**Omron's 3D-SJI (Solder Joint Inspection)**

**Ensuring High-quality Products in an Efficient Manufacturing Environment**

**High-Resolution Model**

### PCB Inspection System

**VT-S530**

#### Dimensions

<table>
<thead>
<tr>
<th>(Unit: mm)</th>
<th>1180(W)×1640 (D)×1500(H)</th>
<th>Approx. 850kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>200 - 240VAC (single phase), voltage fluctuation range ±10%</td>
<td></td>
</tr>
<tr>
<td>Current</td>
<td>2.0kVA</td>
<td></td>
</tr>
<tr>
<td>Air supply pressure</td>
<td>0.3 - 0.5MPa</td>
<td></td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>10 - 35°C</td>
<td></td>
</tr>
<tr>
<td>Operating humidity range</td>
<td>35 - 80%RH (non-condensation)</td>
<td></td>
</tr>
<tr>
<td>Image signal input block</td>
<td>13M pixel camera</td>
<td></td>
</tr>
<tr>
<td>3D reconstruction</td>
<td>3D reconstruction through color highlight and phase shift technology</td>
<td></td>
</tr>
<tr>
<td>Image resolution</td>
<td>10μm/1mm</td>
<td></td>
</tr>
<tr>
<td>FOV</td>
<td>15μ 4x30mm</td>
<td></td>
</tr>
<tr>
<td>15μ 4x60mm</td>
<td></td>
<td></td>
</tr>
</tbody>
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#### Functional specifications

- **Supported PCB size (min.)**: 50(W)×50(D)mm
- **Supported PCB size (max.)**: Dual lane: 510(W)×330(D)mm
- **Clearance**: Above: 50mm; Below: 25mm
- **Height measurement range**: 0.4 - 6mm

**Inspection item**

- Component height, lift, (U) mixing/wrong component, wrong polarity, flipped component, OCR inspection, 2D code, component offset (X/Y/rotation), fitted (height/length/and joint width), missing angle, side joint length), exposed lead, foreign material, lead error, lead offset, lead posture, lead presence, solder ball, solder bridge

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### PCB Inspection System (AOI) Lineup

#### Hardware configuration

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**Note:** Specifications subject to change without notice

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**Authorized Distributor:**

Authorized Distributor:
Omron’s 3D-SJI (Solder Joint Inspection)

Materializes quantitative inspection of solder joint and implementation, while minimizing risks of overlooking unknown defects by the quality product criteria inspection based on the standards, contributing to vertical startup of inspection.

**PORT 1**
3D reconstruction of solder and components

Hybrid 3D-SJI

Conducts optimal inspection to suit items to be inspected by combining 3D and 2D technologies.

- **Phase-shift principle** suitable for height measurement
- **Color highlight** to capture the shape without being affected by the solder surface state

**PORT 2**
Quantitative inspection utilizes quality criteria based on International Standards*

Contributing to quality control that conforms to International Standards, including IATF (ISO/TS) 16949.

**PORT 3**
Materialization of maximum quality inspection with minimum man-hour

Omron’s 3D-SJI S Series

- Automation has reduced man hours required for initial program creation time. Quantitative “quality criteria” based on 3D reconstruction has substantially reduced man hours required for debugging.
- Sustaining Stable Inspection
- Vertical Startup

**Example Defects**

- Lifted micro component (0603) defect
- Micro component (0603) insufficient solder wetting defect
- Micro component (0402) offset defect
- Micro component (0402) inclination defect

**Whole PCB surface inspection**

Detecting foreign objects accurately is achieved through combining 3D (height) and 2D (area) measurements on the entire PCB surface. (Lands without solder can be excluded from the inspection)

**High productivity inspection**

High production throughput supported through dual lane. Dual lane operation using various PCBs is possible, due to its handling capability up to the PCB size of 510 (W) x 330 (D) mm.

**System Configuration**

- Dedicated Database for Inspection System
- Inspection Result Viewer Terminal
- Inspection Program Creation Terminal
- Ethernet
Omron's 3D-SJI (Solder Joint Inspection)

Materializes quantitative inspection of solder joint and implementation, while minimizing risks of overlooking unknown defects by the quality product criteria inspection based on the standards, contributing to vertical startup of inspection.

**PORT 1**
3D reconstruction of solder and components

Hybrid 3D-SJI
Conducts optimal inspection to suit items to be inspected by combining 3D and 2D technologies.

**Phase-shift principle**
- Suitable for height measurement

**Color highlight**
- To capture the shape without being affected by the solder surface state

**Hybrid**

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Quantitative inspection utilizes quality criteria based on International Standards*

Contributing to quality control that conforms to International Standards, including IATF (ISO/TS) 16949.

**PORT 3**
Materialization of maximum quality inspection with minimum man-hour

Traditional models
- Continuous adjustment is required with each lot fluctuation or new defect occurrence. This model requires continuous debugging.

Omron’s 3D-SJI S Series
- Automation has reduced man hours required for initial program creation time. Quantitative "quality criteria“ based on 3D reconstruction has substantially reduced man hours required for debugging.

* IPC quality standard is adopted

**Example Defects**

- Lifted micro component (0603) defect
- Micro component (0603) insufficient solder wetting defect
- Micro component (0402) offset defect
- Micro component (0402) inclination defect
- Flow solder/insertion component inspection examples
- Micro solder ball inspection example

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Omron's 3D-SJI (Solder Joint Inspection) Ensuring High-quality Products in an Efficient Manufacturing Environment

### Hardware configuration

- **Dimensions:**
  - 1180(W)×1640 (D)×1500(H) mm
  - 961(max.)
- **Weight:**
  - Approx. 850kg
- **Power supply:**
  - 200-240VAC (single phase), voltage fluctuation range ±10%
  - 3kVA
- **Linearity:**
  - 100±0.05mm
- **Air supply pressure:**
  - 0.2 - 0.5MPa
- **Operating temperature range:**
  - 10 - 35°C
- **Operating humidity range:**
  - 35 - 80%RH (Non-condensing)
- **Image signal input block:**
  - Imaging system: 12megapixel camera
  - Inspection principle: 3D reconstruction through color highlight and phase shift technology

### Functional specifications

- **Supported PCB size (min.):**
  - 50(W)×50(D)mm
- **Supported PCB size (max.):**
  - Dual lane: 510(W)×330(D)mm
  - Single lane: 510(W)×680(D)mm
- **Clearance:**
  - Above: 0mm; Below: 20mm
- **Height measurement range:**
  - 0.4 - 6mm
- **Inspection item:**
  - Component height, lift, tilt, missing/wrong component, wrong polarity, flipped component, OCR inspection, 2D code, component offset (X/Y/rotation), tilt (height/length, end joint width, seating angle, side joint length), exposed land, foreign material, land error, lead offset, lead posture, lead presence, solder ball, solder bridge

### PCB Inspection System (AOI) Lineup

**VT-S530**

**3D High-Speed Oblique View**

**Support for Post Placement**

- VT-S500
- VT-S530
- VT-S730-H

**Best Sales in Automotive Industry**

- VT-S730-H

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