



Z-Arm S1403

Product Manual

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



LV Automation
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Z-Arm S1403



Easy to operate
Highly integrated
Widely applied

Larger load
Longer arm
Higher precision



Control Box



Button Box

Cover All the Range

Easy to operate

Drag teaching and graphical programming effectively reduce the application threshold and time cost, and the PC interface is convenient and easy to operate.

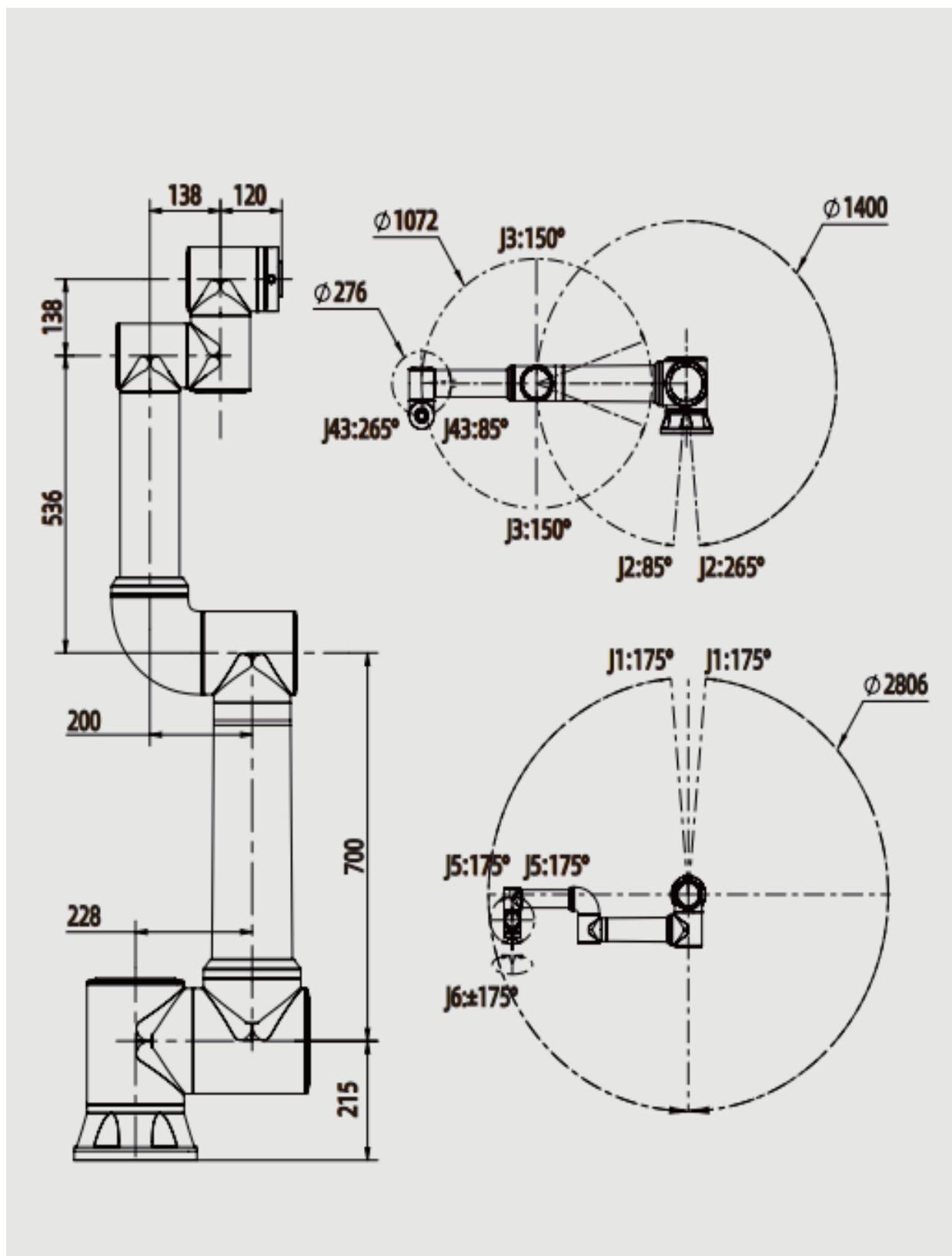
Highly integrated

The reducer, motor, encoder and drive control are integrated for quick disassembly and assembly.

