SCIENTICO INDIA
Manufacturer & Exporter · Ambala, Haryana, India

PRODUCT DATA SHEET
Catalogue reference for product evaluation

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Six-Axis Articulated Robot (Educational, Collaborative) | SC-RA6 0500

Category: TVET Equipments · **Country of Origin:** India

Product Overview

The Six-Axis Articulated Robot (Educational, Collaborative) – SC-RA6 0500 is a vertically articulated 6-axis tabletop robot with open-hardware joints that learners can dismantle and rebuild. It has a 1.5 kg payload, 600 mm reach, and ±0.05 mm repeatability, with DC servo drives on each joint. Tooling includes an electric parallel gripper, suction cup, and pen holder. The robot is ROS compatible and programmable in Python and C++. A 2 MP camera with object-detection software and 3D simulation are supplied under a room licence. Torque sensing and power limiting follow ISO 10218-1 and ISO/TS 15066, with an E-stop unit, IP54 rating, and CE marking. On-site assembly, commissioning, calibration, and 16 hours of train-the-trainer are included.

View this product online: https://scienticoindia.com/product/six-axis-articulated-robot-educational-collaborative-sc-ra6-0500/



Request a model-specific quotation
Include quantity and delivery country.

Technical Specifications

Six-Axis Articulated Robot (Educational, Collaborative) – SC-RA6 0500: Technical Specifications

Category	Specification
Robot Type	Vertically articulated, 6-axis, tabletop
Design	Open hardware; joints can be dismantled and rebuilt
Payload	1.5 kg at full extension
Reach	600 mm
Repeatability	±0.05 mm
Drives	Precision DC servo per joint with independent joint controller
Tooling	Electric parallel gripper; suction cup; pen holder
Controller	Embedded in base
Programming	ROS; Python and C++ API
Connectivity	Wi-Fi; Ethernet
Communication	TCP/IP; Modbus TCP and RTU; 50-pin D-sub PLC interface; S7-1200 compatible
Vision	2 MP USB camera with bracket; object-detection software; room licence
Torque Sensing	Power limiting and torque sensing to ISO 10218-1 and ISO/TS 15066, with test evidence
Emergency Stop	E-stop unit

Category	Specification
Ingress Protection	IP54
Simulation	3D simulation for offline programming; room licence
Compliance	CE marked
Service	On-site assembly, commissioning and calibration; 16 h train-the-trainer

Key Features

Key Features

- **Open-Hardware Design:** learners can dismantle and rebuild the joints
- **Six-Axis Motion:** vertically articulated tabletop arm
- **Collaborative Safety:** torque sensing and power limiting with test evidence
- **Precision Drives:** DC servo per joint with independent joint controllers
- **Multiple Tools:** electric parallel gripper, suction cup, and pen holder
- **ROS Compatible:** Python and C++ programming support
- **Industrial Connectivity:** TCP/IP, Modbus TCP and RTU, and S7-1200 compatible PLC interface
- **Vision System:** 2 MP USB camera with object-detection software
- **Offline Programming:** 3D simulation software included
- **On-Site Support:** assembly, commissioning, calibration, and train-the-trainer

Experiments

- Forward and inverse kinematics of a six-axis arm
- Joint dismantling, reassembly and calibration
- Pick-and-place using the electric parallel gripper
- Suction cup handling of objects
- Drawing with the pen holder
- Python and C++ programming of robot motion
- ROS-based robot control and messaging
- Object detection using the 2 MP camera and vision software
- Offline programming and motion verification in 3D simulation
- Modbus and TCP/IP communication with the robot controller
- PLC control of the robot through the S7-1200 compatible interface
- Torque sensing and power limiting response during contact

Construction and Design

The Six-Axis Articulated Robot (Educational, Collaborative) – SC-RA6 0500 is a vertically articulated tabletop arm with six joints. Each joint is driven by a precision DC servo with its own joint controller. The embedded controller sits in the base. The joints are designed to be dismantled and rebuilt for learning. A 1.5 kg payload and 600 mm reach define its working envelope. Tooling is interchangeable between the electric parallel gripper, suction cup, and pen holder. A 2 MP camera mounts on a bracket. The robot is rated IP54.

Software

ROS compatibility, Python and C++ API, 3D simulation software for offline programming, and object-detection software are included. The simulation and vision software are supplied under a room licence.

Scope of Delivery

- 6-axis robot with base frame
- Gripper and tool set
- Camera with vision software
- Simulation software
- Cables and calibration tools
- English teacher and student manuals

Ordering & Delivery

- Send the product name, quantity, delivery country and destination with your enquiry.
- Production schedule, freight, payment terms and export documents are confirmed in the written quotation.

Frequently Asked Questions

Q: What are the payload and reach?
A: The robot has a payload of 1.5 kg at full extension and a reach of 600 mm, with repeatability of ±0.05 mm.

Q: Can learners take the robot apart?
A: Yes. The robot is of open-hardware design, so learners can dismantle and rebuild its joints.

Q: Which programming languages are supported?
A: The robot supports Python and C++ through its API, and is ROS compatible.

Q: What safety features are included?
A: The robot uses torque sensing and power limiting, with test evidence to ISO 10218-1 and ISO/TS 15066. It has an E-stop unit and is rated IP54.

Q: Which PLC and network interfaces are available?
A: The robot supports TCP/IP, Modbus TCP and RTU, and a 50-pin D-sub PLC interface compatible with the S7-1200. Wi-Fi and Ethernet are also available.

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