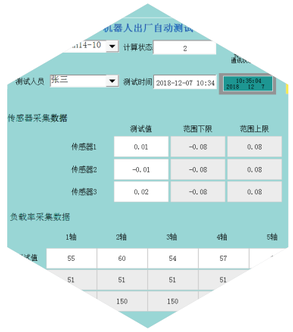
Production Demonstration

Robot Controller
Years of cultivation.
Tens of thousands of application.
More than 50% market share.



Special integrated drive-controller for robot
We created the high-performance integrated drive-controller by our professional team.





Factory Test
13 fully automated tests ensure consistency of the batch product.

Intelligent Sensor
Expanding the depth and breadth of the industry
Simple and easy to use
Comprehensive and full-featured

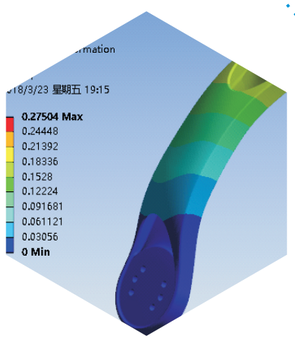




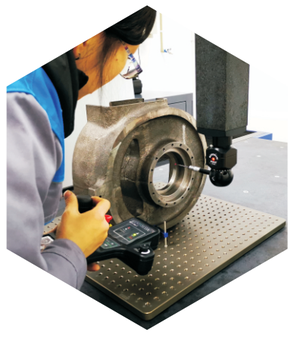


Type Test
16 major items test and 64 minor items test ensure reliability and quality

Mechanical Design
Strictly and elaborately designed by our precise transmission design team.



Component Inspection
The strict inspection of components ensures accuracy and quality.





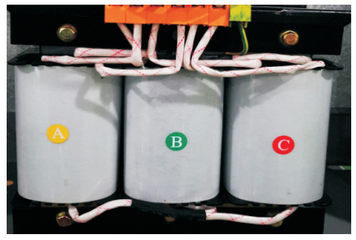
Production Process
Strict production process, consistent and efficient.

G4 Industrial Robot Electrical Cabinet

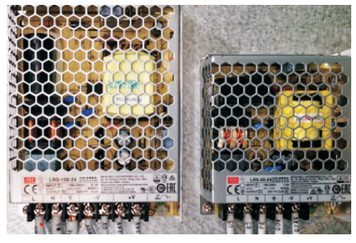




Three-phase three-wire power filter



Three-phase dry-type servo isolation transformer



Double switching power supply

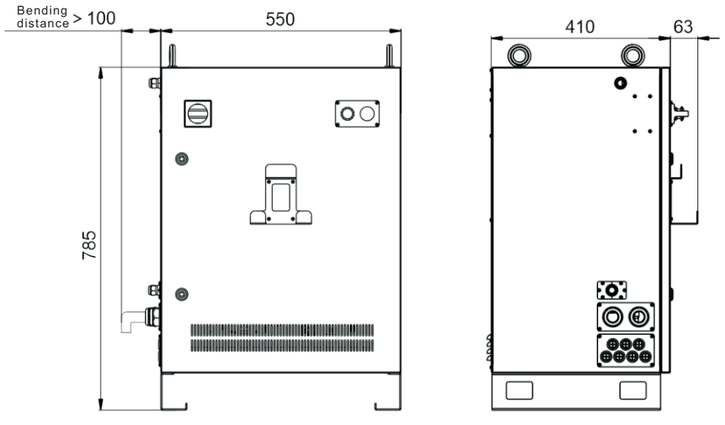


Built-in safety circuit

Cabinet Technical Index

Teaching pendant	8-inch TFT-LCD, button + touch screen, mode selection switch, safety switch, emergency stop button
User memory	200M
Axis quantity that can be controlled	6ed+ 2 axes, 6 robot body axes + 2 external axes
Interface	Digital I/O interface, EtherCAT, 22 input / output(expandable COM)
	4-way 0~10V analog output, 12-bit accuracy(expandable COM)
	Two-way encoder signal interface(position tracking)
	Ethernet communication interface
	Double USB interface
Operation mode	Teaching, reproduction, remote
Moving function	Point-to-point, straight line, circle
Command system	Motion, logic, process, operation
Coordinate system	Joint coordinates, rectangular coordinates, user coordinates, tool coordinates, and base coordinates
Abnormal detection function	Abnormal stop, abnormal servo, abnormal user coordinates,abnormal tool coordinates, safety maintenance, abnormal arc,etc.
Robot safety	External emergency stop, anti-collision and safety bolt interface; MC safety circuit, servo soften, etc.
Reserved specific interface	arc welding interface, workstation interface
Software package	With options of welding, handling, palletizing, painting, andspraying applications
Others	Built-in PLC, regenerative braking, encoder interface(supporting synchronous belt), arc tracking and accessories(optional), vision software(optional), laser tracking software(optional), etc.
Connecting cable	3m
Power supply	Three phase 380V AC 50-60HZ
Dimension	550mm×785mm×410mm
Weight	65KG

Cabinet Dimensional Drawing



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TR1010A-144

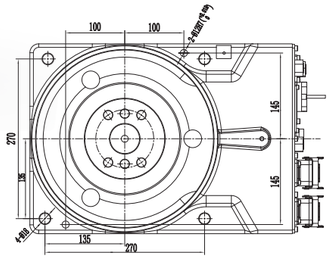
Industrial Robot **Handling Application**



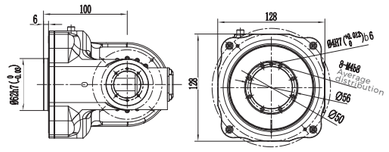
Functional Features

- Payload is 10kg. The arm span is 1.4 meters. It can be installed on the ground or upside down flexibly.
- With large working space and fast running speed, it is suitable for welding, spraying,loading and unloading, handling, sorting, assembling and other applications.
- The safety emergency stop board is independent of the controller, and the safety relay circuit is adopted to provide double circuit emergency stop to ensure the reliability of emergency stop.
- The robot body cables are made of special cables for flexible robots.
- Built-in three-phase transformer, 380V and 200V isolation, more stable power supply.(Power supply requirements can be customized for different countries.)
- Built-in three phase filter can effectively improve the performance of EMC and EMI.
- The robot body is with dual-circuit gas pipe and meets welding and handling requirements

Installation Interface Diagram

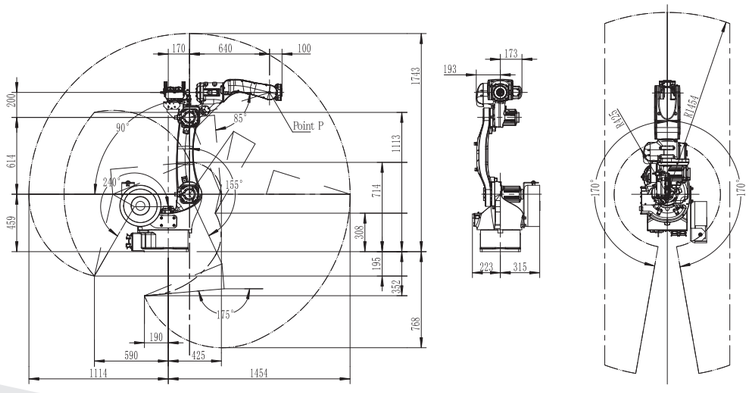


Installation Dimension of Base



Flange Dimensions

Motion Range Diagram





Robot Body Technical Parameters

Model		**TR1010A-144**
Arm form		Vertical multiple joints
Degree of freedom		6 axis
Maximum payload		10KG
Maximum travel	axis 1	Ground/upside down mounting -167°~167°, wall mounting -30°~30°
	axis 2	0°~175°
	axis 3	-80°~150°
	axis 4	-190°~190°
	axis 5	-105°~130°
	axis 6	-210°~210°
Maximum speed	axis 1	169°/S
	axis 2	169°/S
	axis 3	169°/S
	axis 4	280°/S
	axis 5	240°/S
	axis 6	520°/S
Allowable torque	axis 4	10N.m
	axis 5	10N.m
	axis 6	3N.m
Allowable moment of inertia	axis 4	0.25kg.m²
	axis 5	0.25kg.m²
	axis 6	0.05kg.m²
Repeated positioning accuracy		±0.08mm
Maximum reaching distance		1440mm
Robot body weight		170KG
Installation mode		Ground or upside down mounting
Installation environment	ambient temperature	0~45°C
	relative humidity	20~80%(No condensation)
	vibration	Under 0.5 G
	Others	Robot installation must be away from: Flammable or corrosive liquids or gases, electrical sources of interference
IP level		Body IP54 , wrist IP67
Advantage features		Compact structure, high speed, high precision, high expansibility and easy operation
Application		cutting, assembly, handling, marking, grinding

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TR1020A-172

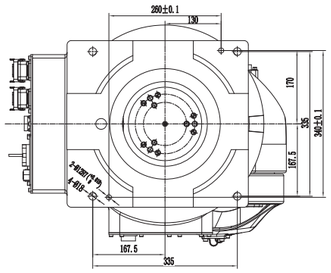
Industrial Robot **Handling Application**



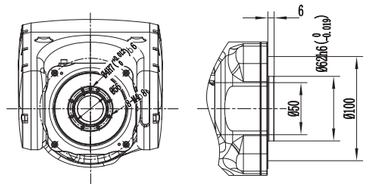
Functional Features

- With compact design 20kg payload and about 1.8 meters arm span, it can be installed on the ground or upside down flexibly.
- With large working space and fast running speed, it is suitable for welding, spraying,loading and unloading, handling, sorting, assembling and other applications.
- The safety emergency stop board is independent of the controller, and the safety relay circuit is adopted to provide double circuit emergency stop to ensure the reliability of emergency stop.
- The robot body cables are made of special cables for highly flexible robots.
- Built-in three-phase transformer, 380V and 200V isolation, more stable power supply.
- Power supply requirements can be customized for different countries. Built-in three-phase filter can effectively improve the performance of EMC and EMI.
- The robot body is with dual-circuit gas pipe and meets welding and handling requirements.

