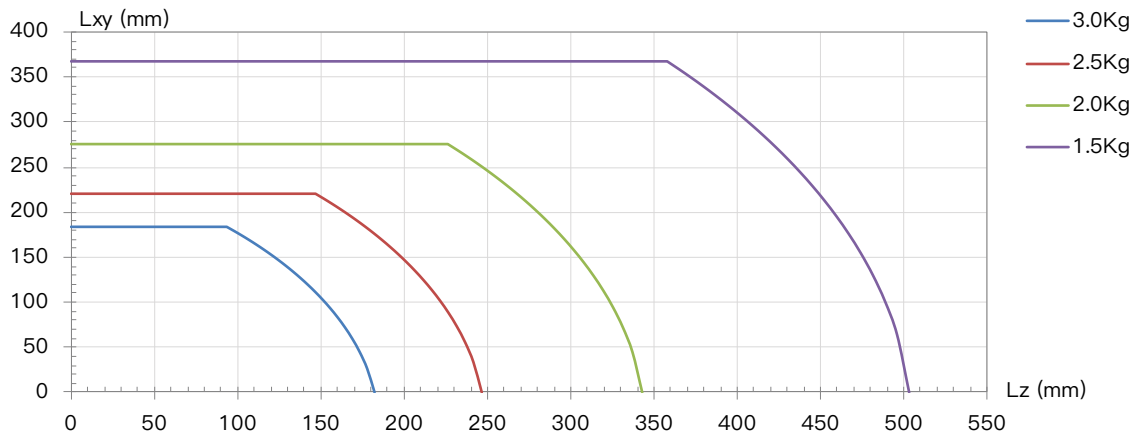


负载曲线 | PAYLOAD DIAGRAM

SCR5 Payload Diagram



SCR3 Payload Diagram



Dual Arm Cobot

双臂协作机器人

DSCR系列双臂协作机器人具有高灵活性、安全性、快速配置等特点，具备实时深度信息和三维重构功能。能够为用户提供快速、安全、灵活、精准、高效的旋拧、定位等全套装配作业解决方案，更加集成化、柔性化，并可以为用户提供更加自由、开放的开发环境。

DSCR series Dual Arm Cobot is featured with high flexibility, extreme safety, rapid deployment. It provides an overall solution for assembling by fast, safe, agile, accurate, and highly efficient positioning and operation, which also provides a better develop environment with more freedom and possibility for users.

产品特性 | PRODUCT FEATURES



集成2个机器人,双臂可协同作业, 更智能

More intelligent: Two integrated robots can work collaboratively.



碰撞检测功能, 人机协同作业, 更安全

Safer: Collision Detection Function enables Human Robot Collaboration.



拖拽示教式编程, 降低使用门槛, 易操控

Easier-to-use: With Traction Teach Programming, Less limitation to robot user.



一体化设计, 内置控制柜, 美观紧凑

Attractive and Compact Design: The robot is integrated designed with built-in control box.



重复定位精度 $\pm 0.02\text{mm}$, 更可靠

More Accurate: Repeatability up to $\pm 0.02\text{mm}$.



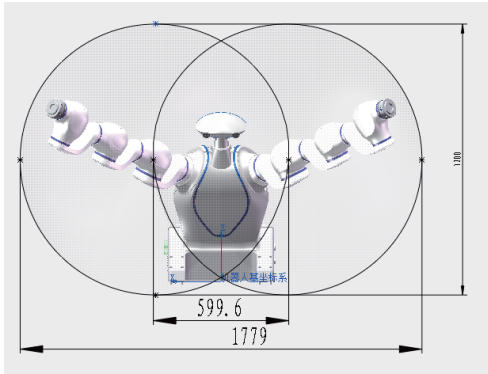


DSCR3

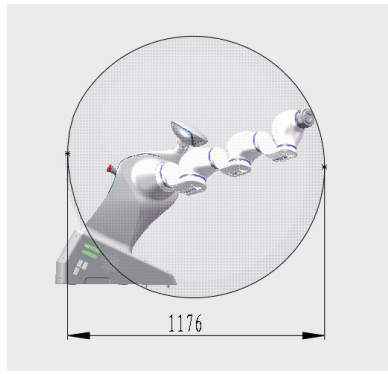


DSCR5

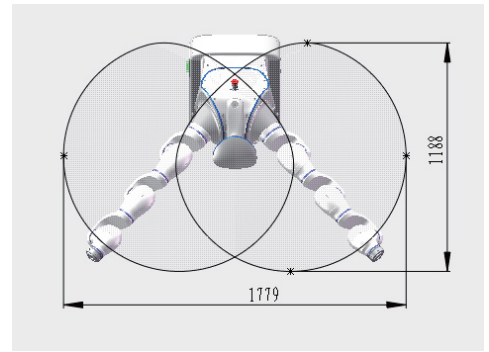
最大负载 Max Payload	6kg (3kg x 2)			10kg (5kg x 2)		
自由度 Degrees of Freedom	单臂7 x 2, 头部2, 头部选配 Each arm 7 x 2, Head 2, Head is optional			单臂7 x 2, 头部2, 头部选配 Each arm 7 x 2, Head 2, Head is optional		
末端最大直线速度 Max Straight-line Speed	1.0m/s			1.0m/s		
	关节 Joint	运动范围 Range	最大速度 Max Speed	运动范围 Range	最大速度 Max Speed	
	J7	±180°	180°/s	±180°	180°/s	
	J6	±120°	180°/s	±110°	180°/s	
	J5	±180°	180°/s	±180°	180°/s	
	J4	±120°	180°/s	±115°	180°/s	
	J3	±180°	180°/s	±180°	180°/s	
	J2	±115°	180°/s	±105°	120°/s	
J1	±180°	180°/s	±180°	120°/s		
有效工作半径 Reach	600mm x 2			800mm x 2		
重复定位精度 Repeatability	±0.02mm			±0.02mm		
工具接口 Tool Interface	GB/T 14468.1-50-4-M6 (eqv ISO 9409-1)			GB/T 14468.1-50-4-M6 (eqv ISO 9409-1)		
单臂末端I/O Tool I/O of Each Arm	2 Dig I/O, 24V, 1A			2 Dig I/O, 24V, 1A		
电源 Power Supply	230VAC(-15%~+10%), 50-60Hz			230VAC(-15%~+10%), 50-60Hz		
功耗 Power Consumption	典型工况约 500W Typical Power Consumption 500W			典型工况约 800W Typical Power Consumption 800W		
单臂外形尺寸 Each Arm Robot Dimensions	1035mm x 232mm x 202 mm			1285mm x 220mm x 240 mm		
控制系统 Control System	集成在机器人内部 Built-in Control System			集成在机器人内部 Built-in Control System		
安装方式 Installation	桌面安装 Desktop installation			可移动式 Moveable		
环境温度 Ambient Temperature Range	0°C~45°C			0°C~45°C		
存储温度 Storage Temperature Range	-40°C~55°C			-40°C~55°C		
IP等级 IP Class	IP30			IP30		
噪声 Noise	≤ 75dB(A)			≤ 75dB(A)		
包装信息 Package Information	尺寸Size:1200mm x 1000mm x 1040mm(L x W x H) 净重/毛重 Net/Gross Weight:70kg/100kg			尺寸Size:1100mm x 1100mm x 1900mm(L x W x H) 净重/毛重 Net/Gross Weight:200kg/250kg		