Wide range of application

It can be used in the automotive industry, electronics industry, food and beverage industry, health care and laboratory research fields, etc.; it can meet various functional requirements such as assembly, pick and place, twist screws, dispensing, etc..

Range of Motion and Size



Specifications

Z-Arm S1403 Collaborative Robot Arm	Parameter
Weight	≈85kg
Payload	30kg
Working Range	1403mm
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	2m/s
Repeatability	±0.1mm
Installation Area	φ190mm
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
Development environment	C#/C++/Python/java/ROS
Noise	<70dB
Protection Level	IP54
Coordinated Operation	With collision detection function, allowing custom 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
Temperature	0-45°C
Humidity	90%RH(non-condensing)
Motor lifetime	30000 hours
Average power	600W

Button Box

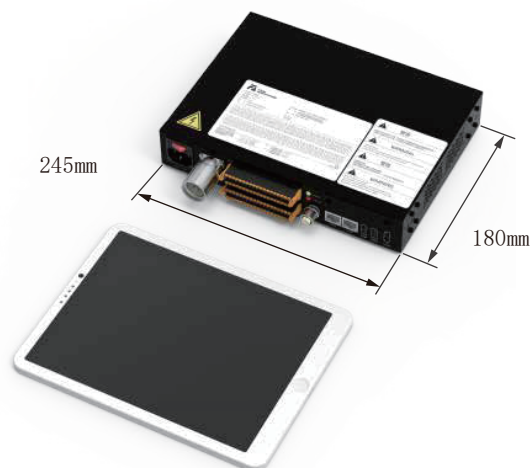


A human-machine interaction tool that enables basic interactive functions. It can be connected to computers, tablets, and other devices via a Type-C interface, allowing direct access to the web-based teaching interface.

- 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)	136*60*66mm
	Device Weight	490g (Weight with cables)
	Device Material	ABS
	Cable Length	5m

