

# MAKER-RAY

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Know more about us  
V2.0-202308

Guangzhou Leichen Equipment Technology Co., LTD

# AI Empowers AOI

Upholding the mission of “ Make Industrial Inspection Easier ” , taking deep learning algorithm as the core, MAKER-RAY has been specializing in the electronics industry for many years and is committed to providing customers with various optical testing solutions based on the visual inspection standardization scheme of the PCBA production process.

## Products layout

### SMT Line

- SMD/solder 3D inspection
- Dual side inspection
- SMD/solder 2D inspection
- Solder paste inspection

### THT Line

- THT component inspection
- Solder joint inspection
- Bended foot inspection
- Dual side inspection

### Coating Line

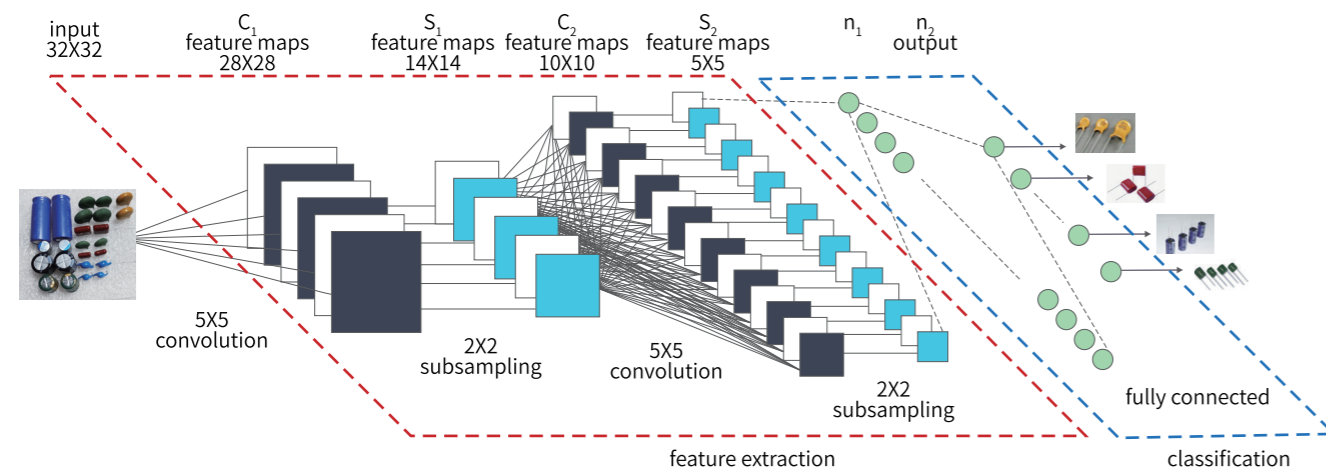
- Single side coating inspection
- Dual side coating inspection

### Future planning

- Goldfinger inspection
- Semiconductor inspection
- Mini LED inspection
- ...

## Core Technology

By applying deep learning algorithm and big data optimization in industrial inspection, Maker-Ray realizes intelligent minimalist programming, and enables intelligent judgment by one-click automatic identification of components and solder, thus addressing the two major pain points of traditional algorithms, namely, long programming time and high false alarm rate.



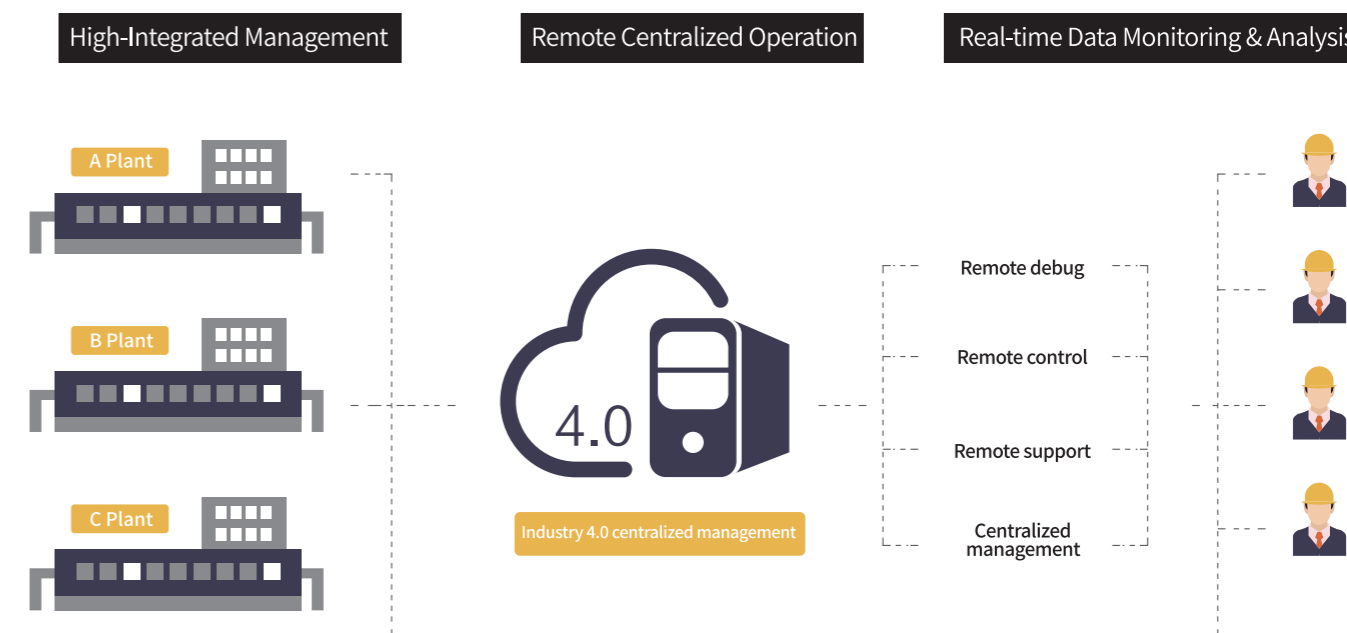
## Strong Technology Accumulation

MAKER-RAY has obtained multiple certifications, including 77 patents and copyright, among which more than half are invention. All our products are protected with intellectual property rights.