Installation Interface Diagram

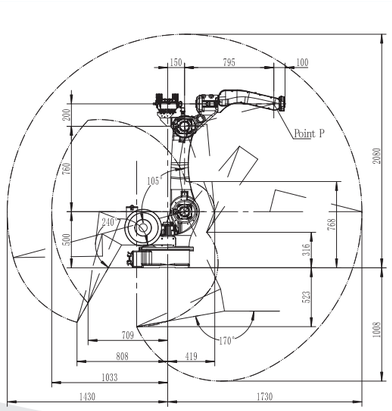


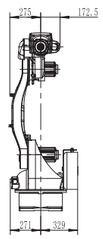
Installation Dimension of Base

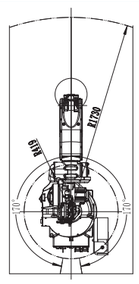


Flange Dimensions

Motion Range Diagram









Robot Body Technical Parameters

Model		**TR1020A-172**
Arm form		Vertical multiple joints
Degree of freedom		6 axis
Maximum payload		20KG
Maximum travel	axis 1	Ground/upside down mounting -167°~167°, wall mounting -30°~30°
	axis 2	0°~175°
	axis 3	-80°~150°
	axis 4	-190°~190°
	axis 5	-105°~130°
	axis 6	-210°~210°
Maximum speed	axis 1	159°/S
	axis 2	159°/S
	axis 3	169°/S
	axis 4	280°/S
	axis 5	240°/S
	axis 6	483°/S
Allowable torque	axis 4	48N.m
	axis 5	48N.m
	axis 6	28N.m
Allowable moment of inertia	axis 4	1.8kg.m²
	axis 5	1.8kg.m²
	axis 6	0.8kg.m²
Repeated positioning accuracy		±0.08mm
Maximum reaching distance		1720mm
Robot body weight		285KG
Installation mode		Ground or upside down mounting
Installation environment	ambient temperature	0~45°C
	relative humidity	20~80%(No condensation)
	vibration	Under 0.5 G
	Others	Robot installation must be away from: Flammable or corrosive liquids or gases, electrical sources of interference
IP level		Body IP54 , wrist IP67
Advantage features		Compact structure, high speed, high precision, high expansibility and easy operation
Application		cutting, assembly, handling, marking, grinding

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TR1010A-200

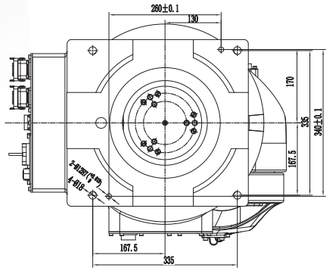
Industrial Robot **Handling Application**



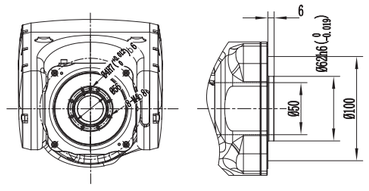
Functional Features

- With compact design 10kg payload and about 2.0 meters arm span, it can be installed on the ground or upside down flexibly.
- With large working space and fast running speed, it is suitable for welding, spraying,loading and unloading, handling, sorting, assembling and other applications.
- The safety emergency stop board is independent of the controller, and the safety relay circuit is adopted to provide double circuit emergency stop to ensure the reliability of emergency stop.
- The robot body cables are made of special cables for highly flexible robots.
- Built-in three-phase transformer, 380V and 200V isolation, more stable power supply.
- Power supply requirements can be customized for different countries. Built-in three-phase filter can effectively improve the performance of EMC and EMI.
- The robot body is with dual-circuit gas pipe and meets welding and handling requirements.

Installation Interface Diagram

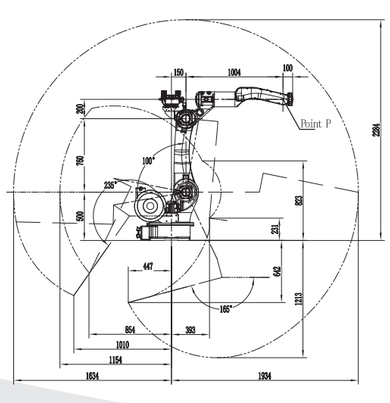


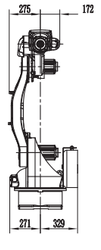
Installation Dimension of Base

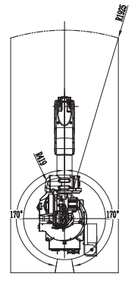


Flange Dimensions

Motion Range Diagram









Robot Body Technical Parameters

Model		**TR1010A-200**
Arm form		Vertical multiple joints
Degree of freedom		6 axis
Maximum payload		10KG
Maximum travel	axis 1	Ground/upside down mounting -167°~167°, wall mounting -30°~30°
	axis 2	0°~175°
	axis 3	-80°~150°
	axis 4	-190°~190°
	axis 5	-105°~130°
	axis 6	-210°~210°
Maximum speed	axis 1	159°/S
	axis 2	159°/S
	axis 3	169°/S
	axis 4	280°/S
	axis 5	240°/S
	axis 6	483°/S
Allowable torque	axis 4	24N.m
	axis 5	24N.m
	axis 6	14N.m
Allowable moment of inertia	axis 4	1.4kg.m²
	axis 5	1.4kg.m²
	axis 6	0.5kg.m²
Repeated positioning accuracy		±0.08mm
Maximum reaching distance		1920mm
Robot body weight		288KG
Installation mode		Ground or upside down mounting
Installation environment	ambient temperature	0~45°C
	relative humidity	20~80%(No condensation)
	vibration	Under 0.5 G
	Others	Robot installation must be away from: Flammable or corrosive liquids or gases, electrical sources of interference
IP level		Body IP54 , wrist IP67
Advantage features		Compact structure, high speed, high precision, high expansibility and easy operation
Application		cutting, assembly, handling, marking, grinding

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TR1006A-915

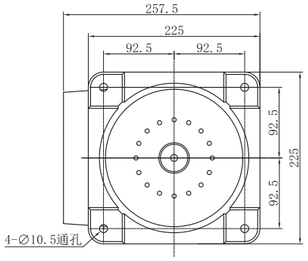
Industrial Robot **Handling Application**



Functional Features

- Well-knit design makes the robot body more slender than other same level product,so it is more flexible even in a small space, also keep a very low rate of collision with surrounding devices.
- Maximum reach 915 mm.
- Lighter structure design than other same level product, so it is easy to install inside a system or to mount upside -down
- High rigidity arm and top level servo control technology guarantee the smothness and stability while the movement.
- Rated payload 6 kg, easily applied in multi application.
- Built-in cable, no more catheter and cable twisting on the arm. Leak-proof structure,can be applied in dust and oil-mist environment.

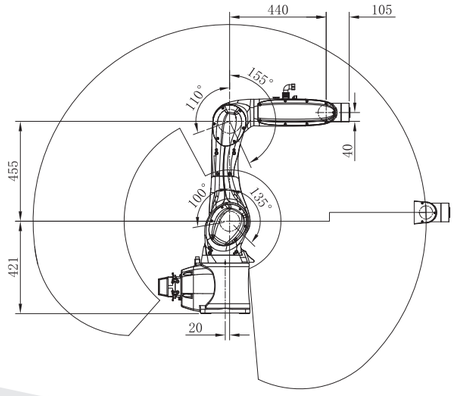
Installation Interface Diagram

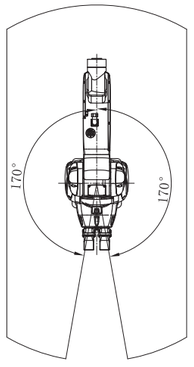


Installation Dimension of Base

Flange Dimensions

Motion Range Diagram







Robot Body Technical Parameters

Model		**TR1006A-915**
Arm form		Vertical multiple joints
Degree of freedom		6 axis
Maximum payload		6KG
Maximum travel	axis 1	-170°~170°
	axis 2	-45°~190°
	axis 3	-155°~110°
	axis 4	-170°~170°
	axis 5	-120°~120°
	axis 6	-360°~360°
Maximum speed	axis 1	337.5°/S
	axis 2	270°/S
	axis 3	375°/S
	axis 4	300°/S
	axis 5	375°/S
	axis 6	468°/S
Repeated positioning accuracy		±0.03mm
Maximum reaching distance		915mm
Robot body weight		60KG
Installation mode		Ground or upside down mounting
Installation environment	ambient temperature	0~45°C
	relative humidity	20~80%(No condensation)
	vibration	Under 0.5 G
	Others	Robot installation must be away from: Flammable or corrosive liquids or gases, electrical sources of interference
IP level		IP56
Advantage features		Compact structure, high speed, high precision, high expansibility and easy operation
Application		cutting, assembly, handling, marking, grinding

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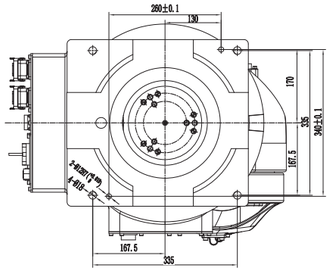
Industrial Robot **Welding Application**



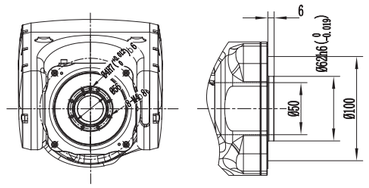
Functional Features

- With compact design 20kg payload and about 1.8 meters arm span, it can be installed on the ground or upside down flexibly.
- With large working space and fast running speed, it is suitable for welding, spraying,loading and unloading, handling, sorting, assembling and other applications.
- The safety emergency stop board is independent of the controller, and the safety relay circuit is adopted to provide double circuit emergency stop to ensure the reliability of emergency stop.
- The robot body cables are made of special cables for highly flexible robots.
- Built-in three-phase transformer, 380V and 200V isolation, more stable power supply.
- Power supply requirements can be customized for different countries. Built-in three-phase filter can effectively improve the performance of EMC and EMI.
- The robot body is with dual-circuit gas pipe and meets welding and handling requirements
- The inner diameter of 6-axis middle hole is 46 mm, which can meet the installation requirements of water-cooled gun and bellows gun.
- It's with highly flexible built-in welding cable.

