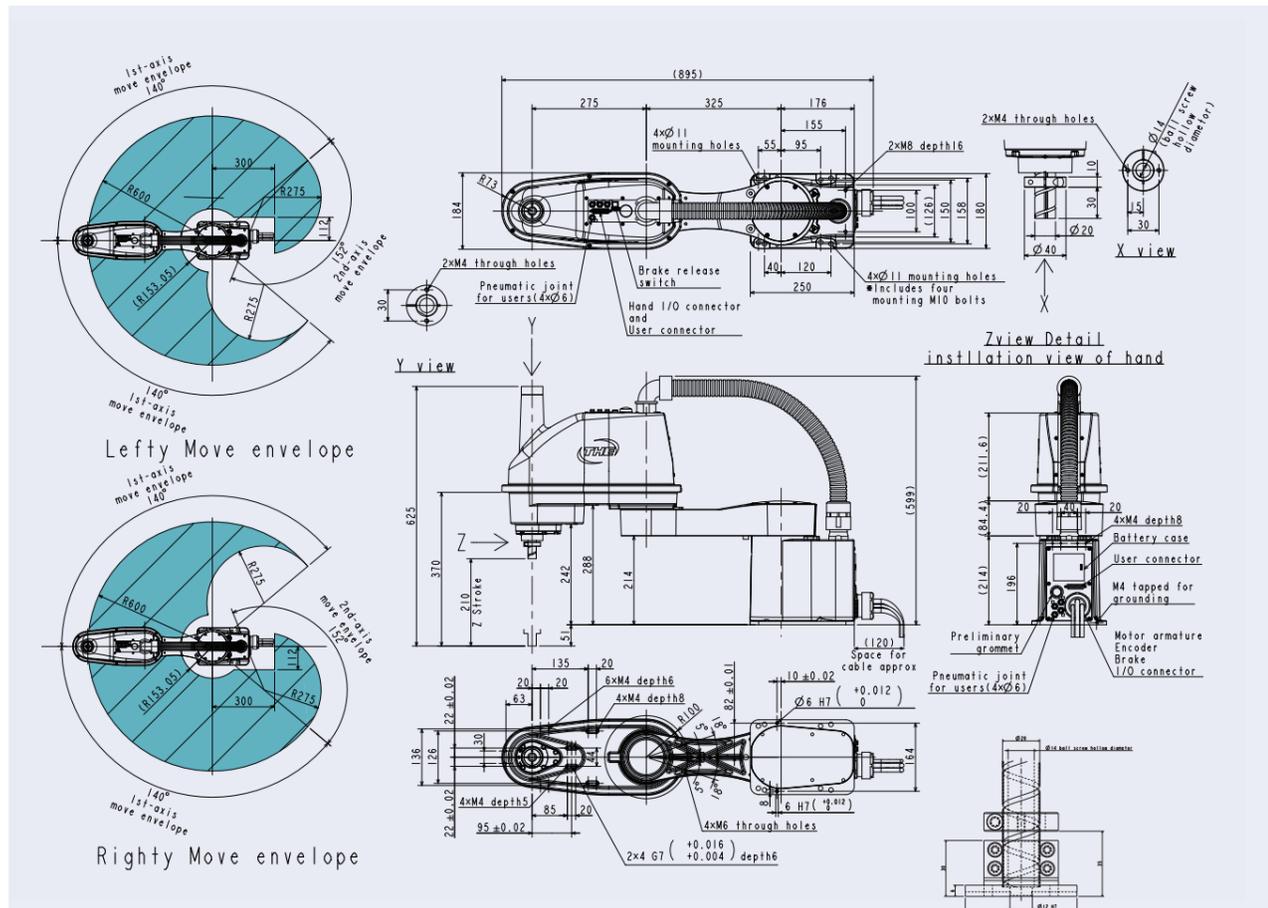


THE600 [External View]



Shibaura Machine's
NEW model SCARA robot

THE600

Shibaura Machine's
NEW model SCARA robot THE600

- Suitable for the assembly and inspection process of electronics equipment and automobile components where precision is crucial.
- Accurate movement trajectory, high speed operation and high load capacity are achieved at the same time.
- A new model SCARA robot with thoroughly redesigned mechanism and control functions.



Optional Specifications

- * Tool flange for hand (end-effector) mounting
- * Robot-controller cables customized length
- * Programming assistance tool TSAssist

(Planned options)

- * Simple dust protection with cap and bellows
- * Brackets for vision camera mounts
- * Hollow ball screw spline shaft for wiring and tubes
- * Movable robot-controller cables
- * Simple cleanroom design
- * IP (dust- and splash- proof) design
- * Ceiling-mounted



SCARA Robot THE600 Specifications

	Arm Length	600mm(325mm + 275mm)
Working Envelope	Axis 1	±140°
	Axis 2	±152°
	Axis 3 (Z-axis)	0~210mm
	Axis 4 (Z-axial rotation)	±360°
Maximum Speed ^{*1}	Axis 1	457°/sec
	Axis 2	672°/sec
	Axis 3 (Z-axis)	2,000mm/sec
	Axis 4 (Z-axial rotation)	2,359°/sec
	Composite (Axis 1 and 2 composite)	8,017mm/sec
Standard Cycle Time ^{*2}	(With 2 Kg load)	0.31sec
	Maximum payload mass ^{*1}	12kg
	Allowable moment of inertia ^{*1}	0.25kg·m ² ^{*2}
Position Repeatability ^{*3}	X-Y	±0.01mm
	Axis 3 (Z-axis)	±0.01mm
	Axis 4 (Z-axial rotation)	±0.005°
	Hand control signal	8 inputs and 8 outputs
	User wiring	16 lines
	User pneumatic tubes	φ6 x4 tubes
	Position Detection	Absolute
	Robot Controller Cable	3.5m
	Power Supply	4.3kVA
	Mass	31kg

<THE600 Key Advantages>

◆ High performance

Maximum speed (axis one and axis two combined) is 8,017mm/sec and standard cycle time is at 0.3 seconds level (at 2 kg load). Maximum load is 12 kg. Allowable moment of inertia 0.25 (kg·m²). Fast motions and heavy load are achieved at the same time.

