

# TR7700 SII Plus SERIES

**First  
Hybrid  
AOI**



- Flexible Stop-and-Go or Dynamic Imaging AOI
- Intelligent Easy Programming Interface
- Rapid Changeover with Intelligent Auto Conveyor
- Foreign Material and Extra Component Inspection
- 6  $\mu\text{m}$ , 10  $\mu\text{m}$  or 15  $\mu\text{m}$  Resolution

**HYBRID AUTOMATED  
OPTICAL INSPECTION**

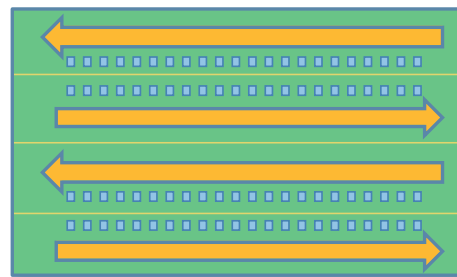
# TR7700 SII Plus FEATURES

## The World's First Hybrid AOI: TR7700 SII Plus

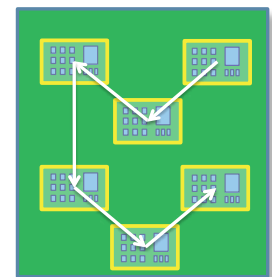
Utilizing a new hybrid inspection design, the TR7700 SII Plus can leverage both stop-and-go strategy and dynamic imaging to achieve optimal inspection cycle time on all types of PCBAs. With the dual mode option, you can simply switch the inspection mode to determine the best approach for your product.

Based on TRI's advanced high precision camera system and TRI's exclusive multi-phase lighting, the TR7700 SII Plus AOI inspects PCB assemblies in unprecedented detail. Next generation inspection software combines excellent defect detection and easy smart CAD-based programming into a reliable, versatile AOI solution.

## Versatile Dynamic vs Stop-and-Go Imaging



Dynamic Imaging

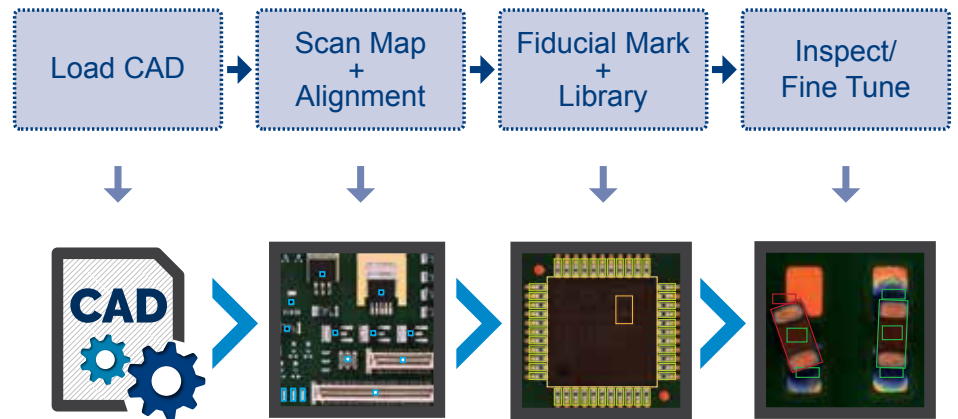


Stop-and-Go

The all-round design that allows to switching between dynamic and stop-and-go imaging, depending on the board size and component distribution, which reduces inspection cycle time.

## From CAD to Inspection in Minutes

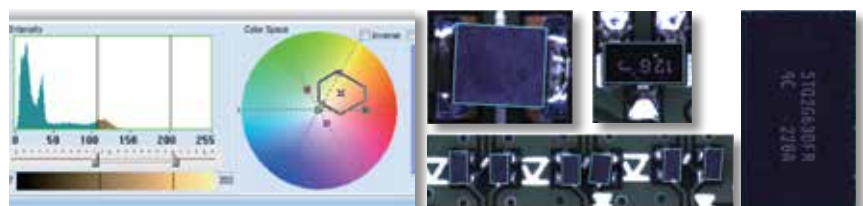
TRI's Intuitive software and smart component libraries streamline new product introduction in a few simple steps.



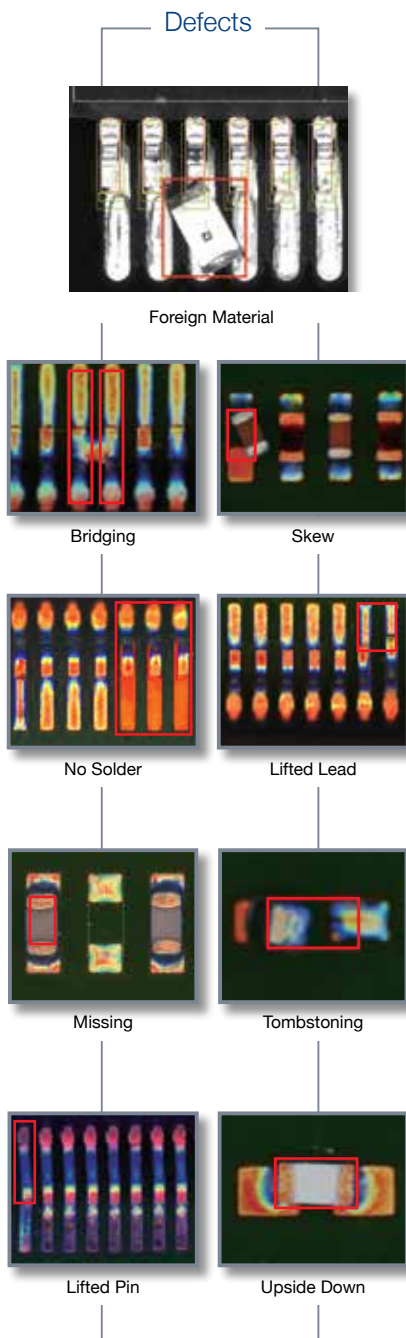
TRI AOI programming flow in a few simple steps

