

I.C.T SMT Online AOI AI-5146



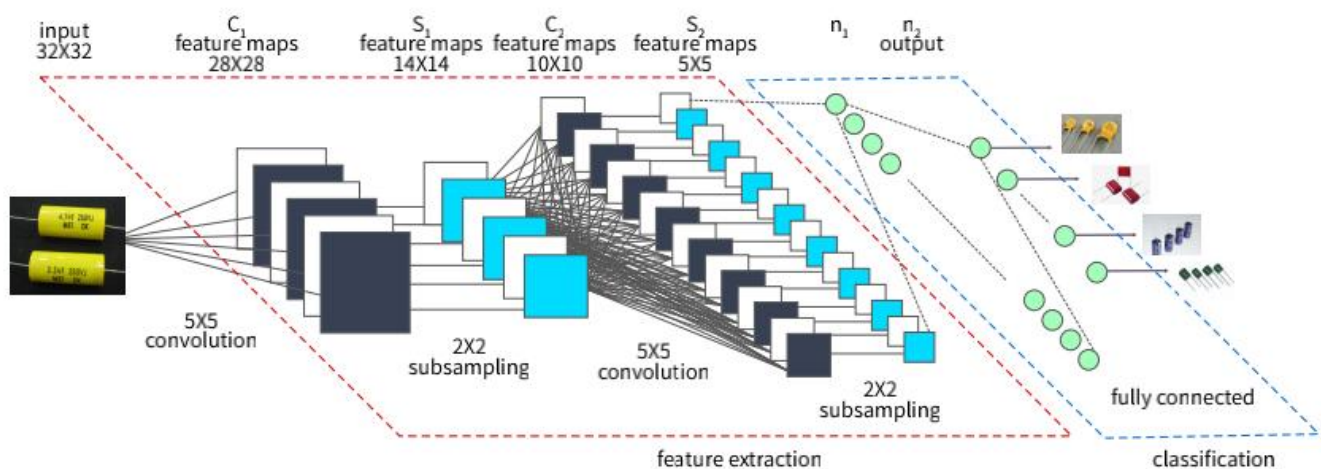
Introduction:

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

Features:

1. For SMT pre-reflow, post-reflow inline inspection.
2. High inspection rate and low false alarm rate.
3. Granite platform, greatly improve machine precision and stability.
4. Programmable RGB+W LED lighting source. Bilateral telecentric lens, low distortion and high depth of field.
5. Simplified programming flow, very simple interface. Support batch modifying parameters with one-key.
6. Centralized control. Interconnection between multiple equipment.
7. Multiple configurations meet different inspection demands.
8. Inspection ability: insufficient, short, soldering hole, solder covering pin, contamination, misalignment, missing part, skewed, billboard, mounting on side, overturn, wrong part, damaged, float, polarity, pseudo soldering, empty solder, excessive glue, etc.
9. Good stability(GR&R<10% @6 Sigma, CPK>1.33) Test deviation accuracy less than $\pm 0.25\text{mm}$.
10. PCB warpage compensation: total Mark compensation calibration, component position frame compensation.
11. Data is traceable. Support SPC alarm, LOG automatic collecting and storage function, NG warning/alarm function, Remote programming&debugging.

