PC Software for Programming Support

The following PC software tools are provided to shorten the time and increase the efficiency of system designing and installation work.

**TSPC6ax**
- For robot programming

### 1. Powerful simulation function
- Offline robot program creation and simulation, with simulated I/O. Lead time up to the start of robot operation can be shortened. Robot programs can be checked without stopping the production line.

### 2. User-friendly programming environment
- Extensive help information, powerful grammar check, direct online editing of programs in the controller memory.

### 3. Multi-functional monitor and support
- Monitoring functions such as active program display, position display, motion status monitor by 3D model, and alarm history display. Operation from on-screen operation panel. Connection via Ethernet (optional) is also supported.

**Sample Projects**
- Sample Projects are a collaborative system between Toshiba Machine Co., Ltd. and Digital Electronics Corporation. They enable users to check the status of the robot on the touch panel display screen.

### Features and Advantages
- When an error occurs in the robot, the error information or details can be displayed on the Touch Monitor Screen.

### Built-in PLC
- The TSL3100 controller has a built-in PLC (TCmini).

## Functions, applications, and PC software for programming support

### Built-in PLC
- The TSL3100 controller has a built-in PLC (TCmini).

<table>
<thead>
<tr>
<th>Functions, applications, and PC software for programming support</th>
<th>Features, advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Built-in PLC</strong></td>
<td><strong>Features and Advantages</strong></td>
</tr>
<tr>
<td>- Controller performs input/output signals of standard I/O, extension I/O, and field network signals by a ladder program and exchanges data with the robot program.</td>
<td>- By changing the ladder program, system I/O signals can be assigned standard I/O signals, and system I/O signals can be assigned expansion I/O signals and field network signals.</td>
</tr>
<tr>
<td></td>
<td>- Flexible system design and control of peripheral equipment is possible without the added cost of an outside host PLC.</td>
</tr>
<tr>
<td></td>
<td>- Created, monitoring, and debugging of a ladder program are possible with powerful programming support software.</td>
</tr>
<tr>
<td></td>
<td>- The scan time is 5 ms per 1 K-Word (TSL3100).</td>
</tr>
<tr>
<td></td>
<td>- Connection is possible with various programmable controllers and display units etc.</td>
</tr>
</tbody>
</table>

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**TCmini**
- Input and output signals can be controlled by a ladder program, independent from robot motion.

- **Features and Advantages**
  - The status of the robot can be checked even by people who cannot operate the teach pendant.
  - Because the information about both the robot and the system is displayed on the same display device, troubleshooting is much easier.

- **Field Network**
  - Support for Sample Projects
    - Sample Projects are a collaborative system between Toshiba Machine Co., Ltd. and Digital Electronics Corporation. They enable users to check the status of the robot on the touch panel display screen.

**Micro LD/RD**
- **Micro LD/RD** is a low-cost micro controller that can be mounted on the robot for peripheral equipment control. It supports the peripheral equipment control function of the robot program during robot operation. The status of the peripheral equipment can be checked from the PC via Ethernet.

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  - TEL: +82-31-730-7300
  - FAX: +82-31-730-7392
**World-class performance**

(standard cycle time of less than 0.4 seconds)

**Specifications**

<table>
<thead>
<tr>
<th>Specifications</th>
<th>TV-J500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arm length</td>
<td>1640</td>
</tr>
<tr>
<td>Shoulder</td>
<td>1760</td>
</tr>
<tr>
<td>Elbow</td>
<td>1900</td>
</tr>
<tr>
<td>Wrist 1</td>
<td>1950</td>
</tr>
<tr>
<td>Wrist 2</td>
<td>1980</td>
</tr>
<tr>
<td>Wrist 3</td>
<td>2020</td>
</tr>
<tr>
<td>Wrist 4</td>
<td>2050</td>
</tr>
<tr>
<td>Wrist 5</td>
<td>2080</td>
</tr>
<tr>
<td>Wrist 6</td>
<td>2120</td>
</tr>
</tbody>
</table>

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**Special features**

**Tap holes**

Tool fixture tap holes are provided at four locations on the arm, upper and lower positions.

They are useful for fixing external cabling and peripheral devices.

**Alternative installations**

Tap holes on the side of the base unit allow for the robot to be installed sideways.

**1st arm equipped with a T-groove as standard**

The T-groove can be used to place tools, cabling and DIN rails in position.

**2nd arm side**

The second arm side

**3rd arm side**

The third arm side

**Hard side connector elbow type**

**IP65 option**

Dust-proof and drip-proof protection is available if required.

**Compact controller**

Controller TSL3100 specifically designed for the vertical articulated robot.

- Space saving and lightweight compared to the controller TS Series.
- Ethernet is equipped as standard, and expansions of I/O and various networks are supported.
- The controller’s operation status is indicated by LED display.
- Programs can be backed up easily to USB memory.

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<td>5000 Watt</td>
</tr>
<tr>
<td>Power supply</td>
<td>220V AC</td>
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<tr>
<td>Motor</td>
<td>1.5kVA</td>
</tr>
<tr>
<td>Control signal</td>
<td>TSPC</td>
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<td>Hand control signals</td>
<td>8 inputs / 8 outputs</td>
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**Variety of options**

**Robot controller cable options**

In addition to the standard cabling at the back, cabling can be routed through the base.

This eliminates the need for installation space at the rear, and increases flexibility relating to the application and the space available.

**I/O panel options**

The I/O panel can be selected from three options.

- An optional elbow type plug is available on the hand-side connection.

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**External view**

External dimensions and operation range

Panel

- [View A: Details of tool flange]
- [View B: Base mounting dimensions]
- [View C: T-groove dimensions]

- [Top View]
- [Rear View]
- [Left-side View]