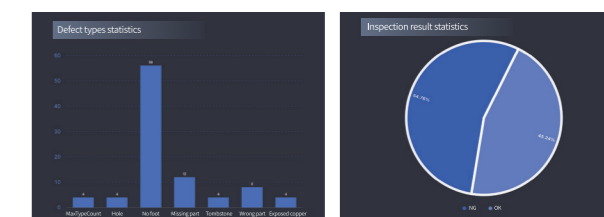
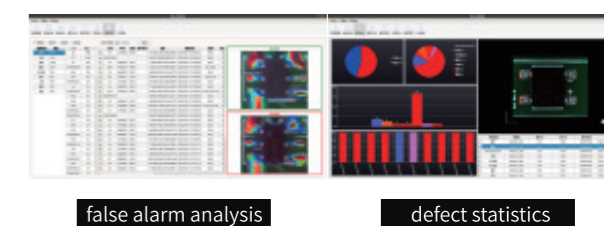
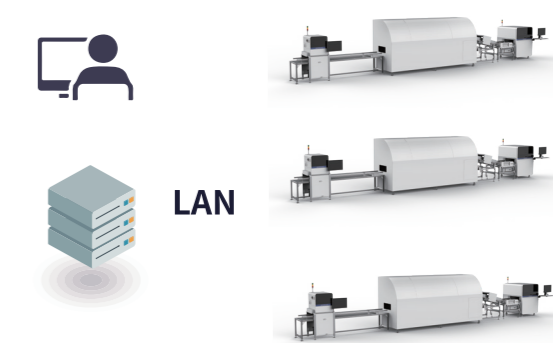


Statistics end as of Jan. 21st, 2021

## Industry 4.0 “Internet Plus” Business Model



- **Remote centralized management and control, no constraints of time and space, improving the convenience of enterprise operation and maintenance.** Remote online/offline programming, debugging, software upgrade; Monitor and abnormally warn for equipment work indicator data; Routine maintenance including spot and patrol inspection of parts.
- **Real-time data collection and analysis, providing data decision-making support** Real-time data collection including false alarm, defect types and other; display of TOP defect statistics; Automatic calculation of key indicators including PMM, FPY, and defective rate; Provide objective and real data support for the operation optimization of production line.
- **Multi-dimensional data report, support customized export** Support different dimensions (time, board information, bad, etc.) to retrieve data; Independently select the data modules needed to be exported; Customized charts of the report (pie chart, bar chart, line chart).



## AIS20X Series- THT

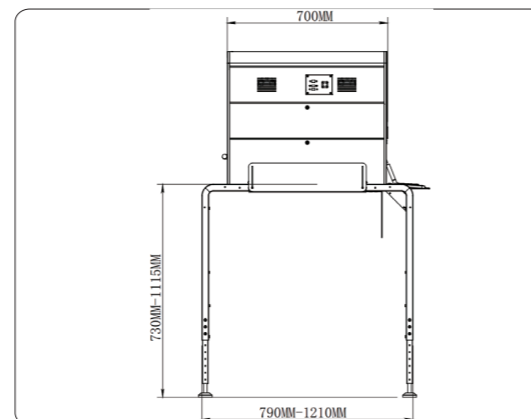
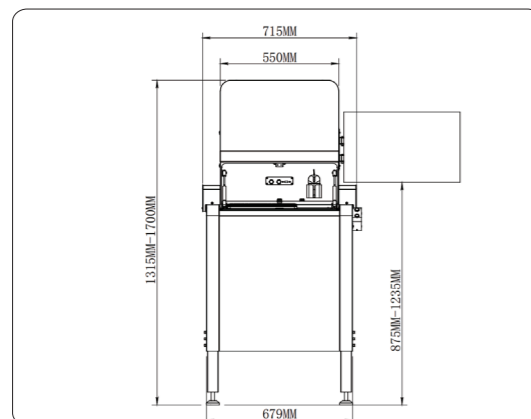


### Online PCBA AOI For THT Components To inspect defects of THT components

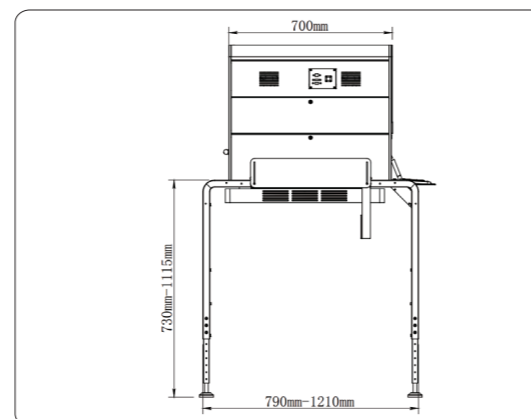
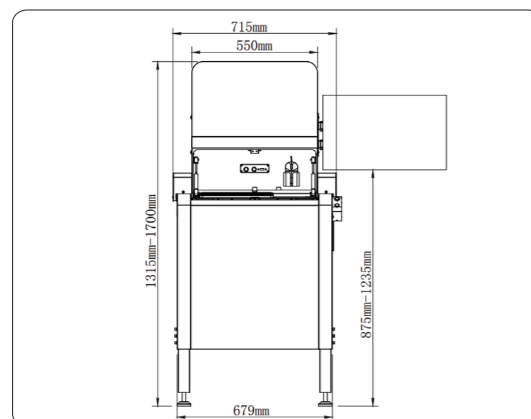
#### Core Advantages

- Simple programming, easily operation, support online/offline programming
- Multiple inspection modes, adapt diversity of production
- Detailed data test report , support SPC alarm
- Multiple selectable options realize locate defects quickly and production line control

