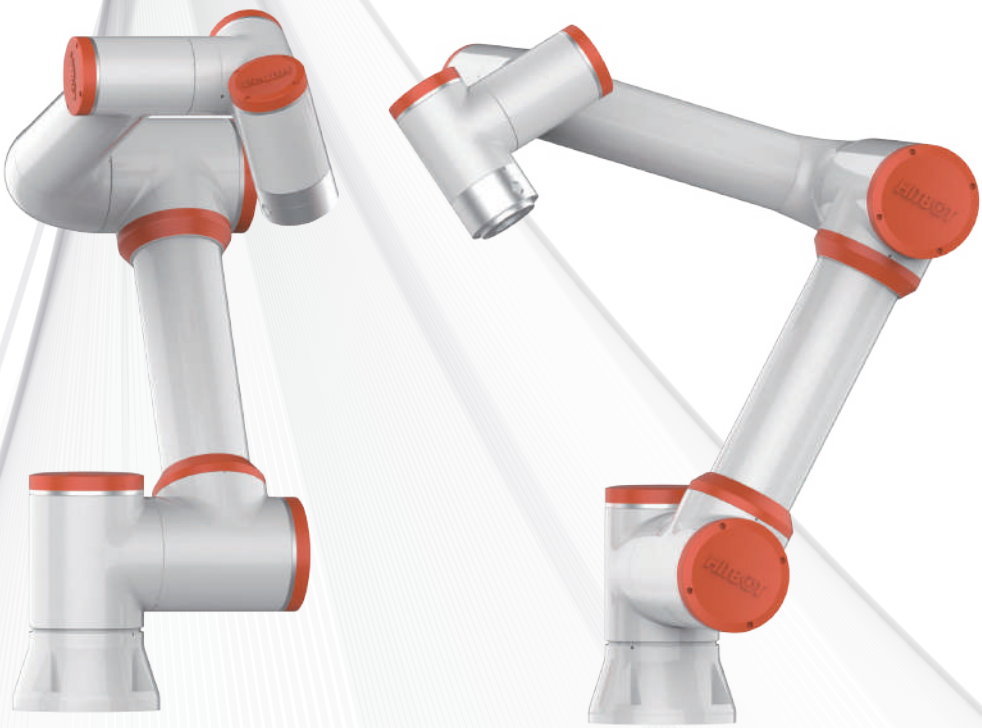
HITBOT

Automation & Collaborative Robots
IMTEC
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Z-Arm S922 Pruduct Manual

Industrial Robot / Collaborative Robot / Electric Gripper/
Intelligent Actuator / Automation Solution



Huiling-tech Robotic Co.,Ltd.

Z-Arm S922





Button Box



Control Box

Multi-axis rotation, covering every angle

Simple Operation

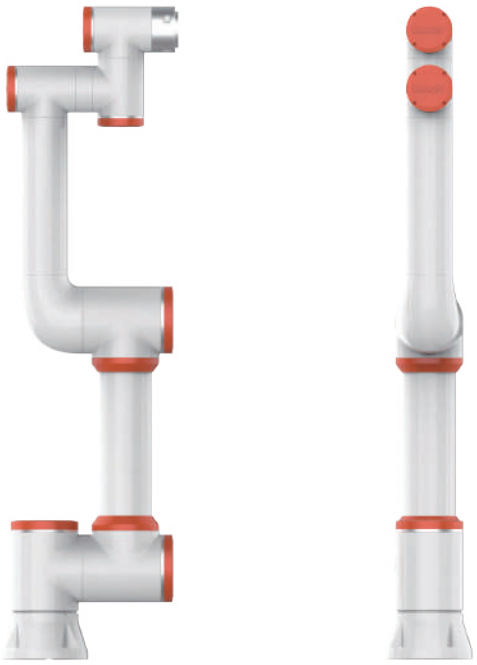
Drag teaching and graphical programming can effectively reduce application requirement and time Cost, use easy-to-use PC terminal operation interface.

