INDUSTRIAL ROBOTS
PRODUCT LINEUP

SCARA Robots
THE / TH / THP / THL

Cartesian Coordinate Robots
COMPO ARM BA-III
COMPO ARM BA-C

Vertical Articulated Robots
TVM / TV / TVL

Faster cycle time.

and the early return on investment in automation

THE400 and THE600 to meet the automation needs of

functionalities and the newly developed TP5000 teach

where precision is crucial.

Suitable for the assembly and inspection process

High-performance, high rigidity SCARA robots with a

High performance to meet

facilities.

The THE600 is a new addition to the THE series.

Robot controller

Enhanced CPU and Ethernet facilitate

results in improved synchronized

fast transmission of internal data.

Teach pendant

performances, and IoT-ready

by better servo performances.

Arm length 600 mm, standard cycle time is at 0.3

seconds level (at 2 kg load), allowable moment of inertia

0.06 (kgm^2); accurate movement trajectory, fast motions

mechanism and control functions.

THE400 ceiling mount (optional)

Fast boot-up, ready in 30 seconds from power

key switch on the teach pendant.

on. Multiple languages switchable in the settings,

checked in one glance. With split-screen display,

Environment types: general, cleanroom, dust and splash proof, etc.

For example: Optional movable cable is available.

For example: Standard floor-mounted configuration,

Please refer to the specification table of each model for

working

SCARA robot

vertical articulated

assistance software

Programming

For Cartesian robot

For SCARA and vertical articulated robots

TP1000 (Standard) TP3000 (High-end model)

PLC), SCARA and

assistance software

Area coverage requirement and

Environmental requirements of installation site

* Contents included in this catalog are subject to change without prior notice to reflect improvements.

For example: optional field network connectivity is required.

For example: additional I/O signals are required.

Please refer to the specification table of each model for

installation configurations

requirement (cycle time) review

The robot motion patterns and the time

between the robot and the controller

brochure for each model and our website. And, please contact our sales representatives with any questions you may have.

www.shibaura-machine.co.jp/
Wide-ranging and various industrial robots contribute to automation, labor saving and increased efficiency.

The close integration and synergy of mechanical engineering and electronic control technologies gave birth to Shibaura Machine’s industrial robots. All the experience in design and production technologies acquired over its long history as a machine builder is reflected in its high-class machines and the controllers that drive them. A line-up of three categories of robots each ranging from compact to large has been established. They help to provide the optimized industrial automation solutions, resulting in increased productivity, and labor and cost reduction.
New standard in SCARA robot
High performance to meet automation needs

- Accurate movement trajectory, high-speed operation and high load capacity are achieved at the same time
- High-performance, high rigidity SCARA robots with a thoroughly redesigned mechanism and control functions
- Suitable for the assembly and inspection process of electronics equipment and automobile components where precision is crucial

THE400 and THE600 to meet the automation needs of faster cycle time.
Suitable for the assembly and inspection process of electronics equipment and automobile components where precision is crucial.
The THE600 is a new addition to the THE series. Combines with the newly developed TS5000 controller with its cutting-edge control performance and network functionalities and the newly developed TP5000 teach pendant, it contributes to improving efficiency, quality and the early return on investment in automation facilities.

### SCARA Robot THE600

Arm length 600 mm, standard cycle time is at 0.3 seconds level (at 2 kg load), allowable moment of inertia 0.25 (kgm²); fast motions and heavy load are achieved at the same time.

### SCARA Robot THE400

Arm length 400 mm, standard cycle time is at 0.39 seconds (at 2 kg load), allowable moment of inertia 0.06 (kgm²); accurate movement trajectory, fast motions and heavy load are achieved at the same time. THE400 is a high rigidity robot with thoroughly redesigned mechanism and control functions.

### Robot controller TS5000

- Improvement in synchronized control and tracking precision by better servo performances.
- Improved communication performances, and IoT-ready fast data communication.
- Faster control cycle (three times faster than the previous model) results in improved synchronized control and tracking precision.
- Enhanced CPU and Ethernet facilitate fast transmission of internal data.

