High Accuracy Model

3D AOI

AUTOMATED OPTICAL INSPECTION

TR7700Q SII SERIES

- Industry-Leading Inspection Speed up to 57 cm^2/sec
- Ease of Programming with TRI's Smart Library
- Multiple 3D Technologies: Zero-escapes Inspection

1 μm
DFF High Resolution* Inspection

3D Height Range
up to 40 mm

Real Time SPC Trends

TRI
innovation

*Optional feature.

TR7700Q SII SER

High Accuracy 3D AOI Solution

The TR7700Q SII is powered by TRI's Smart Library with auto-learning functionalities, flexible inspection algorithms, and metrology capabilities for exact measurements and data exchange for Smart Factory applications. The TR7700Q SII has a Higher Accuracy, and improved Gauge R&R with Stop-and-Go Imaging Technology.

57 cm^2/s
High Speed Inspection

Smart Programming

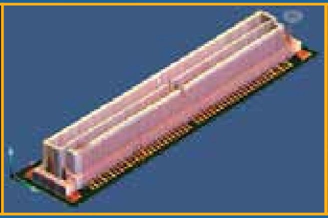
Realize seamless programming and improve your production efficiency with TRI's Smart Library. The Smart Test and Inspection Library promotes ease of programming and maintenance to achieve precise and accurate inspection results.

Scan Board → Setup Inspection → Inspect Board

Smart Inspection

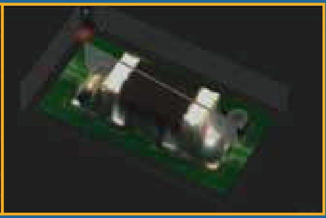
Achieve True 3D Profile Measurement Using Multiphase lighting, Blue Angled Laser and 3D Depth from Focus (DFF) Technology. Powered by IPC-610 compliant algorithms, the 3D AOI system is able to inspect the most intricate solder joint defects, including THT components. Interactive 3D models help operators quickly review found defects, such as lifted BGA components, IC leads, connectors, switches and other mounted devices for enhanced post-reflow inspection.

True 3D Inspection

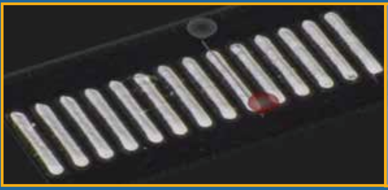


Accurate 3D Height

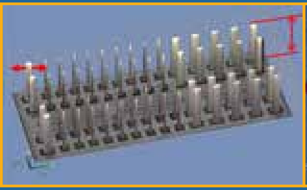
Highly Reflective Surface



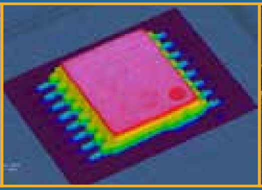
Shadow-free Inspection



Solder Joint Defects



3D Pin Height Inspection



3D Polarity Check

Lifted Lead Profile

RIES

Foreign Material Inspection

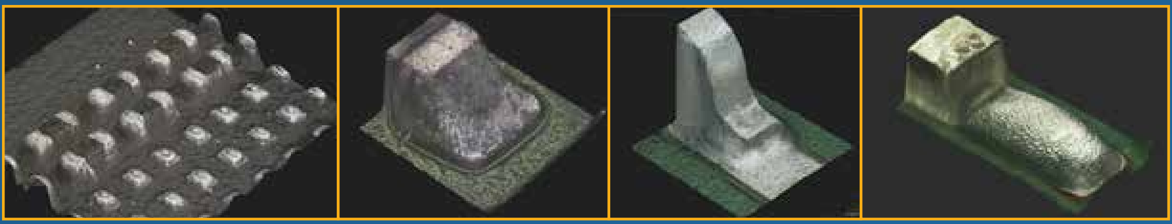
Reduce false calls and perform no escape inspections with the foreign inspection functionality. The 3D AOI solution auto learns the PCB design will identify the extra components, solder balls, fibers, and any other foreign object, thus eliminating these defects.

Multi-Scan Inspection

Multi-Scan Function enables it to easily inspect a board with different heights, without compromising your cycle time. The Multi-Scan Function enables reliable inspection results and more cost-efficient solutions.