Installation Interface Diagram

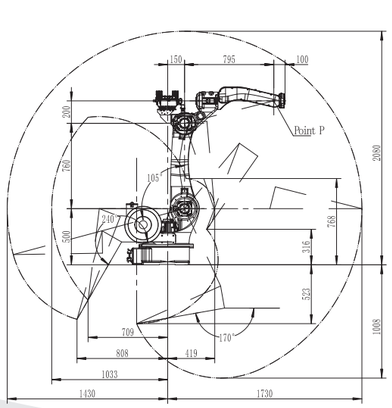


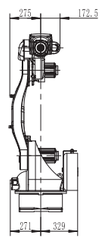
Installation Dimension of Base

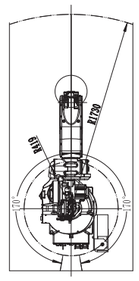


Flange Dimensions

Motion Range Diagram













Robot Body Technical Parameters

Model		TR1020A-172
Arm form		Vertical multiple joints
Degree of freedom		6 axis
Maximum payload		20KG
Maximum travel	axis 1	Ground/upside down mounting -167°~167°, wall mounting -30°~30°
	axis 2	0°-175°
	axis 3	-80°~150°
	axis 4	-190°~190°
	axis 5	-105°~130°
	axis 6	-210°~210°
Maximum speed	axis 1	159°/S
	axis 2	159°/S
	axis 3	169°/S
	axis 4	280°/S
	axis 5	240°/S
	axis 6	483°/S
Allowable torque	axis 4	48N.m
	axis 5	48N.m
	axis 6	28N.m
Allowable moment of inertia	axis 4	1.8kg.m²
	axis 5	1.8kg.m²
	axis 6	0.8kg.m²
Repeated positioning accuracy		±0.08mm
Maximum reaching distance		1720mm
Robot body weight		285KG
Installation mode		Ground or upside down mounting
Installation environment	ambient temperature	0~45°C
	relative humidity	20~80%(No condensation)
	vibration	Under 0.5 G
	Others	Robot installation must be away from: Flammable or corrosive liquids or gases, electrical sources of interference
IP level		Body IP54 , wrist IP67
Advantage features		Compact structure, high speed, high precision, high expansibility and easy operation
Application		Welding, cutting, assembly, handling, marking, grinding

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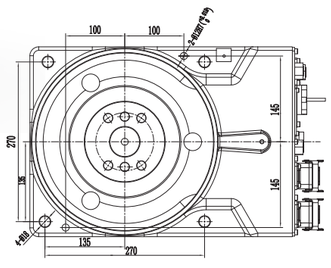
Industrial Robot **Welding Application**



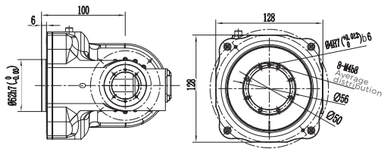
Functional Features

- The arm span is 1.4 meters. It can be installed on the ground or upside down flexibly.
- With large working space and fast running speed, it is suitable for welding, spraying,loading and unloading, handling, sorting, assembling and other applications.
- The safety emergency stop board is independent of the controller, and the safety relay circuit is adopted to provide double circuit emergency stop to ensure the reliability of emergency stop.
- The robot body cables are made of special cables for flexible robots.
- Built-in three-phase transformer, 380V and 200V isolation, more stable power supply.
- Power supply requirements can be customized for different countries. Built-in three-phase filter can effectively improve the performance of EMC and EMI.
- The robot body is with dual-circuit gas pipe and meets welding and handling requirements
- The inner diameter of 6-axis middle hole is 46 mm, which can meet the installation requirements of water-cooled gun and bellows gun.
- It's with highly flexible built-in welding cable.

Installation Interface Diagram

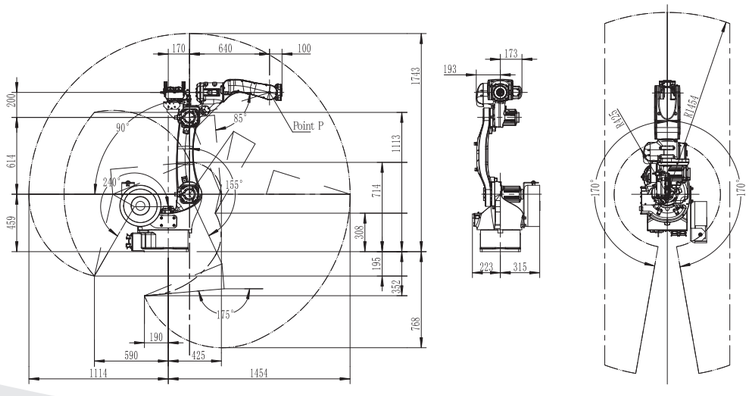


Installation Dimension of Base



Flange Dimensions

Motion Range Diagram





Robot Body Technical Parameters

Model		**TR1010A-14M**
Arm form		Vertical multiple joints
Degree of freedom		6 axis
Maximum payload		10KG
Maximum travel	axis 1	Ground/upside down mounting -167°~167°, wall mounting -30°~30°
	axis 2	0°~175°
	axis 3	-80°~150°
	axis 4	-190°~190°
	axis 5	-105°~130°
	axis 6	-210°~210°
Maximum speed	axis 1	169°/S
	axis 2	169°/S
	axis 3	169°/S
	axis 4	280°/S
	axis 5	240°/S
	axis 6	520°/S
Allowable torque	axis 4	10N.m
	axis 5	10N.m
	axis 6	3N.m
Allowable moment of inertia	axis 4	0.25kg.m²
	axis 5	0.25kg.m²
	axis 6	0.05kg.m²
Repeated positioning accuracy		±0.08mm
Maximum reaching distance		1440mm
Robot body weight		170KG
Installation mode		Ground or upside down mounting
Installation environment	ambient temperature	0~45°C
	relative humidity	20~80%(No condensation)
	vibration	Under 0.5 G
	Others	Robot installation must be away from: Flammable or corrosive liquids or gases, electrical sources of interference
IP level		Body IP54 , wrist IP67
Advantage features		Compact structure, high speed, high precision, high expansibility and easy operation
Application		Welding, cutting, assembly, handling, marking, grinding

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TR1006A-20M

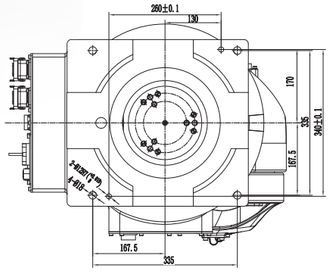
Industrial Robot **Welding Application**



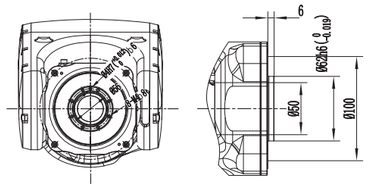
Functional Features

- With compact design 6kg payload and about 2.0 meters arm span, it can be installed on the ground or upside down flexibly.
- With large working space and fast running speed, it is suitable for welding, spraying,loading and unloading, handling, sorting, assembling and other applications.
- The safety emergency stop board is independent of the controller, and the safety relay circuit is adopted to provide double circuit emergency stop to ensure the reliability of emergency stop.
- The robot body cables are made of special cables for highly flexible robots.
- Built-in three-phase transformer, 380V and 200V isolation, more stable power supply.
- Power supply requirements can be customized for different countries. Built-in three-phase filter can effectively improve the performance of EMC and EMI.
- The robot body is with dual-circuit gas pipe and meets welding and handling requirements.