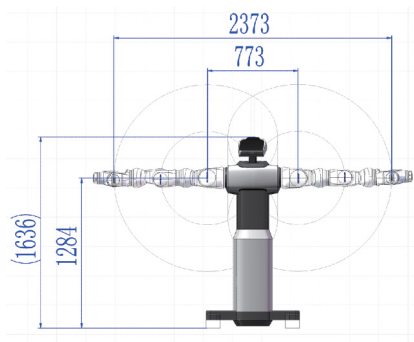
前视图 Front View



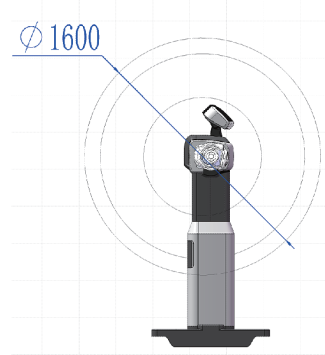
侧视图 Side View



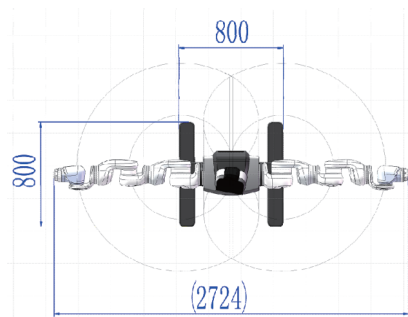
俯视图 Top View



前视图 Front View



侧视图 Side View



俯视图 Top View



轴视图 Axis View

TCR Table-top Collaborative Robot

TCR桌面式协作机器人

TCR桌面级协作机器人自重轻、负载小0.5~1kg、臂展范围300~500mm, 更适宜桌面级机器人工作任务。

TCR Table-top collaborative robot has the features of light weight, payload 0.5~1kg, reach 300~500mm and is particularly suitable for table-top tasks.

产品特性 | PRODUCT FEATURES

-  多彩外观可定制
Colorful appearance available for customization
-  人性化网页版操作系统, 尽享人机协作乐趣
User-friendly Web UI system, enjoyable for human-robot collaboration
-  重复定位精度 $\pm 0.05\text{mm}$, 工作轨迹更加精准、流畅
Repeatability up to $\pm 0.05\text{mm}$, Working path is more precise and smoother
-  接口丰富, 满足工业、教育等多种行业应用需求
With various interfaces, able to be applied in industry and education
-  碰撞检测, 灵敏度可调
Collision Detection, Sensitivity adjustable



技术参数 | TECHNICAL PARAMETERS



TCR0.5/TCR1

最大负载 Max Payload	0.5~1kg
自由度 Degrees of Freedom	6
工作空间 Reach	300mm ~500mm
末端最大速度 Max TCP Speed	0.8m/s
重量 (机械臂) Weight	5kg~6.8kg
重复定位精度 Repeatability	±0.05mm (GB/T 12642-2013 eqv ISO 9283)
工具接口 Tool Interface	GB/T 14468.1-50-4-M3 (eqv ISO 9409-1)
电源 Power Supply	230VAC (-15%~+10%), 50-60Hz
功耗 Power Consumption	典型工况约100W Typical work condition 100W
环境温度 Ambient Temperature	0°C ~ 45°C
噪声 Noise	≤75dB(A)



