

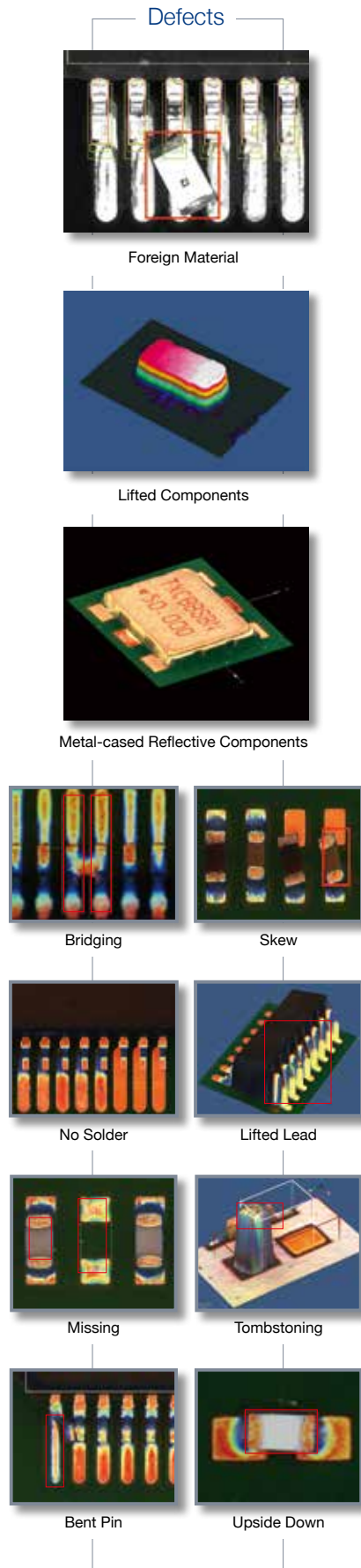
# TR7700Q SERIES



- High Accuracy Stop-and-Go 3D AOI
- 3D Height Range up to 30mm
- 0201mm chip Inspection Ready
- Quad Digital Fringe Pattern Technology

**3D AUTOMATED  
OPTICAL INSPECTION**

# TR7700Q FEATURES



## TR7700Q - The High Performance 3D AOI Solution

The TR7700Q Automated Optical Inspection combines the latest of 2D and 3D technologies based on digital quad fringe pattern projection to revolutionize PCB assembly inspection.

### Maximum Precision with 4-way Projection

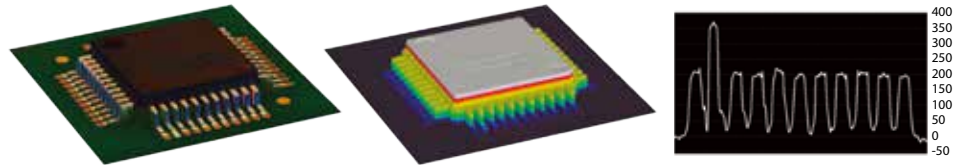
TR7700Q combines a high resolution orthogonal camera and quad multi-angle digital fringe pattern projection for best inspection coverage.

- **1** High Speed Top Camera
- **4**-way Adaptive Digital Fringe Projection
- **30** mm height inspection range



### Intuitive Inspection Results

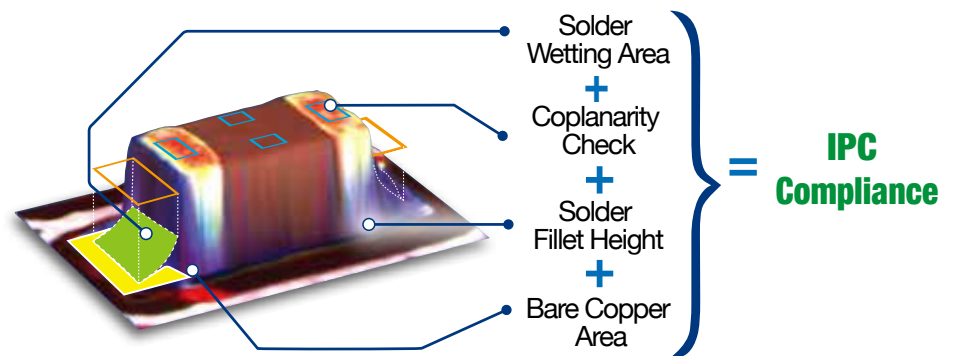
Reviewing defects on TR7700Q is a breeze with intuitive profile visualization.