Highly Integrated

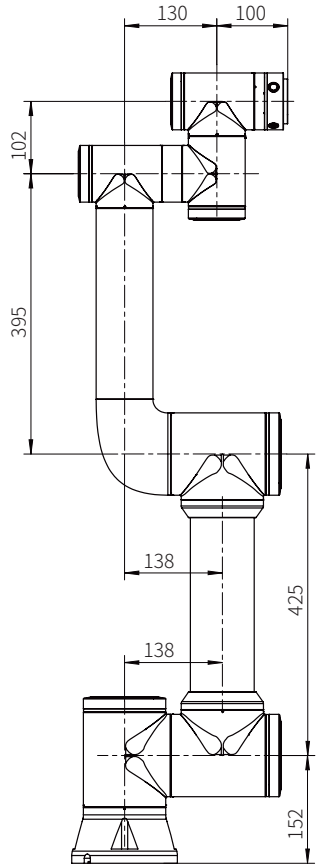
Reducer, motor, encoder and drive control are integrated easily for quick disassembly and assembly.

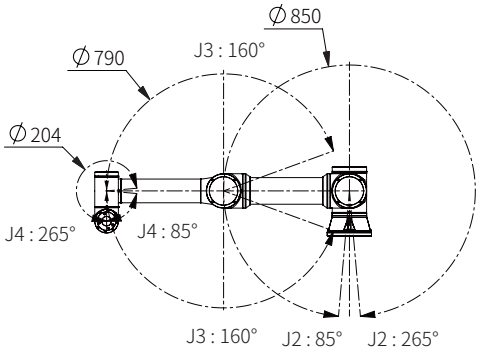
Wide Range of Applications

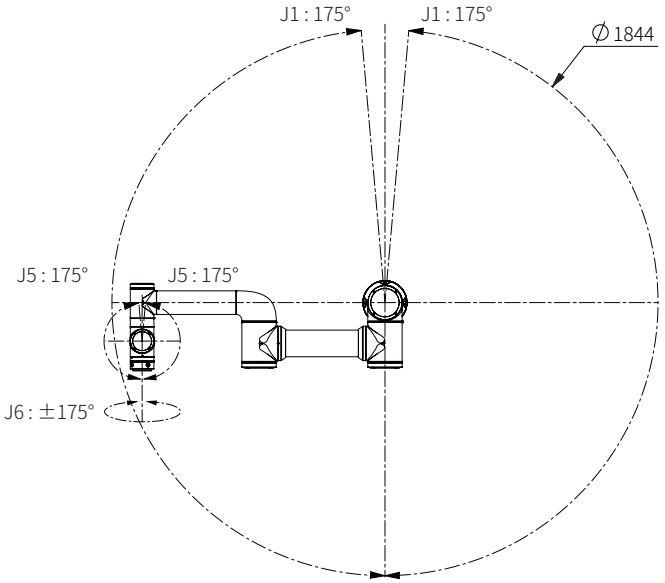
It can be used in the automotive industry, electronics industry, food and beverage industry, Health care and laboratory research fields, etc; to meet various functional needs, such as assemble, pick and place, twist screws, dispense, etc.