Installation Interface Diagram

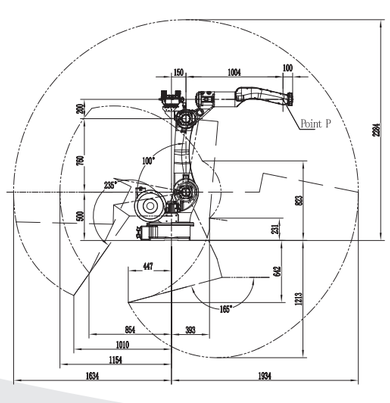


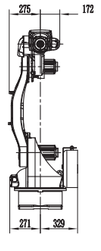
Installation Dimension of Base

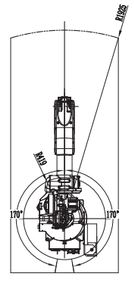


Flange Dimensions

Motion Range Diagram









Robot Body Technical Parameters

Model		TR1006A-20M
Arm form		Vertical multiple joints
Degree of freedom		6 axis
Maximum payload		6 KG
Maximum travel	axis 1	Ground/upside down mounting -167°~167°, wall mounting -30 ~30°
	axis 2	0°~175°
	axis 3	-80°~150°
	axis 4	-190°~190°
	axis 5	-105°~130°
	axis 6	-210°~210°
Maximum speed	axis 1	159°/S
	axis 2	159°/S
	axis 3	169°/S
	axis 4	280°/S
	axis 5	240°/S
	axis 6	483°/S
Allowable torque	axis 4	24N.m
	axis 5	24N.m
	axis 6	14N.m
Allowable moment of inertia	axis 4	1.4kg.m²
	axis 5	1.4kg.m²
	axis 6	0.5kg.m²
Repeated positioning accuracy		±0.08mm
Maximum reaching distance		2012mm
Robot body weight		288KG
Installation mode		Ground or upside down mounting
Installation environment	ambient temperature	0~45°C
	relative humidity	20~80 %(No condensation)
	vibration	Under 0.5 G
	Others	Robot installation must be away from: Flammable or corrosive liquids or gases, electrical sources of interference
IP level		Body IP54 , wrist IP67
Advantage features		Compact structure, high speed, high precision, high expansibility and easy operation
Application		Welding, cutting, assembly, handling, marking, grinding

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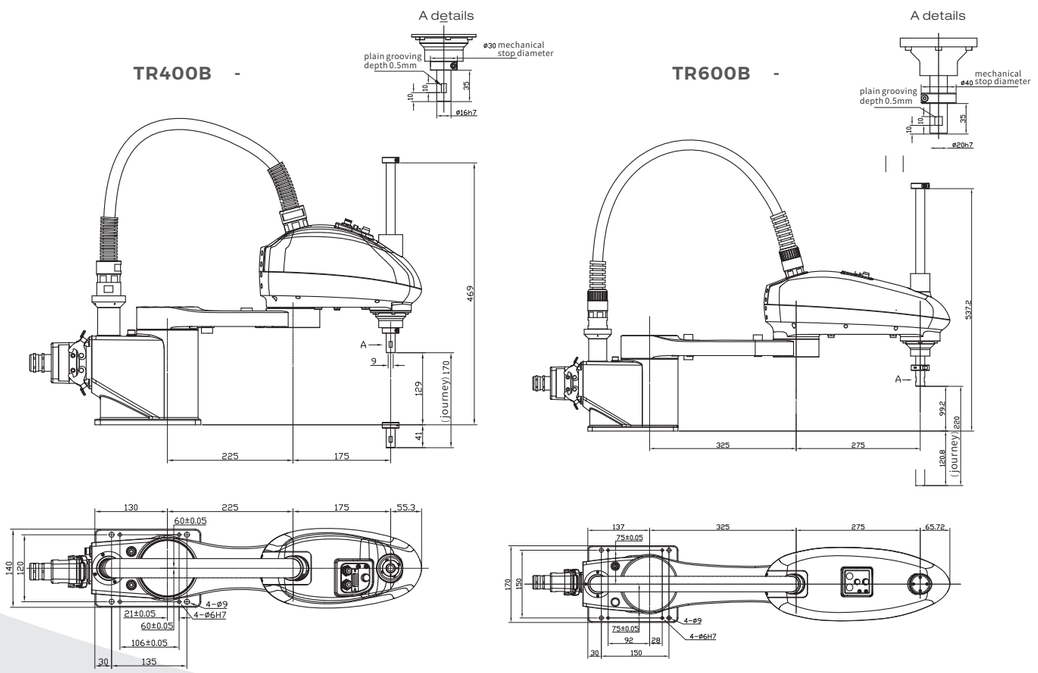
SCARA ROBOTS



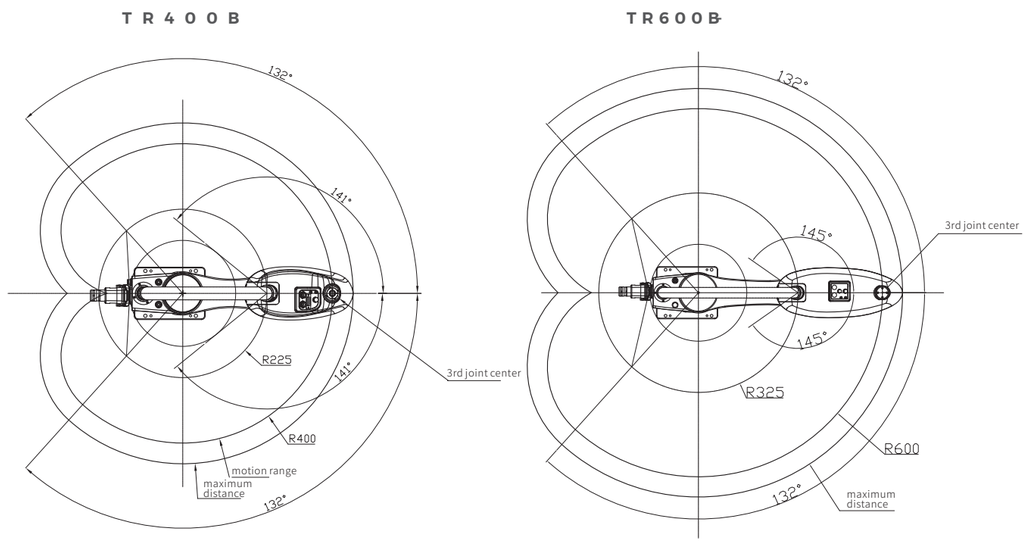
Functional Features

- Compact and flexible structure, fast running speed, high transmission accuracy and low noise
- Highly rigid arm design realizes high load and high speed in one package
- Available in 600 and 400 mm arm span; 3kg or 6kg payload.
- Adapt to G3 control cabinet, provide 23 input and 23 output custom IO;support serial port, network, USB and other interface forms
- Suitable for handling, palletizing, assembly, 3C and other application fields.

Installation Interface Diagram



Motion Range Diagram



Performance Parameters

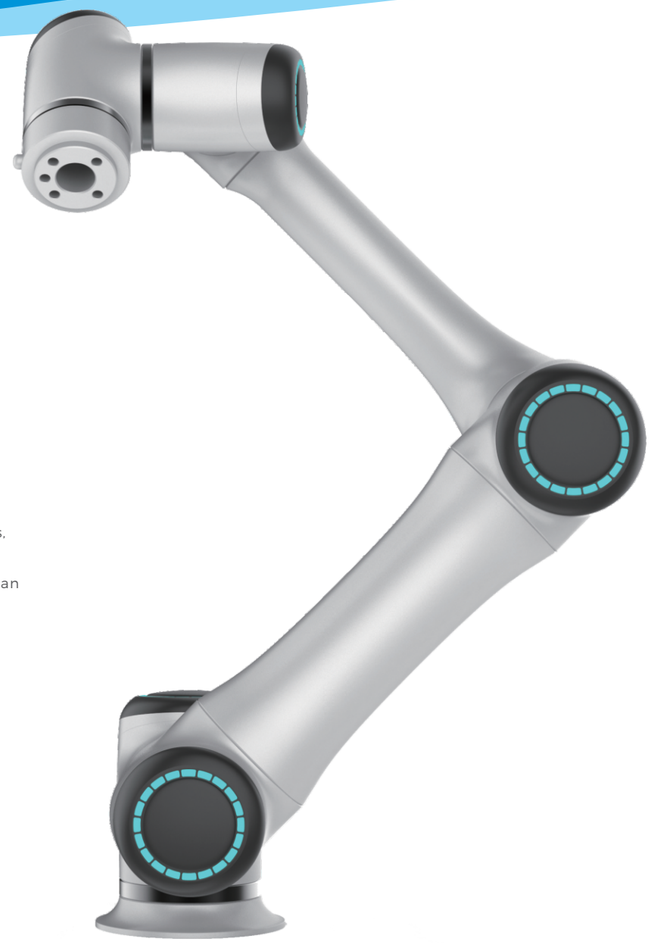
Robot Model		TR400B	TR600B
Function		Material handling, 3C	Material handling, 3C
Total axes		4	4
Maximum reach		400mm	600mm
Payload	Rated load	1kg	3kg
	Maximum load	3kg	6kg
Permissible inertial torque of rotating axis	Rated torque	0.005kg.m	0.01kg.m
	Maximum torque	0.05kg.m	0.12kg.m
Repeated positioning accuracy	1st axis + 2nd axis	±0.01mm	±0.02mm
	3rd axis (elevating axis	±0.01mm	±0.01mm
	4th axis (rotation axis)	±0.01 °	±0.01 °
Max speed	1st axis	720 °/sec	450 °/sec
	2nd axis	720 °/sec	720 °/sec
	3rd axis (elevating axis	1000mm/sec	1000mm/sec
	4th axis (rotation axis)	2500 °/sec	2000 °/sec
Max operating area	1st axis	±132 °	±132 °
	2nd axis	±141 °	±145 °
	3rd axis (elevating axis	170mm	220mm
	4th axis (rotation axis)	±360 °	±360 °
Installation method		Floor mounted	Floor mounted
Robot body weight		13Kg	17Kg
Power consumption		0.7kw	0.8kw
Installation environment	Temperature	0~45°C	0~45°C
	Humidity	20~80% RH(no condensation)	20~80% RH(no condensation)
	Vibration	Under 4.9M/S²	Under 4.9M/S²

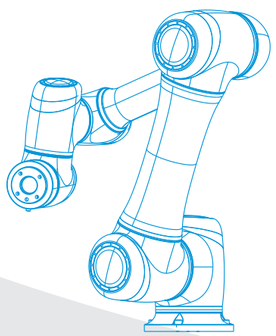
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TR-RC08

Collaborative Robots

With inherent characteristics of safety, lightness, flexibility and intelligence, CRP collaborative robots make humans and robots no longer be separated by cold railings. Humans and robots can work together, and robots are no longer just tools but people's personal assistants and close partners at work.