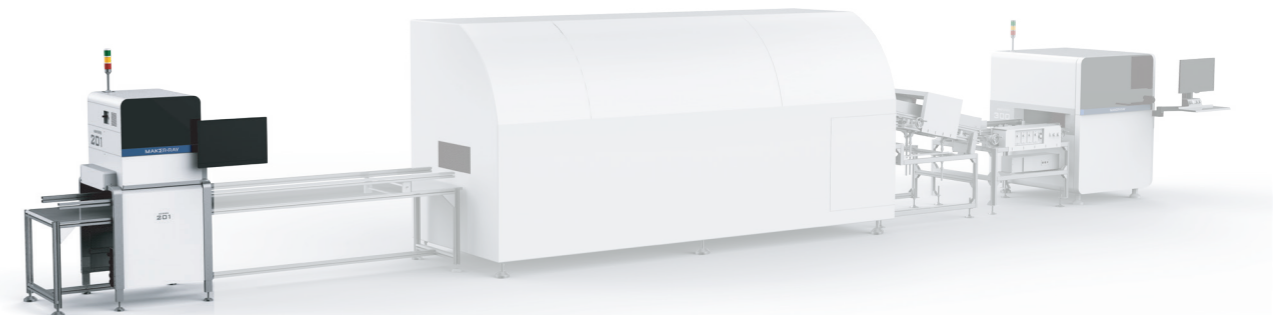
#### · AIS203-HW



#### · AIS203P-HW



#### · Application | Before/After Wave Soldering



#### · Defect Types



#### · Production Line Control Box

- Automatically/manually control start/stop and positive/inverse of conveyor belt line for ensuring the defectives to be maintained in time.
- Make alarm for the abnormal inspection.
- Reserve a set of interactive interfaces, which can be designed according to site demand
- Easy to be installed due to its small size



•Specification

Category	Item	AIS203-HW	AIS203P-HW
PCBA specification	Size	400*266mm	520*390mm
	Camera	20MP, color	31MP
Optical specification	Light source	High Uniformity Dome Light+Hight Intensity Low Angle Light	
	FOV	400*266mm	520*390mm
	Resolution ratio	75um	80um
Inspection-related function	Components	Missing, reversed, offset, broken, extra, foreign matter, dirty , etc.	
	Other function	NG tracking bar(optional),control box(optional),mixed material inspection,multi-in-1 inspection, voicebroadcast, After oven mode; Mixing models inspection,support calling program automatically	
	Algorithm	CNN, color contrast, template matching, OCR ,etc.	
Software system	Operating system	Ubuntu 18.04 LTS 64bit	
	Function	Remote control, remote assistance, CAD file import and user-defined model training	
	Communication method	Standard SMEMA interface	
	Data output	Autogenerated statistic analysis SPC	
	Special function	Automatic search of elements and quick programming	
Hardware specification	Industrial control host	CPU: intel i5 Display card: Nvidia GTX1050Ti Memory: 16G DDR4 , 256G SSD + 2T HDD Network: 1000M Wired Network Card	CPU: intel i7 Display card: Nvidia GTX1050Ti Memory: 24G DDR4 , 256G SSD + 2T HDD Network: 1000M Wired Network Card
	Display	23.8 inch FHD display	
Appearance/electric	Dimention and weight	(L*H*W) 715* (1315-1700) * (790-1210) mm, net weight:100Kg	
	Power supply and power	AC 220V, rated power 200W	
	Work environment	Temperature:10~45°C, Humidity: 30~85%RH	

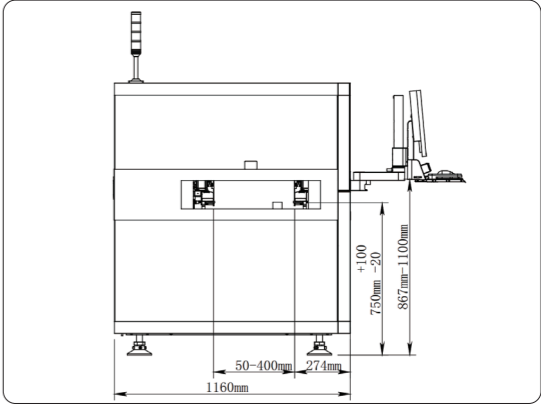
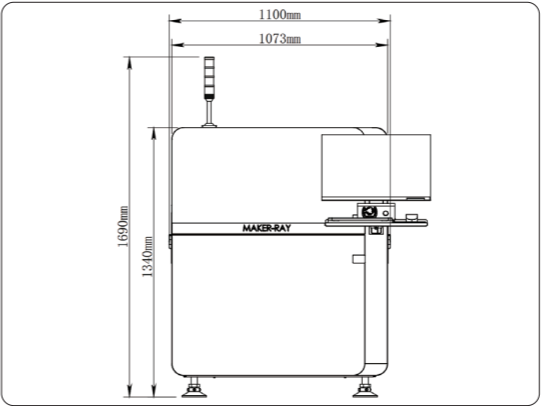
AIS30X Series- THT



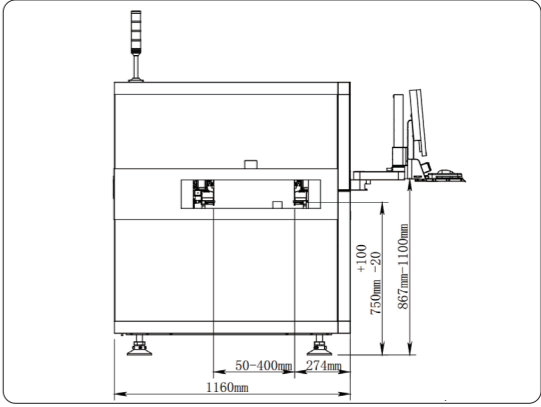
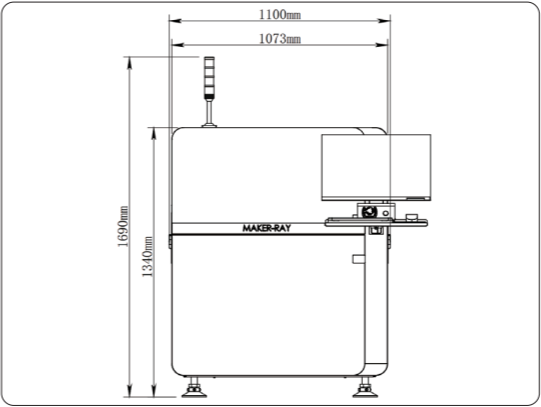
Inline PCBA AOI for Solder Joint  
To inspect defects of solder joint of plug-in components and SMT components on the bottom side

- Core Advantages
- Optional three-section track design.
  - High speed, high precision and low wear.
  - AI algorithm. Quick location and easy programming.
  - Strong inspection capability.
  - Flexible combination with production line and applicable for multiple scenarios.
  - Traceable data and support SPC alarm.
  - Automatic cleaning function for lens.