## Adaptive 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.



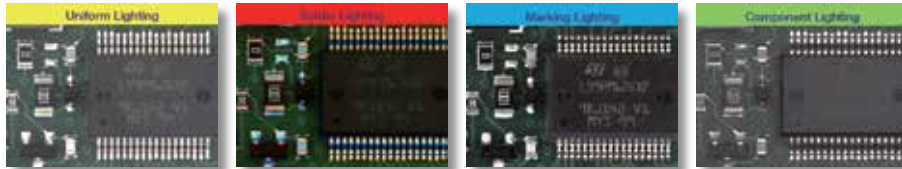
Color Differentiation Analysis for Black Resin Parts



## Accurate Inspection with Multi-phase Lighting

### 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.



### Intelligent Auto Conveyor System (IACS)

IACS automatically optimizes board stopping position in the conveyor, minimizing product changeover time and eliminating manual conveyor adjustments.

### SMT Line Integration

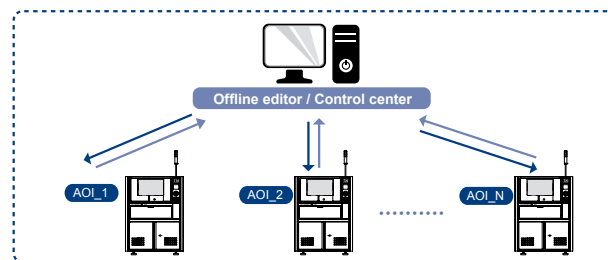
Centralized production line management increases operator productivity and response time. TRI's integrated solution includes the following four components.

- 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.

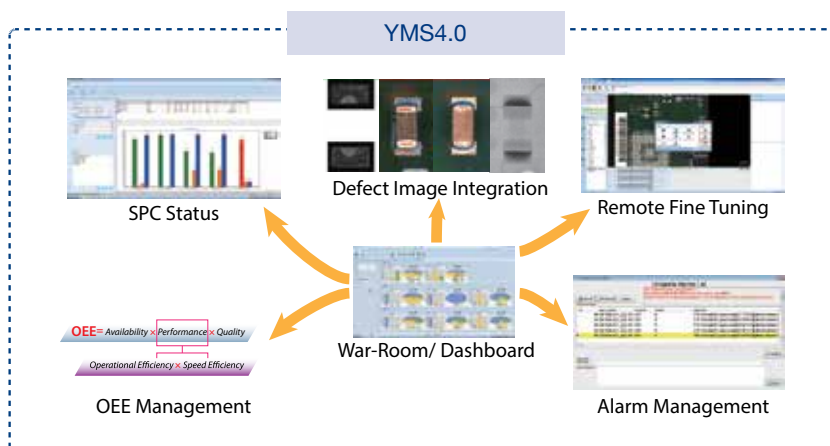
- Control Center

The core component at the heart of a production facility, the control center allows real-time monitoring and operation of multiple inspection machines across production lines.



- Industry 4.0 Production Line Integration

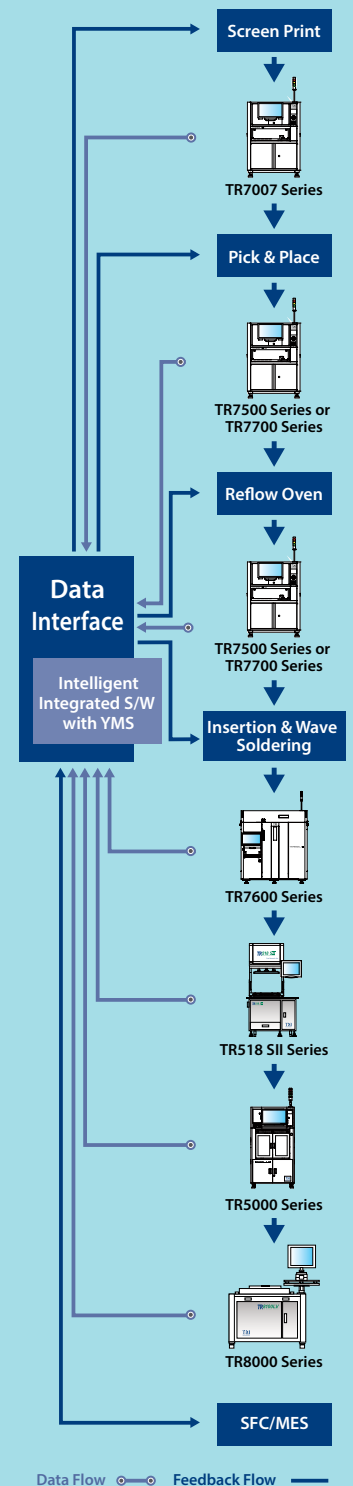
YMS 4.0 lets TRI inspection solutions interface and share inspection data with the shop floor system and other inspection machines. With the central console an operator can control, track, analyze and optimize the inspection process across the entire production line and obtain real actionable data to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



