**SMT Line Integration**

Centralized production line management increases operator productivity and response time. TRI’s integrated solution includes the following four components:

- **Online Editor**
  - This application allows for centralized independent adjustment and fine tuning of inspection algorithms on previously scanned images while providing real-time feedback. The centralized program can then be uploaded to the inline inspection machines to improve inspection stability and accuracy.

- **Control Center**
  - The core component at the heart of a production facility, the control center allows real-time monitoring and control of multiple inspection machines on the SMT line.

- **Quality Validation**
  - Fully automated collection of good/failed images from a complete production run allows for centralized inspection management, issue and root cause drill down line by line, by station and by centralized inspection management provides top 5 to 10 defects and defective images, SPC and Alarm status, and supports remote fine-tune throughout the SMT line. The Yield Management System 4.0 provides real-time inspection status across SP, AOI and X-ray systems and monitors SPC and Alarm status, and supports remote fine-tune throughout the SMT line. The centralized inspection management provides top 5 to 10 defects and defective images, OEE review and management, issue and root cause drill down line by line, by station and by process, which improves quality and productivity analyses. YMS 4.0 supports Industry 4.0 initiatives.

- **Yield Management System 4.0**
  - YMS 4.0 provides real-time inspection status across SP, AOI and X-ray systems and monitors SPC and Alarm status, and supports remote fine-tune throughout the SMT line. The centralized inspection management provides top 5 to 10 defects and defective images, OEE review and management, issue and root cause drill down line by line, by station and by process, which improves quality and productivity analyses. YMS 4.0 supports Industry 4.0 initiatives.

**Specifications**

<table>
<thead>
<tr>
<th>Specifications</th>
<th>T7700 ENUM SERIES</th>
<th>TR7707 SII 3D</th>
<th>TR7700 SII-ECUL</th>
<th>TR7700 SIII 3D</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCB Size</td>
<td>100 x 100 mm (4 x 4 in.)</td>
<td>150 x 150 mm (5 x 5 in.)</td>
<td>250 x 250 mm (9.84 x 9.84 in.)</td>
<td>300 x 300 mm (11.8 x 11.8 in.)</td>
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<td>PCB Thickness</td>
<td>0.8 – 6 mm</td>
<td>0.8 – 6 mm</td>
<td>0.8 – 6 mm</td>
<td>0.8 – 6 mm</td>
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<tr>
<td>Max. PCB Height</td>
<td>150 mm (5.9 in.)</td>
<td>150 mm (5.9 in.)</td>
<td>150 mm (5.9 in.)</td>
<td>150 mm (5.9 in.)</td>
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<tr>
<td>PCB Content Filing</td>
<td>Step motor (with manual control)</td>
<td>Step motor (with manual control)</td>
<td>Step motor (with manual control)</td>
<td>Step motor (with manual control)</td>
</tr>
<tr>
<td>Clear Area</td>
<td>≥ 26 mm (1.06 in.)</td>
<td>≥ 26 mm (1.06 in.)</td>
<td>≥ 26 mm (1.06 in.)</td>
<td>≥ 26 mm (1.06 in.)</td>
</tr>
<tr>
<td>Width</td>
<td>≥ 20 mm (0.79 in.)</td>
<td>≥ 20 mm (0.79 in.)</td>
<td>≥ 20 mm (0.79 in.)</td>
<td>≥ 20 mm (0.79 in.)</td>
</tr>
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</tr>
</tbody>
</table>

**OEM Applications**

- **Automated Optical Inspection**
  - The automated optical inspection is a powerful tool that extracts high-quality images from the test data and creates a database of high-quality, reliable, and accurate images that can be used in relevant applications.

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**Additional Information**

- **Specifications**
  - All specifications are subject to change without notice. Specifications may not be used as acceptance criteria.

- **Trademarks**
  - All trademarks are the property of their owners. WARRANTY DISCLAIMER
  - TRI Innovations, Inc., its subsidiaries, or agents, shall not be liable for any direct, indirect, incidental, punitive, or consequential damages arising from or related to the use of this Application or the inability to use this Application or inability to use this Application for any reason.
TR7700 SIII 3D AOI with Total Inspection Coverage

The TR7700 SIII 3D AOI combines the best of 2D and 3D technologies with new generation software to revolutionize PCB assembly inspection.

Complete Coverage at Full Speed

Combination of an ultra-high-speed color camera and true 3D profile measurement completely inspects even complex automotive and smartphone assemblies. TR7700 SIII 3D inspection range covers everything from basic SMT components to large through-hole capacitors, switches, connectors, and hidden joints.

