I.C.T DIP Inverted Camera Online AOI AI-4540(After THT Soldering)
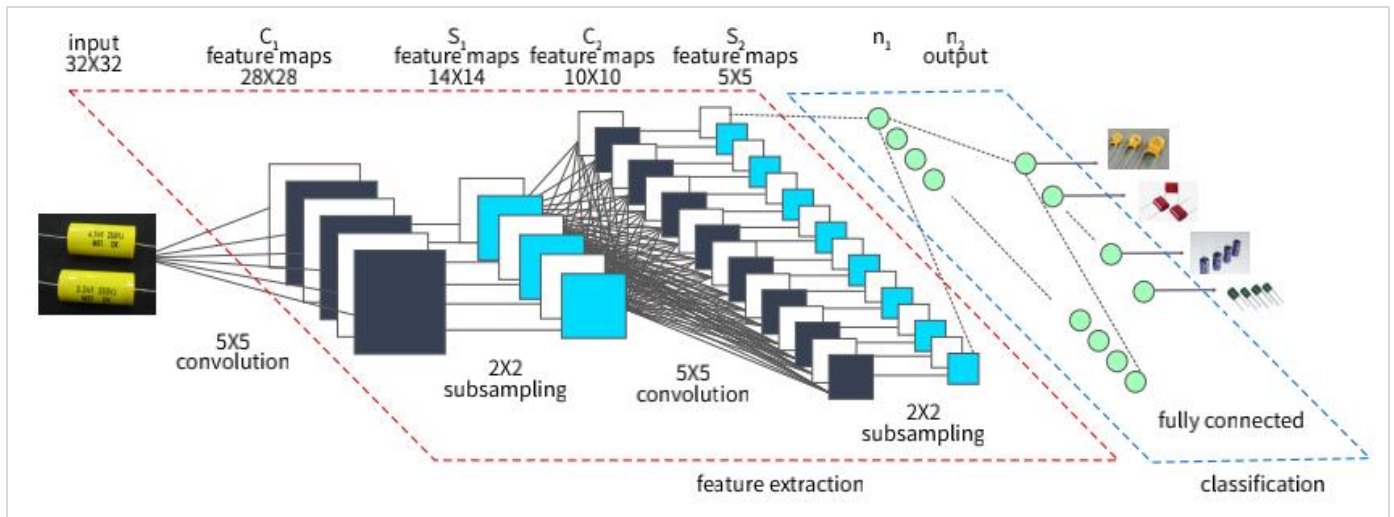

I.C.T DIP AOI captures board image in real time by high precision color industrial camera. Adopt Convolution Neural Network (CNN) algorithm to process images. Judge defects of components intelligently.

Features:

1. Online PCBA AOI for plug-in after soldering.

2. High inspection rate and low false alarm rate, automatically check color ring resistor, capacitor, diode, socket, etc.

