

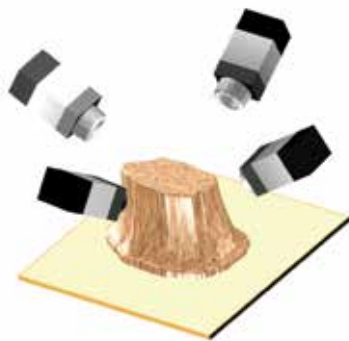
TR7007QI SERIES



- Shadow Free 3D Quad Fringe Projection
- Accurate Optimized Stop-and-Go Design
- Automated SmartWarp Compensation
- 100% Solder Paste Defect Coverage

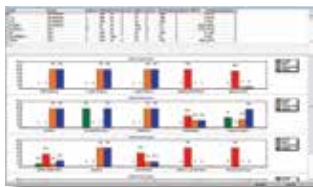
**3D SOLDER
PASTE INSPECTION**

TR7007QI FEATURES

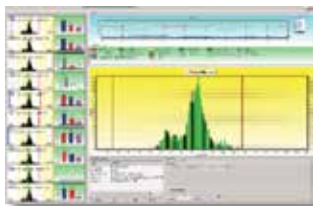


Quad Digital Projectors Ensure Shadow-free Inspection

SPC



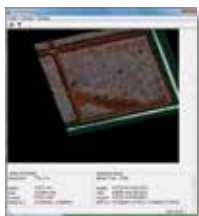
Statistical Report



Multi-panel Histogram



Solder Height Distribution



3D Color Image



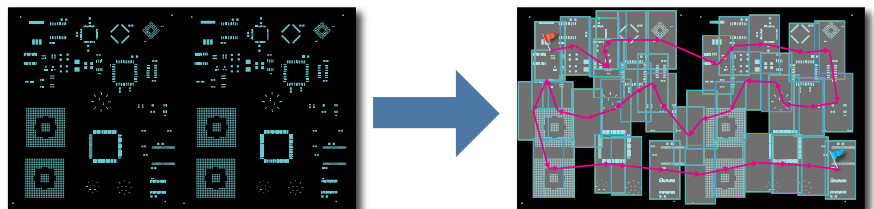
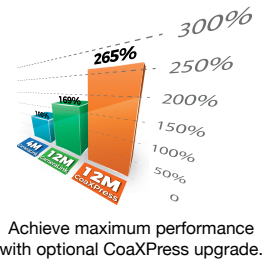
SPC 2D Real Image Query

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

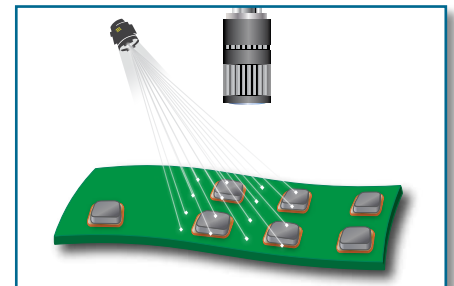
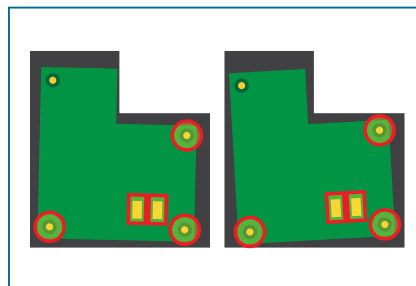
TR7007QI employs TRI's latest 3D projector technology combined with advanced scanning path optimization to achieve best available inspection accuracy while maintaining competitive inspection speed. Choose optional CoaXPRESS upgrade for highest performance.



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

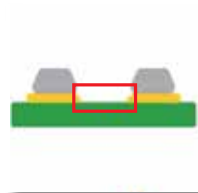
Stable and Reliable Performance

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.

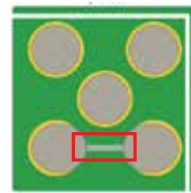


Unique Low Bridge Inspection

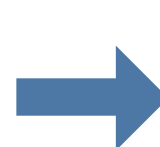
World's first inspection of low solder paste bridges under 30 μm ensures no printing defects are missed, and guarantees accurate results under any conditions.



