SIASUN 新松 | DUCO 多可

新松多可智能机器人生态合作伙伴

力控传感器
Link-Touch 蓝点触程 · ATI · NBIT · DAPKON 达working科技 · HKM · SRI · WACOH

视觉
MECH MIND · ALSONTECH · HIKROBOT 瑞捷机器人 · Datalogic · Imagene · COGNEX 康耐视 · A · SICK · SOLOMON AccuPick · 图漾科技 PRINCIPLE

快换法兰
ZiMMER · ATI · Applied Robotics · GRIP · SCHUNK · BINNOET · 方品科技 · CRG · SMC · GIMATIC

拧紧系统
Rexroth Bosch Group · Atlas Copco · DAND 艾而特 · DEPRAG · Danikor

电爪
ZiMMER · SCHUNK · dh 大寰机器人 · 码垛机器人 · ROBOTIQ · RMS · HIWIN · 锡波机器人 TSROBOT · GIMATIC · 如行机器人

仿真与离线编程
ORIGITECH · VISUAL COMPONENTS · RoboDK · HANHUA 翰华智造

气爪吸盘
广州科焊 · GPT · ROBOTIQ · 思朗智能 · FORHALL · SRT · FESTO · KPA · SMC · THR · UMTECH

管线包
murrplastik · CUBEXIN 库森 · igus

激光扫描仪
OLEI · 大汉正源 · SICK · KEYENCE 基恩士

三维扫描仪
艾目易 | Aimooe · CASAIM

网关&拓展模块
AMSAMOTION 艾莫迅 · MOXA · hhrobot · HongKe · HMS

国内焊机
MEGMEET · AOTAI · heedu 合大专科 · BINGO · TAYOR 上海通用焊机 · 恩倍睿 · GW LASER TECH

国外焊机
Panasonic · ewm group · CLOOS · Fronius 快易士 · KEMPPI · WECO · OTC

其他
Tehu · KOLLMORGEN 上海科尔摩根 · EWELLIX · inLinbot 蓝翼科技 · SW 赛威德

微信视频号 · 微信公众号 · 抖音号

SIASUN 新松 | DUCO 多可

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致力于成为未来智造的最佳伙伴

## 产品介绍 ■ Product Introduction

DUCO多可协作焊接机器人具有图形化交互和牵引示教两大核心功能，标配焊接工艺包，支持用户快速实现点焊、角焊、摆焊、往复焊、堆焊、多层多道焊等各种焊接作业任务，选配外部轴插件包后可支持用户扩展更多的焊接应用场景，定制各种形态的焊接工作站。

DUCO多可协作机器人优秀的重复定位精度和轨迹精度，适配激光视觉焊缝跟踪系统，可实现灵活部署、自动跟踪、自动纠偏等功能，实现长时间、不间断、高质量、高稳定性的焊缝输出，为汽车零部件、船舶制造、工程机械、新能源、航空航天、金属加工等领域的焊接自动化生产降本增效。

DUCO Welding Cobot is equipped with two core functions: zero-code programming and direct teaching. It comes standard with a welding software, enabling users to quickly perform various welding tasks such as spot welding, corner welding, traverse welding, repetitive welding, overlay welding, and multi-pass welding. Additionally, the optional external axis plug-in package allows for the expansion of additional welding application scenarios and customization of various forms of welding workstations.

DUCO Cobot offers outstanding reposition accuracy and trajectory precision and trajectory accuracy. It is compatible with laser vision weld seam tracking systems, allowing for flexible deployment as well as automatic tracking and correction functionalities. As a result, it can achieve long-term, uninterrupted output of high-quality and stable weld seams. This capability contributes to cost reduction and increased efficiency in automated welding production across industries including automotive parts manufacturing, shipbuilding, engineering machinery production, new energy sectors (e.g., solar or wind power), aerospace applications,and metal processing.

产品特点 ■ Product Features

用户交互友好 User Friendly Interface
- 图形化交互，用户接受程度高
  Graphical user interface, high user acceptance.
- 拖拽式编程，零基础快速入门
  Zero-code programming, fast learning for beginners.