3. Defect type: wrong part, missing part, reverse polarity and other defects of DIP element.

4. Spanning erection without change of production line.

5. Simplified programming flow, very simple interface. Support batch modifying parameters with one-key.

6. Centralized control. Interconnection between multiple equipment.

7. Real-time inspection without stopping the board.

8. Easy to move, adjustable height and width.

9. Locate defects quickly and can control production line.

10. PCBA dimensions: Maximum 400*300mm (12MP) / Maximum 520*380mm (31MP) Multiple selectable options.

11. Data is traceable. Support SPC alarm, LOG automatic collecting and storage function, NG warning/alarm function, Remote programming&debugging.
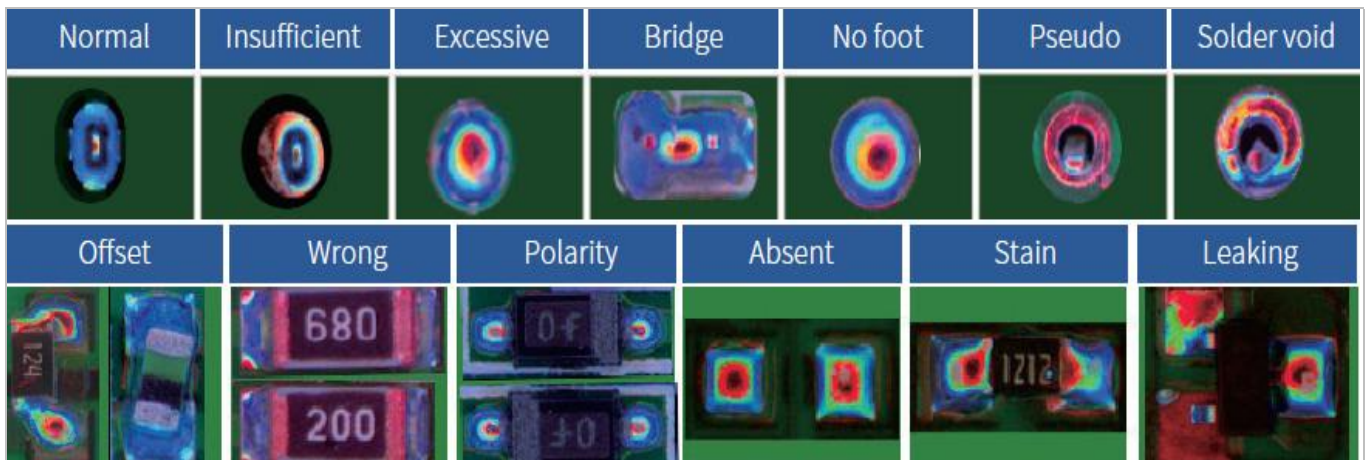
Advantage:

Deep Learning Algorithm

I.C.T AOI by applying deep learning algorithm, big data optimization and intelligent minimalist programming in industrial inspection, I.C.T enables intelligent judgment by one-click automatic identification of components and solder joints, thus addressing the two major pain points of traditional algorithms, namely, long programming time and high false alarm rate.
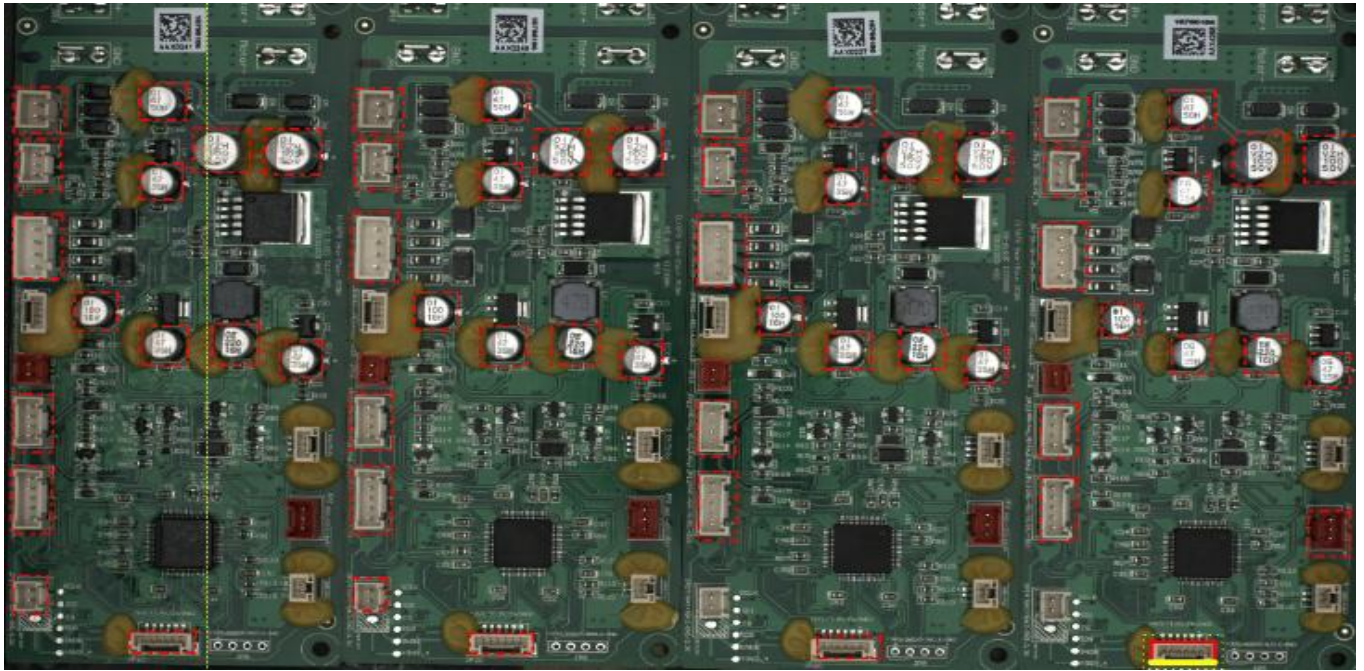
Flexible procedures

