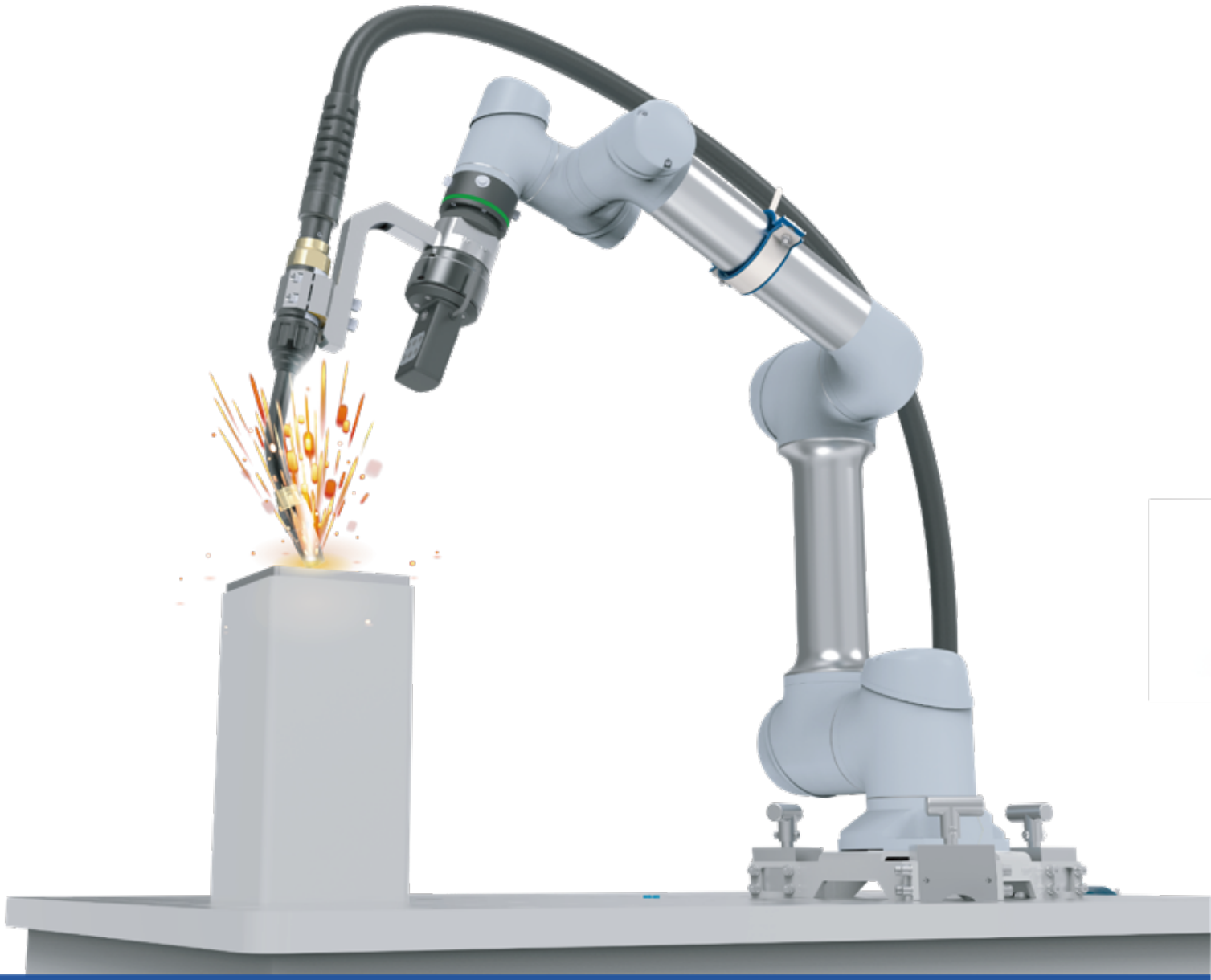
SIASUN | DUCO Robots

DUCO
WELDING COBOT

Strive to be the Best Partner for Smarter Future



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PRODUCT INTRODUCTION

DUCO Welding Cobot is equipped with two core functions: graphic programming and hand-guide teaching. Customers can use the welding tool software to quickly perform various welding tasks such as GMAW (Gas Metal Arc Welding), GTAW (Gas Tungsten Arc Welding), LBM (Laser Beam Welding). And it also supports advanced functions such as TAST (Through-Arc Seam Tracking), Arc-Start-Height Adjust, RPMP (Root Pass Memorization and Multi-Pass), Touch Sense, Laser sensor tracking and 3D vision. The optional external axis package allows for expanded welding applications and customized workstations.

