SPECIFICATIONS

Optical & Imaging System

Top View Camera	4 Mpx high speed color camera
Lighting	Multi-phase RGB+W LED
Optical Resolution	10 or 15 µm
Imaging Method	Dynamic Imaging

Imaging/Inspection Speed

15 µm	120 cm^2/sec (18.6 in^2/sec)
10 µm	60 cm^2/sec (9.3 in^2/sec)

Pre-/Post-Reflow Inspection Functions

Component	Missing, Tombstoning, Billboarding, Polarity, Rotation, Shift, Wrong Marking (OCV), Defective, Upside Down, Extra Component
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

	TR7700 SIII DT	TR7700L SIII DT
Min. PCB Size	50 x 50 mm (1.97 x 1.97 in)	
Max. PCB Size	330 x 250 mm (13.0 x 9.84 in)	510 x 460 mm (20.1 x 18.1 in)
Max. PCB Thickness	3 mm (0.12 in)	
Max. PCB Weight	3 kg (6.61 lbs)	
PCB Carrier/Fixing	Motor Driven Clamping	
Clearance Top	25 mm (0.98 in)	25 mm (0.98 in)
Bottom	100 mm (3.94 in)	50 mm (1.97 in)
Edge	3 mm (0.12 in)	3 mm (0.12 in)
Dimensions (W) x (D) x (H)	800 x 1100 x 1350 mm (31.5 x 43.3 x 53.2 in)	980 x 1290 x 1400 mm (38.6 x 50.8 x 55.1 in)
Weight	340 kg (750 lbs)	385 kg (849 lbs)
Power Requirement	200 - 240 V, single phase, 50/60 Hz 2 kVA	

Options

Barcode Scanner, Repair Station, Offline Editor, OCR,
TRI's Yield Management System (YMS), YMS Lite, Support Pin

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TRI innovation

TR7700 SIII DT
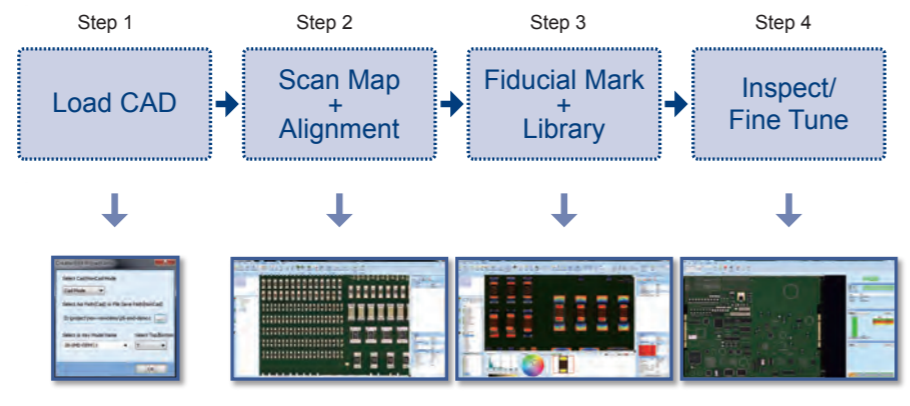## SERIES

DESKTOP AUTOMATED OPTICAL INSPECTION

Premium Desktop AOI with World Class Performance

TR7700 SIII DT captures high precision full PCB panel images in unprecedented detail using TRI's exclusive multi-phase lighting. Next generation inspection software combines excellent defect detection and easy programming into a state-of-the-art desktop AOI solution.

Intelligent Easy Programming Interface

New intelligent programming process significantly reduces programming time using automated component library and integrated board warp compensation.

Programming Flowchart

Step 1	Step 2	Step 3	Step 4
Load CAD	Scan Map + Alignment	Fiducial Mark + Library	Inspect/ Fine Tune

Defects

Bridging

Skew

No Solder

Lifted Lead

Missing

Tombstoning

Lifted Pin

Upside Down

Auto Library + Model Library

Auto Library speeds up programming by automatically allocating inspection windows for IC leads.