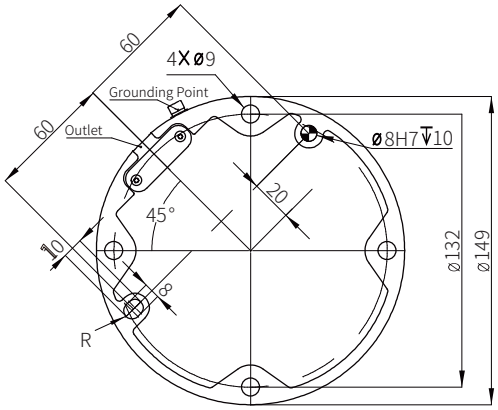


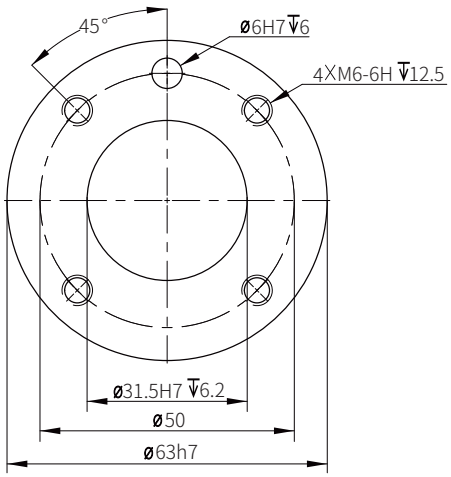
Range of Motion and Size











The end of the robot adopts international standards

Specifications

Z-Arm S922 Collaborative Robot Arm	Parameter
Weight	≈22kg
Payload	5kg
Working Range	922mm
Joint Range of Motion Software Limit Limitation	Axis 1：±175°　Axis 2：+85°，-265°　Axis 3：±160° Axis 4：+85°，-265°　Axis 5：±175°　Axis 6：±175°
Typical TCP Speed	1m/s
Repeatability	±0.02mm
Installation Area	φ149mm
Installation Orientation	Upright / Vertical Side/ Inverted Mounting
Control Box Size	245*180*44.5(mm)
Degree of Freedom	6
End I/O Port	Digital input: 2　Digital output: 2 Analog input: 1　Analog output: 1
Control Box I/O Port	Digital input: 16　Digital output: 16 Analog input: 2　Analog output: 2
I/O Power Supply	24V/1.5A
Communication	I/O、TCP/IP、Modbus_TCP/RTU、PROFINET
development environment	C#/C++/Python/java/ROS
Noise	＜65DB
Protection Level	IP54
Coordinated Operation	With collision detection function, allowing customize collision levels
Power Supply	220V/50HZ
Use Environment	·Away from vibrations and the vibration intensity is not higher than 0.5G ·Away from corrosive gases, liquids and explosive gases ·Avoid dust, smoke and water ·Avoid equipment working under unstable current conditions
Humidity	20-80RH No frost
Temperature	0-45℃

Button Box



A human-machine interaction tool that enables basic interactive functions. It can be connected to computers, tablets, and other devices via a Type-C interface, allowing direct access to the web-based teaching interface.

■ Simple and user-friendly ■ Convenient operation ■ Flexible deployment

Device Features	Protection Level	IP54
	Network Transmission Rate	100M Standard POE
	Number of Keypresses	≥20W 次
Physical Performance	Dimension（L*W*H）	172*62*54mm
	Device Weight	490g（Weight with cables）
	Device Material	ABS
	Cable Length	5m

Compact Control Box



Small size, light weight, easy installation, and flexible deployment; provides rich interfaces: I/O, TCP/IP, Modbus_TCP/RTU, Profinet, etc., supporting various development environments such as C#/C++/Python/Java/ROS.