DUCO Cobot offers outstanding repeat positioning accuracy and trajectory precision. Compatible with intelligent welding vision system which enables flexible deployment and modifying path dynamically. The indicators and functions mentioned above make sure a long-term, high-quality and stable welding procedure. It enhances cost efficiency in automotive, shipbuilding, engineering machinery, new energy, and other metal processing industries.

PRODUCT FEATURES

User-Friendly Interface

- Graphical user interface, high user acceptance.
- Graphic programming, fast learning for beginners.

Fully Welding Functions

- Trajectory teaching streamlines welding interaction.
- Rich button interface enables more possibilities.

Multiple Communication Interfaces

- Multiple communication interfaces, compatible with major brands.
- Compatible with welding machine brands, for plug-and-play use.

Ultra Precision Performance

- High precision ensures high-quality weld output.
- High-precision visual integration for diverse functions.

Welding Software Kits

- Professional welding package balances expertise and usability.
- Supports GMAW, GTAW, LBW methods and many advanced welding functions.

Extensive Functionality Expansion

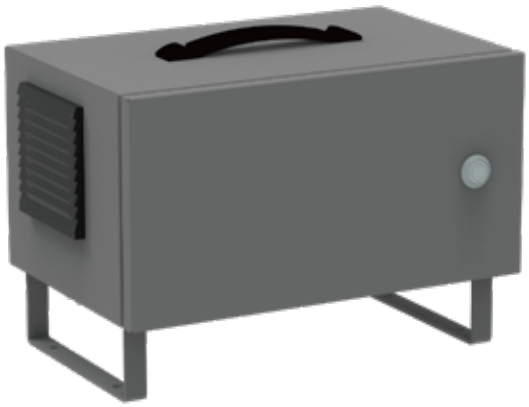
- External axis and multi-axis cooperation expand welding applications.
- Complete SDK facilitates diverse welding station building.

PRODUCT MODEL

Technical parameters		GCR3-618-W	GCR5-910-W	GCR7-910-W	GCR10-1300-W	GCR12-1300-W
ROBOT	Max Payload	3kg	5kg	7kg	10kg	12kg
	Degree of Freedom	6	6	6	6	6
	Max TCP Speed	2.4m/s	3.6m/s	3.2m/s	3.8m/s	3.8m/s
	Max Straight-line Speed	0.8m/s	1.5m/s	1.5m/s	1.5m/s	1.5m/s
	Reach	618mm	917mm	917mm	1300mm	1300mm
	Repeatability Accuracy	±0.02mm	±0.02mm	±0.02mm	±0.03mm	±0.03mm
	Joint Range	Max Speed				
	J4/5/6 ±360°	225°/s	225°/s	225°/s	225°/s	225°/s
	J3 ±360°	225°/s	225°/s	225°/s	225°/s	225°/s
	J2 ±360°	225°/s	225°/s	200°/s	180°/s	180°/s
	J1 ±360°	225°/s	225°/s	200°/s	180°/s	180°/s
	Power Consumption	200W	200W	200W	400W	500W
	Installation	Ceiling / Floor / Wall / Inclined				
	IP Class	IP65				
	Operating Temperature	-10°C~50°C				
	Storage Temperature	-40°C~55°C				
	End Effector I/O	2DI、2DO、EtherCAT、RS485				
	Robot Package Size	532x431x330mm	698x588x450mm	698x588x450mm	958x508x516mm	958x508x516mm
	Net/Gross Weight	13kg/20kg	22kg/30kg	22kg/30kg	37.8kg/46kg	37.8kg/46kg
CONTROL BOX	Input Power Supply	100-240VAC(47-63Hz) 10A				
	IP Class	IP54				
	Communication Interface	EtherCAT、Ethernet/IP、Modbus/TCP、CAN、TCP/IP、RS-485、Profinet、External Encoder、WIFI (Optional)				
	I/O Interface	2AI/2AO, 4*SDI/3*SDO,16DI/16DO (PNP, 24V/Max 500mA), Among which 8DI/8DO can be configured				
	Size	252x390x275mm				
	Weight	10.5kg				
TEACH PENDANT	Overall Dimension	300×196×99mm				
	IP Class	IP65				
	Screen Size	10.1 inches				
	Screen Resolution	1280*800@60Hz				
	Weight	1.1kg				