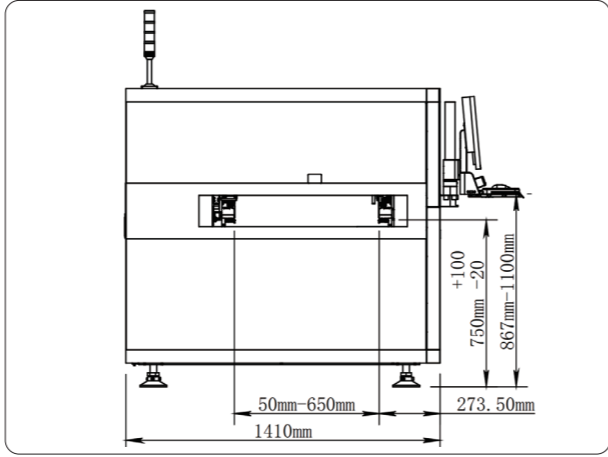
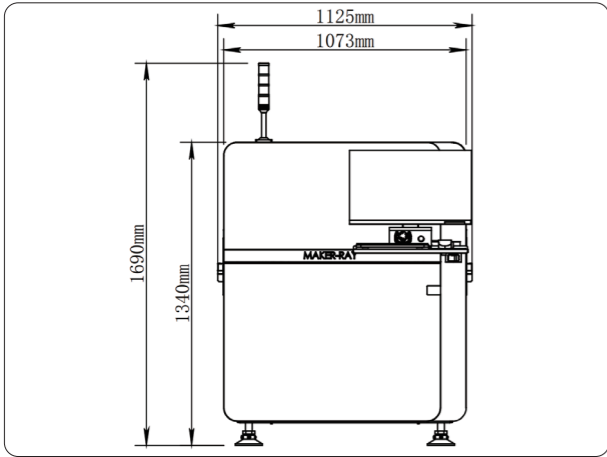
•AIS303B-HW