Auto Locate Pins

Model Library

Component Programming Complete
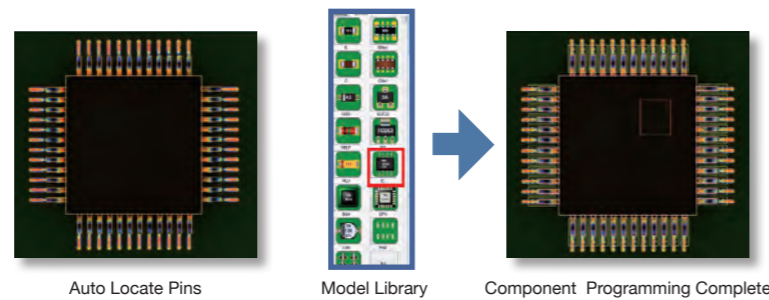
New Color Space Algorithms

TRI's new adaptive algorithms use color space processing to increase inspection accuracy, reduce false calls and improve inspection results while reducing time necessary for inspection fine tuning and the number of alternative images required.
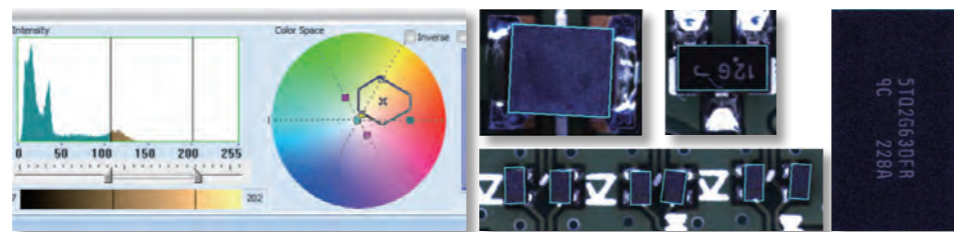

Color Differentiation Analysis for Black Resin Parts
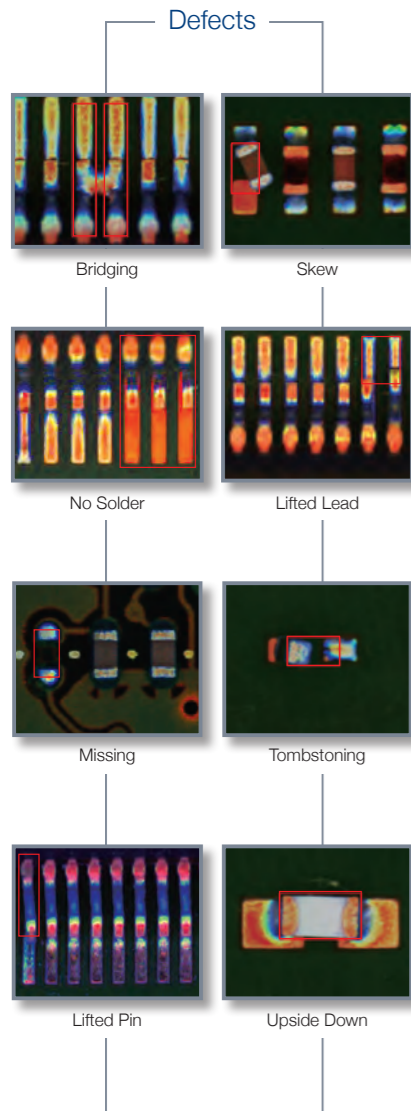
High Speed with Multi-phase Lighting

Four individual lighting phases improve inspection of individual defect types using specialized lighting conditions. High speed camera allows inspection at constant speed even with multiple lighting phases.

Uniform Light · Solder Light · Marking Light · Component Light
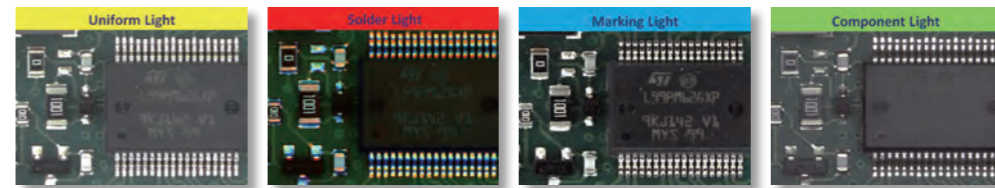
Flexible multi-board Merging & Speedy Inspection

• Simultaneous access to multiple component information for easy programming.

• Saves multi-fiducial mark scanning time for multi-board programs.