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.

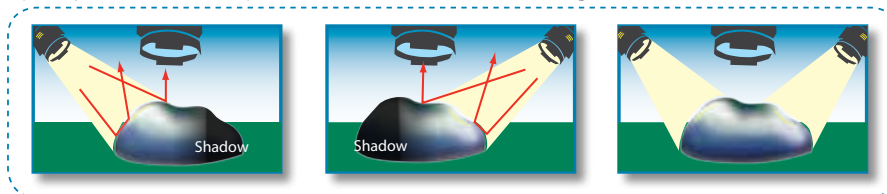
Intelligent Easy Programming Interface

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



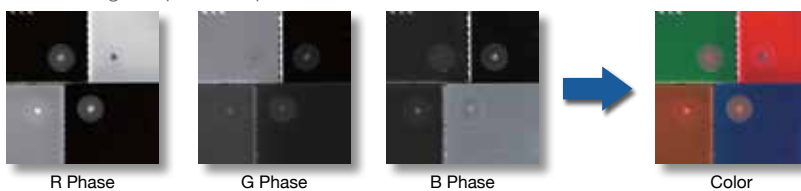
Shadow Free Inspection Technology

Quad/Dual digital projector design and intelligent software ensure the TR7007QI delivers completely shadow-free inspection results and eliminates image noise issues.



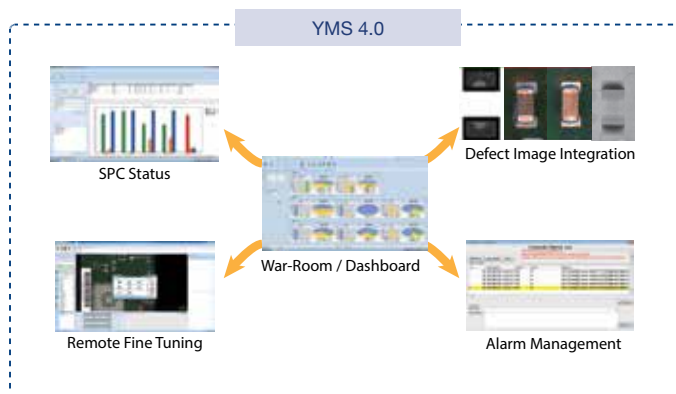
Multi-Color Vision for any PCB

Multi-phase color lighting guarantees accurate inspection results on any PCB color and finish combination at high inspection speed.



Industry 4.0 Production Line Integration

YMS 4.0 lets TRI inspection solutions interface and share inspection data with the shop floor system and other inspection machines. With the central console an operator can control, track, analyze and optimize the inspection process across the entire production line and obtain real actionable data to optimize production quality in the Industry 4.0 environment.