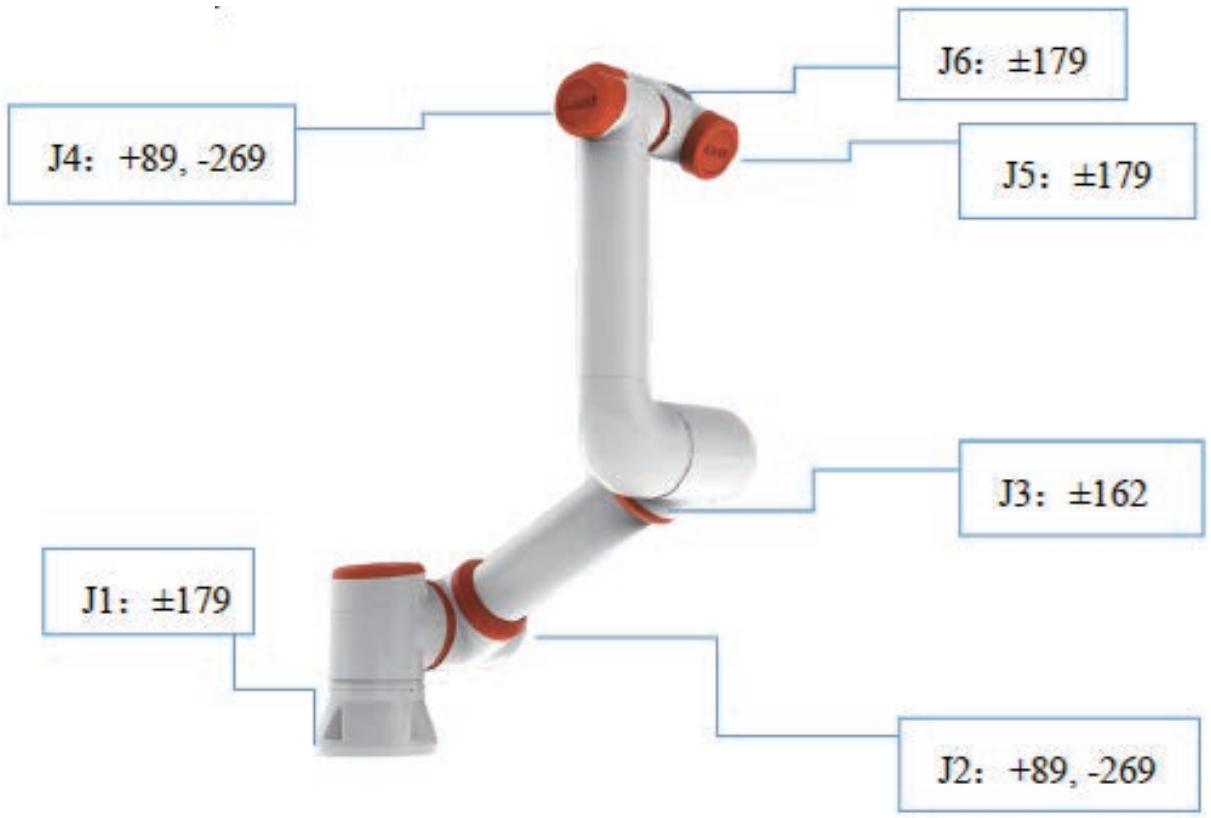
Device Features	Protection Level	IP54
	Operating Temperature	0~45℃
	Operating Humidity	20~80%RH（Non-condensing）
	Inside the Control Box (I/O Ports)	Digital Inputs (DI)：16　Digital Outputs (DO)：16
		Analog Inputs (AI)：2　Analog Outputs (AO)：2
		High-Speed Pulse Inputs: 2
	Power Supply Inside the Control Box	24V/1.5A
Physical Performance	Dimensional Parameters (L*W*H)	245*180*44.5mm
	Device Weight	2.1kg
	Device Material	Galvanized Sheet