◆ Various options to adopt to usage environments.

Options, such as tool flange for hand attachment are available.

Anti-dust cap and bellows, camera mount brackets, cleanroom design, IP designs are under development.

Combined with the newly developed controller TS5000 with its cutting edge control performances and network functionalities, the THE600 will contribute to improving efficiency, quality and the early return on investment in automation facilities.

*1 : Acceleration/deceleration rates may be limited according to the motion pattern, load mass and amount of offset.

*2 : Horizontal 300 mm, vertical 25 mm, round-trip with coarse positioning. Continuous operation is not possible beyond the effective load ratio.

*3 : Positioning repeatable accuracy in one-direction movement, when the environmental temperature is constant. Not absolute positioning accuracy. Positioning repeatability for X-Y and C are for when Z-axis is at the upper-most position. Trajectory accuracy is not ensured.

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Robot controller

TS5000

<Robot controller TS5000 key advantages>

◆Improvement in synchronized control and tracking precision by better servo performances.

Faster control cycle (position control cycle is three times faster than the previous model) results in improved synchronized control and tracking precision.

This enables more sensible control during robot's fast movements and improve its performance in such aspects as locus precision and vibration suppression.

Acceleration auto adjustment function (SPURT function) - acceleration rate is increased when the load stress to the motor and reduction gear is low. This contribute to shorter cycle time.

◆Improved communication performances, and IoT-ready fast data communication.

Enhanced communication capabilities with Gigabit Ethernet. Real-time transmission of internal data is possible.

Enhanced Ethernet communication functionalities for better usability. Simultaneous communication by 8 general-purpose ports (IP1~8) and dedicated ports (motion command port, monitor port, periodic communication port, etc.) is possible and contributes to more efficient operation.

Ready to meet the requirement for taking part in a "heavy-edge" system, as better precision in AI vibration analysis, data collection for predictive and preventative maintenance.

◆Enhanced Robot Programming Language

New compiler (processing system).

Clearer and succinct SCOL program with new and improved commands. Character string type variables, string manipulation functions, new and improved commands for conditional branching, coordinate conversion functions, etc. all for clear and succinct programming.

◆The compact-size controller contributes to a smaller control panel.

The small and high performance controller was realized by adopting a new CPU with high functionalities and high performance.

Additionally, all the connectors are on the front side. Volume and installation area become approximately 2/3 from the existing model(TS3100). The smaller controller contributes to a smaller control panel.

The fan-less design reduces maintenance.

◆Increase in user file capacity.

File memory capacity is expanded to 12 MB. By adding an SD card, it is expandable to maximum 32 GB.

◆Others

Built-in PLC TCmini included.



Robot Controller TS5000 Specifications

Number of controlled Axes	4	
Position detection	Absolute	
Programming language	SCOL2	
Movement commands	PTP (point-to-point), CP (Continuous Path; Linear, Circular), short-cut, arch motion	
Main memory	Built-in Flash ROM Capacity: 12 Mbytes	
Auxiliary memory	SD card (SD and SDHC) Maximum capacity: 32 Gbytes	
Number of Registrable Programs	Main memory	Maximum 512 - User files: 502 - System files: 10
	Auxiliary memory	Maximum 512 - User files: 512
Maximum number of program lines	Per program, Data part: 5,000 points Program part: 5,000 lines	
Teaching Unit (Optional)	Teach pendant TP5000, TP1000 ^{※1} Programming by PC software TSAssist ^{※2}	
I/O Signals	General Purpose	8 inputs and 8 outputs
	System Signals	13 input signals: Program selection, start, stop, program reset, etc. 9 output signals: Servo on, emergency stop, fault, etc.
	Hand Control Signals	8 inputs and 8 outputs
Other Functions	Torque control, Interruptive functions, self-diagnosis, I/O control and communications during motion, coordinate calculations, Built-in PLC, fan-less design etc.	
Outer Dimensions	365(W) × 161(H) × 350(D)mm	
Mass	11kg	
Power Supply	Single phase 190 to 240 V AC, 50/60 Hz	
PC Software for Programming Support (Optional)	TSAssist: Robot Programming assist tool High-performance 3D simulation, program editor, monitoring functions, etc. ^{※2} TCPRGOS: PLC programming editor for TCmini built-in PLC	
Options	Expansion I/O (21 inputs and 17 outputs) Field bus functions (under development) Conveyor synchronization function (under development)	

※1 : A convertor cable is necessary in order to connect with TP1000. TP3000 is not compatible.

※2 : TSPC PC software is not compatible.

Teach Pendant

TP5000



<Teach Pendant TP5000 Key Advantages>

◆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.

In the program editing with full on-screen keyboard.

◆Designed for ease of handling and operation.

Fast boot-up, ready in 30 seconds from power on.

Multiple languages and switchable by setting. (Japanese, English, Chinese, and Korean planned).

AUTO/MANUAL master mode switching by the key switch on the teach pendant.

Teach Pendant TP5000 Specifications

Display Devices	7-Inch, wide TFT LCD
Input Method	Touch sensitive panel
Mass	800 g or less (excluding cable)
External Dimensions	218(W)×173(H) × 60(D)mm
Cable Length	5 m (standard), 10 m, and 15 m (optional)
Protection Level	IP65