The CRP collaborative robot has the following functional characteristics:

- From hardware to software, multiple redundant designs are adopted to ensure the safety of personnel after a collision which realizes the sharing of working space between machines and human beings.
- It has the function of teaching by dragging axis. Graphical guided programming style and simple programming which can quickly respond to small batch and multi-variety production modes.
- The robot is maintenance free throughout the whole use process. Robot body adopts a modular design which is quick and convenient to repair and replace parts. The user's comprehensive use cost is low, investment for an overall project is small and the payback period is short.
- The CRP controller is currently the most mature industrial robot controller on the market (the number of tens of thousands of units in the market and the 24-hour non-stop work fully proves the long-term reliability of our controller in the industrial environment).
- The body weight is only 23 kg. No special lifting equipment is required and the deployment is quick.
- The control system to the drive adopts EtherCAT communication mode. Anti-interference is stronger. Communication speed is faster. Data interaction is larger. Feelings of dragging each axis is better. And collision response is more sensitive.
- The software is completely self-developed and we own with source codes which can quickly respond to customer customized requirements.

Functional Features

- Controller, driver, and power supply are all in independently modular and customers could select combination of them which enables higher flexibility and convenient way for disassembly and combination.
- Controller is connected with teach pendant in communication mode which can be hot-plugged at any time. Teach pendant can be used for multiple uses.
- The system integrates 24 inputs and 16 outputs I/O、4 channels D/A.、2 channels encoder interface and 1 channel CAN interface.
- Complete electrical installation which saves customers' installation time for electrical cabinet.
- Integrated LCD display, controller and driver status information is clear at a glance.
- Integrated process package which reduces customer development investment and simplify programming operations.
- High level integration, small size in volume and beautiful in appearance.
- New ARM platform, low power consumption and low heat
- 6-axis parallel bus communication control
- Drive address automatic allocation
- Software PLC function which is convenient for logic control

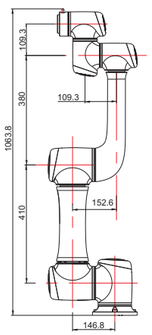
Robot Body Technical Index

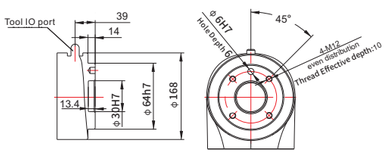
Model	TR-RC08	
Arm Form	Vertical multi-joint	
Degree of Movement	6 axis	
Maximum Payload	5KG	
Maximum Route	axis 1	-360° - 360°
	axis 2	-360° - 360°
	axis 3	-360° - 360°
	axis 4	-360° - 360°
	axis 5	-360° - 360°
	axis 6	-360° - 360°
Maximum Speed	axis 1	180°/S
	axis 2	180°/S
	axis 3	180°/S
	axis 4	180°/S
	axis 5	180°/S
	axis 6	180°/S
Repeat Positioning Accuracy	±0.03mm	
Maximum Coverage	895	
Weight of Bod	23KG	
Installation Method	any angle at random	
Installation Environment	**Ambient temperature**	0-45°C
	Relative humidity	20-80%(no condensation)
	Vibration	Under 0.5G
	Others	Robot installation must away from flammable corrosive liquids or gases, electrical sources of interference.
IP Level	IP54	
Features	drag axis for teaching； human-machine collaboration； easy to operate	
Application Scenario	assembly; transport; marking; polished	

Technical Index of Control System

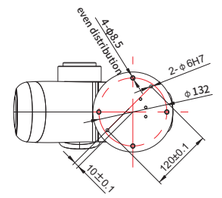
Teaching Box	10.4TFT-LC, keyboard + touch screen, mode selection switch, safety switch, emergency stop button
Number of Control Axis	24 axis
Port	Digital I/O port, 22 inputs/22 outputs, EtherCAT expansion
	4 channels 0-10V analog output, 12-bit precision
	Double encoder signal ports (position tracking)
	Double Ethernet ports, EtherNET communication port
Control Servo	EtherCAT bus control, 100M speed, u-level synchronization accuracy
Operation mode	Teaching, dragging, process programming (gluing, tracking, vision, appointment)
Motion Function	point to point, straight line, arc
Command	movement, logic, craft, calculation
Coordinate	joint coordinates, cartesian coordinates, user coordinates, tool coordinates, base coordinates
Software PLC Function	Ladder diagram editing, 5000 steps
Abnormal detection function	emergency stop abnormal, servo abnormal, user coordinate abnormal, tool coordinate abnormal etc.
Connecting Cables	5m
Protection level	IP20
Power supply	100-240VAC 50-60HZ
Size	182X460X375
Weight	14.5KG

Installation Interface Diagram





Flange Dimensions



Installation Dimension of Base

CRP-CLW-V2

Laser Seam Tracker



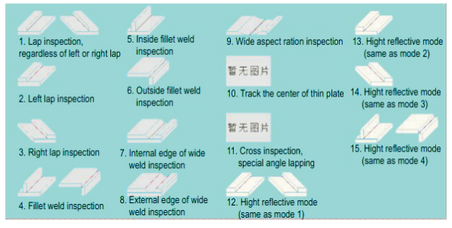
· Benefits of laser seam tracker

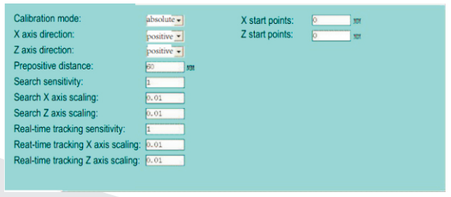
- · Weld safely and perfectly
- · Reduce the head load
- · Increase productivity
- · Place the welding gun in an ideal position
- · Compensate production, equiment and operation tolerances
- · Reduce programming work for complex workpieces
- · Achieve consistent and reproducible connections

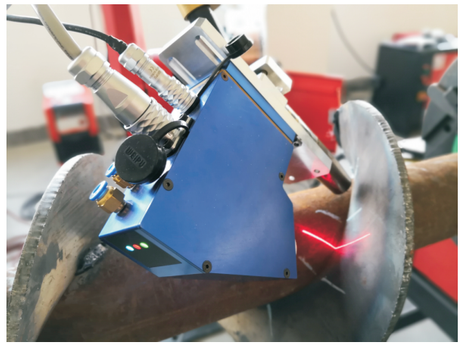
· Technical Characteristics

- · According to different types of sensors, detectable weld width: 0.5mm~35mm
- · Height error: < 0.15mm
- · Horizontal error: < 0.1mm
- · Support RS-232/RS-485, Mod-bus and TCP/IP protocol
- · Can be applied in MIG/MAG, TIG, laser and plasma welding
- · Various weld shapes for different weld types
- · Intelligent recognition of different weld features based on expert fuzzy control
- · Real-time display current welding seam offset, width and alignment tolerance,convenient for production management
- · Real-time seam tracking, including left and right and high and low tracking
- · Laser location
- · Strong anti-interference ability and can recognize weld seam accurately under strong arc light interference.
- · Strong adaptability, the weld feature can be recognized correctly even when the thermal deformation of the workpiece is serious.
- · High precision, the laser seam tracking system can achieve 0.1 mm accuracy.

· Process and Interface







CRP-CAW-V1

Arc Tracking Sensor

CRP-CAW-V1 is a own R&D universal type arc tracking sensor, it will not be affected by ,arc light, dust during the working
process, so it has high reliability. It can be used under different welding conditions by Fuzzy Control.
This sensor can track fillet weld, butt weld, lap weld coordinating with the CRP control system. It's supper convenient and
easy to use. It only needs simple adjustment after installation without changing the structure and then it can track the welding.
So it can improve the welding productivity for the low precise assembled plate.



· Application condition

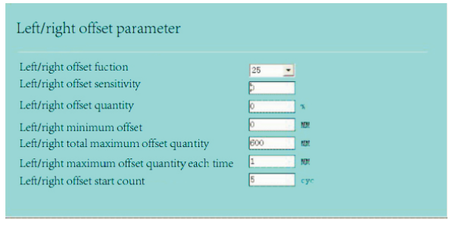
1.Welding method(shield gas): CO2&MAG
2.Wire diameter: 1.0-1.2 mm
3.Wire dry extension of electrode: 15-20 mm
4.Weld leg length/thickness: >6 mm
5.groove angle: <90°

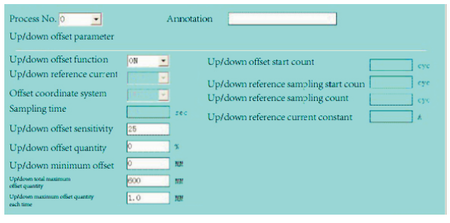
· Welding condition

1.Welding current: >200 A
2.Welding speed: <8 mm/s
3.Minimum welding length: 70 cm
4.Swing radian: 3-5 mm
5.Swing frequency: 2-4 Hz
6.Swing type: Z-shape



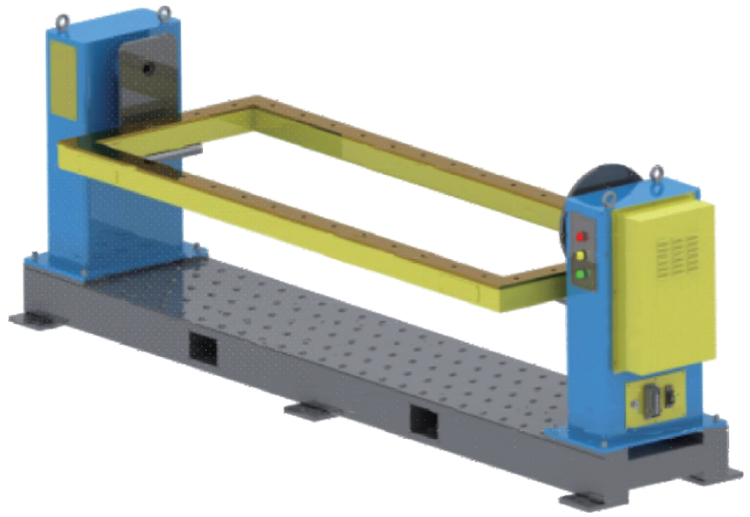
· Process and Interface





1-axis head and tail stock positioner

(The picture is for reference only; the final product shall prevail in kind.)