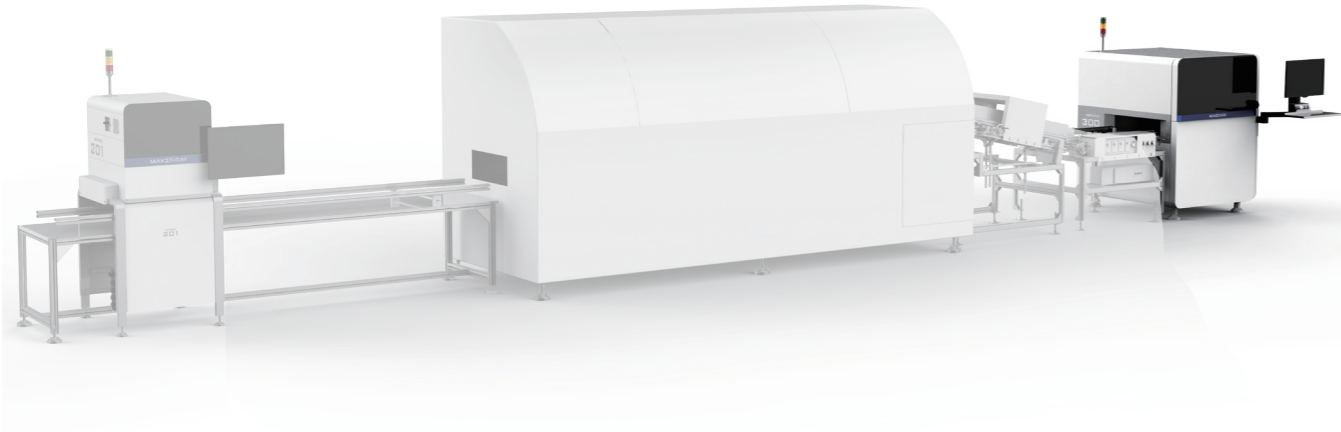
•AIS303P-HW



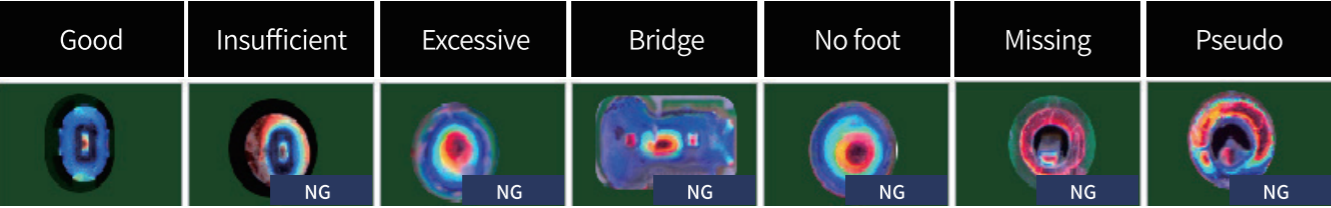
•AIS303-L-HW



•Application | After wave-soldering



•Defect Type



•Specification

Category	Item	AIS303B-HW	AIS303P-HW	AIS303-L-HW
PCBA specification	Size	three-section track:50*50~350*400mm signle-section track:50*50~450*400mm		50*50~550*650mm (Large board mode: max 710*650mm)
	Thickness	0.5mm~6mm		
	Height of elements	TOP: 110mm (150mm option); BOT: 25mm		
	Processing edge	3mm		
Optical specification	Camera	12MP, color	12MP, color	5MP, color
	Light source	RGB + W four color integral light source		
	FOV	60*45mm	60*45mm	49*41mm
	Resolution	15um	15um	20um
Inspection-related function	Components	Missing, reversed, offset, broken, extra,foreign matter, dirty, etc.		
	Solder	Insufficient,excessive,bridge, no foot, solder void,etc.		
	Other function	Bar code Recognition / QR code Recognition/ OCR		
	Mixing boards inspection	Yes,Support calling program automatically		
	Algorithm	CNN, color contrast, outline recognition, offset inspection, template matching, character comparison, OCR ,etc.		
	Speed	0.23sec/FOV		
Software system	Operating system	Ubuntu 18.04 LTS 64bit		
	Function	Remote control, remote assistance, CAD file import and user-defined model training		
	Communication method	Standard SMEMA interface		
	Data output	Autogenerated statistic analysis SPC		
	Special function	Automatic search of elements and quick programming		
Hardware specification	Industrial control host	CPU: intel i5 Display card: Nvidia GTX1050Ti Memory: 32G DDR4, 240GSSD+2T HDD Network: 1000M Wired Network Card		CPU: intel i5 Display: Nvidia GTX1050Ti Memory: 64G DDR4, 240GSSD+2T HDD Network: 1000M Wired Network Card
	Display	23.8 inch FHD display	23.8 inch FHD display	23.8 inch FHD display
	Rail width control	High precision lead screw + servo motor		
	Rail width control	Manual/auto		
Appearance/ electric	Dimention and weight	(L*H*W) 1100*1340*1160mm net weight: 780kg		(L*H*W) 1125*1340*1410mm net weight: 890KG
	Power supply and power	AC 220V, rated power 520W		