多可®智能移动机器人系列

DUCO® Autonomous Mobile Robot

Standard

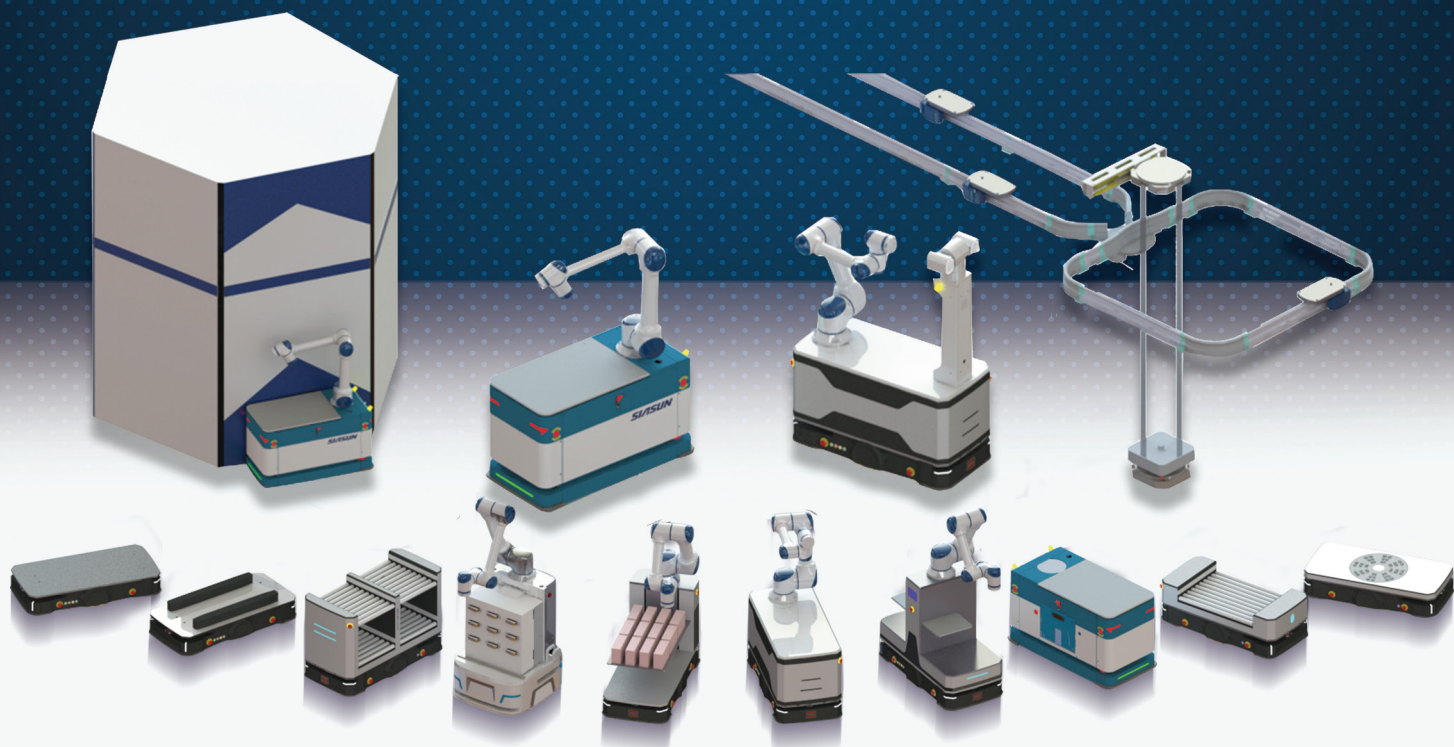
移动、搬运、操作机器人

核心产品：AMR|ARV|OHS|STOCKER|OHT|RGV|LIFT

AMHS

引领工厂物流变革

AMHS(Automated Material Handling System)



Hybrid Cobot

全新复合机器人

该系列产品融合了新松强大的移动机器人(AGV)调度系统, 配备完善的安全系统及模块化的工装配件, 同时具备新松协作机器人操作简便与安全的多重优势, 使用户的现场应用过程大幅度简化, 极大地提升了用户使用的经济性。

With a strong SIASUN AGV Dispatching System, this series can operate from both sides of the vehicle. This series combine perfect safety devices and modularized tray/fixture, together with various advantages of Cobot such as easy-to-use and safety, it makes deployment much simple and dramatically improves economic efficiency for our end users.

产品特性 | PRODUCT FEATURES



灵活部署&环境普适性强

Flexible deployment&The environment is universal

SLAM导航/二维码, 智能自建地图

SLAM navigation/QR code, intelligent self-built maps

最大过缝30mm, 越障10mm, 支持爬越3°/5°坡度

The maximum seam is 30mm and the barrier crossing is 10mm. It supports climbing 3°/5° slope



全面升级&安全保障

All-round upgrade&Safety guarantee

急停开关4个 4 emergency stop switches

CE安全认证 CE safety certification

SEMI认证 SEMI certification

360°激光避障 360° laser obstacle avoidance

空域激光防护 Airspace laser protection

力碰撞检测 Force collision detection

转向、状态提示 Steering, status prompts



高综合性能

High comprehensive performance

车体定位精度±10mm, 末端综合抓取精度±0.5mm

Positioning accuracy of car body ±10mm, grasping accuracy ±0.5mm

20kg最大抓取负载, 300kg有效负载

Maximum grab load of 20kg, payload of 300kg

支持多样化平台拓展

Support the expansion of diversified platforms

大容量电池, 支持自动换电, 24小时持续运行

Large capacity battery, support automatic power change, 24 hours continuous operation

满足class5/class6洁净等级要求

Meet the class5/class6 cleanliness requirements

HC-X1



技术参数 | TECHNICAL PARAMETERS

基本参数 Basic parameter	尺寸 (长x宽x高) Dimensions(LxWxH)	1280 x 700 x 730mm
	负载台板尺寸 (长x宽) Size of load table (LxW)	865x600mm
	重量 Weight	450kg
	最大负载 Maximum load	300kg
导航性能 Navigation performance	导航方式 Navigate mode	SLAM/二维码 SLAM/QR code
	定位精度 Positional accuracy	±10mm位置精度, ±1°角度精度 ±10mm position accuracy, ±1° Angle accuracy
	路径规划 Route planning	虚拟循迹/自主规划 Virtual Tracing/Autonomous Planning
移动性能 Mobility performance	驱动方式 Drive mode	双轮差速 The double differential
	导航速度 Speed of navigation	前进1.2m/s, 后退1.2m/s, 转弯0.3m/s Forward1.2m/s, back1.2m/s, turn0.3m/s
	最大自旋速度 Maximum spin speed	60°/s
	自旋半径 Radius of the spin	690mm
	转弯半径 Radius of turning circle	默认设置500mm The default setting is 500mm
	行走通道宽度 Width of walking channel	≥800mm
	回转通道宽度 Turning channel width	≥1100mm
	越障高度 The barrier height	10mm
	过缝宽度 Across the width	30mm
	爬坡能力 Climbing ability	3°/ 5°
安全防护 Safety protection	安全激光传感器 Safety laser sensor	2个, 位于底部前、后对角, 检测距离40m, 综合检测360° Two, located at the front and back angles of the bottom, the detection distance is 40m, and the comprehensive detection is 360°
	紧急停止按钮 Emergency stop button	支持, 左右面板各2 Support, left and right panels 2 each
	安全触边传感器 Safety contact edge sensor	支持, 前后底部面板各1 Support, front and rear bottom panels 1 each
	状态指示灯 Status indicator lamp	支持, 前后底部面板各1 Support, front and rear bottom panels 1 each
	转向指示灯 Direction indicator lamp	支持, 前后底部面板各2 Support, front and rear bottom panels 2 each
电池性能 Battery performance	容量 Capacity	标称容量72Ah Nominal capacity 72Ah
	运行时间 Elapsed Time	≥8h (额定工况连续运行) ≥8h (Continuous operation under rated conditions)
	充电时间 Charging time	≤2h
	电池组寿命 Battery life	≥1500个充电周期 (电池组标称值) ≥1500 charging cycles (nominal value of battery pack)
	充电方式 Charge mode	手动快换/自动换电/在线充电 Manual quick change/automatic power change/online charging
选配组件 Optional components	机械臂 Robot arm	GCR5-910 (负载5kg) (Load 5 kg) GCR14-1400 (负载14kg) (Load 14 kg) GCR20-1100 (负载20kg) (Load 20 kg)
	充、换电 Change、Replace battery	自动换电站 Automatic power changing station 手动换电小车 Manual electricity changing trolley 在线侧充 Online side charging
	气源 Air supply	空压机、储气罐等 Air compressor, air tank, etc.