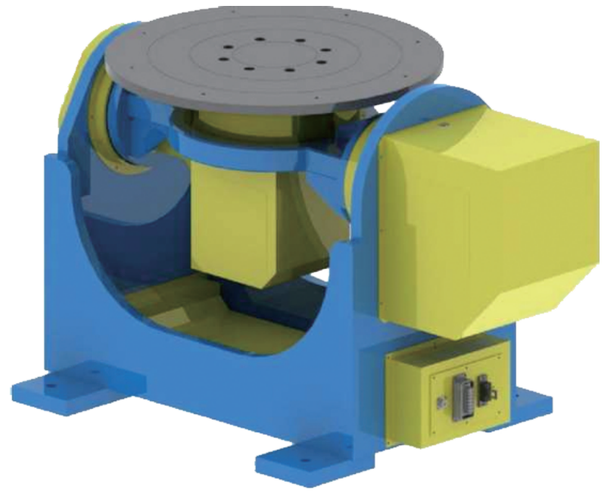
Technical Specifation

Specifications not listed can be customized according to requirements

Items	Parameter	Parameter	Parameter
Loading capacity	500KG Within R400mm	800KG Within R500mm	800KG Within R750mm
Standard Rotate Radius	R600mm	R700mm	R900mm
Rated Rotate range	±360°	±360°	±360°
Rated Rotate speed	70°/S	70°/S	50°/S
Repeat Location accuracy	±0.10mm	±0.12mm	±0.15mm
Positioning frame size	2200mm×800mm×90mm	3200mm×1000mm×110mm	4200mm×1200mm×110mm
Machine overall size	2900mm×650mm×1100mm	4200mm×850mm×1350mm	5400mm×1000mm×1500mm
Rotating table	Φ360mm	Φ400mm	Φ450mm
Rotating center height	850mm	950mm	1100mm
Power supply	200V ±10% 50Hz 3-P	200V ±10% 50Hz 3-P	200V ±10% 50Hz 3-P
Insulation class	H	H	H
G.W	about 500kg	about 1000kg	about 1600kg

2-axis positioner

(The picture is for reference only; the final product shall prevail in kind.)



Technical Specifation

Specifications not listed can be customized according to requirements

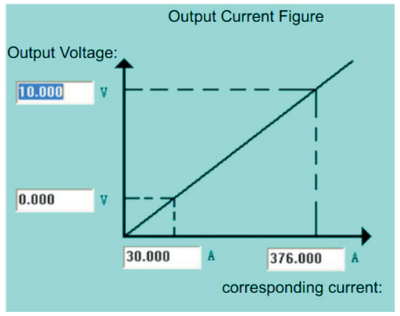
Items	Parameter	Parameter	Parameter
Loading capacity	200KG Within axis 2 radius (R300mm)	500KG Within axis 2 radius (R300mm)	1000KG Within axis 2 radius (R500mm)
Standard Rotate Radius	R400mm	R400mm	R600mm
Rated Rotate range (J1)	±90°	±90°	±90°
Rated Rotate range (J2)	±360°	±360°	±360°
ated Rotate speed (J1)	70°/S	50°/S	15°/S
ated Rotate speed (J2)	70°/S	70°/S	24°/S
Repeat Location accuracy	±0.10mm	±0.12mm	±0.20mm
Machine overall size	1000×550×600mm	1200×600×750mm	1500×750×900mm
Rotating table	Φ500mm	Φ500mm	Φ800mm
Rotating center height	500mm	550mm	750mm
Power supply	200V ±10% 50Hz 3-P	200V ±10% 50Hz 3-P	200V ±10% 50Hz 3-P
Insulation class	H	H	H
G.W	about 300kg	about 500kg	about 1000kg

CRP
ROBOT SYSTEM

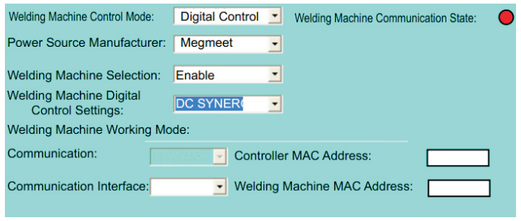
Introduction of System Function (welding function)

1. Welding (See detail-CRP-S40, S80 Welding Procedure Specification)

· Analog control/Digital communication control

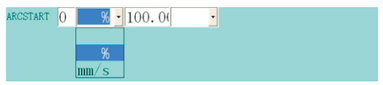


Analog control: Robot system control the welding machine to start arc, adjust current, voltage, supply gas by I/O and analog output(0-10V). This analog control can easily match varies analog interface welding machine.



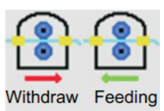
Digital control: Robot system can communicate current, voltage, arc start, arc end, wire feeding,gas supply, position searching signal with welding machine by CAN communication. Simple wiring, anti-interference. Digital control can communicate with Megmeet, Aotai welding machine.

· Welding process speed and speed rate adjustment



Welding process speed: In the welding instruction, setting the speed of the motion instruction during the welding process, including line speed (mm/s) and rate speed (%). It's convenient for the debugging precess and the test runing, run by the practical speed of the instruction during the test running, and run by the setting speed of the instruction during regular welding process.

· Manual wire feeding/withdraw



On the teaching pendant there are wire feeding and the wire withdraw button, you can feeding or withdraw the welding wire during the manual mode by the setting speed of the welding machine, it's easy to adjust the wire extension.

· Manual wire jogging out/back



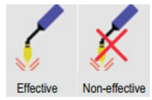
On the teaching pendant there are wire jogging out and jogging back button, you can jogging out or back the welding wire at a setting timing on the manual mode by the setting speed of the welding machine, it's convenient to adjust the wire extension slightly

· Gas detection



There is gas detection button on the teaching pendant, easy to detect the protective gas.

· Simulating welding



Simulating welding follow the actual welding track but no arc strat, wire feeding, gas supply are carried out. The track and the speed are the same with the actual welding process. There is simulating welding button on the teaching pendant, it can be use to check welding program or repair welding.

· Welding monitoring



Welding monitoring can directly examine: current, voltage, welding time, program function time, duty cycle, etc. It's convenient for the program analysis and optimization.

· Lead-lag gas control



Lead-lag gas control means supply gas in advance and maintain the gas supply after the welding process is over. Supply gas in advance makes it's easier to start arc and reduce spattering. Maintain the gas supply after the welding process keeps the melton pool isolated from air during the cooling process.

· Arc break detect

Once the arc breaks during the welding process the system will stop the robot and ring the alarm, avoiding leak welding.

· Arc break point maintain

If the arc breaks during the welding process the robot will record the arc breaking point, after examination and rule-out the robot will start the program from the same command line of the arc break point, and the robot will run to the arc break point then start arc. The arc break point will be removed after the program or the welding process reset.

· Short weld length control

Because the grid type workpiece have a short weld length and multi welding point, CRP has optimize algorithm and track plan to realize short-distance quick start and stop, so it's effecient.

CRP
ROBOT SYSTEM

Introduction of System Function (welding function)

· Position Searching

· Starting Point Searching

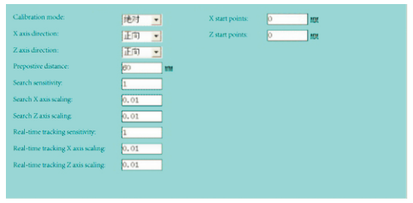
Contact-type position searching: Using the welder as the medium, the robot uses the welder signal. The welder applies a forward voltage to the positive electrode of the welding torch. When the wire contacts the workpiece (the negative electrode of the welder), the positive voltage of the welding torch is pulled down to judge the contact of the wire with the workpiece. The robot then records the point. When the displacement of the next workpiece changes,the same contact method is used to record the position after the offset,and the robot calculates the error between the two points by the command to compensate to the working path.



· Laser Position Searching

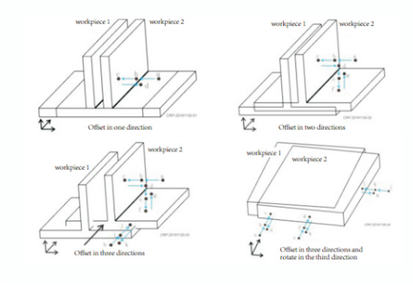
Using the laser tracker as the medium, the robot is equipped with a laser and runs on the locating path. When the laser searches for the position of the weld that meets the requirements, the feedback signal is given to the robot. The robot uses the signal fed back by the laser to find the welding position. The strating point searching function is suitable for welding starting point deviation, and the subsequent track uses arc or laser tracking.