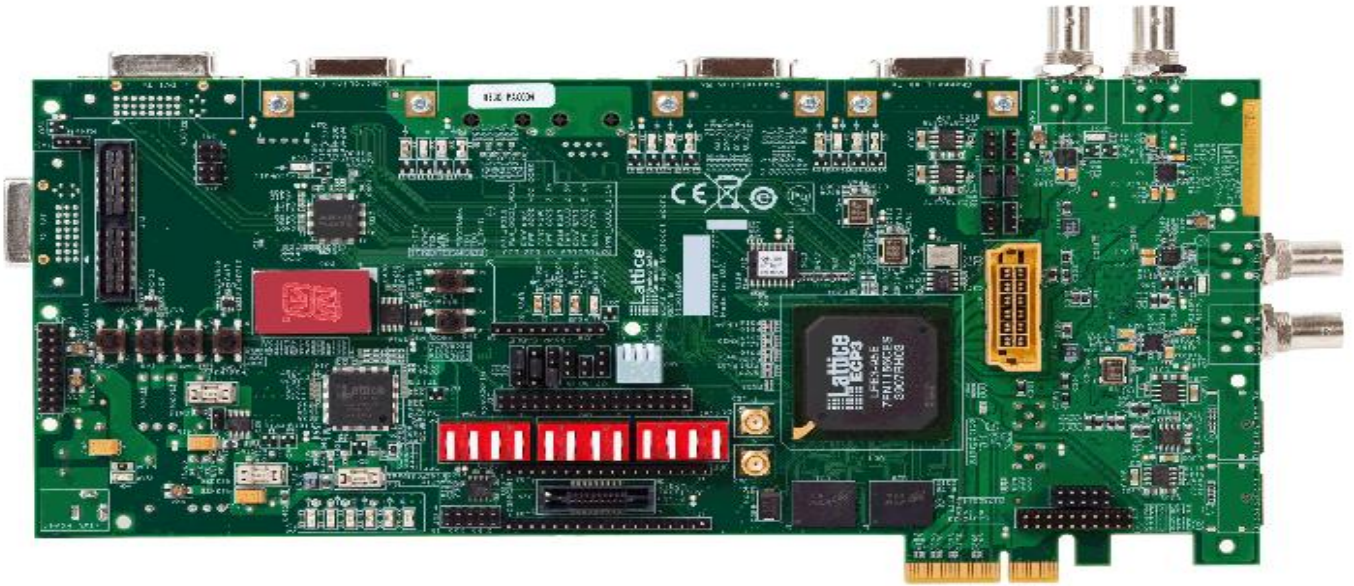
Advantage:



Deep Learning Algorithm

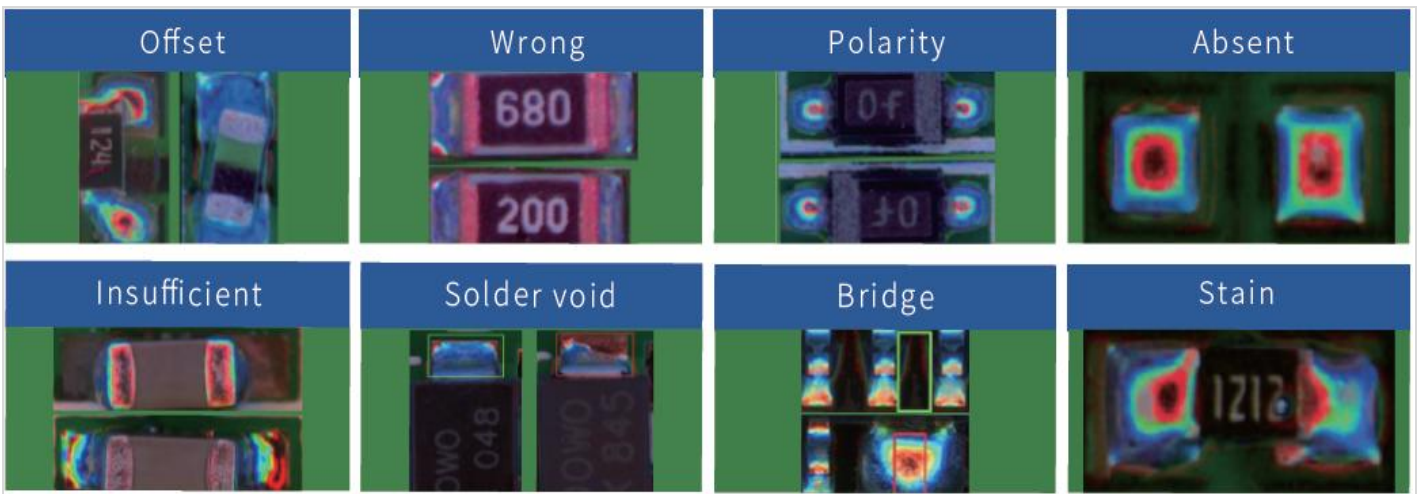
I.C.T AOI by applying deep learning algorithm, big data optimization and intelligent minimalist programming in industrial inspection. I.C.T enables intelligent judgment by one-click automatic identification of components and solder joints, thus addressing the two major pain points