Autonomous Mobile Robot (AMR)

移动机器人平台

X系列移动平台以多行业需求进行标准化设计，超低车身高度，具备极强的拓展性能，融合了新松自主调度系统，配备完善的安全模块化工装配件，可广泛运用于半导体、物流、仓储、传统制造业等行业。

X series AMR is designed in a standardized way according to the needs of many industries, with ultra-low body height, strong expansion performance, integrated Xinsong autonomous dispatching system and perfect safety modular tooling accessories, which can be widely used in semiconductor, logistics, warehousing, traditional manufacturing and other industries.

产品特性 | PRODUCT FEATURES



混合导航 Hybrid navigation

兼顾实施效率与精确定位
Both implementation efficiency and precise positioning
常规环境采用自然轮廓
Natural contours are used in conventional environments
精确定位采用反光柱或二维码
Precise positioning with reflector or QR code



开放式控制器 Open controller

便于进行二次开发订制
Convenient for secondary development and customization
便于工程类电气工程师快速进行程序开发
Convenient for Engineering Electrical Engineer rapid program development
结构化文本 (ST)、顺序功能图 (SFC)、功能块图 (FBD)、梯形图 (LD)
Structured text, Sequential function chart, Function block diagram, Ladder diagram



稳定轮系 Stable wheel train

六轮始终与地面接触
The six wheels are always in contact with the ground
三角形区域内工作稳定
Stable operation in triangular area
更适宜的拓展组合产品
More suitable product extension



安全可靠 Safe and reliable

CE认证: EN ISO 12100:2010; EN 1175: 2020; ISO 3691-4:2020 CE-MD
SEMI认证: SEMI S2-0818; SEMI S8-0218; SEMI S17-0319; EN 60204-33
重点评估: 人员安全、物料安全、设备使用安全
Key assessment: personnel safety, material safety and equipment use safety

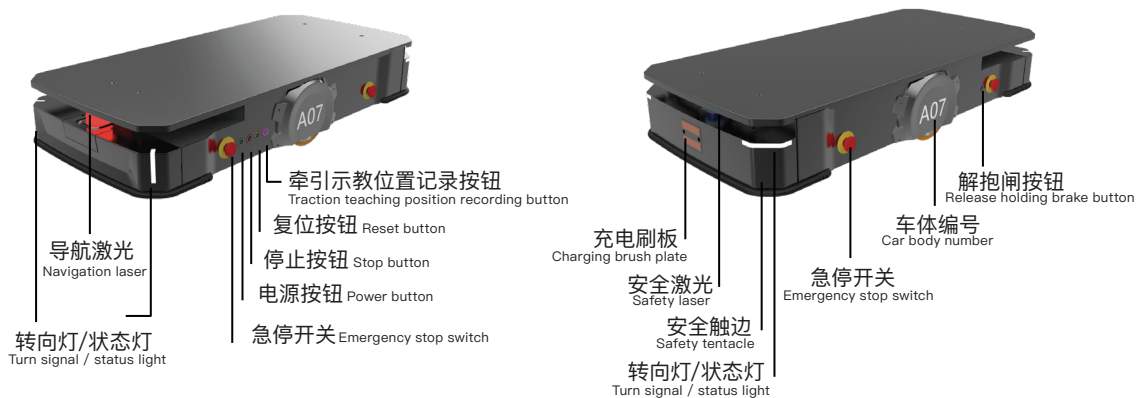


快速部署 Rapid deployment

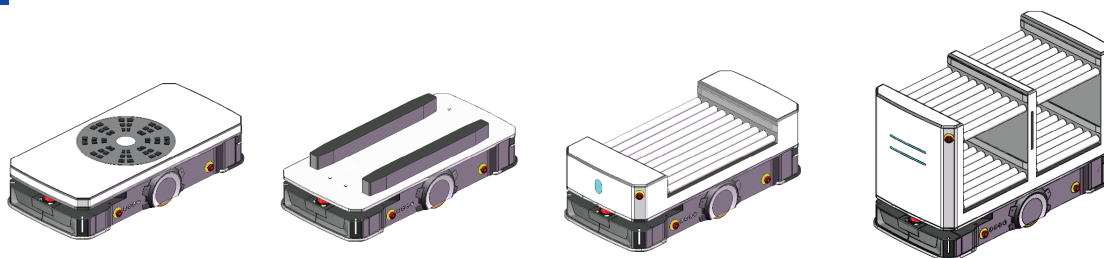
牵引示教: 一键标记锁定作业点, 提升实施效率
Traction Teaching: lock the operation point with one key mark to improve the implementation efficiency
快速建图: 2个小时内, 可构建出典型的多巷道环境地图
Rapid mapping: a typical multi roadway environment map can be constructed within 2 hours
调度系统: 任务流程灵活可配, 支持多类型车辆协同工作
Dispatching system: the task flow is flexible and configurable, and supports the cooperative work of multiple types of vehicles
仿真平台: 提前预测效率节拍, 全流程虚拟仿真
Simulation platform: predict the efficiency beat in advance and conduct virtual simulation of the whole process