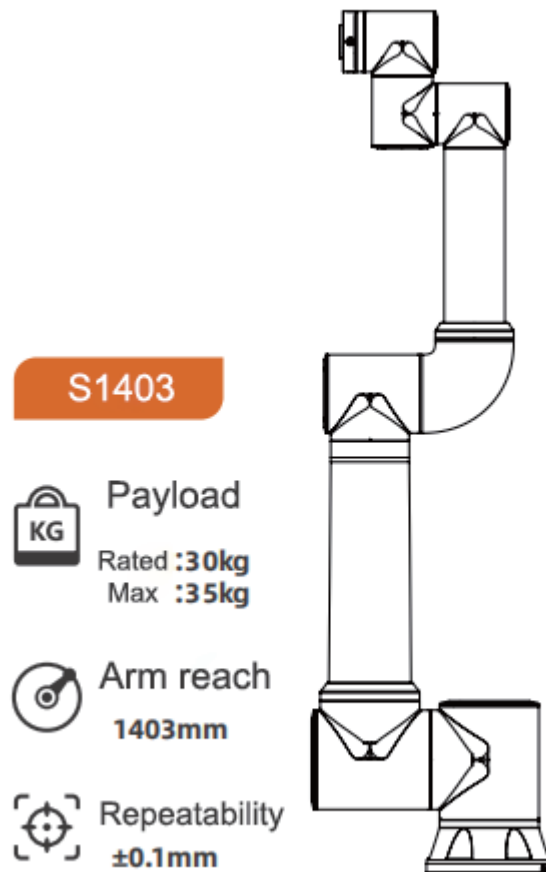
Compact Control Box



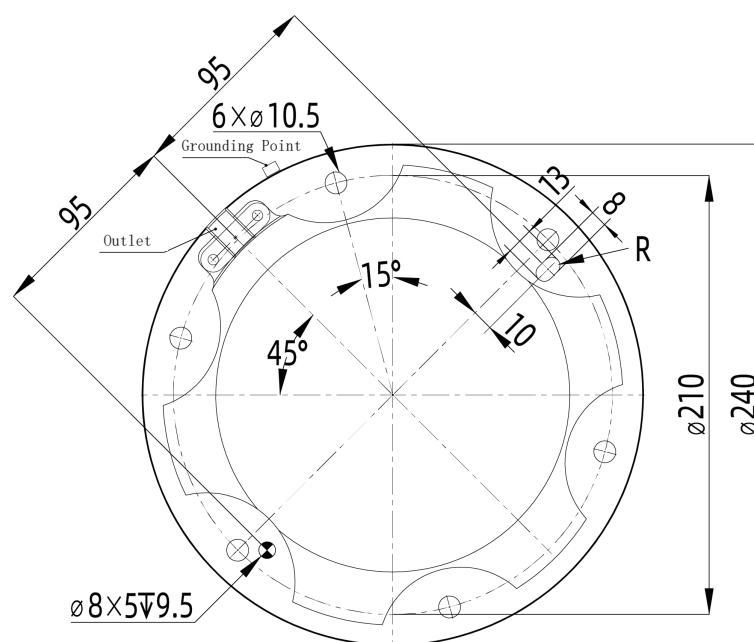
Small size, light weight, easy installation, and flexible deployment; provides rich interfaces: I/O, TCP/IP, Modbus_TCP/RTU, Profinet, etc., supporting various development environments such as C#/C++/Python/Java/ROS.

Device Features	Protection Level	IP54
	Operating Temperature	0~45°C
	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
Physical Performance	Power Supply Inside the Control Box	24V/1.5A
	Dimensional Parameters (L*W*H)	245*180*44.5mm
	Device Weight	2.1kg
	Device Material	Galvanized Sheet

