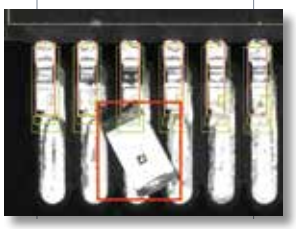
TR7500 SIII 3D
SERIES

- High Performance Multi-angle 3D PCBA Inspection
- High Defect Coverage Using Hybrid 2D+3D Inspection
- Dual Laser True 3D Profile Measurement
- Accurate Bare Silicon Package Inspection

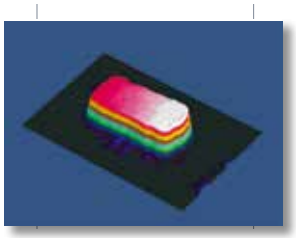
AUTOMATED
OPTICAL INSPECTION

TR7500 SIII 3D FEATURES

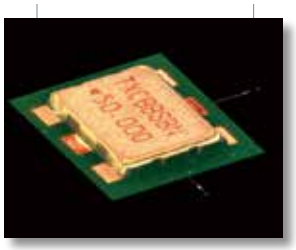
Defects



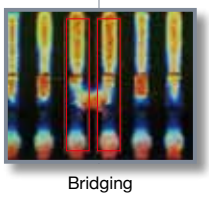
Foreign Material



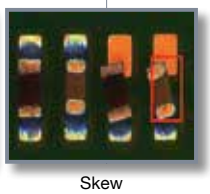
Lifted Components



Metal-cased Reflective Components

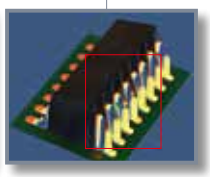


Bridging

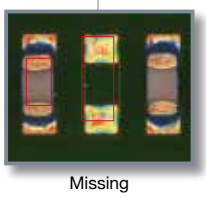


Skew

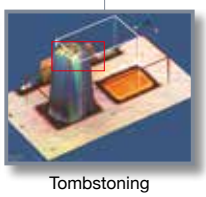
No Solder



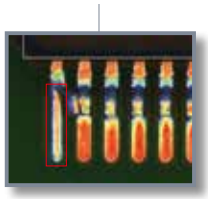
Lifted Lead



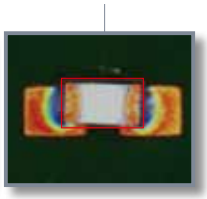
Missing



Tombstoning



Bent Pin



Upside Down

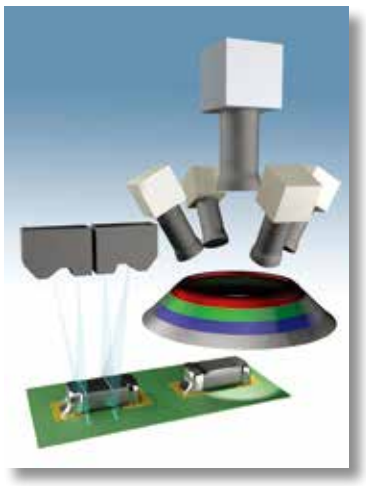
TR7500 SIII 3D - High Performance and Total Inspection Coverage

The TR7500 SIII 3D AOI combines the best of 2D and 3D technologies with new generation software in a high performance system for PCB assembly inspection. Built on TRI's high-speed dynamic imaging technology, TR7500 SIII 3D is the ideal AOI for the industry's largest PCBs.

Complete Coverage at Full Speed

High resolution images from five multi-angle color cameras and true 3D profile measurement eliminate blind spots even on complex automotive and smartphone assemblies.

TR7500 SIII 3D inspection range covers everything from basic SMT components to large thru-hole capacitors, switches, connectors and hidden solder joints.



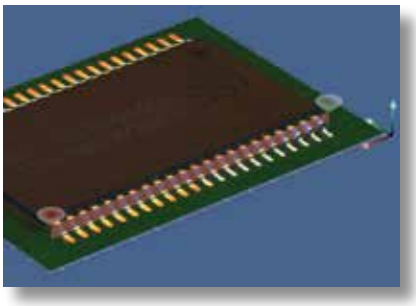
Wide Range 3D Inspection

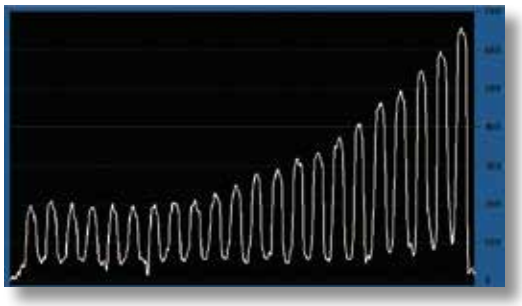
Military grade blue laser sensors go beyond other 3D technology boundaries. Their height measurement range ensures that components up to 20 mm high can be inspected with maximum precision.