Easy to identify defects shown in specialized display modes

### Four-Strategy Solder Inspection

TR7700Q analyzes several solder joint parameters to locate non-compliant soldering defects.



### Smart Inspection Library

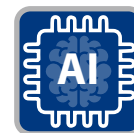
Ready to Inspect in minutes, quickly setup your production line Inspection with TRI's preloaded Smart Inspection Library.



Load CAD File



Scan Map + Alignment



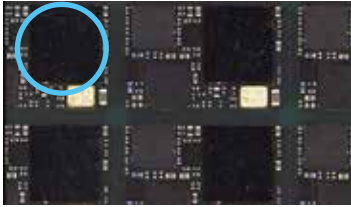
Fiducial Mark and Library



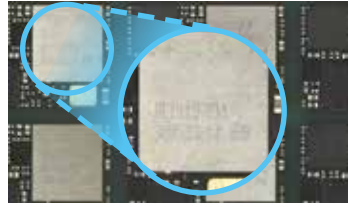
Inspect/ Fine Tune

## Reduce False Calls with Leading-edge 3D AOI Inspection

Angled 3D Laser Height Measurements for Reflective & Transparent Components. Bare silicon die inspection reQUIRES Coaxial Lighting to improve marking and body outline visibility.



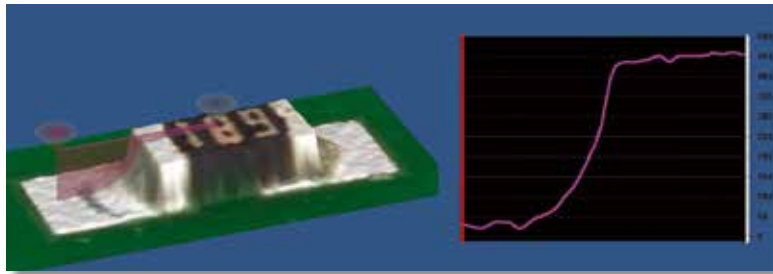
Bare Silicon and Wafer Level Chip Scale Packaging (WLCSP)



Inspection for High Component Density Boards

## Complete 3D PCB Assembly Inspection

TR7700Q ensures all visible solder joints meet IPC specifications or your chosen criteria.

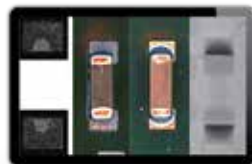


## Advanced SPC

TRI's AOI software provides Real-time Monitoring and Statistical Process Control of production for Yield Improvement and quickly Reducing Rework Costs.