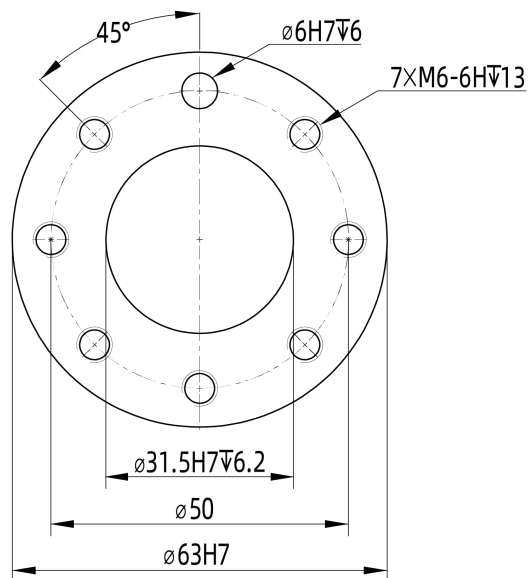
Robot property



Robot Installation Dimensions

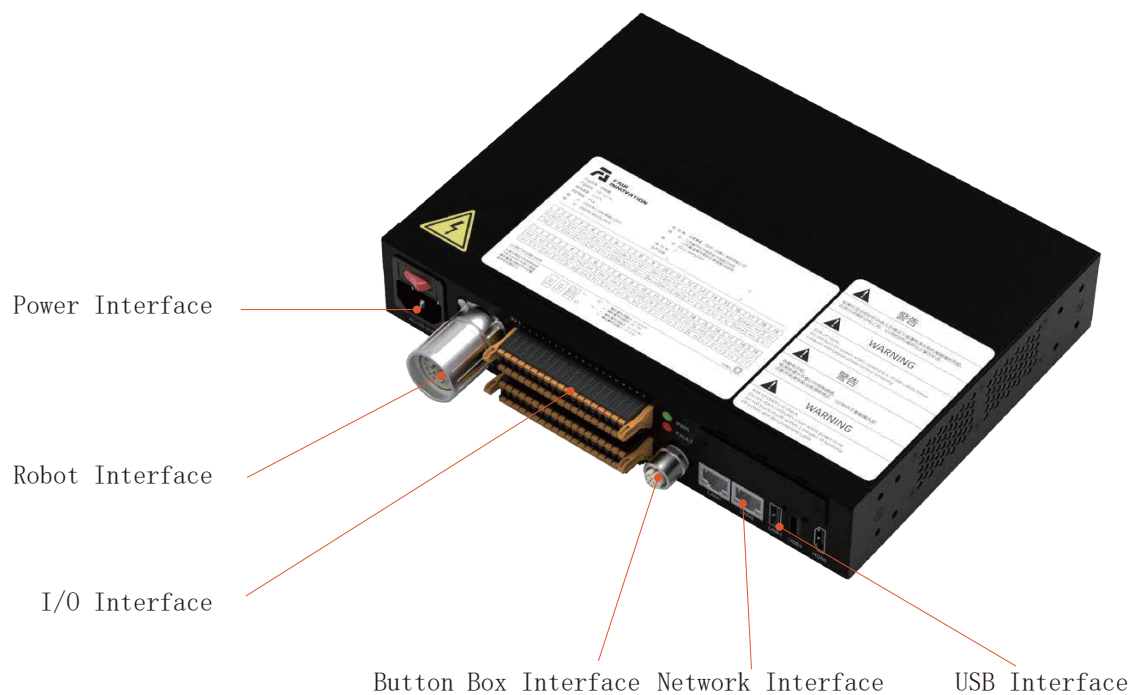


Flange Size at the End of the Robot



Connection method compatible with industrial robot end effectors at the end of the arm

Control Box Wiring Panel



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.