	Air source	0.4-0.6Mpa		
	Work environment	Temperature: 10~45°C, Humidity: 30~85%RH		

• Repair Station with Cursor, locating defects quickly

- Off-line/On-line option
  - Freely switch between single-point/multi-point cursor guide. High alignment accuracy
  - Whole board projection guide maintenance personnel to repair quickly
- Avoid manual searching. Support operation on multiple work station. Enhance repair efficiency
  - Multiple guide colors for selection. Avoid interference by board color
  - Guide by areas. Higher efficiency



No.	Item	Offline repair station	Online repair station
1	Model	MKR-AOI-OFFLR100	MKR-AOI-ONLR100
2	PCB Size	550*400mm	550mm*400mm
3	PCB thickness	Less than 100mm	
4	Host	CPU:intel i3 Memory:8G DDR4 128G SSD Display:23.8寸 FHD Monitor Operating system:Ubuntu 18.04 LTS 64bit	
5	Overall dimension	(L*H*W) 550*830*760mm	(L*H*W) 900*1550mm~1850*1000mm
6	Power supply	Single phase AC220V,50/60Hz	
7	Platform	Aluminium section frame + SECC metal plate	
8	Mouse and keyboard	Chocolate keyboard + Logitech mouse	
9	Foot plate	Metal USB foot switch	
10	Micro switch	Omron micro switch	
11	Conveyor	/	Mannual width-controlled conveyor with the plate loading height of 750mm (the height could be customized)
12	Free accessories	Soldering tin support and universal code scanner support	
13	Paid accessories	Code scanner (USB data interface) and electric soldering iron	
14	Rated (Max) power consumption	1220W	
15	average consumption	55W	

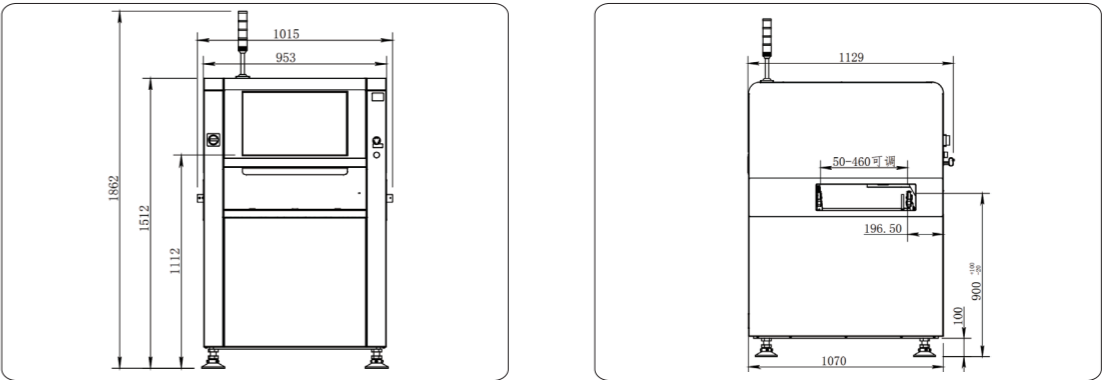
AIS40X Series-SMT

**Inline PCBA AOI for SMT Components (2D)**  
**To inspect defects of SMT components and solder**

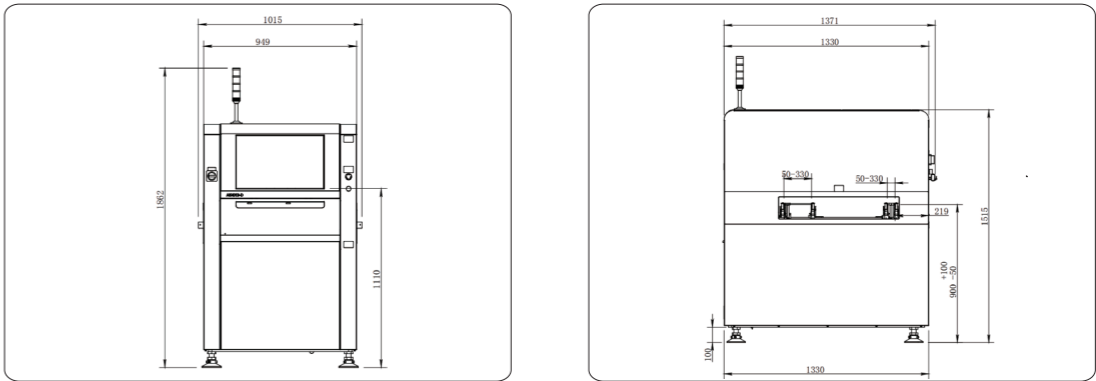
**Core Advantages**

- Bilateral telecentric lens, low distortion and high depth of field
- Minimalist programming , simple interface. Support batch modifying parameters with one-click
- Centralized control. Interconnection between multiple equipment
- High inspection rate and low false alarm rate
- Multiple configurations meet different inspection demands
- Traceable data and support SPC alarm