Reduce Operator Re-inspection with 3D DFF Technology

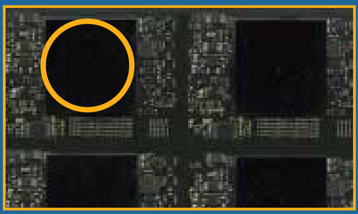
Complete 3D PCB Assembly Inspection with Depth from Focus (DFF) Technology. TR7700Q ensures all visible solder joints meet IPC specifications or your chosen criteria. Depth from focus (DFF) is a revolutionary 3D sensing technique that searches for optimal focus position, supporting 1 μm ultra high resolution inspection.



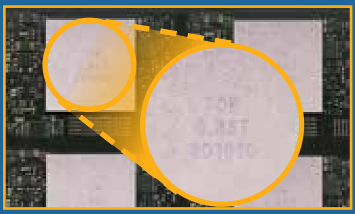
3D Depth from Focus High Resolution Imaging

Blue Angled Laser Technology

The Blue Angled Laser precisely measures the height and surface of Reflective & Transparent Components. Bare silicon die inspection requires Coaxial Lighting to improve marking and body outline visibility. The Blue Angled Laser achieves shadow-free inspection of low components near high components.

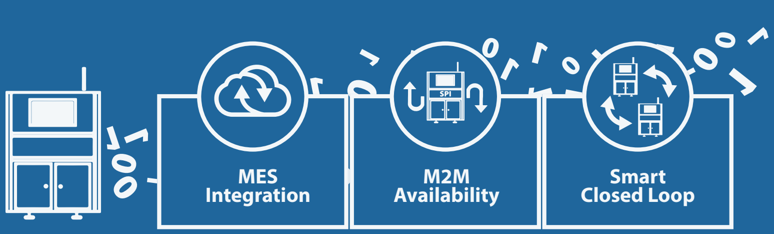


Bare Silicon and Wafer Level Chip Scale Packaging (WLCSP)



Inspection of High Component Density Boards

Big Data Ready



Boost your Factory Intelligence and Optimize your production line by easily integrating Big Data Analytics from your Solutions. TRI's Smart Factory Test and Inspection Solutions promote full traceability and data exchange, by generating Big Data for your MES Applications, essential for optimizing your production your yield rate, enabling the Connected Factory.

Smart Monitoring

TRI's Smart Factory Solutions allow operators to aggregate information from individual systems for statistical analysis of production line defect rates, reviewing and fine-tuning inspection results, and identifying component defect trends and emerging production issues.