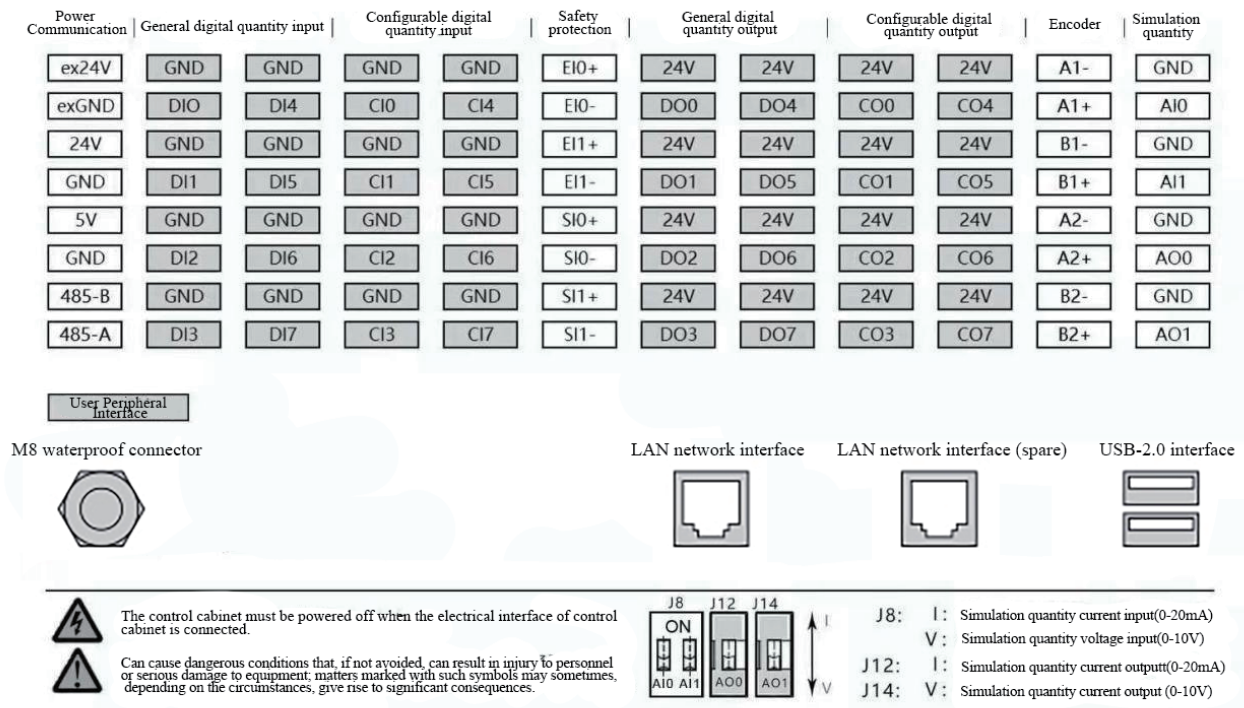


Figure 1 Control box electrical interface diagram

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.

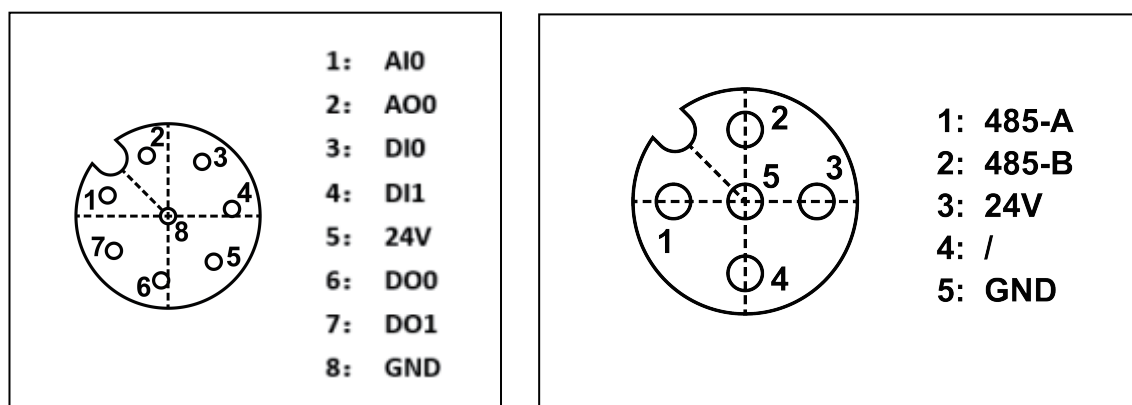


Figure 2 Schematic diagram of the electrical interface of the end version

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.

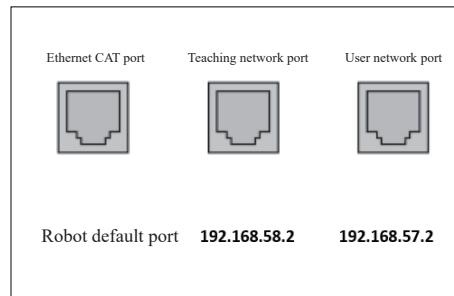


Figure 3 Schematic diagram of the network interface group

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
	Current	0	-	2	A
Internal 24V power supply [24V – GND]	Voltage	23	24	25	V
	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
	Voltage Drop	0	-	0.5	V
	Leakage current	0	-	0.1	mA
[COx / DOx]	Function	-	NPN	-	Type
Digital input [EIx/SIx/CIx/DIx]	OFF	-3	-	5	V
	ON	11	-	30	V
	Current (11-30V)	2	-	15	mA
	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					
[AIx - END]	Current	0	-	10	V
[AIx - END]	Impedance	-	510	-	Kohm
[AIx - 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°C
- 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.



Making Automation Easier

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