3D Inspection

Accurate laser sensor goes beyond other 3D technology boundaries. Its high measurement range ensures that components up to 20 mm high can be inspected with maximum precision. Working with laser light also eliminates problems with black or mirror-like components on low contrast backgrounds.

Interactive 3D models help operators quickly review found defects, such as lifted BGA components, IC leads, connectors, switches and other mounted devices for enhanced post-reflow inspection.

TR7700 SIII 3D FEATURES

- Multi-phase Lighting
  - Four individual lighting phases improve inspection of individual defect types using specialized lighting conditions.
  - High speed camera allows inspection at constant speed even with multiple lighting phases.

- Intelligent Auto Conveyor System
  - IACS automatically optimizes board stopping position in the conveyor, reducing load and unload time by up to 2.5 seconds, depending on board size.
  - Reduced load & unload time (saves 0.5-2.5 sec. per board.)
  - Automatic adjustment of conveyor speed based on board size & weight saves time for manual adjustment and training.
  - Automatic conveyor width adjustment (Optical direct adjustment system without returning to default position).

- Intelligent Easy Programming Interface
  - New intelligent programming process significantly reduces programming time using smart component library and integrated board warp compensation.
  - Programming Flowchart
    - Smart Library + Model Library
    - New Color Space Algorithms
      - TRI’s new adaptive algorithms use color space processing to increase inspection accuracy, reduce false calls and improve inspection results while reducing time necessary for inspection fine tuning and the number of alternative images required.

- Color Differentiation Analysis for Black Resin Parts

- 3D Chip Inspection Reveals Defects on Both Sides of Compound Components

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- 3D Chip Inspection Reveals Defects on Both Sides of Components

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### Programming Flowchart

1. **Load CAD**
2. **Scan Map Alignment**
3. **Fiducial Mark Library**
4. **Inspect/ Fine Tune**

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- Office Editor
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- Control Center
  The core component at the heart of a production facility, the control center allows real-time monitoring and operation of multiple inspection machines across production lines.

- Quality Validation
  Fully automated collection of good/failed images from a complete production run allows for inspection results and data integration, real-time SPC and alarm status, and supports remote fine-tune throughout the SMT line. The TYM 4.0 provides real-time inspection status across SPI, AOI and AXI systems and monitors multiple inspection machines across production lines.

- Offline Editor
  Offline algorithms on previously scanned images while providing immediate feedback. The TYM 4.0 supports Industry 4.0 OEE review and management, issue and root cause drill down line by line, by station and by panel. Centralized inspection management provides top 5 to 10 defects and defective images, SPC and alarm status, and supports remote fine-tune throughout the SMT line. The TYM 4.0 provides real-time inspection status across SPI, AOI and AXI systems and monitors multiple inspection machines across production lines.

TYM's integrated solution includes the following four components.

- SPC and Alarm management
- Remote fine-tune
- SPC and Alarm management
- Remote fine-tune

> Specifications are subject to change without notice. Content may not be used as acceptance criteria.

TYM INNOVATION
TYM InnoVation Pte Ltd is a leader in SMT vision technology. The company offers a wide range of high-performance and high-quality products, including automated optical inspection and product testing systems. TYM InnoVation Pte Ltd is committed to providing innovative solutions that meet the needs of the electronic manufacturing industry.
The document discusses the benefits of a TRI's automated solution for improving New Product Introduction (NPI) processes. It highlights the integration of various components such as Yield Management System (YMS 4.0) and the Control Center, which together provide real-time inspection status across SPI, AOI, and AXI systems and monitor the operation of multiple inspection machines across production lines. The solution also facilitates centralized independent adjustment and fine-tuning of inspection algorithms on previously scanned images while providing immediate feedback. The diagram illustrates the workflow from the inspection results and data integration to the inspection results and data integration, and the benefits include:

- Increased operator productivity and response time.
- Improved inspection stability and accuracy.
- Real-time feedback on inspection results.
- Centralized independent adjustment and fine-tuning.
- Fully automated collection of good/failed images from complete production runs.
- Real-time SPC and production yield management.
- Support for remote fine-tuning throughout the SMT line.

The document also mentions the SPECIFICATIONS table and provides detailed information about the different models, their dimensions, and other technical specifications. The table lists the models TR7500 Series, TR7600 Series, and TR7007 Series, along with their respective dimensions, power requirements, and other technical details.