1. Intelligent algorithm: Automatically check color ring resistor, capacitor, diode, socket, etc.

2. Online/Offline programming: Optimize and adjust equipment parameters without stopping production line.

3. Easily operate: 10-20mins programming time and 10-15min debugging time.

4. Quick operation: Short changeover time. Files of existing formats can be called directly.

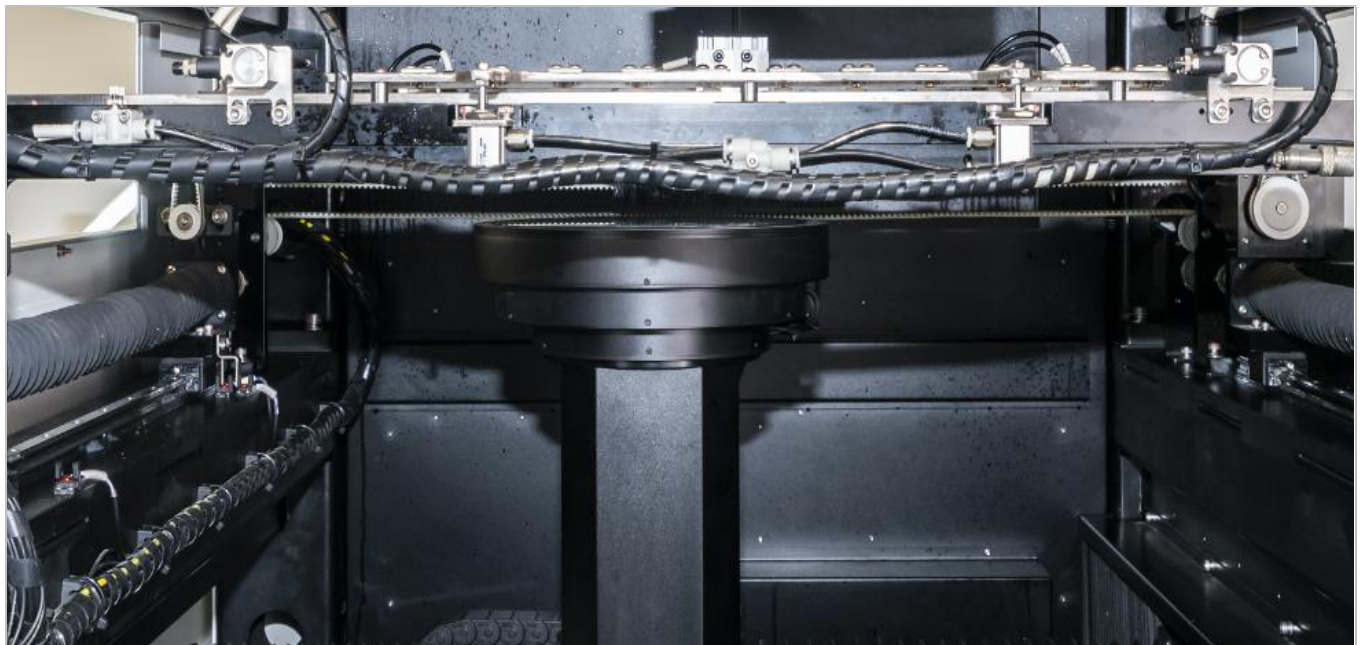5. Audible alarm: Prompt item number, wrong device and type.

Strong Intelligent Inspection Capability

1. For BOTTOM surface of wave soldering process, elements of solder joint change significantly. Algorithm is required to identify different NG board and OK board. Miss inspection is not allowed.

2. I.C.T DIP AOI is trained based on big data. Accuracy of components identification is high.

3. Inspection capability and generalization ability is strong. Correct alarm caused by components overhang. Reduce false alarm.