CONTROL SYSTEM

Control Box (DC15S/30D)

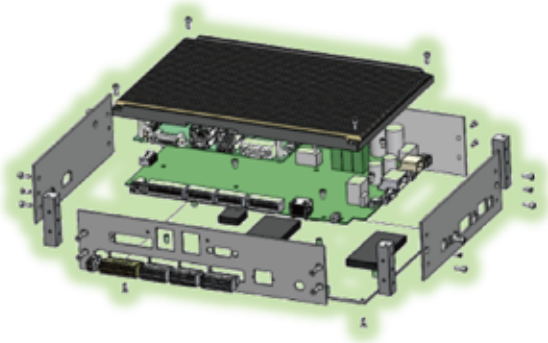


- 5-in-1* control box with extensive lifetime, lower risks of short circuits and wiring failures.
- New generation control box is 22.5% smaller and 30% lighter (Compared to previous generation).
- Improved EMC performance and IP54 protection with optimized cooling.

* ■ Safety Control ■ Communication ■ Motor Braking ■ Input/Output ■ Power Management

Technical parameters	GCR3-618 GCR10-1300	GCR5-910 GCR12-1300	GCR7-910 GCR16-960	GCR16-2000 GCR25-1800	GCR20-1400 GCR30-1100
Input Power Supply	100-240VAC(47-63Hz) 10A			220-240VAC(47-63Hz) 10A 100-240VAC(47-63Hz) 16A	
IP Class	IP54				
Communication Interface	EtherCAT、Ethernet/IP、Modbus/TCP、CAN、TCP/IP、RS-485、Profinet、External Encoder、WIFI (Optional).				
I/O Interface	2AI/2AO, 4*SDI/3*SDO, 16DI/16DO (PNP, 24V/Max 500mA), Among which 8DI/8DO can be configured				
Size	252x390x275mm				
Weight	10.5kg			10.6kg	

Independent Controller (DC00)

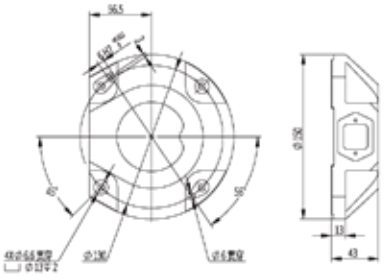


Technical parameters	
Size	252×173×67mm
Weight	2.5kg
Power Input	DC48V(42-59.2V) DC24V (22-26V)
Power Consumption	100W

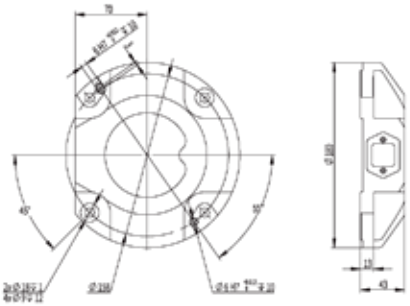
Teach Pendant

Technical parameters	
Overall Dimension	300×196×99mm
IP Class	IP65
Screen Size	10.1 inches
Screen Resolution	1280*800@60Hz
Weight	1.1kg
USB port	○