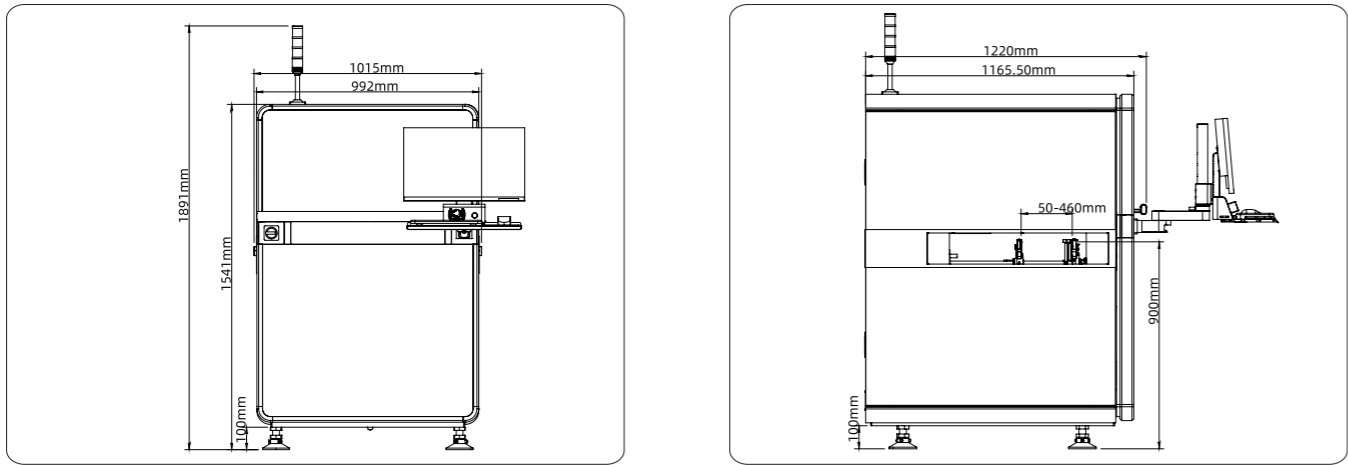
• AIS401B-HW



• AIS401B-D-HW



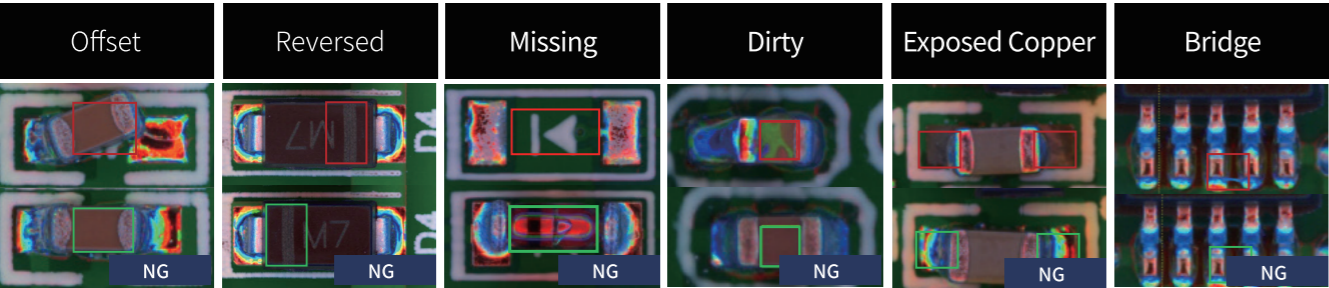
•AIS401-HW



•Application | Before/after reflow



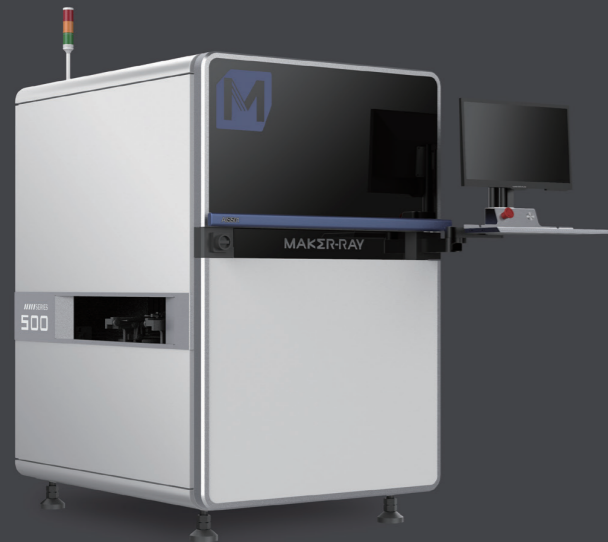
• Defect Type



•Specification

Category	Item	AIS401-HW	AIS401B-HW	AIS401B-D-HW
PCBA specification	Size	50*50mm-510*460mm Large board : 50*50mm~690*460mm		50x50mm~510*610mm (single rail operation) 50x50mm~510*330mm (Dual rail operation) Large board: 50*50mm~690*610mm(single rail operation) 50*50mm-690*330mm(Dual rail operation)
	Thickness	0.5mm-6mm		
	Height of elements	Top:25mm, Bottom: 80mm		
	Processing edge	3.7mm		
Optical specification	Camera	12MP, color		
	Optical source	RGB + W four color integral light source		
	FOV	40*30mm		
	Resolution ratio	10um		
Inspection- related function	Components	Missing, reversed, offset, broken, extra,foreign matter, dirty , etc.		
	Solder	Insufficient,excessive,bridge, no foot, solder void,etc.		
	Other function	Bar code Recognition / QR code Recognition/ OCR		
	Mixing boards inspection	Yes,Support calling program automatically		
	Algorithm	CNN, color contrast, outline recognition, offset inspection, template matching, character comparison, OCR ,etc.		
	Speed	0.23sec/FOV	0.25sec/FOV	
Software system	Operating system	Ubuntu 18.04 LTS 64bit		
	Function	Remote control, remote assistance, CAD file import and user-defined model training		
	Communication method	Standard SMEMA interface		
	Data output	Autogenerated statistic analysis SPC		
	Special function	Automatic search of elements and quick programming		
Hardware specification	Industrial control host	CPU: intel i5 Display card: GTX1050Ti Memory: 64G DDR4 , 240G SSD+2T Mechanical Hard Disk Network: 1000M Wired Network Card		
	Display	23.8 inch FHD display		
	Motion mechanism	High precision lead screw + servo motor		
	Rail width control	Manual/auto		
Appearance/ electric	Power suppl and power	(L*H*W) 1015*1541*1165.6mm net weight: 728KG	(L*H*W) 1015*1512*1129mm net weight: 670KG	(L*H*W) 1015*1515*1330mm net weight: 790KG
	Power supply and power	AC 220V, rated power 380W		AC 220V,rate power 490W
	Air source	0.4-0.6Mpa		
	Work environment	Temperature: 10~45℃, Humidity: 30~85%RH		

## AIS50X Series-Multi

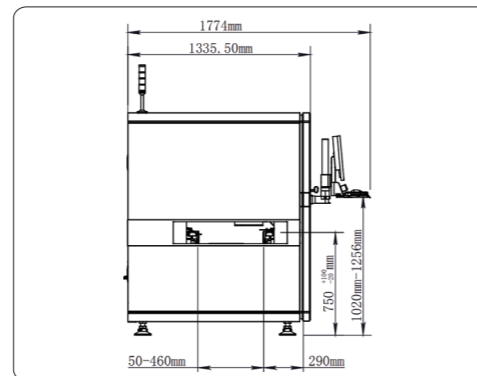
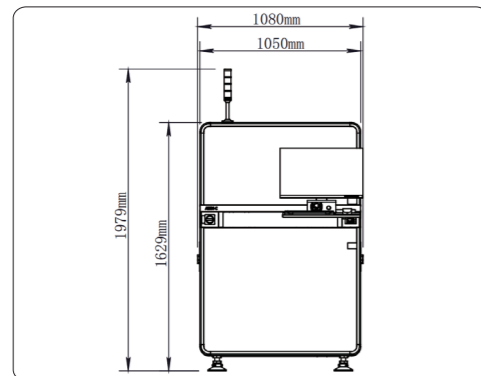


### Inline PCBA AOI for Double side To inspect defects of components and solder joints for double side

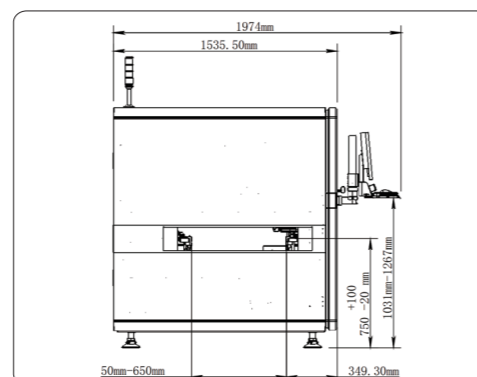
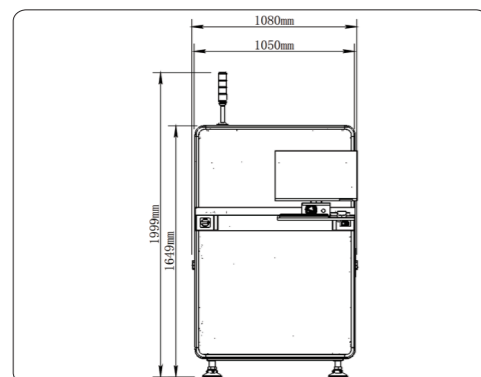
#### Core Advantages

- Asynchronously photograph with double cameras to avoid interference of light source and raise inspection inspect speed.
- Easy programming , simple interface. Support parameters batch modification
- High inspection rate and low false alarm rate
- Centralized control and multiple equipment interconnection
- Able to inspect defects of SMD/THT/solder joints, applicable for multiple scenarios
- Traceable data and available SPC alarm