4. Convolution Neural Network (CNN) adopts judgment approach similar to human beings. Effectively identify diversified testing scenarios. Ensure inspection rate and reduce false alarm rate at the same time.

5. Strong feature fuzzy identification capability. Effectively inspect pin hole on soldering tin without being interrupted by pin and device.

6. Strong generalization ability. Slight color difference and irregular arrangement of solder joint. Low false alarm rate can be realized.
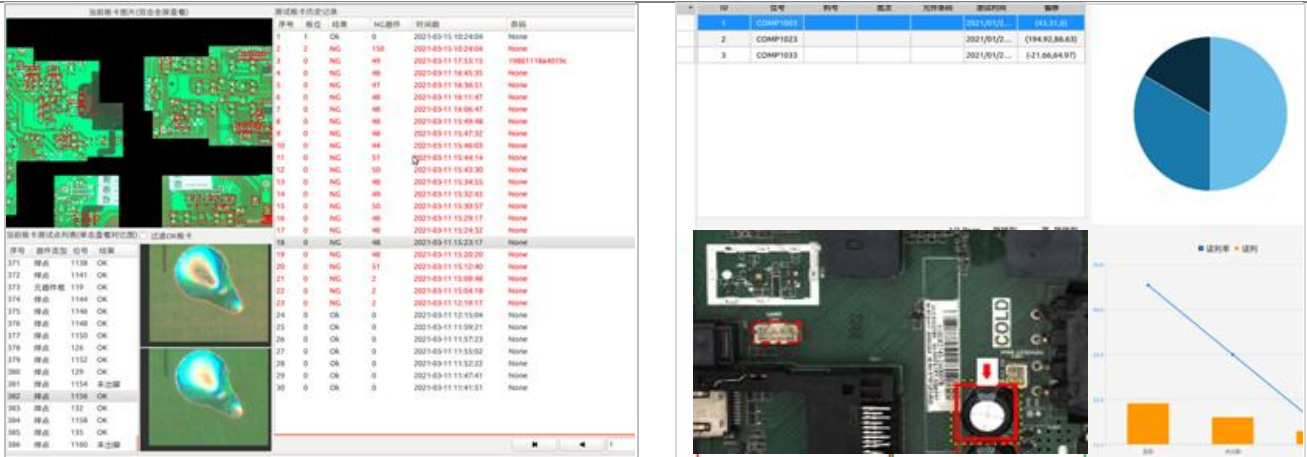
Quick Inspection Speed