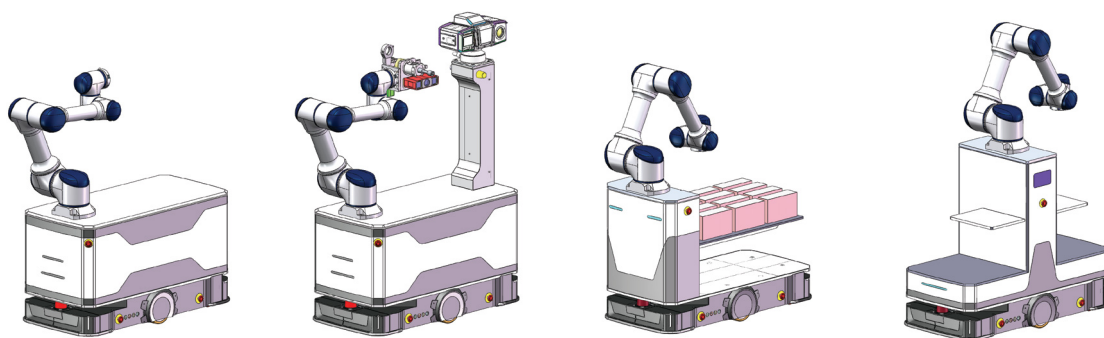
功能部件 | FUNCTION UNIT



产品拓展 | PRODUCT EXTENSION

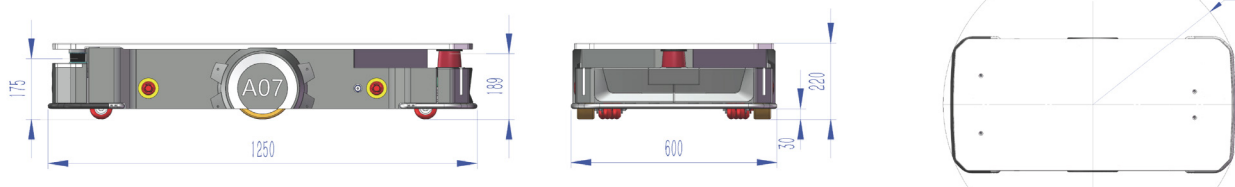


形式	旋转举升式AMR Rotary lift AMR	栈板顶升式AMR Pallet jack up AMR	单滚筒式AMR Single drum-type AMR	四滚筒式AMR Four drums-type AMR
组成	X2+旋转顶升模块 X2 + rotary jacking module	X2+栈板顶升模块 X2 + pallet jacking module	X2+电动滚筒模块 X2 + electric roller module	X2+电动滚筒模块 X2 + electric roller module
用途	料架-托盘物料搬运 Rack pallet material handling	标准木托盘搬运 Standard wooden pallet handling	料箱/托盘搬运 Bin / pallet handling	料箱搬运 Bin handling



形式	标准复合ARV Standard composite ARV	巡检操作ARV Inspection and operation ARV	料架升降ARV Rack lifting ARV	中间布局ARV Middle layout ARV
组成	X2+机械臂 X2 + robot arm	X2+机械臂+巡检云台 X2 + robot arm+ Inspection pan tilt	X2+机械臂+升降式料架 X2 + robot arm + lifting rack	X2+机械臂 (中间布局) X2 + robot arm (middle layout)
用途	标准成熟应用 Standard mature application	巡检+移动操作 Patrol + mobile operation	料架可以直接叉取物料 Material rack can directly fork materials	左右取放, 载料量大 Take and place left and right, with large loading capacity

外形尺寸 | OVERALL DIMENSIONS



技术参数 | TECHNICAL PARAMETERS

基本参数 Basic parameter	外形尺寸 (长×宽×高) Dimensions(LxWxH)	1250 x 600 x 220mm
	自旋半径 Autonomous rotation radius	656mm
	重量 Weight	170kg
	最大负载 Maximum load	1000kg
导航性能 Navigation performance	导航方式 Navigate mode	SLAM/二维码 SLAM/QR code
	定位精度 Positional accuracy	±10mm位置精度, ±1°角度精度 ±10mm position accuracy, ±1° Angle accuracy
	路径规划 Route planning	虚拟循迹/自主规划 Virtual Tracing/Autonomous Planning
移动性能 Mobility performance	转弯半径 Radius of turning circle	500mm Default
	行走通道宽度 Width of walking channel	≥800mm
	导航速度 Speed of navigation	前进1.5m/s, 后退1.2m/s, 转弯0.5m/s Forward1.5m/s, back1.2m/s, turn0.5m/s
	越障高度 The barrier height	10mm
	过缝宽度 Across the width	30mm
	离地间隙 Distance from ground	30mm
	自旋半径 Radius of the spin	690mm
	爬坡能力 Climbing ability	< 5°
安全防护 Safety protection	驱动轮 Drive wheel	φ180mm
	安全激光传感器 Safety laser sensor	1个位于前部, 检测距离25m, 综合检测270° One at the front, the detection distance is 25m, and the comprehensive detection is 270°
	避障激光传感器 Obstacle avoidance laser sensor	1个位于后部, 检测距离10m, 单个检测角度180° One at the rear, the detection distance is 10m, and a single detection Angle is 180°
	紧急停止按钮 Emergency stop button	4个, 位于车体两侧面板 On the panels on both sides of the vehicle body
	安全触边传感器 Safety contact edge sensor	2个, 车体底部前、后保险杠上各一个 One on the front bumper and one on the rear bumper
	状态、转向指示灯 Status, Direction indicator lamp	2组, 车体前、后保险杠上各一组 One group on the front bumper and another on the rear bumper
使用环境 Use environment	扬声器 speaker	1个, 位于车体内部侧边 Support, front and rear bottom panels 2 each
	环境温度 Ambient temperature	5°C~40°C
	环境湿度 Ambient humidity	5%~95% (无结露) 5%~95% (No condensation)
	运行环境 Operating environment	仅限室内使用, 无过多灰尘、无腐蚀性气体 Only for indoor use, without excessive dust and corrosive gas
	防护等级 IP code	IP20
电源参数 Power parameters	洁净等级 Cleanliness level	无/Class6 (千级) /Class5 (百级) None / Class6 (1000) / Class5 (100)
	电池 Battery	DC 51.2 V, 磷酸铁锂 DC 51.2 V, lithium iron phosphate
	容量 capacity	标称容量52Ah Nominal capacity 52ah
	运行时间 Running time	≥8h (连续运行) ≥ 8h (continuous operation)
	充电时间 Charging time	≤2h