Production Analysis



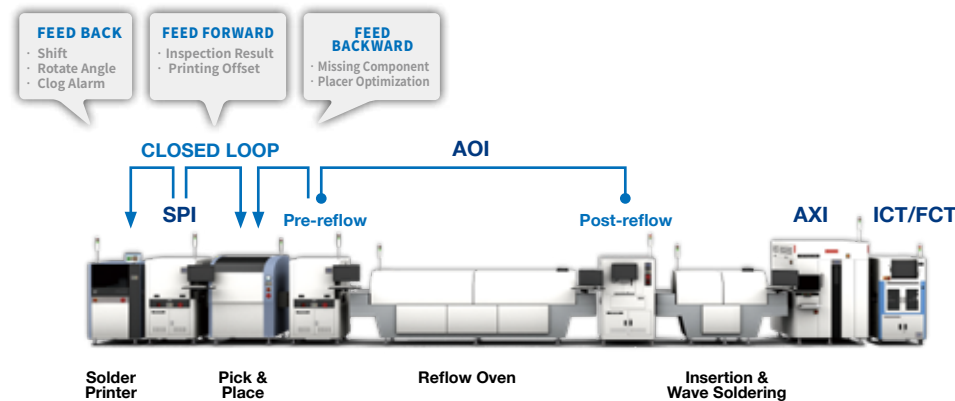
Centralized Inspection Center



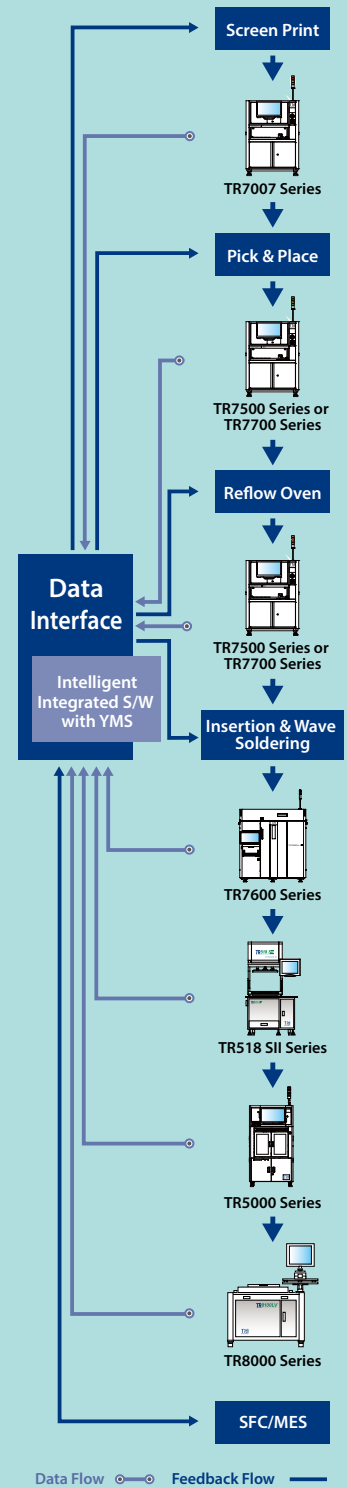
Real Time SPC Trend

## Smart Factory Solution

Improve the production's print and placement performance with TRI's Feedback and Forward Ready capabilities. Enjoy the benefits of YMS 4.0, TRI's Industry 4.0 Solution for Smart Factories. YMS 4.0 assures your Closed Loop process integration and optimization from Solder Inspection to MDA Testing.



## 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

## Optical & Imaging System

Top View Camera	4 or 12 MP camera (factory setting)		
Lighting	Multi-phase True Color LED		
3D Projection	Quad Digital Fringe Projectors		
Optical Resolution	4 MP 15 $\mu$ m	12 MP 10 $\mu$ m	5.5 $\mu$ m
3D Height Range	0 - 30 mm*	0-30 mm*	0-4 mm
Imaging Method	Stop-and-Go		

\*Need GPU card upgrade

## Imaging/Inspection Speed\*

	4 MP 15 $\mu$ m	12 MP 10 $\mu$ m	5.5 $\mu$ m
Standard	21 cm <sup>2</sup> /sec	14.5 cm <sup>2</sup> /sec	4.3 cm <sup>2</sup> /sec (2D only: 12.2 cm <sup>2</sup> /sec)
CoaXPress	n/a	23 cm <sup>2</sup> /sec	n/a