通讯接口丰富 Multiple Communication Interfaces
- 通讯接口丰富，兼容主流品牌
  Multiple communication interface, compatible with major brands.
- 适配焊机品牌，实现即插即用
  Compatible with welding machine brands, for plug-and-play use.

产品性能优良 Ultra Precision Performance
- 高精度保障高质量的焊缝输出
  High precision ensures high-quality weld output.
- 高精度衔接视觉实现功能多样
 High-precision visual integration for diverse functions.
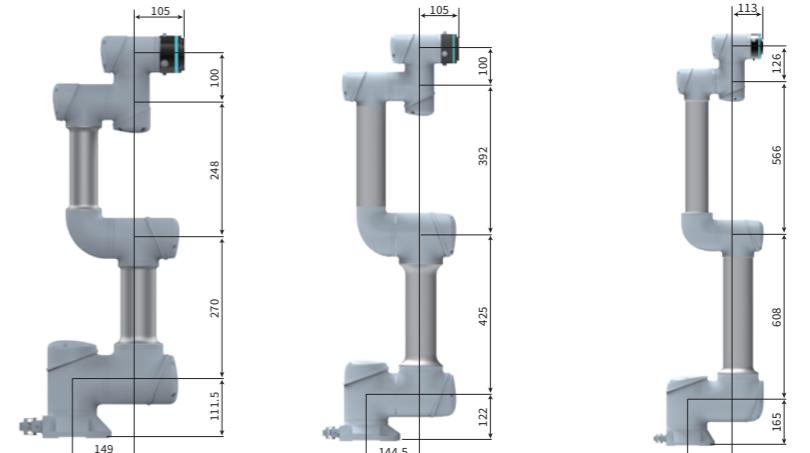
焊接工艺包 Welding Software Kits
- 专业的焊接工艺包实现专业性与易用性的兼修
  Professional welding package balances expertise and usability.
- 支持点焊、角焊、摆焊、往复焊、多层多道焊
  Supports spot, corner, oscillation, reciprocating, and multi-layer welding.

产品功能齐全 Fully Welding Functions
- 牵引示教实现焊接交互更直接
  Trajectory teaching streamlines welding interaction.
- 丰富的按钮接口实现更多可能
  Rich button interface enables more possibilities.

功能扩展丰富 Extensive Functionality Expansion
- 外部轴和多机协同拓展焊接应用更多空间
  External axis and multi-axis cooperation expand welding applications.
- 完备的开发接口便于搭建各种焊接工作站
  Complete SDK facilitate diverse welding stations building.

产品型号 ■ Product Model

技术参数		GCR3-618-W	GCR5-910-W	GCR10-1300-W
机器人本体	最大负载	3kg	5kg	10kg
	自由度	6	6	6
	末端最大速度	2.4m/s	3.6m/s	3.8m/s
	末端最大直线速度	0.8m/s	1.5m/s	1.5m/s
	有效工作半径	618mm	917mm	1300mm
	重复定位精度	±0.02mm	±0.02mm	±0.03mm
	关节　　　运动范围		最大速度	
	J4/J5/J6　±360°	225°/s	225°/s	225°/s
	J3　±160°	225°/s	225°/s	225°/s
	J2　±360°	225°/s	225°/s	180°/s
	J1　±360°	225°/s	225°/s	180°/s
	功耗	典型工况约200W	典型工况约200W	典型工况约400W
	安装方式		置地式、倒挂式、悬臂式	
	IP等级	IP65	IP65	IP65
	环境温度	-10℃~50℃	-10℃~50℃	-10℃~50℃
	储存温度	-40℃~55℃	-40℃~55℃	-40℃~55℃
	末端I/O端口		2DI、2DO、EtherCAT、RS485	
	机器人包装尺寸	532x431x330mm	698x588x450mm	958x508x516mm
	净重/毛重	13kg/20kg	22kg/30kg	37.8kg/46kg
控制柜	输入电源		100-240VAC 47-63Hz 10A	
	IP等级	IP54	IP54	IP54
	通讯接口		TCP/IP, Modbus/TCP,Profinet(Slave从站), Ethernet/IP(Slave从站), CAN, RS485	
	I/O接口		16DI, 16DO (PNP,24V/Max 500mA) 其中8DI/8DO可配置	
	尺寸	410x306x292mm	410x306x292mm	410x306x292mm
	重量	13.6kg	13.6kg	13.6kg
标准示教器[1]	外形尺寸		295x225x45mm(不含抓握手柄)	
	防护等级	IP54	IP54	IP54
	屏幕尺寸		10.4寸	
	屏幕分辨率		800*600@60HZ	
	重量	1.3kg	1.3kg	1.3kg