DUCO Mind

智能应用控制器

新松机器人智能控制器由智能软件、智能控制器及相机等外设传感器组成，产品定位于利用多传感融合及人工智能技术为协作机器人应用赋能。

DUCO Mind is composed of intelligent software, intelligent controller and peripherals such as camera and other sensors. DUCO Mind is positioned to empower DUCO robot applications with multi-sensor fusion and AI technology.



硬件组成 | PRODUCT FEATURES



高性能CPU (i3/i5/i7)

Colorful appearance available for customization



GPU算法加速

User-friendly Web UI system, enjoyable for human-robot collaboration



多种相机接口 (POE、USB3.0)

Repeatability up to $\pm 0.05\text{mm}$, Working path is more precise and smoother



DI-DO

With various interfaces, able to be applied in industry and education



串口等扩展接口

Collision Detection, Sensitivity adjustable

技术参数 | TECHNICAL PARAMETERS



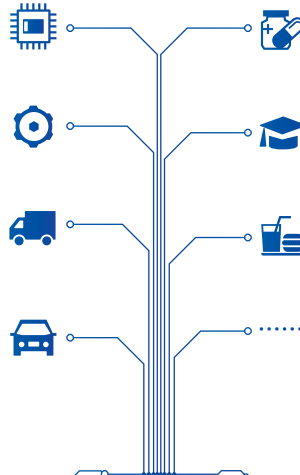
	DUCO Mind-Mini	DUCO Mind-Lite	DUCO Mind-Power	DUCO Mind-AI
CPU	Intel® Core™ i3-6100	Intel® Core™ i5-7500	Intel® Core™ i7-8700	Intel® Core™ i7-8700
GPU	-	-	Nvidia 1050Ti	Nvidia 2080T
内存	8G	16G	16G	16G
硬盘	128G	256G	256G	256G
网卡	千兆网口*2	千兆网口*2	千兆网口*2	千兆网口*2
POE	-	千兆网口*4	千兆网口*4	-
IO	-	DI*16/DO*16	DI*16/DO*16	DI*16/DO*16
体积	260mm*175mm*79mm	260mm*215mm*79mm	260mm*215mm*79mm	330mm*210mm*172mm
质量	3.8 kg	4.3 kg	4.8 kg	5.6 kg

3C:
PCB检测、定位、零部件组装
PCB inspection, locating, component assembling

机械/Machinery:
随机抓取、上下料、缺陷检测
bin-picking, machine tending, defect detection

物流/Logistics:
拆码垛、装箱、扫码、定位抓取
depalletizing and palletizing, packing, code scanning, locating and grabbing

汽车/Automobile:
装配、上下料、缺陷检测、涂胶
assembling, machine tending, defect detection, gluing



医药/Medicine:
定位抓取、扫码、检测、包装
locating grabbing, code scanning, inspection, packaging

科研/Scientific research:
科研教学、拓展实践
scientific research teaching, expanding practice

食品/Food:
扫码、检测、装箱、拆码垛
Scanning code, inspection, packing, depalletizing and palletizing

应用场景

软件功能

图像显示/ image display
三维仿真界面提供环境仿真、工装导入、轨迹可视化等功能
The 3d simulation interface provides functions of workspace simulation, CAD importing and trajectory visualization.



机器人/Cobot
兼容SCR、GCR、DSCR等多可协作机器人通讯、控制接口
The robot module is compatible with SCR, GCR, DSCR, and other DuCo cobot communication and control interfaces.



相机/Camera
集成多种2D工业相机、3D深度相机SDK
The camera module integrates a variety of 2D/3D camera SDKs.



标定/Calibration
相机内外参标定、机器人手眼标定功能
The calibration module provides camera internal and external parameter calibration, robot hand-eye calibration function.



深度学习/Deep learning
基于深度学习的图像识别、分割、检测功能，及方便易用的标注、训练工具
Image recognition, segmentation, and detection functions based on deep learning, and easy-to-use annotation and training tools.



2D&3D视觉/Vision
图形化视觉算法编程，提供丰富的2D（定位、扫码、检测、测量）、3D（分割、定位、检测）算子
Graphical vision algorithm programming, providing rich 2D (locating, scanning, inspection, measurement), 3D (segmentation, locating, inspection) algorithms.



力觉/Force sense
力控功能实现柔性装配、恒力操作，弥补视觉定位误差
Force control provides flexible assembling and constant force operation functions to make up for vision detection errors.



运动规划/Motion planning
基于仿真避障的运动规划功能，为机器人提供笛卡尔或关节空间的无碰撞路径规划
Motion planning based on collision simulation provides robots with collision-free motion planning in Cartesian or joint space.



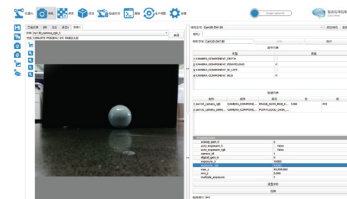
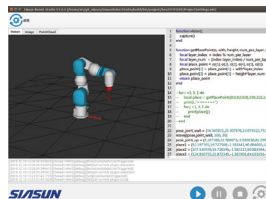
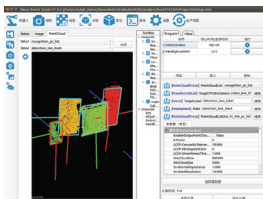
脚本/Scripting
Lua脚本语言编程、图形化编程
Lua scripting programming and graphical programming.