Robot Arm Working Range

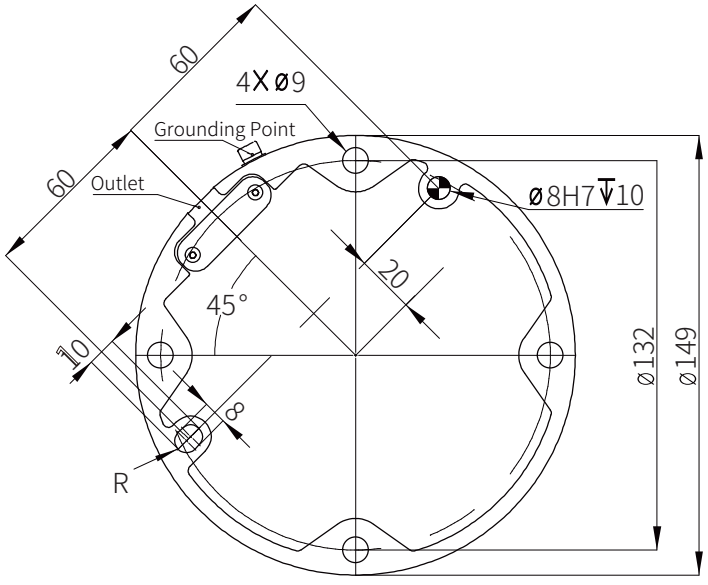


Robot arm maximum space extension: 922mm

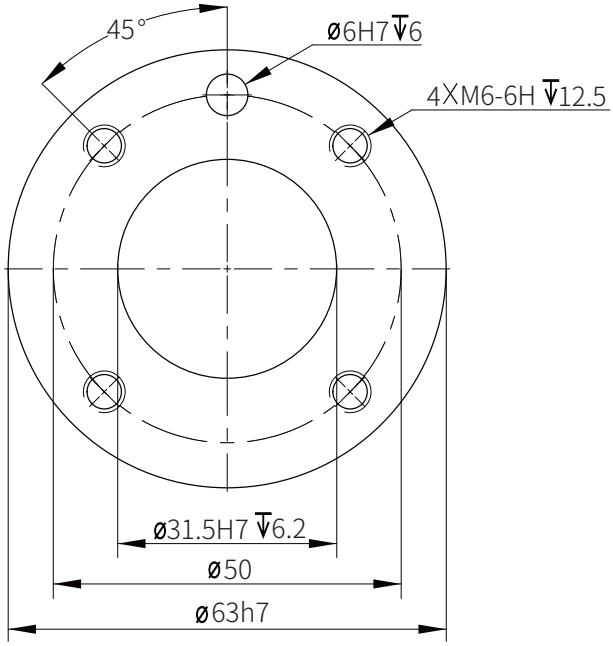
Robot Arm Mechanical Limits



Robot Arm Installation Dimensions

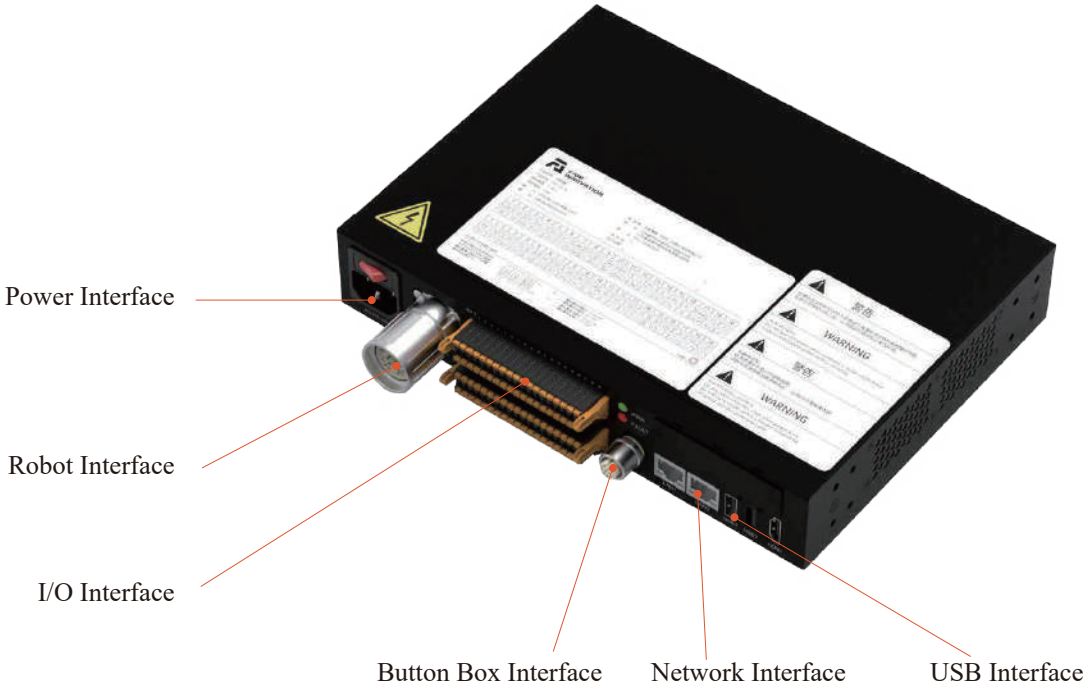


Robot End Flange Size



The robot end effectors all adopt international standards.