(1) 示教器类型分为PC/移动终端（PAD/手机）/标准示教器，以上展示数据为标准示教器数据
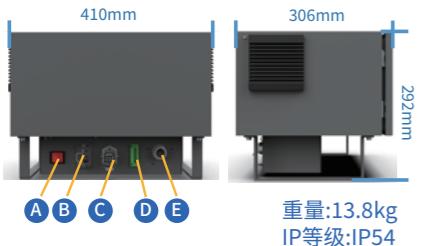
控制系统 ■ Base Flange

控制器是机器人的大脑,用于控制机器人上下料、抓取、打磨、搬运、焊接、涂胶涂油等操作,还可实现输入输出控制等功能。最新的DUCO多可控制柜在兼顾了安全性和灵活性的同时缩小了占地面积,在人机协作领域有更优异的表现。既可以全面兼容多可系列型号机器人,还可以独立应用于自动化操控系统。

The controller is used to control the robot's operations such as loading and unloading, grasping, polishing, handling, welding, gluing and oiling, as well as realizing the input and output control. The latest DUCO controller has tiny volume while taking into account the safety and flexibility, and has better performance in the field of human cooperation. It can be fully compatible with multiple series of robots, and also can be independently applied to automatic control systems.

控制柜(DC15S/30D)■ Control Box

410mm 306mm
292mm
67mm

重量:13.8kg
IP等级:IP54

A	系统开关	Power Switch
B	AC输入接口	AC Input
C	机械臂接口	Robot Arm Connector
D	示教器屏蔽接口	Teach Pendant Shielding Interface
E	示教器接口	Teach Pendant Interface

控制器(DC00)■ Independent Controller

252mm
173mm

重量:2.5kg

1	LAN1+USB 3.0		7	DIO(数字IO)
2	LAN2+USB 2.0		8	SIO(安全IO)
3	COM1(232通讯)		9	IO POWER(IO供电)
4	EtherCAT2		10	VGA&COM3/4
5	EIO(功能拓展IO)		11	ON/OFF
6	CIO(可配置IO)		12	TP(示教器IO)

用户接口 ■ User Interface

DI

用户DI User DI	16路(其中8路可配功能DI) 16 Channels(8 channels can be equipped with functional DI)
输入有效电平 Input Effective Level	PNP型, L:-3V-5V,H:11V-30VDC,2-15mA PNP,L:-3V-5V,H:11V-30VDC,2-15mA
开关时间 Switching Time	TON:50ms TOFF:50ms TON:50ms TOFF:50ms
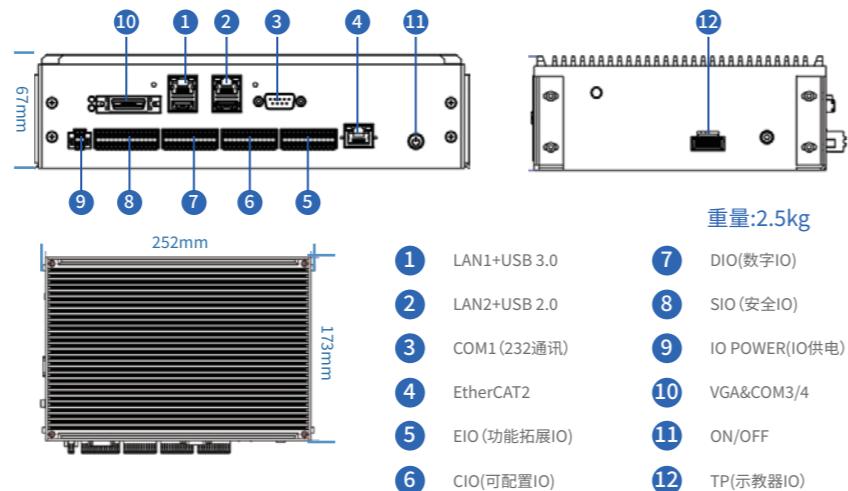
DO