of traditional algorithms, namely, long programming time and high false alarm rate.



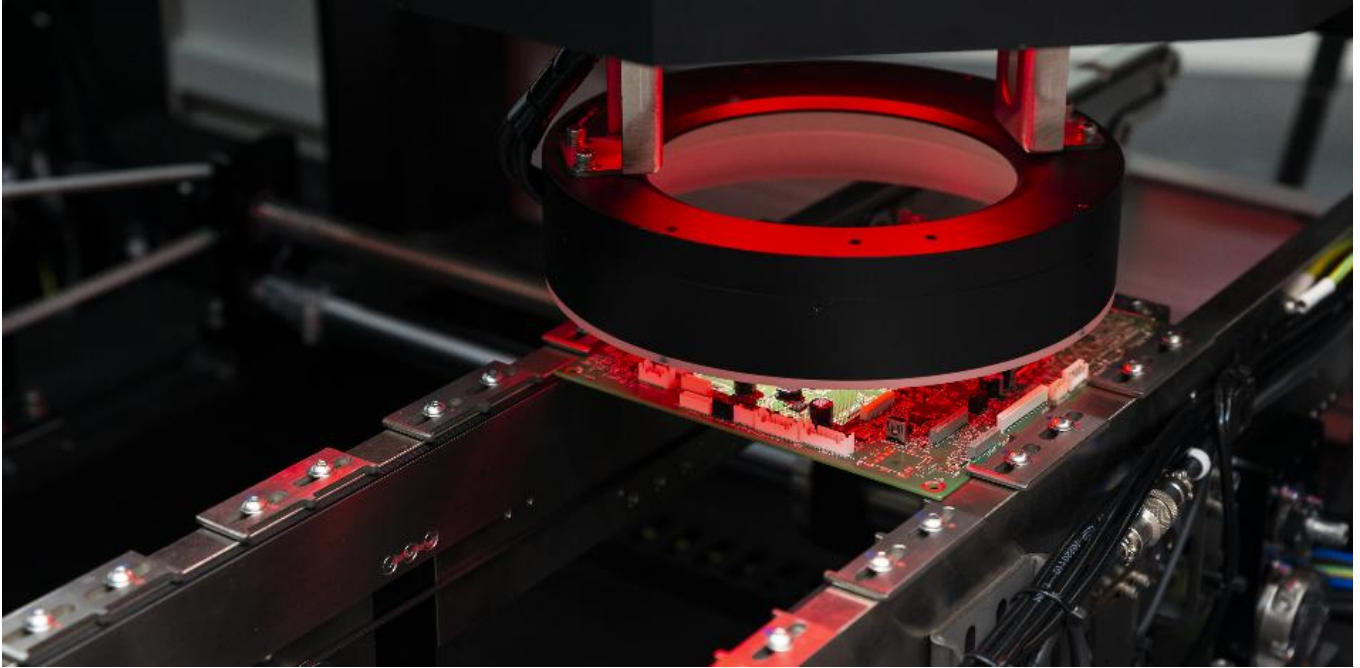
Flexible Procedures

1. Intelligent judgment: Automatically check resistance, capacitance, diode and other components.
2. Offline programming: Support off-line programming. Convenient for modification and debugging.
3. Online programming: Optimize and adjust equipment parameters without stop of production line.
4. Quick changeover: Files of existing formats can be called directly without repeated adjustment.
5. Intuitively remind: SPC reminds item number, wrong device and its type with both pictures and characters.