Laser sensors are an effective solution for polished bare silicon chips and wafer level packages. They also eliminate problems with black components on low contrast background.

Complete 3D PCB Assembly Inspection

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

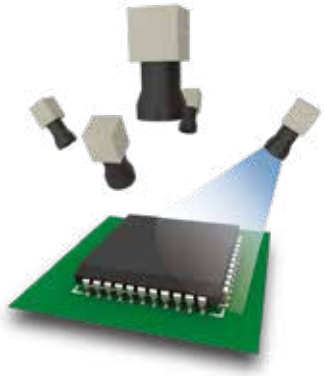


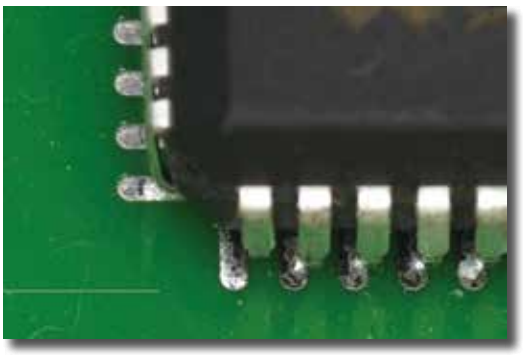


IC lead inspection using 2D + 3D technologies efficiently reveals lifted leads

Reveal Hidden Defects in Clear Angle View Images

Angle view images reveal soldering issues from another perspective, not available in single camera systems, and help eliminate an important source of defects.

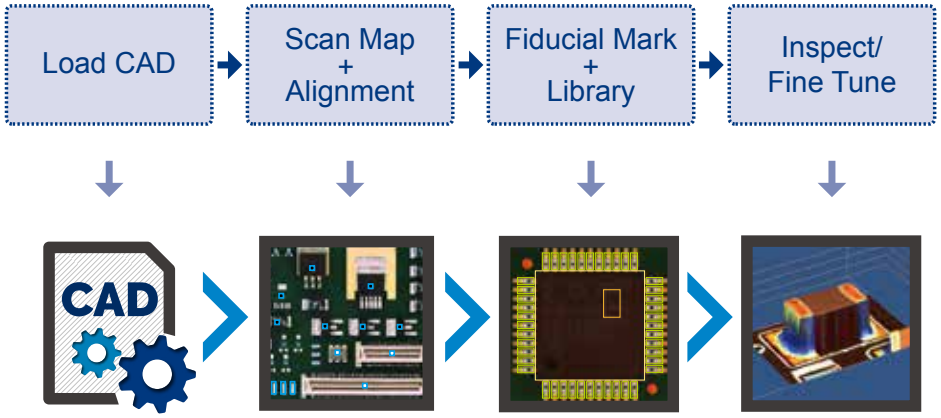




Hidden soldering defects revealed in side view

From CAD to Inspection in Minutes

TRI's intuitive software and smart component libraries streamline new product introduction in a few simple steps.



TRI AOI programming flow in a few simple steps

Intuitive Inspection Results

Reviewing defects on TR7500 SIII 3D is a breeze with intuitive height profile visualization.

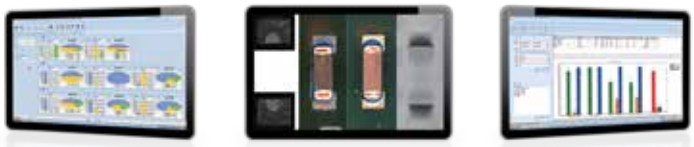
Easy to identify defects shown in specialized display modes

Yield Management System 4.0

YMS 4.0 provides a M2M centralized inspection monitoring and remote access fine tuning throughout the SMT line. Built-in support for SPI, AOI, AXI and ICT systems helps track Alarms and SPC data to simplify production quality monitoring. YMS 4.0 is TRI's Industry 4.0 closed loop software to assure your production line Inspection quality and efficiency.