Control Box Dimensions



Controller I/O Panel

The I/O inside the control box can be used to control a variety of devices, including pneumatic relays, PLCs, and emergency stop buttons. Figure 1 shows the electrical interface group inside the control box and the network interface group of the control box.

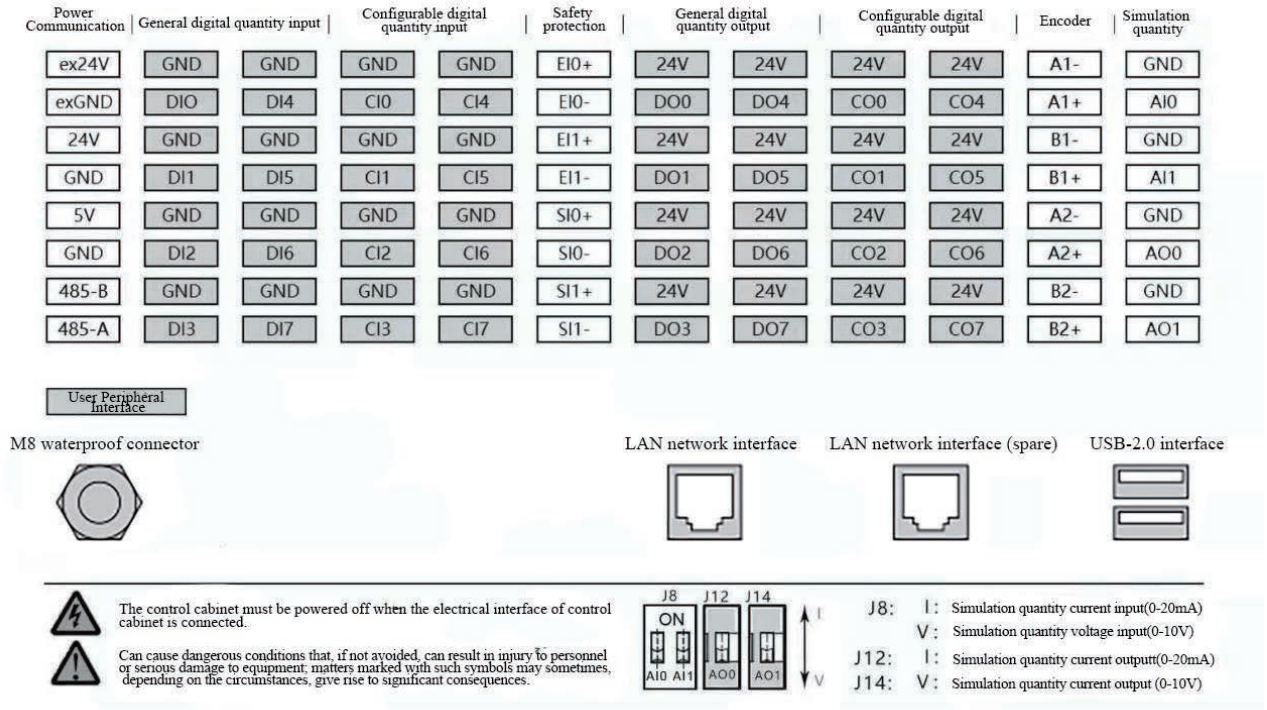


Figure 1 Control box electrical interface diagram

End Boards

The I/O and 485 communication interfaces of the end board can be used to control various devices, including pneumatic relays, PLCs and emergency stop pushbuttons.Pin distribution and pin description are shown in Figure 2. the I/O connector type is M12 connector 8-pole female.