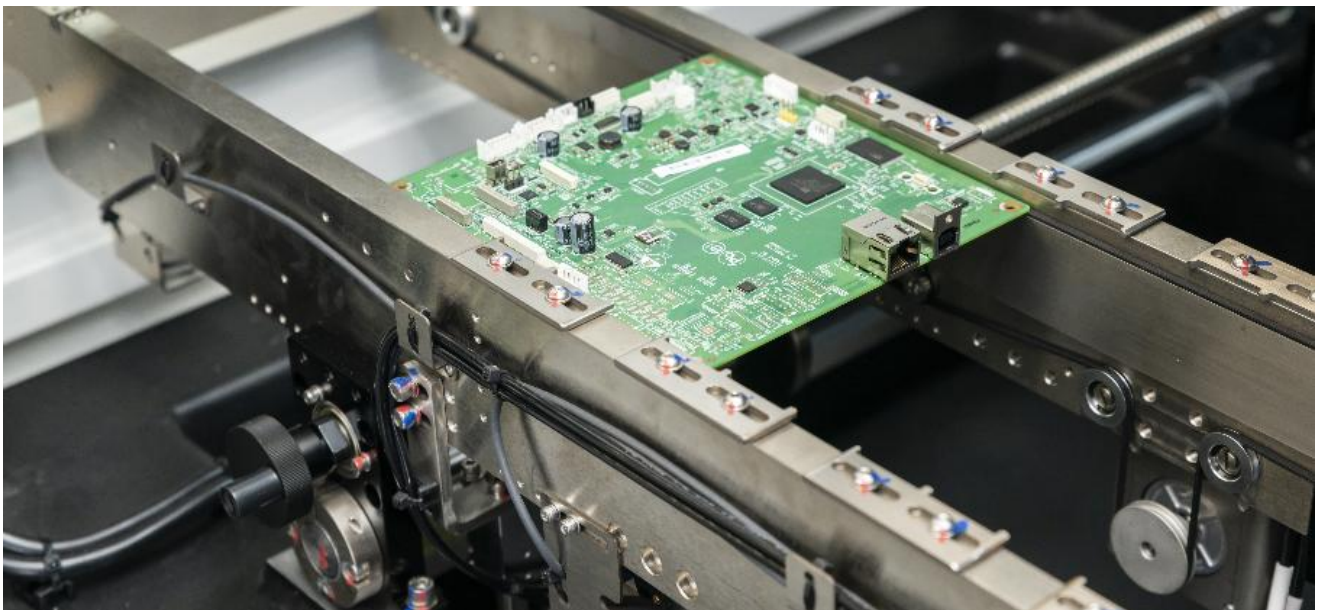
Strong Intelligent Inspection Capability

1. Model is trained based on big data. High identification accuracy of components and soldering tin.
2. Correct alarm caused by components overhang and soldering tin deviation. Reduce false alarm. For fuzzy feature, it has strong identification capability.
3. Effectively inspect defects without being interfered by color of board and change of characters on device
4. Irregular parts inspection is strong. Automatically generate IC pin inspection checkbox. Judge multiple defects with one checkbox.
5. Strong generalization ability. Device deviation, normal through high precision identification but slight overhang of itself, slight color difference, irregular arranged devices and other complicated situation are compatible. Thus, low false alarm rate can be realized.