Note: Laser position searching only support Chuangxiang and Junnuo brands.



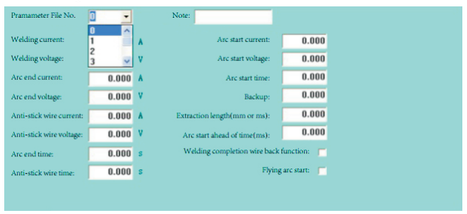
· Whole Position Searching

When the workpiece is offset as a whole, the position can be found by multi-point contact searching, and the deviation of each point can be found by counting the whole offset; then Then sort the deviation path by OFFSEtSTART. Can be achieved: fillet weld(1D, 2D, 3D, 2D+, 3D+); inner and outer diameter; point; camera, plane, etc
The whole position searching function is suitable for occasions where the workpiece is prone to whole offset, partial offset, etc.



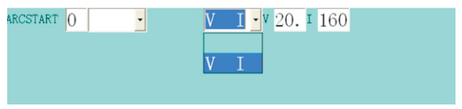
· Welding Process / Parameter Control

· Welding Process Number



Taking welding related parameters: welding current and voltage, arc starting current and voltage, arc ending current and voltage, anti-stick wire current and voltage, arc starting time, arc ending time, anti-stick wire time, welding completion wire drawing time and flying arc starting time as a parameter package, which is convenient for welding commands to call directly.

· Welding parameter control

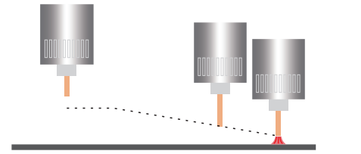


Welding commands support adjustment of welding current and voltage.It is convenient for customers to directly adjust the welding parameters in the welding procedure.

· Anti-collision Detection

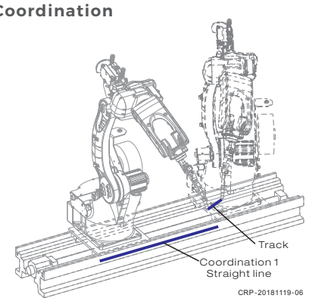
On the robot-specific terminal board, there is a set of special anti-collision detection signal interface. With the anti-collision detection switch attached to the welding torch or other fixture, the robot can be stopped in time when the welding gun or fixture collides with the workpiece or tooling, so as to minimize damage to equipment.

· Flying Start



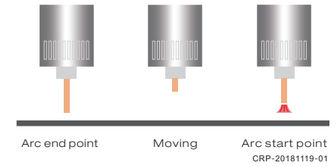
In the general process of arc starting, when the robot reaches the welding starting point (arc starting point), the robot will stop and issue the arc starting command. The wire feeding machine will send the wire forward slowly until the welding wire touches the base metal and successfully start the arc.But flying arc start refers to that before the robot reaches the welding starting point (arc starting point), the robot starts to execute the arc starting command in the running process and starts to feed the wire slowly. When the robot reaches the welding starting point, the welding wire touches the base metal and successfully start the arc. Thus shortening the welding time.

· Linear / Arc Coordination (COORD)



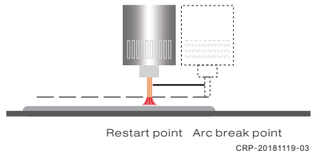
Linear Coordination: The external axis is a straight axis, which can be attached to any one or two directions coincident with the geodetic coordinates X, Y and Z of the robot, and together with the 6 axes of the body to form a 7 / 8 axis linkage to carry out interpolation motion. That is, in the process of motion of the external straight axis, the end of the robot can still maintain straight line or circular arc interpolation motion. Suitable for robot arm expansion is not enough but need continuous work applications. Such as: welding of super-large parts, super-long soldering seam, etc.

· Wire Back

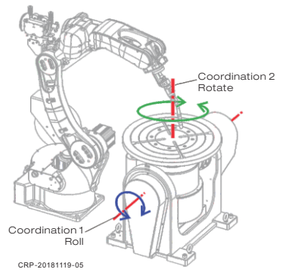


When this function is enabled, the welding wire will automatically retract when the robot is on the way to the next welding seam (idle walk) after the completion of welding of one welding seam, so as to avoid the occurrence of bending of welding wire caused by collision with workpiece or fixture, etc., then realize the successful arc starting of subsequent welding.

· Restart (Lap Welding)



When this function is enabled, if it needs to be re-welded, while arc breaking or welding suspension occurs during the welding process. The robot will automatically retreat a certain distance along the welding forward direction, and overlap with the previous arc stopping points to avoid bad results.This function is suitable for girth welding or welding of products with sealing requirements.



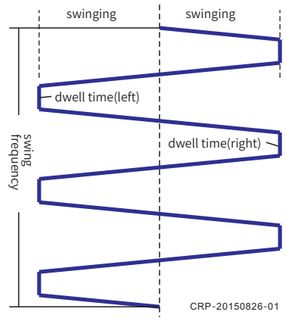
Rotating Coordination: The external axis is a rotating axis, which can be equipped with one or two additional rotating axes. The rotating axes can be turned and rotated, and 7/8 axes can be combined with the 6 axes of the body for interpolation. That is to say, the external rotating axis can still maintain linear or circular interpolation motion at the end of the robot. It is suitable for applications where robot gesture coverage is insufficient, but continuous operation is needed, such as intersecting line welding, whole gesture circular welding, etc.

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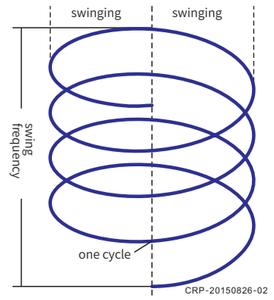
Introduction of System Function (welding function)

· Swing Arc

Swing arc function is suitable for wide welding, groove filling, cover and other welding occasions

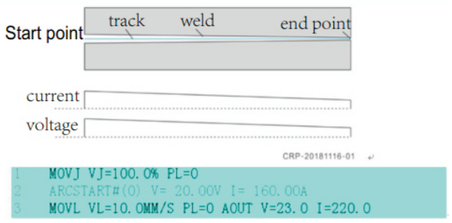


Z-shaped swing: The trajectory of the robot is shaped like the letter "Z", the direction of oscillation is perpendicular to the direction of advance, and the swing surface is perpendicular to the z-axis of the tool coordinate system

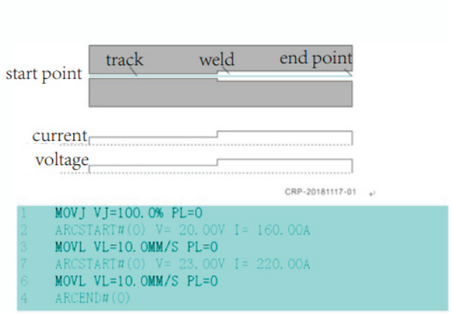


Circular arc: the robot's motion trajectory is like the spiral arc alternation.The swing direction is perpendicular to the forward direction, and the swing surface is perpendicular to the z-axis of the tool coordinate system.

· Gradual change/Jump



The gradual change function can be used in welding places that need gradual change of current and voltage.
During the execution of welding operation, the welding machine current and voltage parameters can be controlled to gradually increase or decrease, and the gradual change process is linear The whole position searching function is suitable for occasions where the workpiece is prone to whole offset, partial offset, etc.



The jump function can be used in complex welding, where different parameters need to be matched During the execution of welding action, the current and voltage parameters of the welding machine can be controlled to jump up or down, and the jump process can be completed instantaneously.

· Fish scale welding



Fish scale welding is also known as continuous spot welding, in the process of progress, continuous arc start, and then arc over, weld molding such as fish scale general effect.
This function combination, can also achieve intermittent welding, reduce the programming workload.Mainly used in pipe fitting welding (beautiful appearance), thin plate welding (not too hot melt through the base material), or intermittent welding and other places.

· Arc tracking

The robot system adopts the swing welding method, and collects the current fluctuation caused by the change of arc length in the welding process through the external arc sensor, ss of the welding seam and track the deviation.Suitable for medium and thick plate welding and large welding location with deviation and other welding places.

Note: this function needs to cooperate with crp-caw-v1 arc tracker

· Laser tracking

The robot system collects the welding seam position through the external laser tracking sensor, and then corrects the path and tracks the deviation in real time.It is suitable for welding occasions such as difficult positioning of tooling or inaccurate positioning, deformation of workpiece during welding and inaccurate incoming materials.

Note: this function needs to cooperate with CHUANGXIANG and JUNNUO laser tracker

· Fixed-Point Laser tracking

Laser fixed point tracking is usually an application mode of laser tracking welding with the external axis. In the laser tracking process, the body position and posture remain basically unchanged, and the welding seam is moved by the rotation or translation of the external axis. The deviation in the laser search process is finally compensated to the welding track.Fixed point tracking is suitable for welding scenes such as large and small circles, multi-circles and long straight lines, and it can also solve the track error problem which is easy to occur in the process of large attitude change.

· Multi-layer and multi-path

This is a welding method commonly used in the field of welding,the same weld or the same path for repeated stack welding, so as to meet the welding height and overall welding strength requirements.
The multi-layer multi-path function only needs to teach the basic path once, and then design the stacking times and stacking rules of the welding path through the instruction.Greatly reduce the programming time, reduce the difficulty of programming.Multi - layer multi - channel is suitable for the need to use stacked welding.It is also suitable for other sports occasions that need to run similar trajectory, such as glue coating, spraying and other fields.