- 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



- 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 9 or 12 Mpix High Speed Color Camera (factory setting)
Lighting	Multi-phase RGB+W LED
Optical Resolution	6 or 10 or 15 $\mu$ m (factory setting)
Imaging Method	Dynamic Imaging or Stop-and-Go on select configurations

## Imaging/Inspection Speed

	Dynamic Imaging			Stop-and-Go
	4 Mpix	9 Mpix	12 Mpix	4 Mpix
15 $\mu$ m	120 cm <sup>2</sup> /sec	N/A	N/A	4.5 FOV/sec
10 $\mu$ m	60 cm <sup>2</sup> /sec	72 cm <sup>2</sup> /sec	N/A	4.5 FOV/sec
6 $\mu$ m	N/A	N/A	40 cm <sup>2</sup> /sec	N/A

## Pre-/Post-Reflow Inspection Functions

Component	Missing, Tombstoning, Billboarding, Polarity, Rotation, Shift, Wrong Marking (OCV), Defective, Upside Down, Extra Component, Foreign Material
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 $\mu$ m

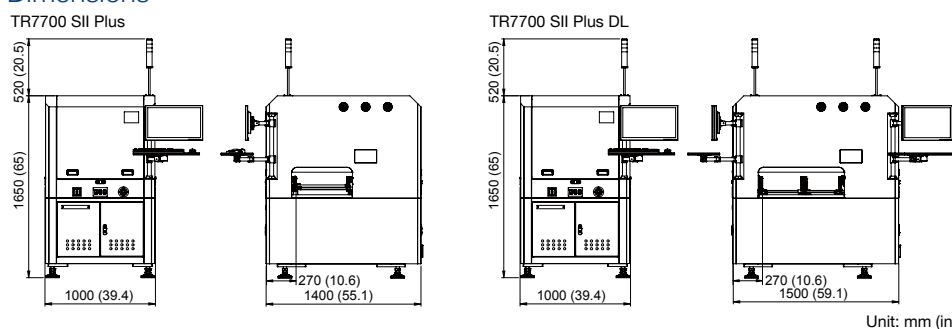
## PCB & Conveyor System

	TR7700 SII Plus			TR7700 SII Plus DL		
	15 $\mu$ m	10 $\mu$ m	6 $\mu$ m	15 $\mu$ m	10 $\mu$ m	6 $\mu$ m
Optical Resolution						
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.)	400 x 400 mm (15.7 x 15.7 in.)		510 x 310 mm x 2 lanes (20.1 x 12.2 in. x 2 lanes)	400 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)	400 x 400 mm x 1 lane (15.7 x 15.7 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	Step motor driven conveyor & pneumatic clamping					
Clearance						
Top	25 mm (0.98 in.) [ 48 mm (1.89 in.) optional <sup>①*</sup> ]	25 mm (0.98 in.)		25 mm (0.98 in.) [ 48 mm (1.89 in.) optional <sup>①*</sup> ]	25 mm (0.98 in.)	
Bottom	40 mm (1.58 in.) [ 100 mm (3.94 in.) optional]	40 mm (1.58 in.)		40 mm (1.58 in.) [ 100 mm (3.94 in.) optional]	40 mm (1.58 in.)	
Edge	3 mm (0.12 in.) [ 5 mm (0.2 in.) optional]	3 mm (0.12 in.) [ 5 mm (0.2 in.) optional]		3 mm (0.12 in.) [ 5 mm (0.2 in.) optional]	3 mm (0.12 in.) [ 5 mm (0.2 in.) optional]	

① The air blow module does not apply to this option.

\* This option is only available for 4 Mpix camera.

## Dimensions



Unit: mm (in.)

	TR7700 SII Plus	TR7700 SII Plus DL
Weight	600 kg (1323 lbs)	650 kg (1433 lbs)
Power Requirement	200 - 240 VAC, 15 A, 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 4.0 (YMS 4.0), YMS Lite, Support Pin, Dual Mode Configuration

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: +886-2-2831-0567  
E-Mail: sales@tri.com.tw  
http://www.tri.com.tw

## Linkou, Taiwan

No.256, Huaya 2nd Rd.,  
Guishan Dist., Taoyuan  
County 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

O'Brien Strasse 14  
91126 Schwabach  
Germany  
TEL: +49-9122-631-2127  
FAX: +49-9122-631-2147  
E-mail: trieuropa@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: 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