用户DO User DO	16路(其中8路可配功能DO) 16 Channels(8 channels can be equipped with functional DO)
输出电压 VOUT	PNP型, 22-28V,Max:0.5A PNP, 22-28V,Max:0.5A
输出电流 LOUT	PNP型:<2A(超过2A时,用户需要扩展电源) PNP,<2A(When exceeding 2A, the user needs to expand the power supply)
开关时间 Switching Time	TON:50ms TOFF:50ms TON:50ms TOFF:50ms

A I/O
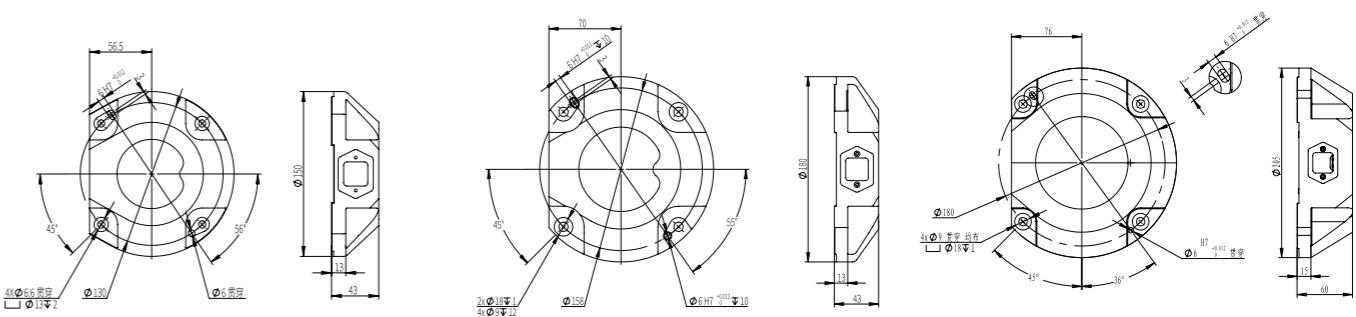
模拟电压输入2路 Analog Voltage Input 2	输入电压信号 Input Voltage Signal	0-10V 精度±1% 0-10V Accuracy ±1%
	输入阻抗 Input Impedance	48KΩ 48KΩ
	分辨率 Resolution	12位 12-bit
模拟电压输出2路 Analog Voltage Output 2	输出电压信号 Output Voltage Signal	0-10V 精度±1% 0-10V Accuracy ±1%
	分辨率 Resolution	12位 12-bit

SDI

| 急停信号输入 Emergency Signal Input	1路(无源信号,干接点输入) 1Channels(Passive signal, dry contact input)
防护性停止输入 Protective Stop Input	1路(无源信号,干接点输入) 1Channels(Passive signal, dry contact input)
可配置安全输入 Configurable Secure Input	2路(无源信号,干接点输入) 2Channels(Passive signal, dry contact input)

SDO

可配置安全输出 Configurable Secure Output	2路(PNP有源信号) 2Channels(PNP Active Signal)
急停反馈输出 Emergency Stop Feedback Output	1路(PNP有源信号) 1Channels(PNP Active Signal)
输出电压 VOUT	23.52V-25.2VDC (Max 0.5A 短路保护) 23.52V-25.2VDC (Max 0.5A ScP)

通讯/COM

| CAN	1路,波特率可配置10k、20k、50k、100k、125k、250k、500k、1000k bps 1Channels,bps configurable10k、20k、50k、100k、125k、250k、500k、1000k bps
RS485	1路,波特率可配置4800、9600、19200、38400、115200 bps 1Channels,bps configurable 4800、9600、19200、38400、115200 bps
LAN	2路(1路千兆、1路百兆) 支持MODBUS TCP、PROFINFT、TCP IP 2-way (1-way gigabit, 1-way 100Mbit)Support MODBUS TCP, PROFINFT, TCP IP
EtherCAT	1路,EtherCAT通讯 1Channels,EtherCAT COM
INC编码器信号 A+,A-;B+, B-;Z+,Z-	工作电压:24VDC频率:<200KHz 输入:方波信号 Working voltage: 24VDC Frequency:<200KHz Input: square wave signal