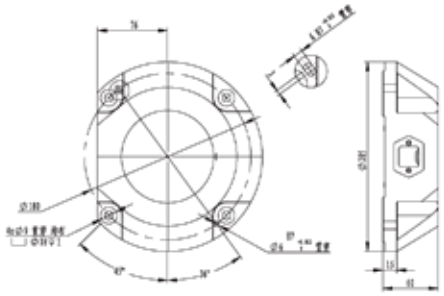
BASE FLANGE



GCR3-618-W

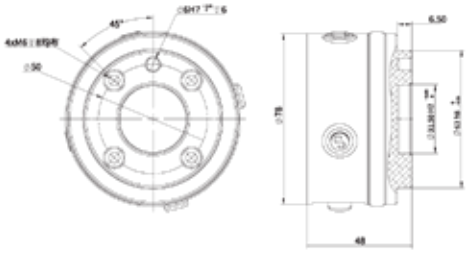


GCR5-910-W / GCR7-910-W

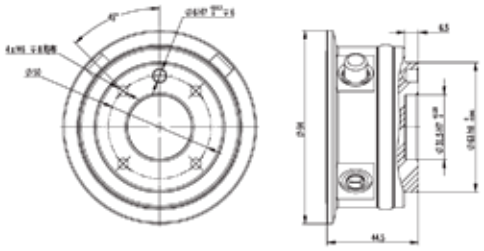


GCR10-1300-W / GCR12-1300-W

EOAT FLANGE



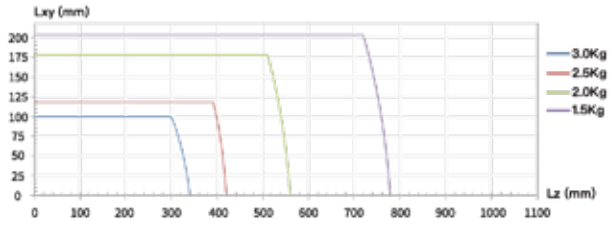
GCR3-618-W / GCR5-910-W / GCR7-910-W



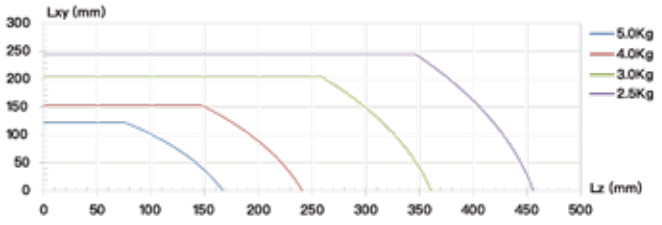
GCR10-1300-W / GCR12-1300-W

PAYLOAD DIAGRAM

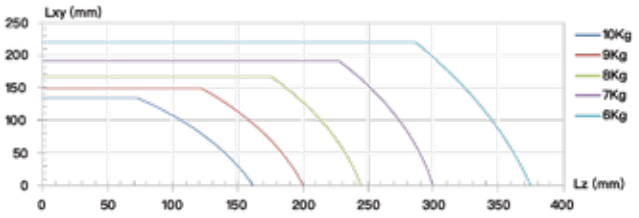
GCR3-618-W Payload Diagram



GCR5-910-W / GCR7-910-W Payload Diagram

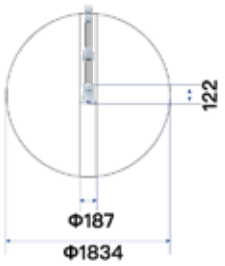


GCR10-1300-W / GCR12-1300-W Payload Diagram

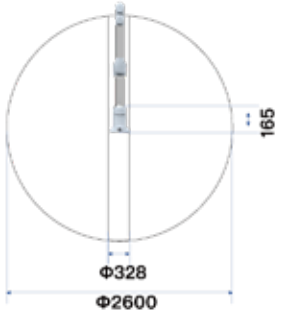


WORKSPACE

GCR3-618-W



GCR5-910-W / GCR7-910-W



GCR10-1300-W / GCR12-1300-W

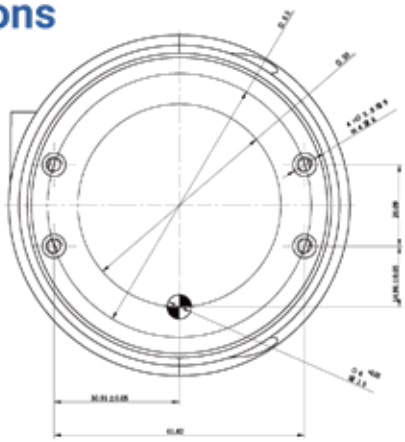
TEACHING ASSISTANT SYSTEM

The Teaching Assistant System is a welding accessory developed by DUCO, dedicated to enhancing the user-friendliness and convenience of collaborative robots in welding applications. It includes two models: the Torque Sensor Direct Teaching Module TCS-FX620 and the Joystick Direct Teaching Module TCS-YB620. The module can be quickly connected to the robot's end effector with plug-and-play functionality. When integrated with the welding process package, it significantly reduces operator labor intensity and improves work efficiency.