应用包/Application packages
应用包为典型应用提供配置模板，实现简单配置、快速部署
Application packages provide configuration templates for typical applications to achieve simple configuration and quick deployment.



部分功能展示/Partial function display:



DUCO Robot Accessories

多可协作机器人配件

持续更新中

Keep Updating...

3D视觉 | Vision System

品牌 Brand	名称 Name	型号 Type	通讯方式要求 Communication Protocol
梅卡曼德 MECH-MIND	3D Vision	Pro S700M	TCP/IP
PHOTONEO	3D Vision	Photoneo® PhoXi	TCP/IP
SOLOMON	3D Vision	SLM 3D-230 SLM 3D-500	TCP/IP

2D视觉 | CAMERA

品牌 Brand	名称 Name	型号 Type	通讯方式要求 Communication Protocol
基恩士 Keyence	视觉系统 Vision system	XG-8000/7000 Series CV-500Series	Ethernet (TCP/IP)
康耐视 Cognex	视觉系统 Vision system	IN-SIGHT 7000 IN-SIGHT 8000	TCP/IP
		IN-SIGHT 5600/5705	Modbus/TCP; TCP/IP
DATALOGIC	智能相机 Intelligent camera	A-Series T-Series	TCP/IP
	视觉系统 Vision system	MSeries	TCP/IP
Inspiraz	视觉系统 Vision system	Camera+wizer software	TCP/IP
昂敏	视觉系统 Vision system	VCnano_Z-0011	TCP/IP

力控传感器 | Force Sensor

品牌 Brand	名称 Name	型号 Type	通讯方式要求 Communication Protocol
ATI	力控传感器 Force Sensor	Axia80	EtherCat
WACOH	力控传感器 Force Sensor	WEF-6A200-4-RCD	EtherCat
NBIT	力控传感器 Force Sensor	T334003AAO	EtherCat
蓝点触控	力控传感器 Force Sensor	ST-6-170-6-EC ST-6-200-10-EC ST-6-500-20-EC	EtherCat

注意: 用到力控传感器的协作机器人需要选择定制版机器人控制柜。

Care: If you use collaborative robot with force sensor, the robot control box is not a standard type but a customized one.

电爪 | Electrical gripper

品牌 Brand	名称 Name	型号 Type	通讯方式要求 Communication Protocol	备注 Remarks
ZIMMER	电爪 Electrical Gripper	GEP Series GED Series EGP Series	Digital I/O	连接线定制 Cable need customization
SCHUNK	电爪 Electrical Gripper	Co-act EGP Series	Digital I/O	连接线定制 Cable need customization
大寰 DH	电爪 Electrical Gripper	AG-95L	TCP/IP	需TCP通讯网关和电缆作为配件 Need Gateway and cables as accessories
Robotiq	电爪 Electrical Gripper	2-Finger 85 2-Finger 140	MODBUS TCP	需MODBUS TCP 控制器作为配件 Need Modbus TCP controller as accessories
吉玛泰克 Gimatic	电爪 Electrical Gripper	MPTM Series MPPM Series MPRJ Series	Digital I/O	连接线定制 Cable need customization
增广智能	电动夹爪 Electric Clamping Jaw	RM-MGBD-11-14-L RM-MGBD-11-14-ITG	I/O控制、MODBUS RTU/CANopen总线控制 I/O控制、MODBUS RTU	
	旋转电爪 Rotating Electric claw	RM-RG-11-360-14-ITG	MODBUS RTU	-
上银	电动夹爪 Electric Clamping Jaw	XEG-32	I/O控制	-

扫码设备 | Code Scanner

品牌 Brand	名称 Name	型号 Type	通讯方式要求 Communication Protocol
康耐视 Cognex	扫码器 Scanner	DATAMAN Series	TCP/IP
基恩士 Keyence	条形码/二维码读取器 Bar Code & QR Code scanner	SR-2000 Series SR-1000 Series SR-750 Series SR-700 Series S3000	TCP/IP

安全激光扫描仪 | Safety Laser Scanner

品牌 Brand	名称 Name	型号 Type	通讯方式要求 Communication Protocol
基恩士 Keyence	安全激光扫描仪 Safety laser scanner	SZ-V Series	Digital I/O
	安全激光扫描仪 Safety laser scanner	SZ-01S	Digital I/O
SICK	安全激光扫描仪 Safety laser scanner	microScan3	Digital I/O
SICK	安全激光扫描仪 Safety laser scanner	S3000	TCP/IP, Digital I/O

快换法兰 | Quick-change flange

品牌 Brand	名称 Name	型号 Type
ATI	快换法兰 Quick-change flange	QC Series
SCHUNK	快换法兰 Quick-change flange	SWS Series
ZIMMER	快换法兰 Quick-change flange	WWR Series
ZIMMER	快换法兰 Quick-change flange	WWR1000 Series
桥田	快换法兰 Quick-change flange	QT-500
吉玛泰克 Gimatic	快换法兰 Quick-change flange	EQC20-A
科腾	快换法兰 Quick-change flange	QCM1C20-80

机器人管线包 | Robot Dress Packs

品牌 Brand	名称 Name	型号 Type	产品描述 Product description	适配机器人 Robot types
莫尔塑料 Murrplastik	管线包 Robot Dress Packs	SLP00159601	管线包1-6轴 Dress pack 1-6 axis	GCR5-910
	管线包 Robot Dress Packs	SLP00159602	管线包1-6轴 Dress pack 1-6 axis	GCR14-1400 GCR20-1100
上海方鑫	管线包 Robot Dress Packs	GXB-F-001	固定型 Fixed type	GCR5-910
	管线包 Robot Dress Packs	GXB-S-001	可伸缩型 Removable type	
	管线包 Robot Dress Packs	GXB-F-002	固定型 Fixed type	GCR14-1400 GCR20-1100
	管线包 Robot Dress Packs	GXB-S-002	可伸缩型 Removable type	
易格斯 igus	协作机器人管线包套装 Robot Dress Packs Suit		三维拖链 Three dimensional drag chain	通用 Be in common use