1. I.C.T AOI Genetic algorithm path planning.

2. Less number of FOV. Intelligently skip positions without welds. Reduce number of FOV and enhance efficiency.

3. Photographing path is shorter. Reduce large-span FOV skipping to further save time.

4. More suitable imaging position. Avoid solder joint at FOV joint to guarantee test results.

5. GPU image parallel processing. Faster data running speed.
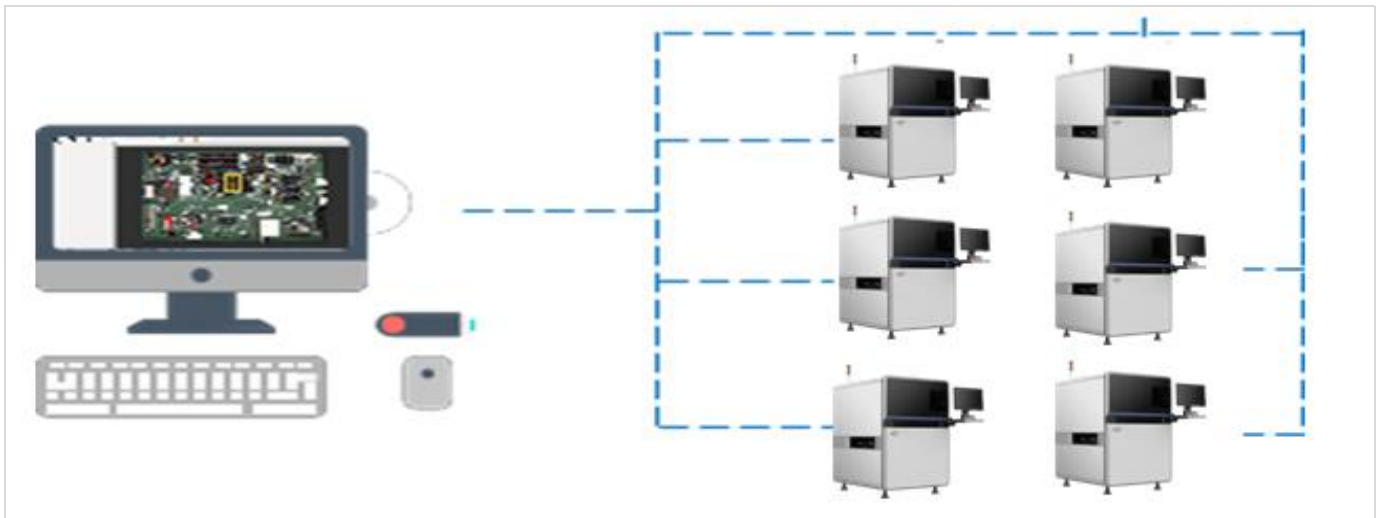

Multiple Inspection Modes

1. Support multi-in-1 board inspection. Support mixed board inspection. Support mixed material inspection.

2. Support rotation identification of multiple angles and multiple positions.

3. Support Bad Mark skip.

MES System Data Report

1. Camera automatically reads code (bar code and QR code).

2. Complete data, including overall statistic data and all inspection information of each board inspected.

3. Support one-key export, which is convenient for traceback. Data can be effectively applied in MES system.

Centralized Management and flexible Service

1. Support remote programming, debugging and management. Save changeover time. Support one-to-many judgment.

2. Remote regulation, centralized management. Reduce suspension of work. Enhance production efficiency.

3. Remote off-line programming, which will not affected inspection.

4. Remote support. Quick response and maintenance.

5. Multi-judgment work station realizes one-to-many judgment.

Option:

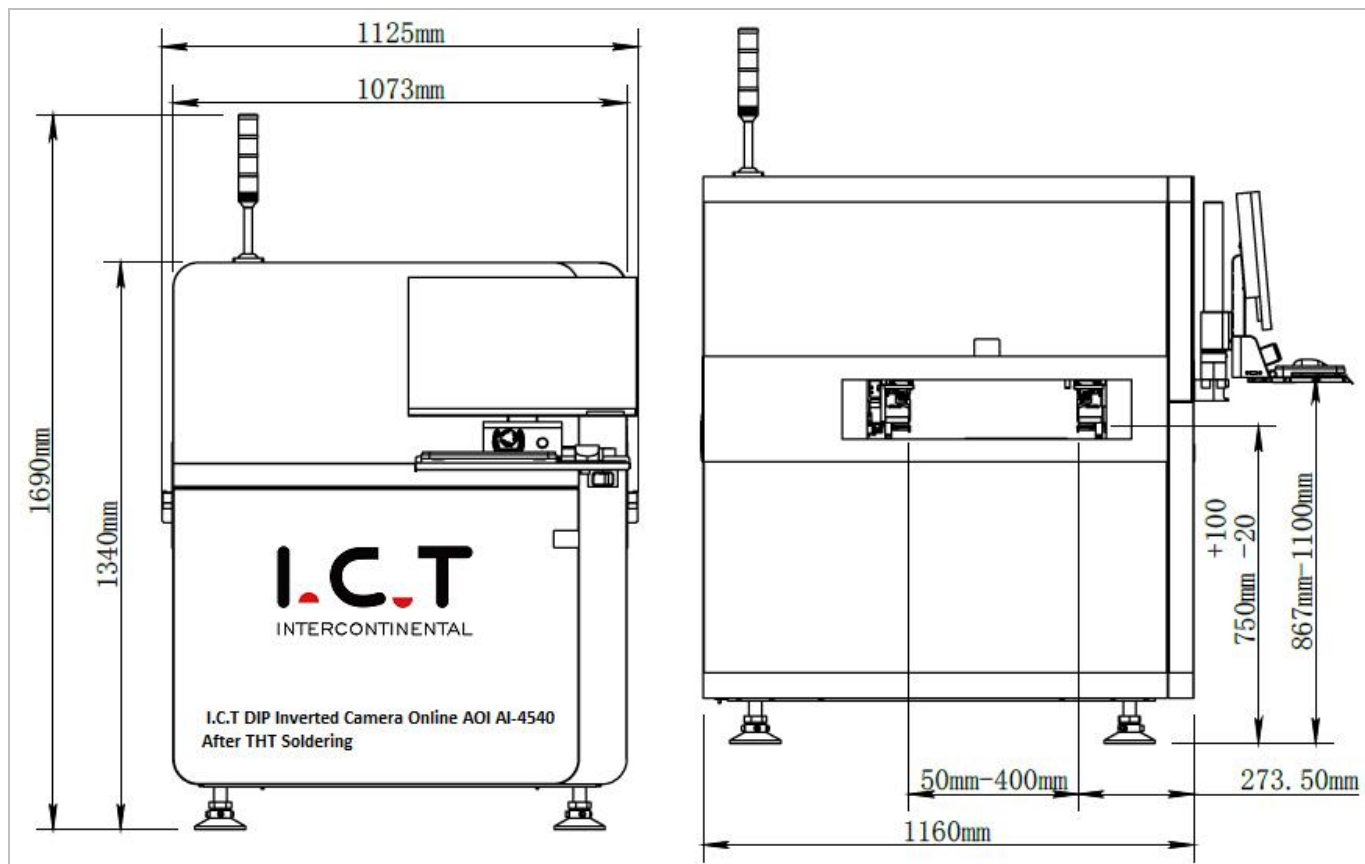|	
Offline Repair station	**Online Repair station**