CRP
ROBOT SYSTEM

Introduction of System Function (painting, bending, palletizing)

2. Painting

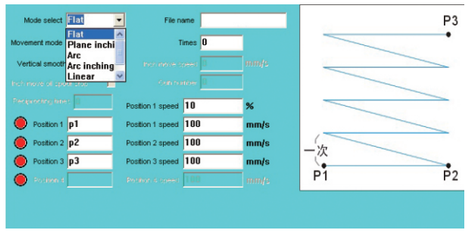
The system provides 4-way analog interface for painting. Built-in standard trace templet. Quickly generate the painting trace.Support user-defined painting trace. For details see CRP-S80 Painting Instructions.

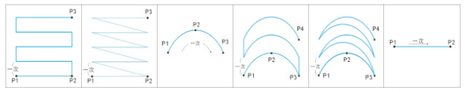
· Analog Interface

Four-way analog output, easy to control fan-shaped, atomization,flow, air pressure or other painting equipments



· Trace Templet

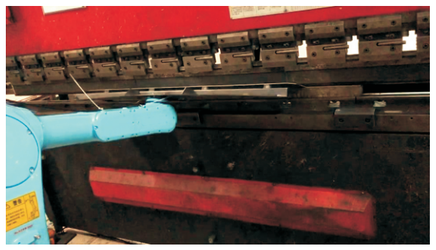


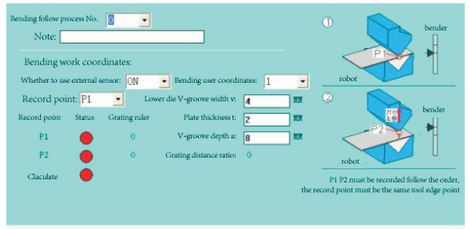


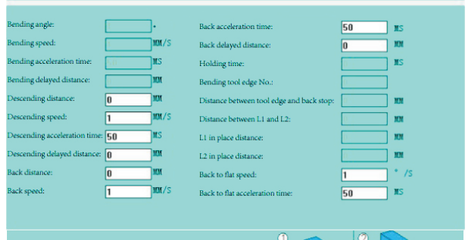
3. Bending

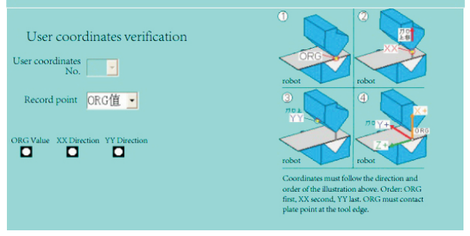
The bending process is mainly applied to the loading and unloading of the bending industry, and the bending follows of the workpiece. Strong consistency with 24-hours work without interruption. Substitute manual work to realize unmanned and automation.It can realize constant speed tracking (old bending equipment),sensor (grating, encoder), real-time tracking (CNC bending machine).

The system commands can realize bending follow and automatically back to flat function. For details see CRP Bending Process Instructions.







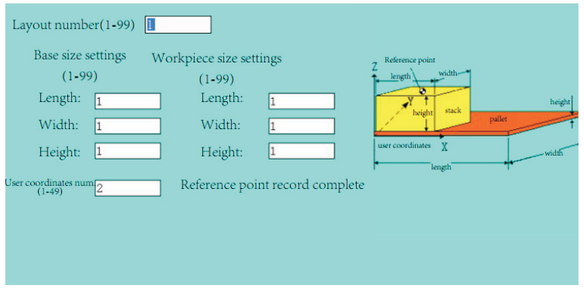


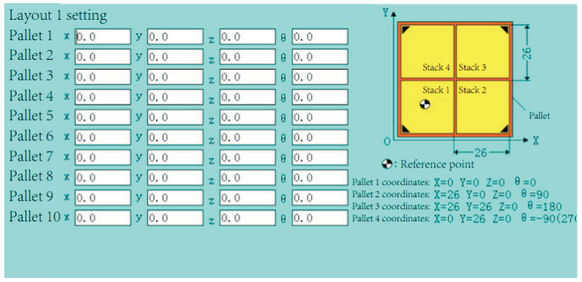
4.Palletizing

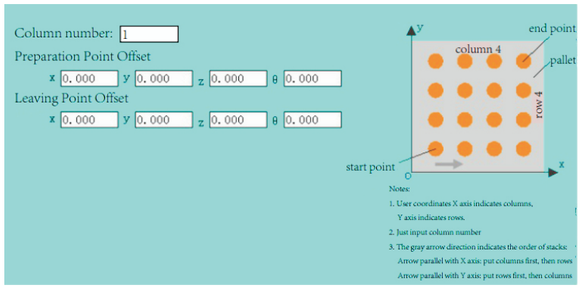
The palletizing process refers to the simple confirmation of the placement position of the crucible by setting the basic parameters of the outer dimensions, the number of pallets, and the number of layers. Palletizing and unpacking can be achieved with a simple palletizing command.

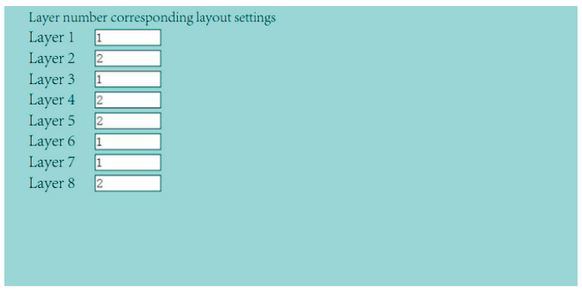
For details see CRP-S40, S80 Palletizing Process Instructions











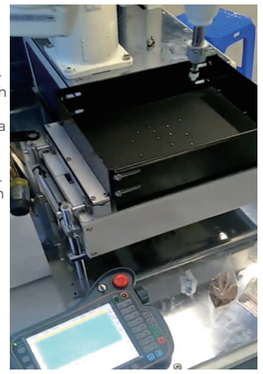
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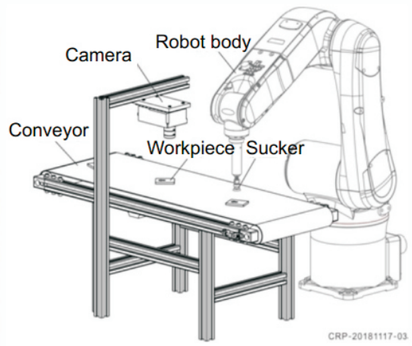
Introduction of System Function (vision, track, stamping)

5. Vision

· Plane Vision

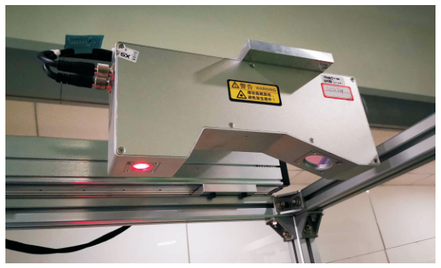
Plane vision support multiple visison equipments and protocols(OMRON, Cognex, DALASA, etc). Three trigger mode: construction, timing, distance. Applied in conveyor sortation. It's with the application of one camera working with multiple robots. Camera can be fixed at the end of the robot body or other external devices, identifying,grabing, vision correction. See more details-CRP-S40, S80 Vision Fuction Brochure.





· 3D Vision

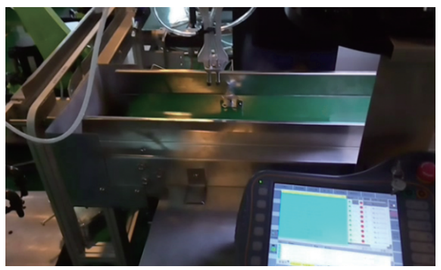
Through 3D laser skin on the scatterd objects, unordered parts, the robot system can form a 3D image of these parts, then calculate the posture and position of these skinned parts,sothe robot can conduct all-attitude capture operation.Unlike plane vision(2D), 3D vision can do height identification,ABC all-attitude identification, so it can applied in different height overlapping and unordered vision identification.



6.Tracking

Trcaking means the robot can grasp parts following the movement of the conveyor(point track) or the robot move following the movement of the conveyor(trace tracking, e.g. spraying, gluing)Tracking function can realize: current product single tracking(grasp,spraying), multiple tracking(assembling), queue tracking.Setting tracking detect point, start point, stop point, detect range according to different application. Flexible parameter setting, suits conveyor crawl.

More detail on CRP-S40, S80 Tracking Fuction Brochure.



7. Stamping

Stamping process is based on CRP standard controller, including all controller fuctions. At the same time developed: stamping process, stamping interface, stamping cable and a whole set of solutions. Fast connection, easy to use, easy maintenance, adjusable beat.

Main feature:

1. Fast connection, bus communication, no complex I/O cable, low failure rate, easy maintenance.
2. Disconnection detection, robot will ring the alarm right after the disconnection, the automation line will wait till the alarm is cleared.
3. Based on the standard controller, all controller functions available.
4. Dedicated stamping interface, hide all the other information that is not ralated with stamping, clear interface.
5. Modularization programming, built-in standard stamping process, it only need record points to start, no complicated teaching line by line.
6. Built-in multi working program block, all you have to do is insert the program block. Can be applied in multi working scenario.
7. Authority management, right man to do the right thing.
8. No external master control needed, one-button enable, one-button start, one-button reset.
9. Built-in detection logic for each process, the robot system will ring the alarm right after something is wrong, easy maintenance and safer.
10. Physical emergency stop curcuit related to every safety switch, reliable and safe.
11. Directing display: working beat, workpiece count, remaining workpiece count, etc.
12. Parameter open, easy to adjust working speed and working beat.
13. Built-in sample run and no-load run, so it's convenient for debugging and testing.



