

High Resolution
Model

3D SPI

SOLDER PASTE INSPECTION

TR7007Q SII SERIES



High-Speed Platform,
Up to 50% Faster Inspection*



Improved Accuracy and Stability for
Precise Solder Measurements



Wide Spectrum Light for
Enhanced Contrast and Detection Rate



EtherCAT - Faster
Communication



Coaxial Light



Smart Factory
Ready



TRI
innovation

*Compared to previous models

TR7007Q SII SEF



High Resolution 3D SPI Solution

The TR7007Q SII 3D SPI significantly enhances production with its high-speed platform, delivering up to 50% faster inspection*. The 3D SPI has improved accuracy that guarantees precise solder metrology measurements. Equipped with Wide Spectrum Lighting, the TR7007Q SII has enhanced imaging contrast for increased detection rates, capturing intricate details with exceptional clarity.

Up to
50%
Faster Inspection

*Compared to the previous model, TR7007Q Plus.

Multi-Industry Applications

The TR7007Q SII is equipped with a 9.8 μm high-resolution 21 MP Camera, delivering enhanced measurement accuracy and stability. Ideal for diverse industries. The 3D SPI's versatility ensures reliable and precise results.



Server



Network



PC



Notebook



Mobile



Automotive

Smart Programming

Quickly set up for high-mix or low-volume applications with TRI's SPI Software. With a preloaded Smart Inspection Library, the TR7007Q SII is optimized for fast changeovers, minimal idle time, and reduced operator workload.



Load SPI File



Set Board Size



Set Board Offset



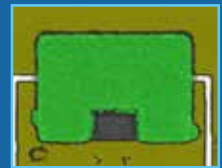
Set Fiducial Marks



Set Thresholds

Color Detection Optimization

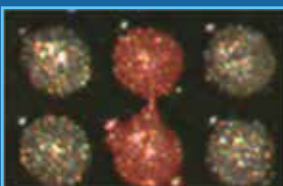
The 2D Color Auto Learning Algorithm ensures stable inspection data results with minimal fine-tuning required. By accurately identifying solder paste and narrowing the detection range, it excludes the low gray-scale range, resulting in more reliable and precise inspections.



Enhanced Solder Detection

Advanced Defect Detection – More than Solder Inspection

The TR7007Q SII offers high-resolution and reliable inspection of various defects, including insufficient paste, excessive paste, shape deformity, missing paste, bridging, and surface irregularities. This SPI solution ensures accurate height, area, volume, and offset measurements. The TR7007Q SII can also effectively inspect Bumps, Flux *, Mini LED Solder *, and Bare Boards.



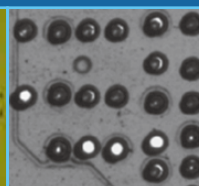
Solder Bridge



Foreign Object Inspection



Bump



Flux *

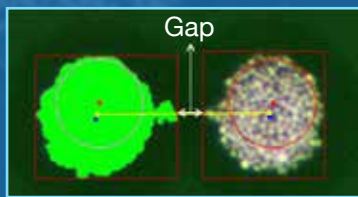


Mini LED Solder *

*Inspection by a 25 M camera with 3.5 μm / 5 μm / 6 μm resolution.

Precise Solder Metrology

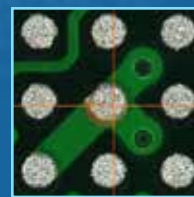
The Solder Paste Spacing Measurement accurately measures the gap between solder pastes by calculating the centroid position and determining the distance between their respective edges.



Solder Paste Spacing Measurement

New Lighting Module

Experience improved imaging with the enhanced Wide Spectrum Lighting of the TR7007Q SII platform. Providing higher contrast and uniformity significantly improves the defect detection rate of captured inspection images.



TR7007Q



TR7007Q SII

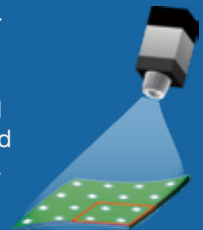
New Motion Controller

The 3D SPI use a new motion controller, EtherCAT, which eases maintenance, reduces downtime, and facilitates superior remote support by allowing engineers to quickly identify the root cause of issues, leading to faster troubleshooting.



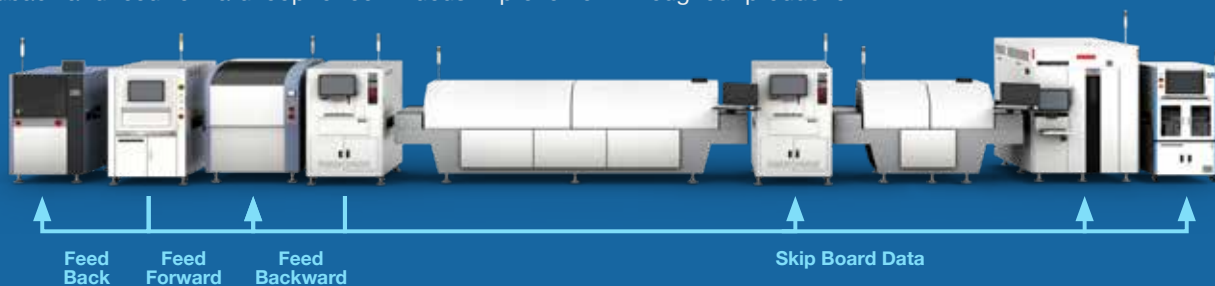
Smart Board Warpage

Experience maximum stability in your inspections with TRI's Smart Board Warpage compensation technology. This advanced feature utilizes fiducial mark detection to precisely locate and compensate for local board warpage.