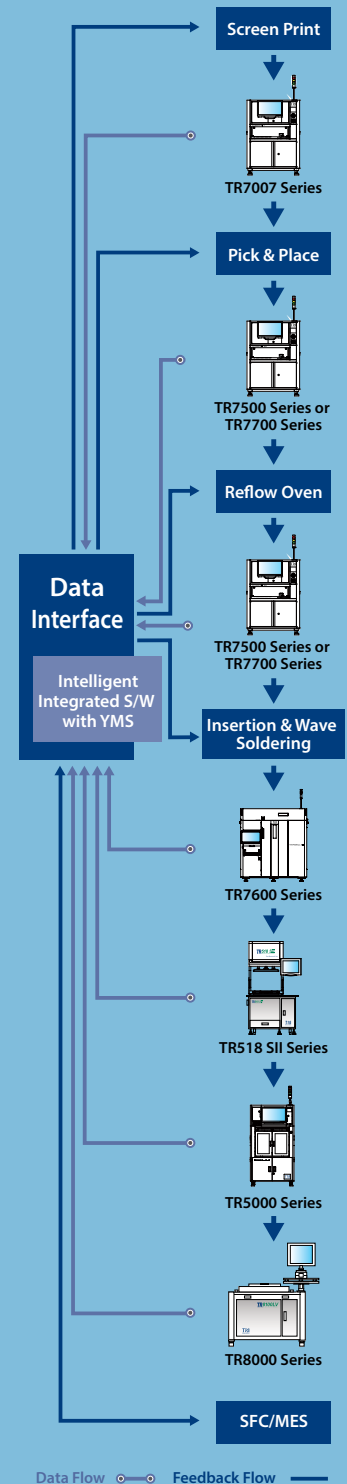
Closed Loop Function

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

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

Camera Type	4 or 12 MP camera (factory setting)	
Optical Resolution	6 µm or 10 µm or 15 µm (factory setting)	
3D Projection	Quad/Dual Digital Fringe Projectors	
Field of View	4 MP	12 MP
6 µm*	n/a	24.4 x 18.4mm (0.96 x 0.72 in.)
10 µm	20.3 x 20.3mm (0.80 x 0.80 in.)	40.8 x 30.7mm (1.61 x 1.21 in.)
15 µm	30.5 x 30.5mm (1.20 x 1.20 in.)	61.2 x 46.1mm (2.41 x 1.81 in.)

* 6 µm is not available for TR7007QI DL

Inspection Functions

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

Inspection Speed

Camera Resolution	4 MP	12 MP Camera Link	12 MP CoaXPress**
Imaging Speed FOV/sec*	3	2	3

* Inspection speed depends on PCB and inspection conditions

** With optional CoaXPress upgrade

Inspection Performance

Volume Repeatability	Calibration Target (at 3 σ)	<1% on TRI calibration target
Height Repeatability	Calibration Target (at 3 σ)	<1% on TRI calibration target
	Solder GR&R (± 50% Tolerance)	<<10% at 6 σ
Height Accuracy	1.5 µm on calibration target	
Optical Resolution	6 µm	10 µm/15 µm
Height Resolution	0.22 µm	0.4 µm
Max. Solder Height	210 µm/420 µm	420 µm/840 µm

Mechanical Stage

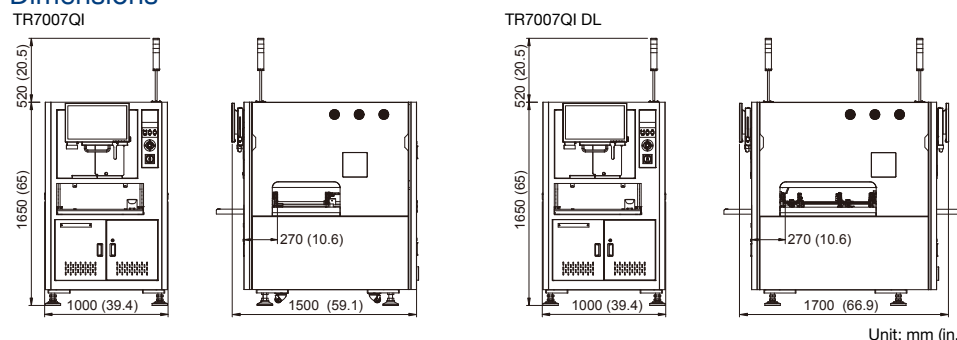
XY-axis ball screw with DSP-based motion controller	
XY Resolution	0.5 µm with linear encoder
Z Resolution	0.5 µm with linear encoder

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 - 0.20 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	25 mm	
Bottom	40 mm	
Edge	3 mm	

* 6 µm is only available for TR7007QI, the Max. PCB size is 330 x 310 mm

Dimensions



Unit: mm (in.)

	TR7007QI	TR7007QI DL
Weight	675 kg (1489 lbs)	685 kg (1511 lbs)
Power Requirement	200 - 240 VAC, single phase, 50/60 Hz, 3 kVA	
Air Requirement	72 psi - 87 psi (5 - 6 bar)	

Optional

SPC, Offline Editor, Gerber Tool, Barcode Scanner (linear & 2D) and Support Pins, Closed Loop Function, Yield Management System (YMS 4.0), YMS Lite, CoaXPress Module Upgrade

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