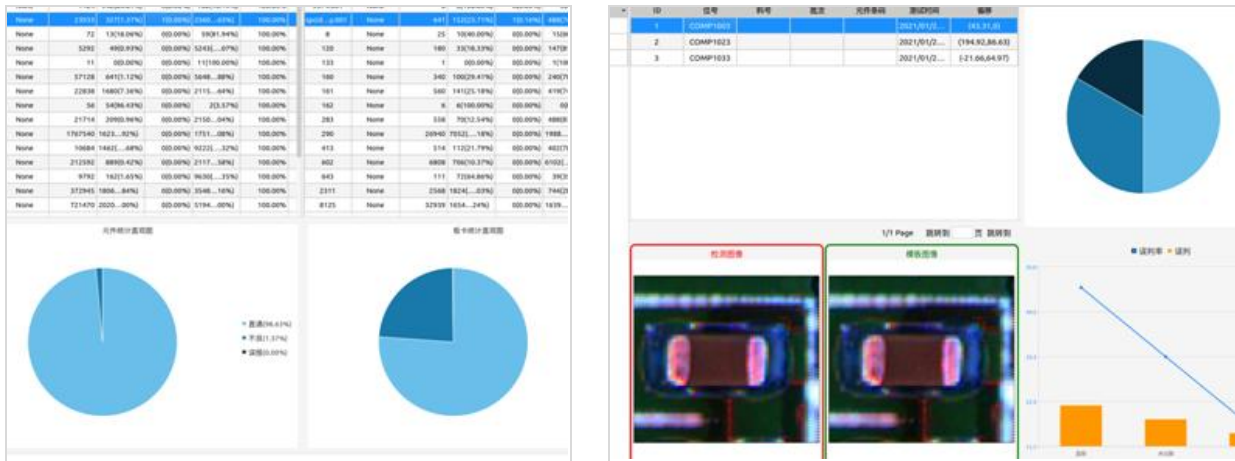
Quick Inspection Speed

1. Adopt photographing inspection mode of top high precision intelligent camera. Flexibly deal with high capacity PCB.
2. Adopt deep alignment control system and maintain ultrafast moving speed.
3. Real-time computation. Shoot next FOV. Meanwhile compute last FOV solder joint.
4. Path planning. Automatically plan path movement inspection.



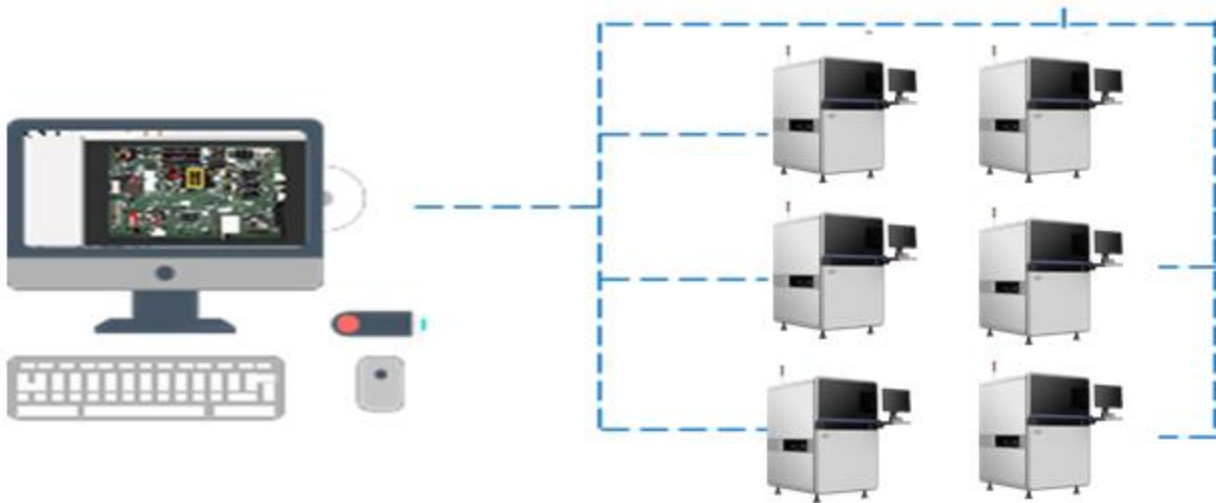
Multiple Inspection Modes

1. Multiple inspection modes can be designed by combining multiple production modes of factories.
2. Support multi-type machine production mode, substitute material mode and other modes.
3. Support joint-board inspection, Support mixed board inspection, Support mixed material inspection, Support multiple MARK(including Bad Mark function), Support automatic identification A/B program.
4. Multiple inspection scenarios. Support board inspection with/without fixtures.