Closed Loop Ready

TRI SPI systems seamlessly share inspection results with MES and SMT line equipment, boosting yields, stabilizing quality, and cutting costs. Providing valuable feedback to the screen printer on solder paste position and offset, while enabling a feedback and feed-forward loop for continuous improvement throughout production.



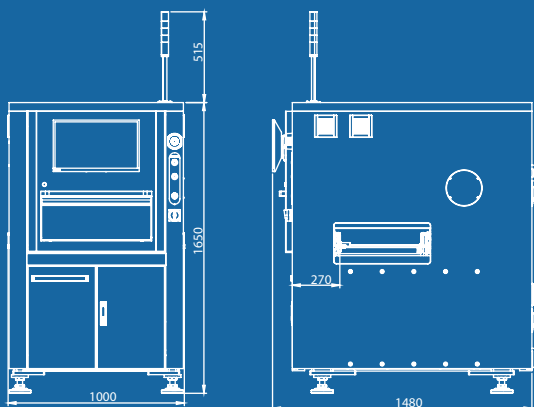
YMS 4.0 - Smart Central Monitoring Solution



Yield Management System 4.0 (YMS 4.0) interconnects SPI, AOI, AXI, and ICT to improve production line yield rates. YMS 4.0 offers statistical analysis, inspection result fine-tuning, and identifies component defect trends and emerging production issues.

Model		TR7007Q SII
Imaging System	Camera	21 MP High Speed Camera
	Optical Resolution	9.8 μ m
	Imaging Method	Stop-and-Go
	3D Technology	Quad/Dual Fringe Pattern Projection
	Lighting	Wide Spectrum 2D Lights (RGB+W), Coaxial Lighting
Inspection Functions	Field of View	50.30 x 40.24 mm (1.98 x 1.58 in.)
	Inspection Speed	Up to 2.6 FOV/sec
	Defects Detected	Insufficient Paste, Excessive Paste, Shape Deformity, Missing Paste & Bridging
Mechanical Stage	Measurement	Height, Area, Volume and Offset
	Stage Type	Ballscrew + AC Servo with Motion Controller
	Motion Control	EtherCAT
Inspection Performance	XYZ Resolution	0.1 μ m
	Volume Repeatability	Calibration Target (at 3 σ) <1%
	Height Repeatability	Calibration Target (at 3 σ) <1%
	Height Accuracy	Solder GR&R (\pm 50% Tolerance) <<10% at 6 σ
	Max. Solder Height	1.5 μ m (on Calibration Target)
PCB and Conveyor System	Height Resolution	420 μ m (on Calibration Target)
	Min PCB Size	0.4 μ m
	Max PCB Size	50 x 50 mm (1.97 x 1.97 in.)
	PCB Thickness	510 x 460 mm (20.08 x 18.11 in.)
	PCB Transport Height	0.6 - 5 mm (0.02 - 0.20 in.)
	Max PCB Weight	880 - 920 mm (34.65 - 36.22 in.)
	PCB Carrier / Fixing	3kg (6.61 lbs)
Clearance	Top	Belt/Pneumatic
	Bottom	25 mm (0.98 in.)
	Edge	40 mm (1.57 in.)
Weight		3 mm (0.12 in.)
Power Requirement		795 kg (1572.67 lb)
Air Requirement		200 - 240 VAC, Single Phase, 50 / 60 Hz, 3 kVA
Optional		72 psi - 87 psi (5 - 6 bar)
		SPC, Offline Editor, Gerber Tool, Barcode Scanner (Linear & 2D) and Support Pins, Closed Loop Function, Y-Axis Linear Motor, Yield Management System (YMS 4.0)

Unit: mm (in.)



TR7007Q SII

Global Network

Shenzhen, China shenzhen@cn.tri.com.tw
 Suzhou, China suzhou@cn.tri.com.tw
 Shanghai, China shanghai@cn.tri.com.tw
 San Jose, USA triusa@tri.com.tw
 Nuremberg, Germany trieuropa@tri.com.tw

Tokyo, Japan trijp@tri.com.tw
 Ansan, Korea trikr@tri.com.tw
 Penang, Malaysia trimy@tri.com.tw
 Bac Ninh, Vietnam trivn@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

© 2023 Test Research, Inc. All rights reserved.
 Specifications are subject to change.
 All other trademarks are the property of their respective owners.