



4DOF SCARA Robotic Arm

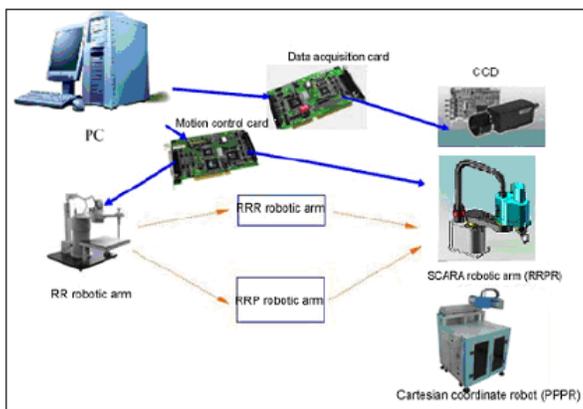
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The new series of 4DOF Robotic Arm by Googol Technology not only maintains the characteristics of an educational platform, but also adds new features for industrial environment. It provides a completely open, innovative experiment platform for the mechatronics, manufacture automation and automation control and other related courses for the technical institutes. It can be applied in the Machine Manufacture and Automation, Mechanical and Electronic Engineering, Machine Design and Theory, CNC Technology, Robotics, Automation Control and other related Mechanical and Electrical Control fundamental experiment courses.

Technical Specification

Item	Index	
Loading capacity	Payload 5Kg; Rotation 2Kg	
Motion accuracy (pulse equivalent weight/Rotation)	Joint No.1	800000/r
	Joint No.2	800000/r
	Joint No.3	2500pulse/mm
	Joint No.3	30000/r
XY-plane Repeatability	± 0.05mm	
Joint No. 3 Repeatability	± 0.02mm	
Joint No. 4 Repeatability	± 0.05°	
Number of DOF	4	
Range of motion	Joint No.1	± 120°
	Joint No.2	± 130°
	Joint No.3	0~150 mm
	Joint No.4	0~360°
Max speed	Joint No.1	6.54 rad/S
	Joint No.2	6.54 rad/S
	Joint No.3	300 mm/S
	Joint No.3	31.4 rad/S
XY-plane max. synchronized speed	3.3 m/s	
Max radius	400 mm	
Height	706 mm	
Weight	≤30 Kg	
Dimension	Joint No.1 (Length)	250 mm
	Joint No.2 (Length)	150 mm
	Joint No.3(Displacement)	150 mm
Installation requirements	A clinic table	
	Temperature: 0~45°C	
	Humidity: 20~80%RH (No condensation)	
	Vibration: less than 0.5G	
	Avoid contacting with inflammable and corrosive fluids	
Keep away from power cables		



Modularized Machine Platform



Software interface (C++)

Industrial Standard Design and Manufacturing:

- Rotary joints are driven by AC servo motor and harmonic gear
- Translation joints are driven by AC servo motor and ball screw
- Each component is designed and manufactured according to industrial standard

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Ordering Guide

Model Number	Product Name	Product Description
GRB-3014	4DOF SCARA Robotic Arm	<ul style="list-style-type: none"> • 4DOF Robotic Arm (Type II) • GT-400-SG motion controller • 4-axis control module • Electric gripper • Demo part component • Intelligent control software (with part of source code)
GRB-3024	4DOF SCARA Robotic Arm with support stand	<ul style="list-style-type: none"> • 4DOF Robotic Arm (Type II) • Aluminum stand • GT-400-SG-PCI-EDU GT-400-SG motion controller • Electric gripper • Demo part component • Intelligent control software (with part of source code)
GRB-3034	Single camera vision device SCARA Robotic Arm	<ul style="list-style-type: none"> • 4DOF Robotic Arm (Type II) • Aluminum stand • GT-400-SG motion controller • Electric gripper • Demo part component • Single camera vision module • Single camera vision robotic arm control software (with part of source code)
GRB-3044	Dual camera vision device SCARA Robotic Arm	<ul style="list-style-type: none"> • 4DOF Robotic Arm (Type II) • Aluminum stand • GT-400-SG motion controller • Electric gripper • Demo part component • Dual camera vision module • Single camera vision robotic arm control software (with part of source code) • Dual camera vision robotic arm control software (with part of source code)

Vision System Specification (optional)

Item	Index
Image acquisition card	<ul style="list-style-type: none"> • Support the acquisition of NTSC,PAL,RS170 and CCIR standard video sources • Dual video decoder structure allows rapid channel switching • Can connect with and switch between 16 CVBS channels, 8 Y/C or mixed input channels • 16 channel TTL I/O auxiliary interface and RS-485 parallel interface • Watchdog timer allows integrity of monitoring system • Support 32 bit 33/66 MHz PCI bus • Software development package includes Matrox Imaging Library (MIL)/ActiveMIL, MIL-Lite/ActiveMIL-Lite • Support Microsoft Windows 2000 and WindowsXP OS
CCD Industrial Camera	<ul style="list-style-type: none"> • High resolution • VBS and Y/C output • Electronic circuit function • Single click white balance • Preloaded DSP • TV System: NTSC/PAL ; Image sensor: Interline CCD • Effective pixels: 752x 582 ; Pixel size: 8.6*8.3 • Number of scanning lines: 625Lines • Resolution: 470TV lines (Horizontal) 460TV lines (Vertical) • Signal-noise ratio: 46dB • Power : DC12V ± 10% • Camera interface: C • Dimension: 31 (W)×29 (H)×80 (D) mm

Open Architecture:

- Open hardware platform based on PC and DSP motion controller
- Intelligent motion control development platform based on object oriented design approach
- TCP/IP Protocol remote network programming, simulation and control functions
- Equipped with assembly language programming and graphic teaching software, easy to program and train
- Comprehensive user manual and control demos, guiding the users to learn the development of various application systems.

Experiments and Research Content

Fundamental Experiments

- The recognition of the mechanisms, electric, control and software of robots
- The operation practice of robots
- Robotics kinematics
- Robotics dynamics

Part of Research Work:

- Robot moment control mode research
- Development of various application systems based on intelligent control platform
- Challenging the research and development of visual servo

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