### Teach pendant TP5000

- Improved operability
  - With 7-inch, widescreen color touch-sensitive panel, intuitive operation is realized. In the larger display area, programs and position data can be checked in one glance. With split-screen display, two sets of data can be displayed side-by-side, for example the current position display and program monitor.
  - Designed for ease of handling and operation
    - Fast boot-up, ready in 30 seconds from power on. Multiple languages switchable in the settings, Japanese, English, Chinese and Korean planned.
    - AUTO/MANUAL master mode switching with the key switch on the teach pendant.
New Generation Robot Programming Assist Tool  TSAssist

Powerful assistance to all phases of automation facilities, from planning, installation to enhancement

Applicable robots: SCARA Robots, Vertical Articulated Robots

- High Performance 3D Simulation
  - Simulation: Accurate simulation with interference check, locus display, timer (cycle time measurement)
  - Placing simple workpieces and model shapes
  - Loading 3D CAD data, saving 3D simulation to a video file
  - Multi-angle view

- Highly Functional Program Editor
  - Language input support (keyword suggestions)
  - Outline display, Split display
  - Point data (taught position information) editor with, sort, search, filter functions
  - In 3D Editor Mode, the robot can be guided by dragging the mouse or clicking on the surfaces of the object models.

- Easy Operation
  Easy-to-understand, intuitive screen design, ribbon interface, window-dock function for customizable operator panels. Beginners will find it easy to understand and can quickly learn robot programming skills. For experienced robot users, TSAssist helps making robot programs efficiently by customization.

- Solution Function
  A simulation environment for a production line including multiple robots can be archived into a folder.

- Multiple Language Support
  Switchable between English, Chinese (Traditional and Simplified) and Japanese. TSAssist allows smooth collaboration with overseas installations.

Please visit our website for details.

Robot Vision Recognition Package  TSVision3D

Easy Introduction of Bin-picking Automation System

Applicable robots: Vertical Articulated Robots

- System Configurations
  - Stereovision system
  - Ethernet Hub
  - LED light
  - Stereo camera
  - GigE
  - GigE
  - Robot controller
  - Robot program

POINT 1
- Package consists of stereo camera, PC software and LED lighting
  - Real-time and highly accurate 3D measurement by stereo camera
  - Random pattern projection by high luminosity LED
  - High speed (30 fps) and high accuracy image processing
  - With larger depth, more workpieces can be included per one box

POINT 2
- Software functions
  - Easy model registration
  - Easy calibration (registration of robot and camera coordinates)
  - Box position registration and interference avoidance function
  - Checking for arm working envelope

Please visit our website for details.

Please watch robot videos
https://www.youtube.com/watch?reload=9&v=DK9rtdZRat0
For experienced robot users, TSAssist helps making robot programs easy to understand and can quickly learn robot programming skills.

**Multi-angle view**

- Key Features
  - Locus display, timer (cycle time measurement)
  - Point data (taught position information) editor with, sort, filter, and display functions
  - Additional axes (traverse axis, wrist axis, etc.)
  - Conveyor synchronization
  - Additional I/O signals
  - I/O signal polarity
  - Position date latch function
  - I/O panel with built-in three-way connector

**SCARA Robots**

Fast motion and high load capacity contribute to improved automation productivity.

**Optional robot specifications**

- Tool flange for end effectors mounting
- Z-axis long stroke (-Z)
- Ceiling-mount type (-T)
- Z-axis cap (-C)
- Protective bellows for Z-axis (-B)
- Support of safety category 3
- Additional axes (traverse axis, wrist axis, etc.)
- Dust-proof and splash-proof design (-IP)
- Cleanroom design (-CR, -CRB) Etc.

For details such as availability of an option specification for each robot model, please review brochures and specification sheets. Or contact us.

Please visit our website for details.

https://www.youtube.com/watch?v=f7o5qgcEI7I

https://www.youtube.com/watch?v=hH7_iSvk43A

SCARA robots in action

https://www.youtube.com/watch?v=f7o5qgcEI7I

Please watch robot videos

**High-speed and High-precision SCARA Robots**

- Arm length: 650 to 1,200 mm

**Lightweight SCARA Robots**

- Arm length: 800 to 1,200 mm

**High-speed and High-cycle SCARA Robots**

- Arm length: 550, 700 mm

**Lightweight SCARA Robots**

- Arm length: 300 to 700 mm

**Main controller options**

- Additional axes
- I/O signal polarity
- Position date latch function
- Field network connectivity
- Separated operation panel
- Smooth (constant speed)
- CE marked and RoHS marked
- Control function
- Additional I/O signals
- Conveyor synchronization
- I/O cables
- PROFIBUS
- DeviceNet
- CC-Link
- EtherCAT
- PROFINET

Please visit our website for details.

For experienced robot users, TSAssist helps making robot programs efficiently by customization.

Key Features
- Easy-to-understand, intuitive screen design, ribbon interface, window-dock function for customize-able operator panels.
- Vertical Articulated Robots
- LED light
- Stereovision system
- Language input support (keyword suggestions)
- Cleanroom design (ISO class 3)
- Dust and drip proof (IP65)
- Cleanroom design (ISO class 3)
- For details such as availability of an option specification for each robot model, please review brochures and specification sheets. Or contact us.