底座法兰 ■ Base Flange

GCR3-618-W　　　GCR5-910-W　　　GCR10-1300-W

工具法兰 ■ EOAT Flange
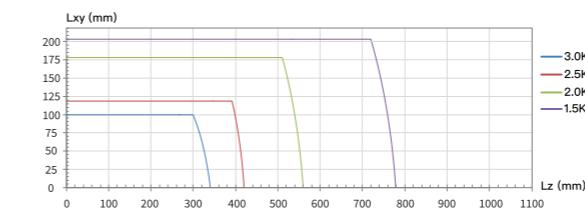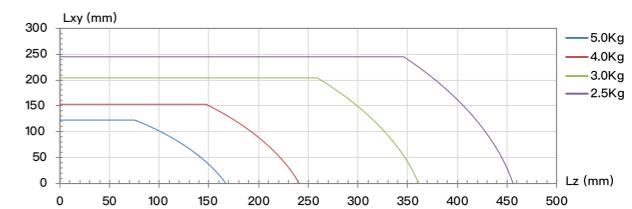
GCR5-910-W/GCR3-618-W　　　GCR10-1300-W

负载曲线 ■ Payload Diagram
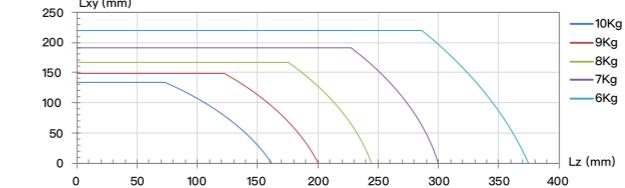
GCR3-618-W Payload Diagram

Lxy (mm)
Lz (mm)
3.0Kg
2.5Kg
2.0Kg
1.5Kg
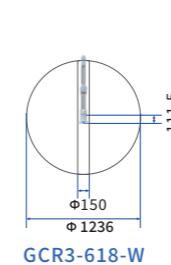
GCR5-910-W Payload Diagram

Lxy (mm)
Lz (mm)
5.0Kg
4.0Kg
3.0Kg
2.5Kg
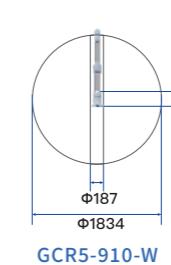
GCR10-1300-W Payload Diagram

Lxy (mm)
Lz (mm)
10Kg
9Kg
8Kg
7Kg
6Kg

工作空间 ■ WorkSpace

Φ150　　　Φ187　　　Φ328
Φ1236　　Φ1834　　Φ2600
111.5　　　122　　　165

GCR3-618-W　　　GCR5-910-W　　　GCR10-1300-W

牵引示教模块 ■ Teaching Assistant System

产品介绍 ■ Product Description

牵引示教模块是DUCO协作机器人针对焊接场景开发的应用配件,致力于提升用户在焊接场景应用协作机器人的交互友好性和便捷性。牵引示教模块有两种型号,分别为力控牵引示教模块TCS-FX620和遥杆牵引示教模块TCS-YB620,牵引模块可与机器人末端快速连接,即插即用,与焊接工艺包配合使用,能够有效降低操作者的劳动强度、提升作业效率。

The Teaching Assistant System is a welding accessory developed by DUCO , dedicated to enhancing the user-friendliness and convenience of using collaborative robots in welding applications. There are two models of the Teaching Assistant System: the Torque Sensor Direct Teaching Module TCS-FX620 and the Joystick Direct Teaching Module TCS-YB620. The traction module can be quickly connected to the robot's end effector, is plug-and-play, and when used in conjunction with the welding process package, it can effectively reduce the operator's labor intensity and improve work efficiency.