Torque Sensor Direct Teaching
TCS-FX620

Joystick Direct Teaching Module
TCS-YB620

Interface &Dimensions



Torque Sensor Direct Teaching Module TCS-FX620			
Product Name	Torque Sensor Direct Teaching Module	**Rate of Work**	<1A
IP Class	IP65	**Operating Ambient Temperature**	-10°C~50°C
Power	24V DC	**Relative Humidity**	95%, Without Condensation

Joystick Direct Teaching Module TCS-YB620			
Product Name	Joystick Direct Teaching Module	**Rate of Work**	<1A
IP Class	IP65	**Operating Ambient Temperature**	-10°C~50°C
Power	24V DC	**Relative Humidity**	95%, Without Condensation

WELDING ECOSYSTEM

Compatible with domestic welding power supplies

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

Compatible with international welding power supplies

Fronius 伏能士 · LINCOLN ELECTRIC · CLOOS · ewm · Panasonic · KEMPPI · WECO · OTC · MIGATRONIC

Compatible with varioussensor brands

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

WELDING SOFTWARE KITS

DUCO's independently developed welding process package integrates multiple functions including welding machine configuration, fuction settings, process parameter settings, and vision sensor settings, as well as arc starting, arc ending, arc tracking, weaving welding, and multi-layer and multi-pass welding. Multiple shortcut commands eliminate tedious interface operations and facilitate operation and debugging, allowing ordinary workers to learn how to operate the system in a short time, providing customers with safer and more efficient solutions.

Function settings

Weave Welding

Multi-pass Welding

Arc Tracking

EXTERNAL AXIS PROCESS HMI

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.

The supported external axis models are as follows:

Brand	Drive Model	Communication Protocol
INNOVANCE	SV630N/SV660N/SV670N	EtherCAT

External Axis Setup

External Axis Calibration

Force Sensor

Link-touch 蓝点触控, ATI, NBIT, WACOH, HKM, SRI Sunrise Instruments, DAPKON 达普科技

Vision System

MECH MIND, ALSONTECH, Photoneo, HIKROBOT 海康机器人, DATALOGIC, Inspiraz, COGNEX 康耐视, SICK, SOLOMON AccuPick, 图漾科技 PERCIPIO.XYZ

Electrical Gripper

ZIMMER, dh 大寰机器人, 钧舵机器人, ROBOTIQ, HIWIN, GIMATIC, OnRobot, 知行机器人

Vacuum Gripper

SMC, OPT, ROBOTIQ, BANNER, SCHMALZ, SRT, HANVAC, FESTO, KPA, THR, UNITECH, RoRobot

Quick-Change

ATI, Applied Robotics, GRIP, SCHUNK, 桥田 QUICKGT, 方品科技, CRG, GIMATIC

Simulation&Off-line Program

ORIGITECH, VISUAL COMPONENTS, HANHUA 瀚华智造, RoboDK

Fasten System

Rexroth Bosch Group, DEPRAG, DAND 艾而特, Atlas Copco, Danikor

Dress Packs

murrplastik, CUBEXIN 库鑫, igus

Gateway&Expansion Module

MOXA, AMSAMOTION 艾莫迅, hilscher, HongKe, HMS, 北京航空航天大学杭州创新研究院

Laser Scanner

OLEI, SICK, 大汉正源, KEYENCE 基恩士, Intelligent Laser

Optical &3D Scanner

CASAIM, 中观, 艾目易 | Aimooe

Welding Machine(China)

MEGMEET, AOTAI, GW LASER TECH, WELDTEC, BinGo, TAYOR, 思倍睿, headux 合大电气

Welding Machine(Global)

Panasonic, ewm, CLOOS, Fronius 伏能士, ESAB, KEMPPI, WECO, OTC

Other

Tenu, EWELLIX, 上海晋宇, INLINBOT, 赛威德

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