INDUSTRIAL ROBOTS



The close integration and synergy of mechanical engineering and electronic control technologies gave birth to **our** 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.

Product Information

SCARA Robot THE Series

THE600 / THE400

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**

by better servo performances.

performances, and IoT-ready

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.

fast data communication.

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.

Key spec	cific	ations	THE400	
Arm leng	gth		400 (225+175) mm	
Maximur	n lo	ad mass	5 kg	
Standard	d cy	cle time	0.39 sec	
Allowable	e mo	oment of inertia	0.06 kgm ²	
Positionin	ıg	X-Y	±0.01 mm	
repeatabi	lity	Z (axis 3)	±0.01 mm	
		C (axis 4, rotation)	±0.007 deg	
Controlle	er		TSL3000, TSL3000E	

TS5000 Robot controller



Teach pendant Improvement in synchronized control and tracking precision



TP5000

repeatability Z (axis 3)

Controller

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.

THE400 ceiling mount (optional)

±0.01 mm

±0.005 deg

TS5000

THE600 Key specifications Arm length 600 (325 + 275) mm Maximum load mass 12 ka Standard cycle time 0.31 sec Allowable moment of inertia $0.25 \, \text{kgm}^{2}$ Positioning X-Y ±0.01 mm

C (axis 4, rotation)

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



High Performance 3D Simulation



- SimulationAccurate 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

Key Features

Easy Operation

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

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.

Solution Function

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

Multiple Language Support

Switch-able between English, Chinese (Traditional and Simplified) and Japanese. TSAssist allows smooth collaboration with overseas installations.

Easy Introduction of **Bin-picking Automation System**



Applicable robots: Vertical Articulated Robots

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 watch robot videos https://www.youtube.com/watch?reload=9&v=DK9rtdZRat0

SCARA Robots

Fast motion and high load capacity contribute to improved automation productivity



	9	9		9	3				
Model	TH450A	TH550A	THP550	THP700	THL300	THL400	THL500	THL600	THL700
Arm length (1st arm + 2nd arm	450 mm (200+250)	550 mm (300+250)	550 mm (300+250)	700 mm (350+350)	300 mm (125+175)	400 mm (225+175)	500 mm (200+300)	600 mm (300+300)	700 mm (400+300)
Max. load mass	5 kg	5 kg	2 kg	10 kg	5 kg	5 kg	10 kg	10 kg	10 kg
Controller					9 .	Main contr Additional a I/O signal p	roller options axes Position olarity Smootl	date latch function • Se constant speed • CE	parated operation panel marked and KCs marked

					I/O signal polarity Sm N-type P-type con
	TS3000	TS3100	TSL3000	TSL3000E	Additional I/O signals Fig
s	TH450A TH550A THP500	TH650A TH1200A TH850A THP700 TH1050A	THL300 THI THL400 THI THL500 THI	L600 THL900 L700 THL1000 L800 THL1200	Conveyor synchronization I/O cables

Model

Robot

model

 Smooth (constant speed • CE marked and r control) function
 Field network connectivity

n PROFIBUS DeviceNet CC-Link Ethernet/IP EtherCAT PROFINET

Vertical Articulated Robots More degrees of freedom suitable for assembly and transfer maneuvers





TVM series

- Hollow 3rd arm
- I/O panel with built-in three-way solenoid valves
- I/O panel Ethernet port
- Cleanroom design (ISO class 3)
- Ceiling mount

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

Additional axes





Main controller options

Field network connectivity

DeviceNet

EtherCAT

• CC-Link

PROFINET

PROFIBUS

Ethernet/IP

Additional I/O

signals

I/O cables

Model	TVL500	TVL700
Arm length	500 mm	700 mm
Max. load mass	3 kg (Downward: 5 kg)	4 kg (Downward: 5 kg)

Cartesian Coordinate Robots

Reliable and agile Cartesian robots with flexible and varied configurations to meet factory floor needs



Typical Examples of Cartesian Axes Specifications





Main controller options

Additional I/O signals
 Field n
 CC-L

Robot selection guidelines

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



*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.