安装接口及尺寸 ■ Interfaces and Dimensions

力控牵引示教模块
TCS-FX620

摇杆牵引示教模块
TCS-YB620

产品参数 ■ Product Parameter

■ 力控牵引示教模块 TCS-FX620

产品名称 Product Name	力控牵引示教模块 Torque Sensor Direct Teaching	功率 Rate of Work	<1A <1A
IP等级 IP Class	IP65 IP65	工作环境温度 Operating Ambient Temperature	-10℃～50℃ -10℃～50℃
供电 Power	24V DC 24V DC	相对湿度 Relative Humidity	95%,无冷凝 95%, Without Condensation

■ 摇杆牵引示教模块 TCS-YB620

产品名称 Product Name	遥杆牵引示教模块 Joystick Direct Teaching Module	功率 Rate of Work	<1A <1A
IP等级 IP Class	IP65 IP65	工作环境温度 Operating Ambient Temperature	-10℃～50℃ -10℃～50℃
供电 Power	24V DC 24V DC	相对湿度 Relative Humidity	95%,无冷凝 95%, Without Condensation

焊接工艺包 ■ Welding Software Kits

焊接电源适配国内品牌:

MEGMEET AOTAI headux 合大电气 威尔泰克 WELDTEC BinGo TAYOR 上海通用电焊机 思倍睿

焊接电源适配国外品牌:

Panasonic ewm group CLOOS Fronius 伏能士 KEMPPI WECO OTC

传感器品牌:

创想智控 CRNT Intelligent Laser Full-V 全视智能光电 明图智能 Smart Image AI

焊接工艺包 ■ Welding Software Kits

DUCO自主研发的焊接工艺包,集成了焊机配置、焊接设置、工艺参数设置、视觉传感器设置、以及起弧、收弧、电弧跟踪、摆焊、多层多道等多种功能,多种快捷指令,省去繁琐的界面操作,操作调试方便,普通工人在短时间内就可以上手操作,为客户提供了更安全高效的解决方案。

DUCO proprietary welding Software Kits integrates welding Power configuration, welding settings, process parameter settings, vision sensor settings, as well as starting, ending, arc tracking, weaving, and multi-layer multi-pass welding functions, and various quick commands, eliminating complicated interface operations. It is convenient to operate and adjust, and a regular worker can operate it within a short time, providing customers with a safer and more efficient solution.
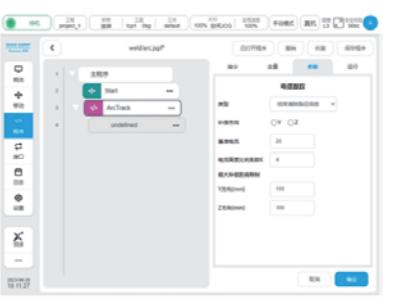
焊接设置
Welding Setup

摆焊
Spot Welding

多层多道焊接
Multi-pass Welding

电弧跟踪
Arc Tracking

外部轴工艺包 ■ External Axis Process HMI
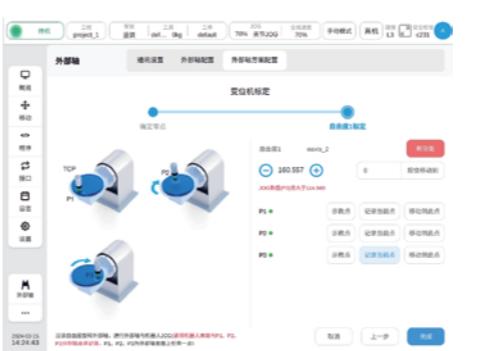
支持通过外部轴来扩展机器人自由度或者通过外部轴来变换工件位置,即可单独控制或和机器人进行联动,为焊接场景应用提供更多可能性。

Supporting the extension of robot degrees of freedom through an external axis or the transformation of the workpiece position through an external axis, which can be controlled separately or in conjunction with the robot, provides more possibilities for welding scene applications.

支持的外部轴型号如下:

The following are the supported external axis models:

品 牌 Brand	驱动器型号 Drive Model	通讯协议 Communication Protocol
汇川 INNOVANCE	SV630N/SV660N	EtherCAT

外部轴配置
External Axis Setup

外部轴标定
External Axis Calibration