\*Depending on component distribution

## Pre-/Post-Reflow Inspection Functions

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

## X-Y-Z Table & Control

Ballscrew + AC servo with motion controller	
X-Y-Z Axis Resolution	1 $\mu$ m

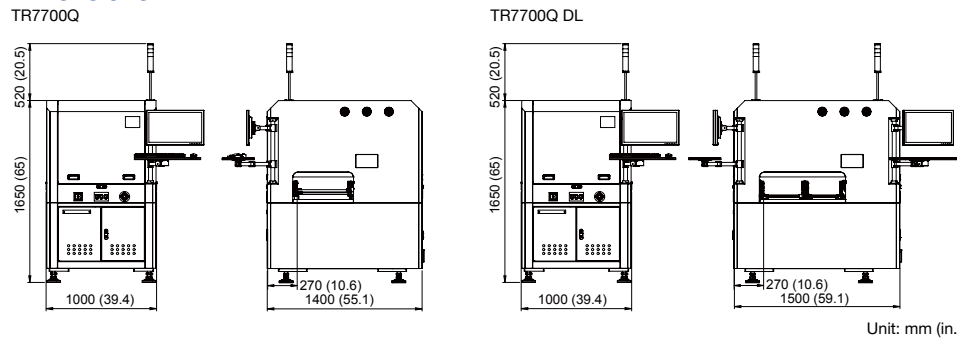
\* Z Axis is optional

## PCB & Conveyor System

	TR7700Q			TR7700Q DL	
	4 MP 15 $\mu$ m	12 MP 10 $\mu$ m	5.5 $\mu$ m	4 MP 15 $\mu$ m	12 MP 10 $\mu$ m
Top View Camera	50 x 50 mm (1.97 x 1.97 in.)				
Optical Resolution	50 x 50 mm (1.97 x 1.97 in.)				
Min. PCB Size	50 x 50 mm (1.97 x 1.97 in.)				
Max. PCB Size	510 x 460 mm (20.08 x 18.11 in.)	510 x 460 mm (20.08 x 18.11 in.)	330 x 330 mm* (12.99 x 12.99 in.)	510 x 310 mm x 2 lanes (20.08 x 12.20 in. x 2 lanes)	510 x 590 mm x 1 lane (20.08 x 23.23 in. x 1 lane)
PCB Thickness	0.6 - 5 mm				
PCB Transport Height	880 - 920 mm (34.65 - 36.22 in.)				
Max. PCB Weight	3 kg (6.61 lbs)				
PCB Carrier/Fixing	Step motor driven				
Clearance					
Top	40 mm (1.57 in.)	50 mm (1.97 in.)	25 mm (0.98 in.)	40 mm (1.57 in.)	50 mm (1.97 in.)
Bottom	40 mm (1.57 in.). Optional: 100 mm (3.94 in.)				
Edge	3 mm (0.12 in.). Optional: 5 mm (0.2 in.)				

\*Depending on component distribution, the available PCB size could be different

## Dimensions



Unit: mm (in.)

	TR7700Q	TR7700Q DL
Weight	650 kg (1433 lbs)	685 kg (1510 lbs)
Power Requirement	200 - 240 VAC, single phase, 50/60 Hz, 3 kVA	
Air Requirement	72 psi - 87 psi (5 - 6 bar)	

## Options

Barcode Scanner, Repair Station, Offline Editor, OCR, Yield Management System (YMS 4.0), Support Pin, 3D Laser Module, Coaxial Lighting, CoaXPress Module Upgrade, GPU Card Upgrade, Encoder Module

Specifications are subject to change without notice. Content may not be used as acceptance criteria. All trademarks are the property of their owners.

**TRI 德律 TRI INNOVATION**

The absence of a product or service name or logo from this list does not constitute a waiver of TRI's trademark or other intellectual property rights concerning that name or logo. All other trademarks and trade names are the property of their owners.



## Headquarters

7F., No.45, Dexing West Rd.,  
Shilin Dist., Taipei City  
11158, Taiwan  
TEL: +886-2-2832-8918  
FAX: +886-2-2831-0598  
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

Gugelstr. 32  
90443 Nuremberg  
Germany  
TEL: +49-9119-401-7827  
FAX: +49-9119-400-6181  
E-mail: trieurope@tri.com.tw

## Japan

4-26-10 Ishiwara, Sumida-ku,  
Tokyo, 130-0011 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: trik@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