Real Time Inspection Status

Defects Analysis Reports

Remote Alarm & Monitoring

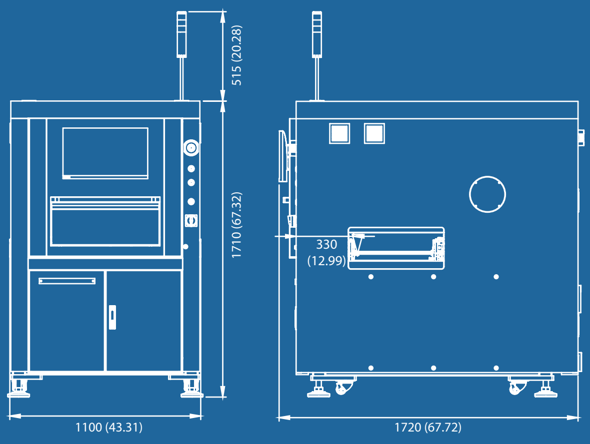
Real Time SPC Trends

Specifications

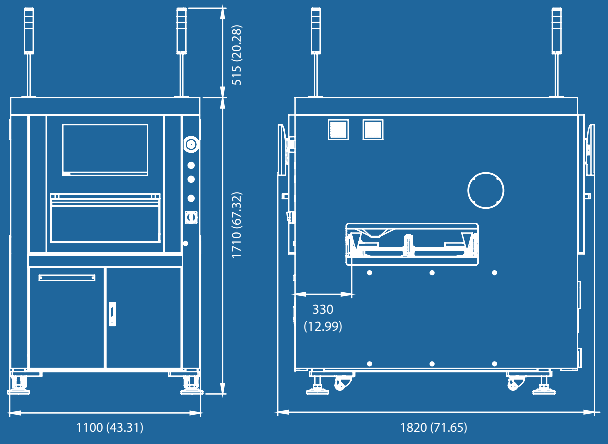
TR7700Q SII SERIES

<table>
<tr><th colspan="2">Model</th><th>TR7700Q SII</th><th>TR7700Q SII DL</th></tr>
<tr><td rowspan="6">Imaging System</td><td>Camera</td><td colspan="2">12 MP High Speed Camera</td></tr>
<tr><td>Optical Resolution / Speed</td><td colspan="2">10 µm: 25 cm^2/sec / 15 µm: 57 cm^2/sec</td></tr>
<tr><td>Imaging Method</td><td colspan="2">Stop-and-Go</td></tr>
<tr><td>3D Technology</td><td colspan="2">Quad Digital Fringe Projectors</td></tr>
<tr><td>Lighting</td><td colspan="2">Multi-phase True Color LED</td></tr>
<tr><td>Max. 3D Height Range</td><td colspan="2">40 mm</td></tr>
<tr><td rowspan="2">Pre-/Post-Reflow Inspection Functions</td><td>Component Defects</td><td colspan="2">Missing, Tombstoning, Billboarding, Polarity, Rotation, Shift, Wrong Marking (OCV), Defective, Upside Down, Extra Component, Foreign Material, Lifted Component</td></tr>
<tr><td>Solder Joint Defects</td><td colspan="2">Solder Fillet Height, Solder Volume %, Excess Solder, Insufficient Solder, Bridging, Through-hole Pins, Lifted Lead, Golden Finger Scratch/ Contamination</td></tr>
<tr><td colspan="2">X-Y-Z Axis Control</td><td colspan="2">Ballscrew + AC Servo with Motion Controller</td></tr>
<tr><td colspan="2">X-Y-Z Axis Resolution</td><td colspan="2">1 µm with Optional Linear Encoder</td></tr>
<tr><td colspan="2">Min PCB Size</td><td colspan="2">50 x 50mm (1.97 x 1.97 in.)</td></tr>
<tr><td colspan="2">Max PCB Size</td><td>510 x 460 mm (20.08 x 18.11 in.)</td><td>510 x 310 mm (20.08 x 12.20 in.) x 2 lanes
510 x 590 mm (20.08 x 23.23 in.) x 1 lane</td></tr>
<tr><td colspan="2">PCB Thickness</td><td colspan="2">0.6 - 5mm (0.02 - 0.20 in.)</td></tr>
<tr><td colspan="2">PCB Transport Height</td><td colspan="2">880 - 920 mm (34.65 -36.22 in.)</td></tr>
<tr><td colspan="2">Max PCB Weight</td><td colspan="2">3kg (6.61 lbs)</td></tr>
<tr><td colspan="2">PCB Carrier / Fixing</td><td colspan="2">Step Motor Driven</td></tr>
<tr><td rowspan="3">Clearance</td><td>Top</td><td colspan="2">50 mm (1.97 in.)</td></tr>
<tr><td>Bottom</td><td colspan="2">40 mm (1.57 in.)</td></tr>
<tr><td>Edge</td><td colspan="2">3 mm (0.12 in.).
Optional: 4 mm (0.16 in.) / 5 mm (0.20 in.)</td></tr>
<tr><td colspan="2">Weight</td><td>895 kg (1,973.14 lb)</td><td>965 (2127.46 lb)</td></tr>
<tr><td colspan="2">Power Requirement</td><td colspan="2">200 – 240 VAC, single phase, 50 / 60 Hz, 3 kVA</td></tr>
<tr><td colspan="2">Air Requirement</td><td colspan="2">72 psi – 87 psi (5 – 6 bar)</td></tr>
<tr><td rowspan="2">Optional</td><td>Features</td><td colspan="2">Barcode Scanner, Repair Station, Offline Editor, OCR, Yield Management System (YMS 4.0), Support Pin, Coaxial Lighting</td></tr>
<tr><td>3D Technologies</td><td colspan="2">3D Laser Module or DFF Module Upgrade</td></tr>
</table>

Unit: mm (in.)



TR7700Q SII



TR7700Q SII DL

Global Network

Nuremberg, Germany	trieurope@tri.com.tw	**Shenzhen, China**	shenzhen@cn.tri.com.tw
San Jose, USA	triusa@tri.com.tw	**Suzhou, China**	suzhou@cn.tri.com.tw
Tokyo, Japan	trijp@tri.com.tw	**Shanghai, China**	shanghai@cn.tri.com.tw
Ansan, Korea	trikr@tri.com.tw	**Penang, Malaysia**	trimy@tri.com.tw

HEADQUARTERS

7F., No.45, Dexing West Rd., Shilin Dist.,
Taipei City 11158, Taiwan
☎ +886-2-2832-8918 ✉ Sales@tri.com.tw

TRI 德律 TRI INNOVATION

C-7700Q SII-EN-2002

www.tri.com.tw