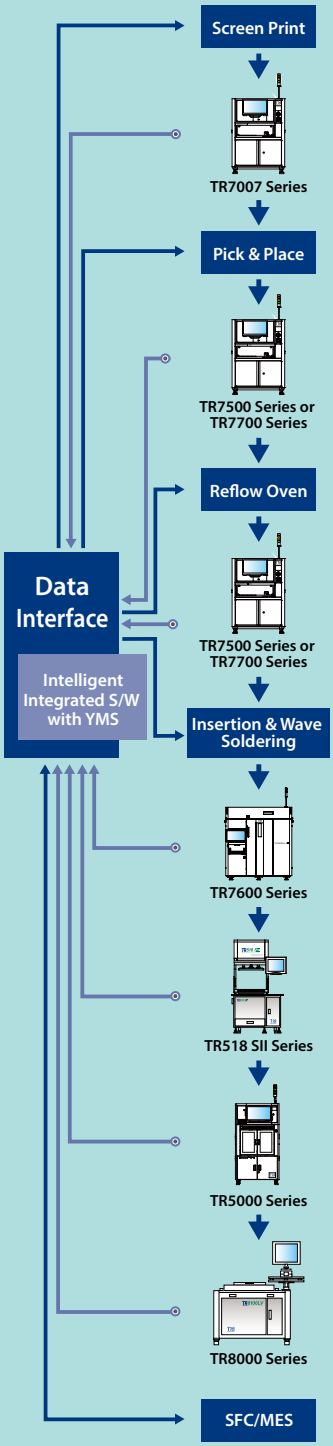
INCREASE EFFICIENCY | REDUCE MANPOWER | LEANER PRODUCTION LINE

The Yield Management System allows operators to aggregate information from individual TRI inspection systems for statistical analysis of production line defect rates, reviewing and fine-tuning inspection results, and identifying component defect trends and emerging production issues.



PRODUCTION ANALYSIS | CENTRALIZED INSPECTION CENTER | REAL TIME SPC TREND

Yield Management System



- Inspection results and data integration
- Real time SPC and production yield management
- Quality reports and closed loop tracking
- Support defect component analysis and improvements
- Knowledge Management (KM)
- Productivity and Quality Management

SPECIFICATIONS

Optical & Imaging System

Top View Camera	4 Mpix high speed color camera
4 Angled View Cameras	1.3 or 6.5 Mpix (factory setting)
3D Laser Sensor	Dual 3D laser sensors
Lighting	Multi-phase RGB+W LED
Optical Resolution*	10 µm/15 µm
Laser Resolution*	10 µm (optional)/20 µm/50 µm
Imaging Method	Dynamic imaging with true 3D profile measurement
3D Inspection Range	20 mm

* Factory setting

Imaging/Inspection Speed

Mode	2D	2D+3D
15 µm (cm^2/sec)	120	40 - 60*
10 µm (cm^2/sec)	60	27 - 39*

* Depending on board size and laser resolution

Pre-/Post-Reflow Inspection Functions

Component	Missing, Tombstoning, Billboarding, Polarity, Rotation, Shift, Wrong Marking (OCV), Defective, Upside Down, Lifted Component, Extra Component, Foreign Material
Solder Joint	Excess Solder, Insufficient Solder, Bridging, Through-hole Pins, Lifted Lead, Golden Finger Scratch/Contamination

X-Y Table & Control

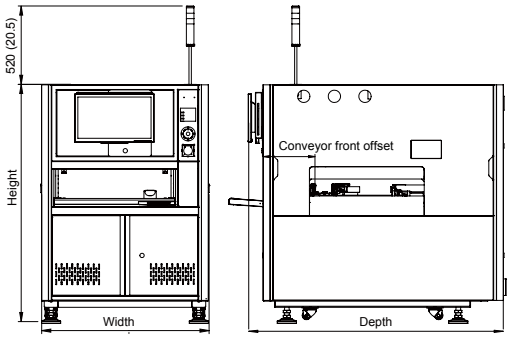
Ballscrew + AC servo with Motion Controller	
X-Y Axis Resolution	1 µm