Auto-clamping Conveyor System

Single button PCB loading and unloading reduces operator workload and improves board loading time.

High Speed Ballscrew X-Y Motion Drive

Servo motor with high precision control helps deliver stable and reliable inspection results.

SMT Line Integration

Centralized production line management increases operator productivity and response time. TRI's integrated solution includes the following four components.

• Offline Editor

This application allows for centralized independent adjustment and fine tuning of inspection algorithms on previously scanned images while providing immediate feedback. The completed program can then be uploaded to the in-line inspection machines to improve inspection stability and accuracy.
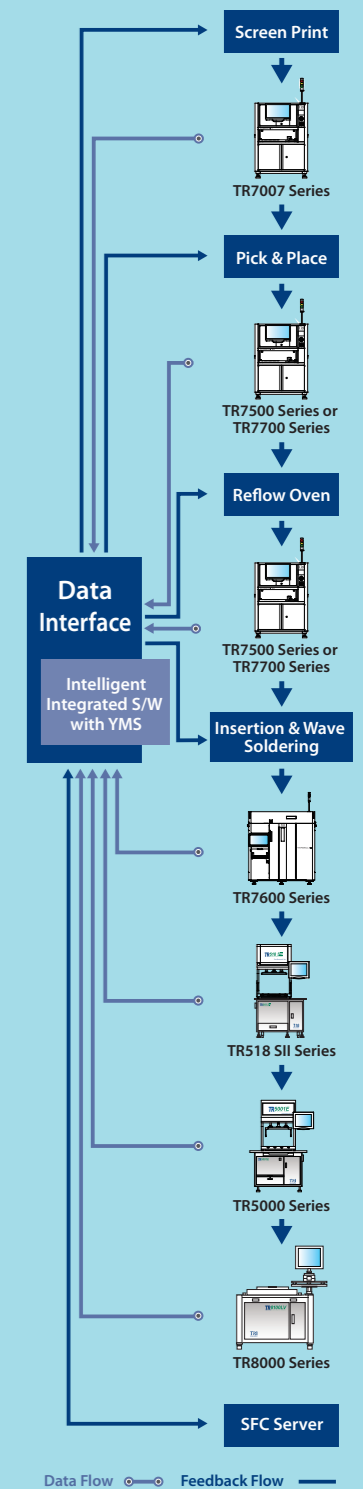
• YMS Lite

TRI's Yield Management System links inspection data from SPI, AOI and AXI systems to trace defect roots throughout the PCB assembly line. Modular architecture provides centralized inspection management, real time defect monitoring with analysis and defect knowledge management necessary to identify problems and implement solutions to maximize production yields.

SPI · Pre-reflow AOI · Post-reflow AOI · AXI

YMS DATABASE

Central Management Console
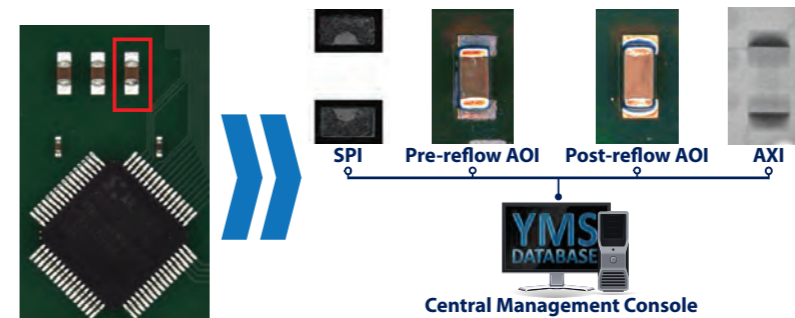
• Quality Validation

Fully automated collection of good/failed images from a complete production run allows testing, tuning and verification of adjusted program parameters without reloading tested boards. This allows engineers to save inspection time when fine tuning and significantly speeds up New Product Introduction (NPI).

Yield Management System*

Screen Print

TR7007 Series

Pick & Place

TR7500 Series or TR7700 Series

Reflow Oven

TR7500 Series or TR7700 Series

Insertion & Wave Soldering

TR7600 Series

TR518 SII Series

TR5000 Series

TR8000 Series

SFC Server

Data Interface

Intelligent Integrated S/W with YMS

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