MES System Data Report

1. Data is retained in real time and can be exported, which is beneficial to process improvement and production tracing.
2. Camera automatically reads code (bar code and QR code).
3. Complete data, including overall statistic data and all inspection information of each board inspected.
4. 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 offline programming, which will not affected inspection.
4. Remote support. Quick response and maintenance.
5. Multi-judgment work station realizes one-to-many judgment.

Specification:

Model	I.C.T SMT AOI AI-5146	I.C.T SMT AOI AI-5146D
Mini Component	01005chip, 0.3pitch IC and Special shaped	
Resolution@FOV	10um@40*30mm	10um@40*30mm
Camera	12M pixel intelligent digital industrial camera	

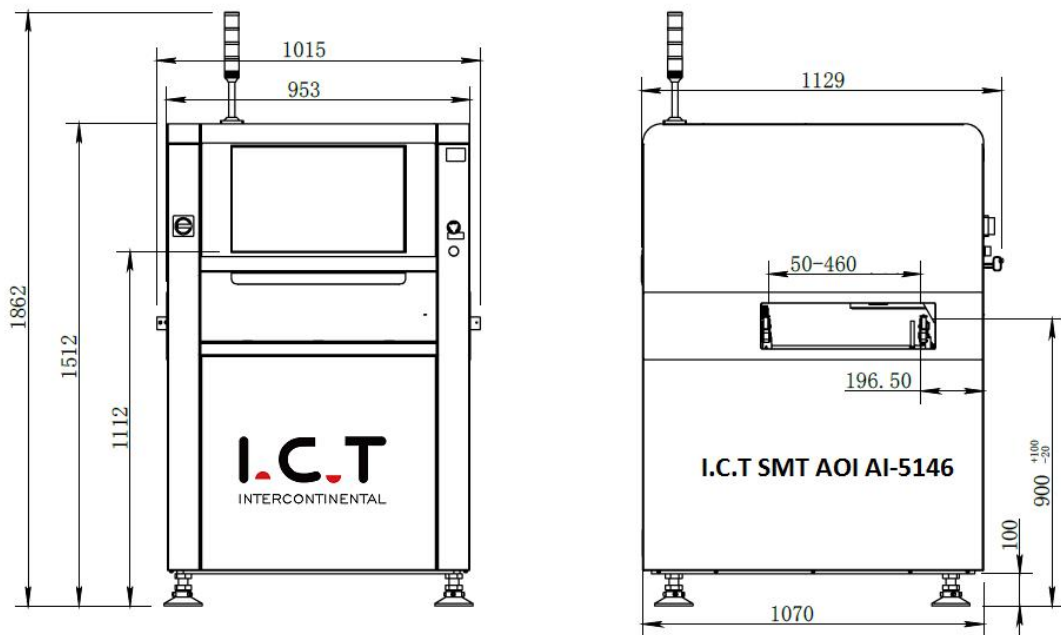
Lens	Telecentric lens	
Light	RGB+W 4 color integral	
Inspection Speed	0.23sec/FOV	
Inspection Algorithm	CNN, Color contrast, Outline recognition, Offset inspection, Template matching, Character comparison, OCR, etc.	
Inspection Item	Component: Absent, Reversed, Mis-alignment, Broken, Extra, Foreign matter, Stained, etc. Solder: Insufficient solder, excessive solder, bridging, pseudo solder etc. Other: Bar code Recognition/QR code Recognition/OCR.	
Mixing PCB inspection	Support calling program automatically.	
PCB Size	50*50mm~510*460mm (Large board mode: Left to right: max 730*460mm Right to left: max 640*460mm)	50*50mm~510*610mm(Single rail operation) 50*50mm~510*330mm(Dual rail operation)
Rail	Single rail	Dual rail
PCB Height	Top: 25mm, Bottom: 80mm	Top: 25mm, Bottom: 30mm
PCB Thickness	0.3~6.0mm	
PCB Edge	3.7mm	
PCB Warpage	±3.0mm	
PCB Weight	Max: 3Kg	
Conveyor Height	900±20mm	
With Adjustment	Manual / Auto	
Conveyor Direction	L~R or R~L	
Motion Driver	AC servo driver + Ballscrew, repeat accuracy 0.01mm	
Platform	Granite	
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	CPU: Intel i5 Display card: NVIDIA GTX1050Ti Memory: 64G 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	380W	
Compressed Air	0.4~0.6Mpa	
Communication	SMEMA	
Weight	750Kg	790Kg
Dimension	L1015*W1086*H1539mm (excluding the light)	L1015*W1370*H1539mm (excluding the light)

