SPECIFICATIONS

Optical & Imaging System

Camera Type	4 or 8 or 12 Mpix camera (factory setting)
Optical Resolution	6 µm or 8 µm or 10 µm or 15 µm (factory setting)
3D Projection	Quad/Dual Digital Fringe Projectors

Field of View	4 Mpix	8 Mpix	12 Mpix
6 µm	n/a	n/a	24.4 x 18.4mm (0.96 x 0.72 in)
8 µm	n/a	n/a	32.6 x 24.5mm (1.28 x 0.96 in)
10 µm	20.3 x 20.3mm (0.80 x 0.80 in)	n/a	40.8 x 30.7 mm (1.61 x 1.21 in)
15 µm	30.5 x 30.5mm (1.20 x 1.20 in)	50.4 x 37.4mm (1.98 x 1.47 in)	n/a

Inspection Functions

Defects Detected	Insufficient Paste, Excessive Paste, Shape Deformity, Missing Paste & Bridging
Measurement	Height, area, volume and offset

Mechanical Stage

XY-axis ball screw with DSP-based motion controller

XY Resolution	0.5 µm with linear encoder
Z Resolution	0.5 µm with linear encoder

Inspection Speed

Camera Resolution	4 Mpix	8 Mpix	12 Mpix
Imaging Speed FOV/sec	3	2	2

Inspection Performance

Volume Repeatability	Calibration Target (at 3 σ)	<1% on TRI certification target
Height Repeatability	Calibration Target (at 3 σ) Solder GR&R (± 50% Tolerance)	<1% on TRI certification target <<10% at 6 σ
Effective Depth of Focus	± 5 mm (± 0.10 in)	
Height Resolution	0.5 µm	
Height Accuracy	1.5 µm on certification target	
Max. Solder Paste Size	12800 x 10240 µm at 10 µm	
Min. Solder Paste Size	100 x 100 µm at 10 µm	
Min. Solder Paste Pitch	100 µm	
Max. Solder Height	450 µm (5 mm optional)	

PCB and Conveyor System

	TR7007QI	TR7007QI DL
Min. PCB Size	50 x 50 mm (1.97 x 1.97 in)	
Max. PCB SIze	510 x 460 mm (20.1 x 18.1 in)	510 x 310 mm x 2 lanes (20.1 x 12.2 in x 2 lanes) 510 x 590 mm x 1 lane (20.1 x 23.2 in x 1 lane)
PCB Thickness	0.6 - 5 mm (0.02 - 0.23 in)	
PCB Transport Height	880 - 920 mm (34.6 - 36.2 in)	
Max. PCB Weight	3 kg (6.61 lbs)	
PCB Carrier/Fixing	Belt/Pneumatic	
Clearance Top Bottom Edge	25 mm (0.98 in) 40 mm (1.58 in) 3 mm (0.12 in)	

Dimensions

	TR7007QI	TR7007QI DL
Dimensions (W x D x H)	1000 x 1400 x 1647 mm (39.4 x 55.1 x 64.8 in) (not including signal tower, signal tower height: 520 mm)	1000 x 1500 x 1647 mm (39.4 x 59.1 x 64.8 in) (not including signal tower, signal tower height: 520 mm)
Weight	675 kg (1489 lbs)	685 kg (1511 lbs)
Power Requirement	200 - 240 V, single phase, 50/60 Hz, 3 kVA	
Air Requirement	0.6 MPa (87 psi)	

Software Environment

Operating System	Windows 7 64 bit
Program Editor	TR7007i with GC Tools
Input Data Format	Gerber data (274X, 274D), ODB++
Inspection Data Analysis	SPI SPC (Histogram, X-bar & R-Chart, X-bar & S-Chart, Cp & Cpk Tool), SPC Alarm System
System Integration	Yield Management System (YMS 4.0) (optional)

Optional

SPC, Offline Editor, Gerber Tool, Barcode Scanner (linear & 2D) and Support Pins, Closed Loop Function, Dual Lane, 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 District, 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, Aly. 470,
Guiping Rd., Xuhui Dist.,
Shanghai, 200233, China
TEL: +86-21-54270101
FAX: +86-21-64957923
E-mail: shanghai@cn.tri.com.tw