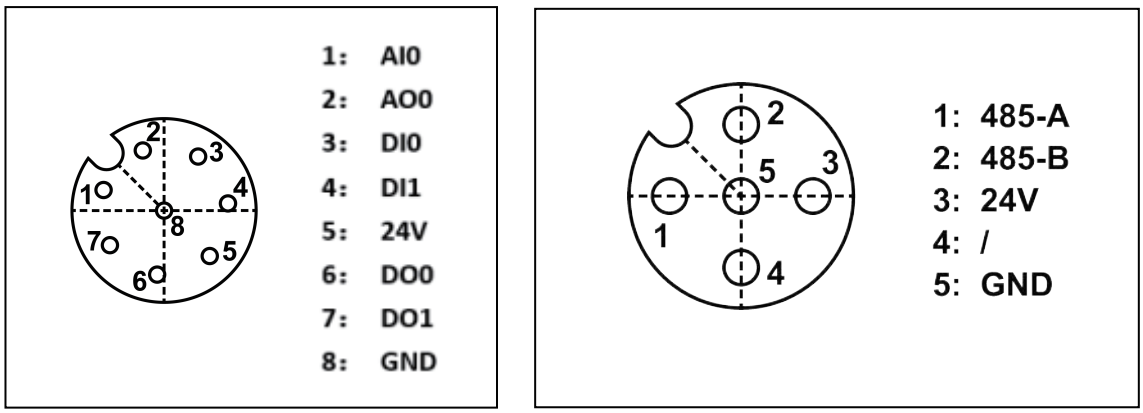


Figure 2 Schematic diagram of the electrical interface of the end version

RJ45 Network Interface Group

The network interface group address inside the control box is shown in Figure 3. Note that this figure corresponds to the order of the internal network port address of the control box, and the robot's default port is forbidden to plug and unplug. The user network port can be used to communicate with the camera and other devices, the IP address is 192.168.57.2. The button box interface is the teaching pendant control port by default, the IP address is 192.168.58.2, use the network cable to connect the button box interface and the computer,The computer's IP address is set to 192.168.58.10 or the same network segment. Open the Google browser and enter 192.168.58.2 to access the teach pendant page.

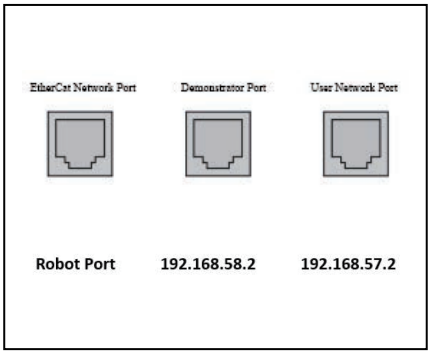


Figure 3 Schematic diagram of the network interface group

The internal and external power supplies electrical specifications are shown in the table of the internal and external electrical specifications:

Terminal	Parameter	Min. value	Typical value	Maximum value	Unit
Internal 24V power supply					
[ex24V – exGND]	Voltage	23	24	25	V
[ex24V – exGND]	Current	0	-	2	A
Internal 24V power supply					
[24V – GND]	Voltage	23	24	25	V
[24V – GND]	Current	0	-	1.5	A

The digital I/O electrical specifications are shown in the table of the digital I/O electrical specifications:

Terminal	Parameter	Min. value	Typical value	Maximum value	Unit
Digital output					
[COx / DOx]	Current	0	-	1	A
[COx / DOx]	Voltage Drop	0	-	0.5	V
[COx / DOx]	Leakage current	0	-	0.1	mA
[COx / DOx]	Function	-	NPN	-	Type
Digital input					
[EIx/SIx/CIx/DIx]	OFF	-3	-	5	V
[EIx/SIx/CIx/DIx]	ON	11	-	30	V
[EIx/SIx/CIx/DIx]	Current (11-30V)	2	-	15	mA
[EIx/SIx/CIx/DIx]	Function	-	NPN	-	Type

Analog I/O specifications are shown in the table of the analog current and voltage specifications.