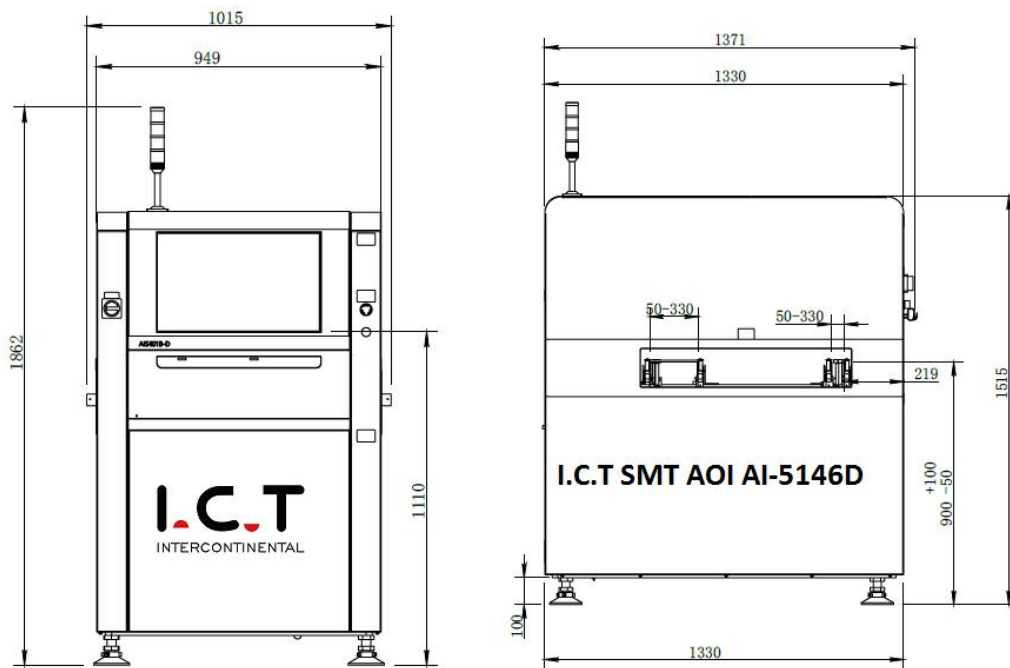
Standard Accessories:

No.	Item	Quantity
1	Power cable	1pcs
2	SMEMA line	2pcs
3	Memory card	1pcs
4	Card reader	1pcs
5	Wireless network card	1pcs
6	Grayscale board	1set
7	Allen wrench	1set
8	Open end wrench	1pcs
9	System disk	1pcs
10	Electromagnetic sensor	1pcs
11	Air ducts	1pcs
12	Belt	1pcs

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

Dimension:





Thanks for choosing I.C.T.
I.C.T looks forward to win-win cooperation.
Thank you.