USA
1923 Hartog Drive
San Jose, CA 95131 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

C-7007QI-EN-1508

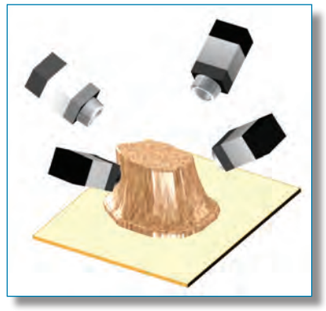
TRI innovation

I-TRONIK

TR7007QI SERIES

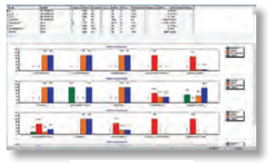
3D SOLDER
PASTE INSPECTION

TR7007QI FEATURES

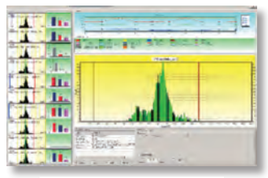


Quad Digital Projectors Ensure Shadow-free Inspection

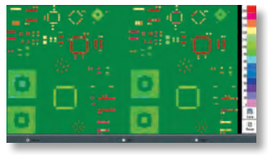
SPC



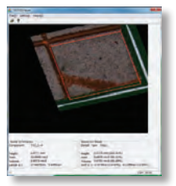
Statistical Report



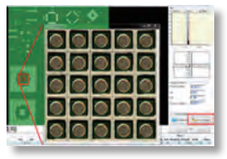
Multi-panel Histogram



Solder Height Distribution



3D Color Image



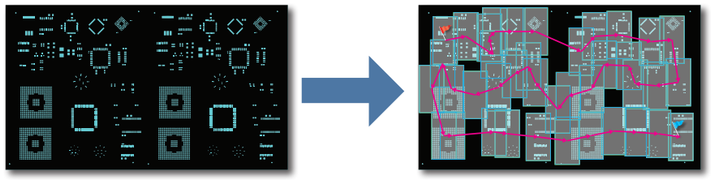
SPC 2D Real Image Query

TR7007QI

Highly Accurate stop-and-go 3D SPI solution with latest TRI quad/dual digital projector shadow-free technology and inspection route optimization for enhanced inspection performance. Easy programming with innovative software bring maximum value to your production line.

Perfect Accuracy with Optimized Performance

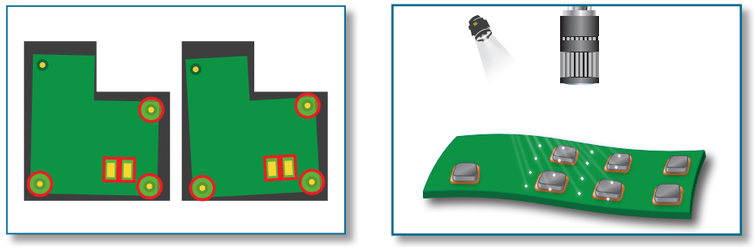
TR7007QI employs TRI's latest 3D projector technology combined with advanced scanning path optimization to achieve best available inspection accuracy while maintaining competitive inspection speed.



TRI's intelligent route optimization reduces the number of FOVs necessary to inspect every board, saving inspection cycle time.

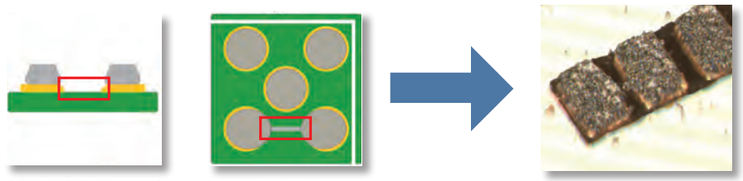
Stable and Reliable Performance

Fully optimized for maximum stability, the TR7007QI delivers reliable inspection results 24 hours a day. Innovative SmartWarp technology automatically compensates for local board warpage and local fiducial marks help eliminate any impact of manufacturing tolerances.