Terminal	Parameter	Min. value	Min. value	Maximum value	Unit
Analog current input					
[AIx - END]	Current	0	-	20	mA
[AIx - END]	Impedance	-	500	-	ohm
[AIx - END]	Resolution	-	12	-	bit
Analog voltage input					
[Alx - END]	Current	0	-	10	V
[Alx - END]	Impedance	-	510	-	Kohm
[Alx - END]	Resolution	-	12	-	bit
Analog current output					
[AOx - END]	Current	0	-	20	mA
[AOx - END]	Voltage	0	-	10	V
[AOx - END]	Resolution	-	12	-	bit
Analog voltage output					
[AOx - END]	Voltage	0	-	10	V
[AOx - END]	Current	0	-	20	mA
[AOx - END]	Impedance	-	100	-	ohm
[AOx - END]	Resolution	-	12	-	bit

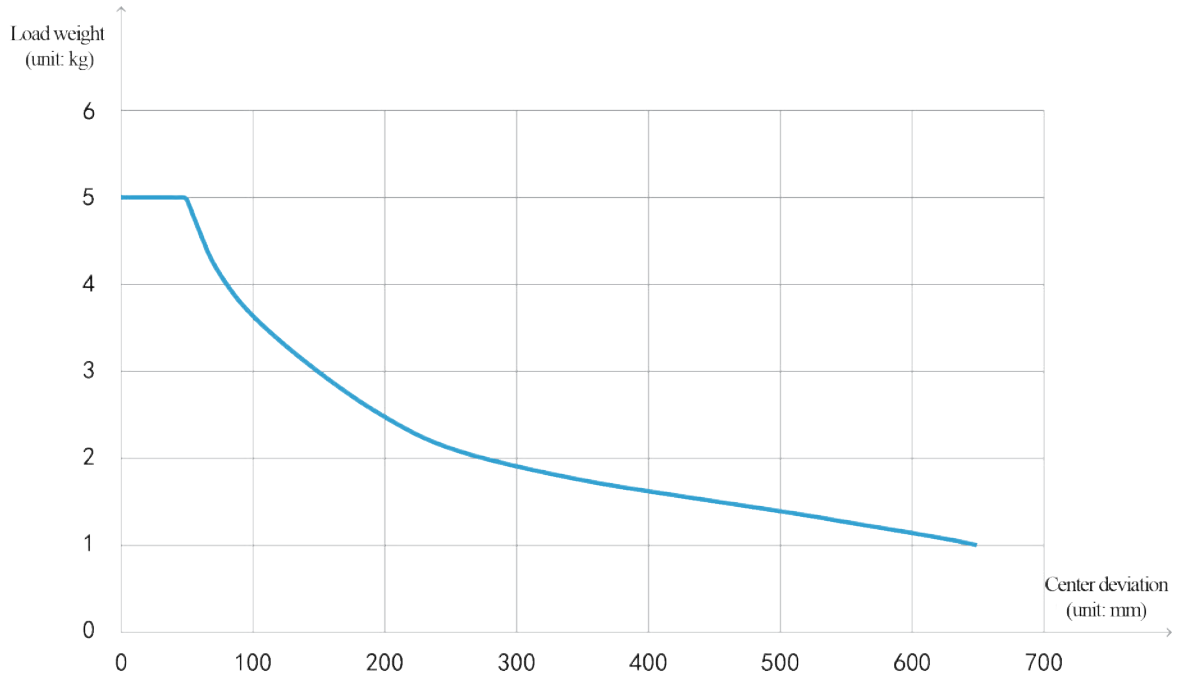
Installation Environment

When installing and using the collaborative robots, make sure that the following requirements are met.
·Ambient temperature 0-45℃
·Humidity 20-80RH without condensation
· Keep away from vibration, and the intensity of vibration is not higher than 0.5G
·Keep away from corrosive gas, liquid and explosive gas
·Avoid dust, smoke and water
·Avoid equipment working under unstable current conditions

Caution:
Please contact us if you want to hoist or install the collaborative robot on a vertical surface.

Maximum Payload

The maximum allowable payload of the robot arm depends on the offset of the center of gravity. The maximum 5kg payload is the load value at the center of gravity 30mm from the end center. When the distance of the load center of gravity becomes farther, the load on the robot will become smaller.



Recommended end IO connector, M12 five-pin and eight-pin aerial plug, 20~26AWG, PG7 (4-6mm), -40~+85℃
Adaptable gripper: Z-EFG-FSNK-S/Z-EFG-LNK-S/Z-EFG-RNK-S/Z-EFG-100TXA-S/Z-EFG-RPALL-S



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Making Automation Easier

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