Package consists of stereo camera, PC software and LED lighting.

Fast motion and high load capacity contribute to high productivity and easy operation.

TV series
- Dust and drip proof (IP65)
- Cleanroom design (ISO class 3)
- Ceiling mount
- I/O panel with built-in three-way solenoid valves
- Dust and water proof (IP67)
- Only for wrist of TV1000H

TVL series
- I/O panel with built-in three-way solenoid valves
- Dust and drip proof (IP65)
- Cleanroom design (ISO class 3)
- Middle-load use

TV series
- Dust and drip proof (IP65)
- Cleanroom design (ISO class 3)
- Ceiling mount
- I/O panel with built-in three-way solenoid valves
- Dust and water proof (IP67)
- Only for wrist of TV1000H

TVL series
- I/O panel with built-in three-way solenoid valves
- Dust and drip proof (IP65)
- Cleanroom design (ISO class 3)
- Middle-load use

Controller

<table>
<thead>
<tr>
<th>Model</th>
<th>TSL1000</th>
<th>TSL3100E</th>
<th>TS3100</th>
<th>TSL32000E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robot models</td>
<td>TV500</td>
<td>TV700</td>
<td>TV800</td>
<td>TV1000</td>
</tr>
</tbody>
</table>

Main controller options
- Additional I/O signals
- Field network connectivity
- Additional axes
- I/O cables

Please visit our website for details.
For experienced robot users, TSAssist helps making robot programs efficiently by customization.

- Simulation: Accurate simulation with interference check,
- Powerful assistance to all phases of automation
- Easy calibration (registration of robot data)
- Switchable between English, Chinese (Traditional and Simplified) and Japanese

TSAssist allows smooth collaboration with overseas installations.

Package consists of stereo camera, robot controller, software functions.

Please visit our website for details.

System Configurations

1. Stereo Vision System
2. Robot Videos
3. Software functions

Maximum Payload Mass (horizontal) (kg)

<table>
<thead>
<tr>
<th>Model</th>
<th>2 axes</th>
<th>2 axes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinate</td>
<td>X-Y combination</td>
<td>X-Z combination</td>
</tr>
<tr>
<td>Model</td>
<td>3 axes</td>
<td>4 axes</td>
</tr>
<tr>
<td>Coordinate</td>
<td>X-Y-Z combination</td>
<td>X-Y-Z-R combination</td>
</tr>
<tr>
<td>Controller</td>
<td>CA25-M10</td>
<td>CA25-M40</td>
</tr>
<tr>
<td>Type</td>
<td>Master unit</td>
<td>Master unit</td>
</tr>
</tbody>
</table>

Main controller options

- Additional I/O signals
- Field network connectivity
  - CC-Link
  - DeviceNet
  - EtherCAT
  - EtherCAT IP

Robot selection guidelines

In order to select a robot model please consider the following factors:

1. Mass and centre of gravity offset values of the workpiece and end of arm effector combined

2. Environmental requirements of installation site
   - Environment types: general, cleanroom, dust and splash proof, etc.

3. Area coverage requirement and installation configurations
   - Please review the external dimension drawing (CAD file) of each model for the working envelope (area coverage).
   - For example: Standard floor-mounted configuration, optional ceiling-mount configuration, etc.
   - For example: For a SCARA robot, whether vertical (Z) long-stroke option is required.

4. The robot motion patterns and the time requirement (cycle time) review

5. Cable length requirements, the distance between the robot and the controller
   - Please refer to the specification table of each model for standard cable lengths.
   - For example: Optional cable lengths are available.
   - For example: Optional movable cable is available.

6. Controller option requirements
   - Please refer to the specification table of each model for available controller options.
   - For example: additional I/O signals are required.
   - For example: optional field network connectivity is required.

7. Teach pendant (optional)
   - Please select according to the robot type.
   - For SCARA and vertical articulated robots
     - TP1000 (Standard)
     - TP3000 (High-end model)
     - TPH-4C
   - For Cartesian robot

8. PC software
   - Please select according to the robot type.
   - TSAassist
     - Programming assistance software for SCARA and vertical articulated robots
   - TCPRGOS
     - Programming assistance software for Tcmini (built-in PLC), SCARA and vertical articulated robots
   - SF-98
     - Programming assistance software for Cartesian robots

*This document presents an overview of our robot product lineup. For full details, such as specification data, external dimension CAD files, please refer to the brochure for each model and our website. And, please contact our sales representatives with any questions you may have.

SHIBAURA MACHINE CO., LTD.

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