1. Offline/Online option.

2. Freely switch between single-point/multiple-point cursor guide. High alignment accuracy.

3. Whole board projection guide maintenance personnel to repair quickly.

4. Avoid manual searching. Support operation on multiple work station. Enhance repair efficiency.

5. Multiple guide colors for selection.

6. Avoid interference by board color.

7. Guide by areas. Higher efficiency.

Specification:

Model	I.C.T DIP Inverted Camera Online AOI AI-4540 (After THT Soldering)	I.C.T DIP Inverted Camera Online AOI AI-4540L (After THT Soldering)
FOV	49*41mm	
Resolution	20um	
Camera	5M	
Light	RGB + W light, 4 color integral	
Inspection Speed	0.23sec/FOV	
Inspection Algorithm	CNN, Color contrast, Outline recognition, Offset inspection, Template matching, Character comparison, OCR ,etc.	
Inspection Item	Component: Absent, Reversed, Mis alignment, Broken, Extra, Foreignmaterial, Stained, etc. Solder: Insufficient, Excessive, Bridge, No foot, Solder void,etc Other: Bar code Recognition/QR code Recognition/OCR.	
Mixing PCB inspection	Support calling program automatically.	
PCB Size	Three section track: 50*50-350*400mm Single section track: 50*50-450*400mm	50*50~550*650mm
PCB Height	Top: 110mm (150mm optional), Bottom: 25mm	
PCB Thickness	0.3~6.0mm	
PCB Edge	3.0mm	
PCB Warpage	±3.0mm	
PCB Weight	Max: 10Kg	
Conveyor Height	750&900±20mm	
With Adjustment	Manual&Auto	
Conveyor Direction	L~R or R~L	
Motion Driver	AC servo driver + Ballscrew, repeat accuracy 0.01mm	
Operation System	Ubuntu 18.04 LTS 64bit Remote control, remote assistance, CAD file import and user-defined model training	
PC	CPU: Intel i5 Display card: NVIDIA GTX1050Ti Memory: 32G DDR, 240G SSD+2T Mechanical Hard Disk Network: 1000M Wired Network Card	
Display	23.8 inch FHD display	
Data output	Autogenerated statistic analysis SPC	
Special function	Automatic search of elements and quick programming	
Power	AC220 50/60Hz,5A	

Rated power	520W	
Compressed Air	0.4~0.6Mpa	
Communication	SMEMA	
Weight	780Kg	890Kg
Dimension	L1125*W1160*H1340mm	L1125*W1410*H1340mm

Dimension:

* I.C.T keeps working on quality and performance, specifications and appearance may be updated without particular notice.

Thanks for choosing I.C.T.

I.C.T looks forward to win-win cooperation.

Thanks.