PCB & Conveyor System

	TR7500 SIII 3D	TR7500L SIII 3D	TR7500 SIII 3D DL
PCB Size	50 x 50 – 510 x 460 mm* (1.97 x 1.97 – 20.1 x 18.1 in.*)	50 x 50 – 660 x 460 mm (1.97 x 1.97 – 26.0 x 18.1 in.)	50 x 50 - 510 x 250 mm x 2 lanes (1.97 x 1.97 - 20.1 x 9.84 in. x 2 lanes) 50 x 50 - 510 x 550 mm x 1 lane (1.97 x 1.97 - 20.1 x 21.7 in. x 1 lane)
PCB Thickness	0.6 – 5 mm		
PCB Transport Height	880 – 920 mm (34.6 – 36.2 in.)		
Max. PCB Weight	3 kg (6.61 lbs)		
PCB Carrier/Fixing	Step motor driven conveyor & pneumatic clamping		
Clearance			
Top	15 mm (0.59 in.) / 25 mm (0.98 in.) / 48 mm [(1.89 in.) optional**]		
Bottom	40 mm (1.58 in.)		
Edge	3 mm (0.12 in.)		

* The testable PCB size range will vary depending on the configuration of laser probe.
** (1) Top clearance for laser resolution @ 50 µm is 25 or 48 mm (optional)
(2) Top clearance for laser resolution @ 20 µm is 25 mm
(3) Top clearance for laser resolution @ 10 µm is 15 mm

Dimensions



	TR7500 SIII 3D	TR7500L SIII 3D	TR7500 SIII 3D DL
Width	1100 (43.3)	1300 (51.2)	1100 (43.3)
Depth	1670 (65.7)	1630 (64.2)	1770 (69.7)
Height	1550 (61.0)	1655 (65.2)	1550 (61.0)
Conveyor front offset	335 (13.2)	365 (14.4)	335 (13.2)
Weight	1010 kg (2227 lbs)	1250 kg (2756 lbs)	1150 kg (2530 lbs)
Power Requirement	200 – 240 VAC, single phase, 50/60 Hz, 3 kVA		
Air Requirement	72 psi - 87 psi (5 - 6 bar)		

Unit : mm (in.)

Options

Barcode Scanner, Offline Editor, OCR, Yield Management System (YMS 4.0), YMS Lite

Test Research, Inc.

Headquarters
7F., No.45, Dexing West Rd., Shilin Dist., Taipei City 11158, Taiwan
TEL: +886-2-2832-8918
FAX: +886-2-2831-0567
E-Mail: sales@tri.com.tw
http://www.tri.com.tw

Linkou, Taiwan
No.256, Huaya 2nd Rd., Guishan Dist., Taoyuan City 33383, Taiwan
TEL: +886-2-2832-8918
FAX: +886-3-328-6579

Hsinchu, Taiwan
7F., No.47, Guangming 6th Rd., Zhubei City, Hsinchu County 30268, Taiwan
TEL: +886-2-2832-8918
FAX: +886-3-553-9786

Shenzhen, China
5F.3, Guangxia Rd., Shang-mei-lin Area, Fu-Tian Dist., Shenzhen, Guangdong, 518049, China
TEL: +86-755-83112668
FAX: +86-755-83108177
E-mail: shenzhen@cn.tri.com.tw

Suzhou, China
B Unit, Building 4, 78 Xinglin St., Suzhou Industrial Park, 215123, China
TEL: +86-512-68250001
FAX: +86-512-68096639
E-mail: suzhou@cn.tri.com.tw

Shanghai, China
Room 6C, Building 14, 470 Guiping Rd., Xuhui Dist., Shanghai, 200233, China
TEL: +86-21-54270101
FAX: +86-21-64957923
E-mail: shanghai@cn.tri.com.tw

USA
832 Jury Court, Suite 4, San Jose, CA 95112 U.S.A
TEL: +1-408-567-9898
FAX: +1-408-567-9288
E-mail: triusa@tri.com.tw

Europe
O'Brien Strasse 14
91126 Schwabach
Germany
TEL: +49-9122-631-2127
FAX: +49-9122-631-2147
E-mail: trieurope@tri.com.tw

Japan
2-9-9 Midori, Sumida-ku, Tokyo, 130-0021 Japan
TEL: +81-3-6273-0518
FAX: +81-3-6273-0519
E-mail: trijp@tri.com.tw

Korea
No.207 Daewoo-Technopia, 768-1 Wonsi-Dong, Danwon-Gu, Ansan City, Gyeonggi-Do, Korea
TEL: +82-31-470-8858
FAX: +82-31-470-8859
E-mail: trikr@tri.com.tw

Malaysia
C11-1, Ground Floor, Lorong Bayan Indah 3 Bay Avenue, 11900 Bayan Lepas Penang, Malaysia
TEL: +604-6461171
E-mail: trimy@tri.com.tw