Unique Low Bridge Inspection

World's first inspection of low solder paste bridges under 30 µm ensures no printing defects are missed, and guarantees accurate results under any conditions.



3D Height Profile cannot reveal low bridges

Top Color View

2D+3D Image with clear low bridge defect

Intuitive SPC Display

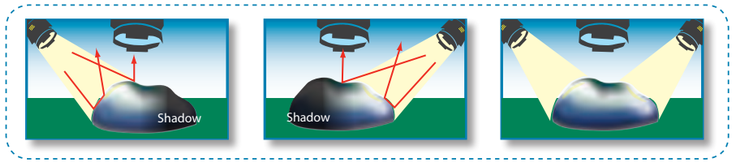
Full panel maps and real color images allow engineers to quickly monitor and diagnose problematic areas on the stencil, saving management time and reducing rework costs.

Easy Automated Programming

Rapid automated 5-step programming interface ensures fast changeovers, minimal idle time and helps reduce operator work load.

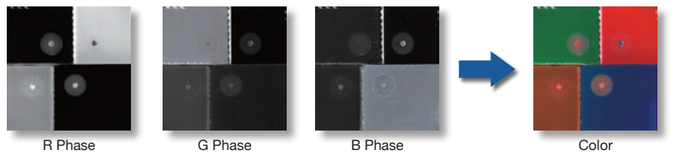
Shadow Free Inspection Technology

Quad/Dual digital projector design and intelligent software ensure the TR7007QI delivers completely shadow-free inspection results and eliminates problems with specular reflections.



Multi-Color Vision for any PCB

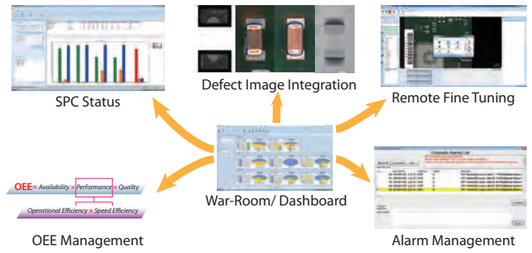
Multi-phase color lighting guarantees accurate inspection results on any PCB color and finish combination, without sacrificing inspection speed.



R Phase G Phase B Phase Color

Yield Management System 4.0

YMS 4.0 provides real-time inspection status across SPI, AOI and AXI 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, issues and root causes drill down line by line, by station and by process, which improves quality and productivity analysis. YMS 4.0 supports Industry 4.0 initiative.



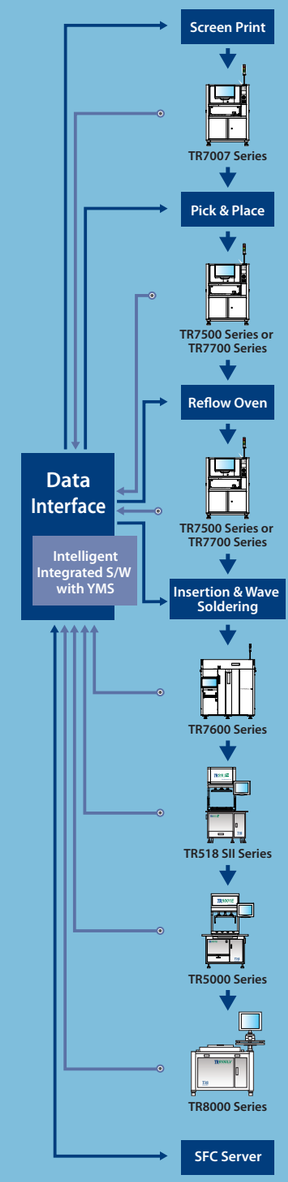
Closed Loop Function

TRI SPI systems share inspection results with connected SMT line equipment to help improve production yields and stabilize production quality while minimizing line stops and reducing production costs.

High Production Value = Maximum Cost Savings

- Industry Leading Inspection Speed
- Early Defect Detection
- 98% Rework Cost Reduction
- Stable and Reliable Results
- Enhanced 100% Defect Coverage

Yield Management System*



Data Flow Feedback Flow

- 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

* Optional