真空泵 | Vacuum Pump

品牌 Brand	名称 Name	型号 Type	通讯方式要求 Communication Protocol	备注 Remarks
施迈茨 SCHMALZ	真空泵 Vacuum Pump	Cobot pump ECBPi	Digital I/O	连接线定制 Cable need customization
	真空泵 Vacuum Pump	ECBPMi 24V-DC M12-8	Digital I/O	标配连接线 Standard connection line

气动爪 | Pneumatic Gripper

品牌 Brand	名称 Name	型号 Type
SMC	气爪 Pneumatic Gripper	MHZ Series / MHS Series
FESTO	气爪 Pneumatic Gripper	DHPS Series / HGPT Series / DHDS Series
SCHUNK	气爪 Pneumatic Gripper	JGP Series / PGN-plus Series / GJZ Series
ZIMMER	气爪 Pneumatic Gripper	GP Series / GD Series
科腾	气爪 Pneumatic Gripper	PGM2C32 Series / PGM3C32-70

注意: 气爪选型需要根据机器人负载能力进行合理选择。

Care: When you use a Pneumatic Gripper, please pay attention to the collaborative robot payload diagram, make sure the robot is not overload.

软体柔性手爪 | Soft Flexible Gripper

品牌 Brand	名称 Name	型号 Type
SRT	柔性手爪 Flexible Gripper	SFG-FTN Series / SFG-FCA Series / SFG-FMA
柔触机器人	柔性手爪 Flexible Gripper	GS Series / BS Series

注意: 软体柔性手爪选型需要根据机器人负载能力进行合理选择。

Care: When you use a Flexible Gripper, please pay attention to the collaborative robot payload diagram, make sure the robot is not overload.

网关 | Gateway

品牌 Brand	名称 Name	型号 Type	通讯方式要求 Communication Protocol
MOXA	MGate™ 5111 Series	Mgate 5111	Modbus-TCP Client / Master to Profibus Slave
MOXA	MGate5105-MB-EIP Series	MGate 5105-MB-EIP	Modbus-TCP Client / Master to Ethernet/IP
HMS	Anybus X-gateway	AB9001	Modbus-TCP Client / Master to Profibus Slave
虹科电子	netTAP50 Series	NT50-CC-EN	Modbus-TCP Client / Master to CC-LINK
虹科电子	netTAP50 Series	NT 50-CO-EN	Modbus-TCP Client / Master to CANopen
虹科电子	netTAP50 Series	NT 50-DN-EN	Modbus-TCP Client / Master to DeviceNet
虹科电子	netTAP50 Series	NT 50-RS-EN	Modbus-TCP Client / Master to Modbus RTU or ASCII

恒力柔顺打磨头 | Constant force floating grinder

品牌 Brand	名称 Name	型号 Type	通讯方式要求 Communication Protocol
南宁宇立 SRI	iGrinder Intelligent Grinder	M5307B M5151B M8412A	Digital I/O

控制柜IO拓展接口连接器 | Control box IO port connector

品牌 Brand	名称 Name	规格型号 Spec	部件 Accessories	类别 Type
L-COM	公对公4.6M CS*DB62连接线 CS*DB62 Cable, male-male, 4.6M	CHD62MM-15		
	公对公15M CS*DB62连接线 CS*DB62 Cable, male-male, 15M	CHD62MM-50	控制柜IO拓展接口 (DB62公头) Control Box IO Expansion Connector(DB 62 male-male)	集成型DB62公对公连接线 Integrated type DB62 male-male Cable
ADVANTECH	CL*DB62 端子台, 导轨式 CL*DB62 Terminal, Rail-type	ADAM-3962-AE		

末端IO连接器 | Tool IO connector

品牌 Brand	名称 Name	规格型号 Spec	部件 Accessories	类别 Type
PHOENIX	5M弯头CS*M8连接器母头连接线 5M Bend CS*M8 female connector cable	SAC-8P- 5,0-PUR/M 8FR(1404193)	末端IO接口 (8pin圆形M8连接器母头) Tool IO connector (8 pin round M8 connector- female)	90°弯头 90° Bend

离线编程和仿真软件 | Simulation & Off-line programming

品牌 Brand	名称 Name	适配机器人 Robot types	产品描述 Product description
Visual Components	Visual Components	SCR3 / SCR5 / GCR14-1400 GCR20-1100 / GCR5-910	离线编程和仿真 Simulation & OLP
苏州瀚华智能	HiPeRMOS	SCR5 / GCR14-1400 GCR20-1100 / GCR5-910	离线编程和仿真 Simulation & OLP
RoboDK	RoboDK	GCR14-1400 GCR20-1100 / GCR5-910	离线编程和仿真 Simulation & OLP

三维扫描仪 | 3D Scanner

品牌 Brand	名称 Name	适配机器人 Robot types	产品描述 Product description
中观	三维扫描仪	SCR3 / SCR5 / GCR14-1400 GCR20-1100 / GCR5-910	3D扫描 3D Scanner

机器人防护服 | Robot protective clothing

品牌 Brand	名称 Name	型号 Type
广州特护	GCR5防尘防护服 GCR5 Dustproof clothing	XSR5M02
	GCR5防水防护服 GCR5 Waterproof clothing	XSR5T03
	DSCR3防水防护服 DSCR3 Waterproof clothing	XSR3T02

温馨提示: 以上列表中为推荐系列, 仅供参考; 具体型号要根据实际应用和工艺要求进行选择, 必要时可以联系供货商协助选型。

Notes: Above recommended list is only for your reference, specific accessories have to be selected according to your specific robot application and process requirement. Please contact the relevant brand's suppliers for assistance of type selection if necessary.