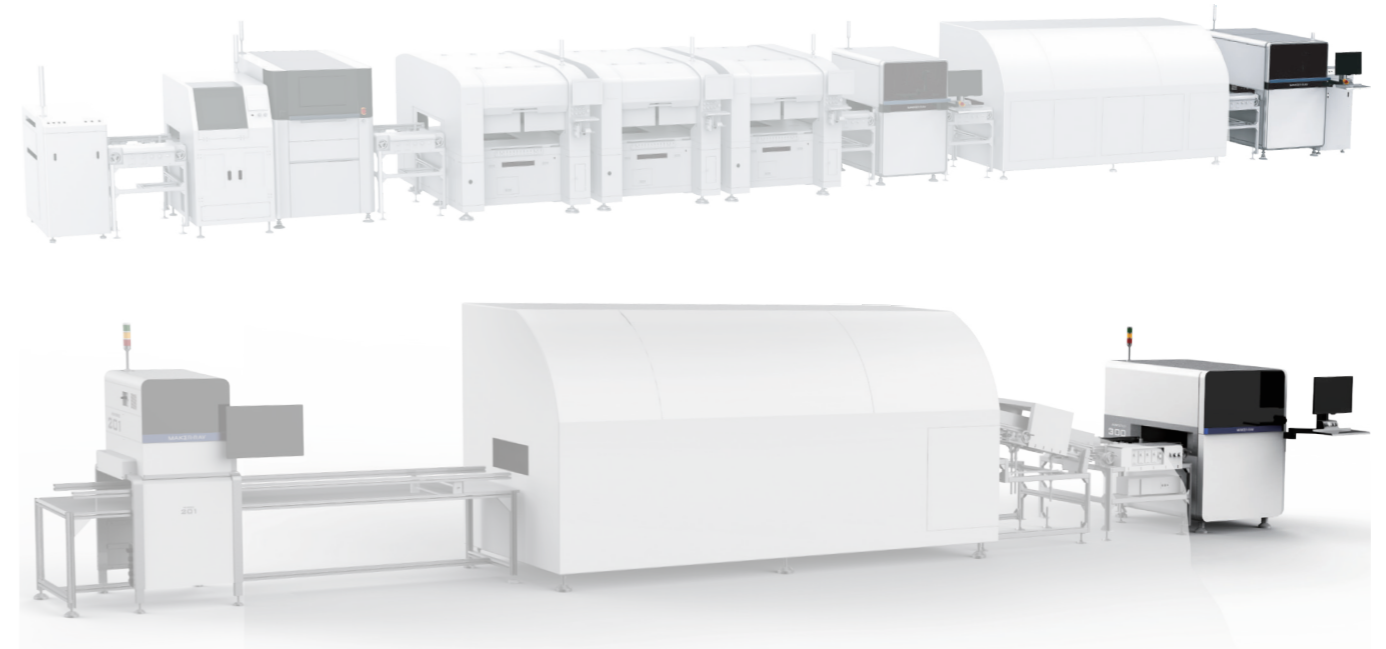
#### · AIS501B-HW



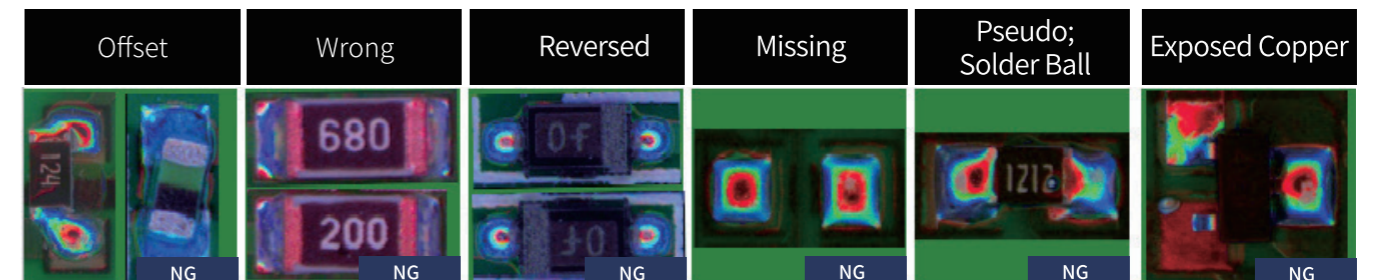
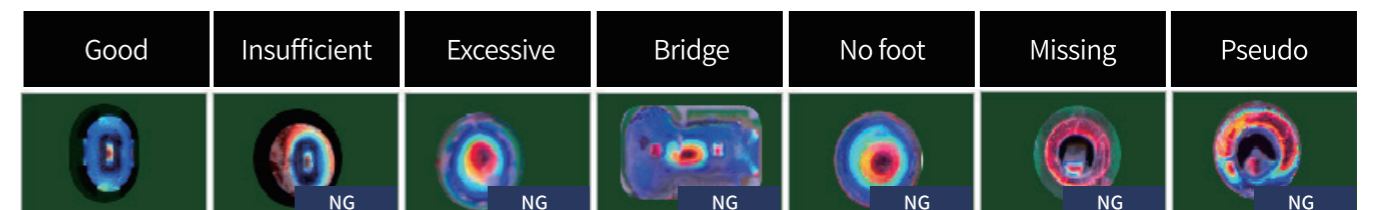
#### · AIS501-L-HW



#### · Application | Post reflow/wave-solder and before package



#### · Defect Type



•Specification

Category	Item	AIS501B-HW	AIS501-L-HW
PCBA specification	Size	50*50mm~510*460mm (Large board mode: max730*460mm)	50*50mm~510*650mm (Large board mode: max730*650mm)
	Thickness	0.5mm-6mm	
	Height of elements	Top:75mm, Bottom:50mm(can be adjusted to 75mm)	
	Processing edge	3mm	
Optical specification	Camera	12MP, color	
	Optical source	RGB + W four color integral light source	
	FOV	15um@60*45mm; 10um@40*30mm;	
	Resolution ratio	15/10um	
Inspection-related function	Components	Missing, reversed, offset, broken, extra, foreign matter, dirty, etc.	
	Solder	Insufficient, excessive, bridge, no foot, solder void, etc.	
	Other function	Bar code Recognition / QR code Recognition/ OCR	
	Mixing boards inspection	Yes, Support calling program automatically	
	Algorithm	CNN, color contrast, outline recognition, offset AI inspection, template matching, character comparison, OCR ,etc.	
	Speed	0.25sec/FOV	0.23sec/FOV
Software system	Operating system	Ubuntu 18.04 LTS 64bit	
	Function	Remote control, remote assistance, CAD file import and user-defined model training	
	Communication method	Standard SMEMA interface	
	Data output	Autogenerated statistic analysis SPC	
	Special function	Automatically search of elements and quick programming	
Hardware specification	Industrial control host	CPU: intel i7 Display card: Nvidia GTX1050Ti Memory: 64G DDR4 , 240G SSD+2T Mechanical Hard Disk Network: 1000M Wired Network Card	
	Display	23.8 inch FHD display	
	Motion mechanism	High precision lead screw + servo motor	
	Rail width control	Manual/auto	
	Transmission type	Chain	
	Rail payload	≤10KG	
Appearance/electric	Dimention and weight	(L*H*W) 1080*1629*1335mm net weight:1000KG	(L*H*W) 1080*1650*1535mm net weight:1150KG
	Power supply and power	AC 220V, rated power 500W	
	Air source	0.4-0.6Mpa	
	Work environment	Temperature:10~45°C. Humidity: 30~85%RH	

AIS-Coating

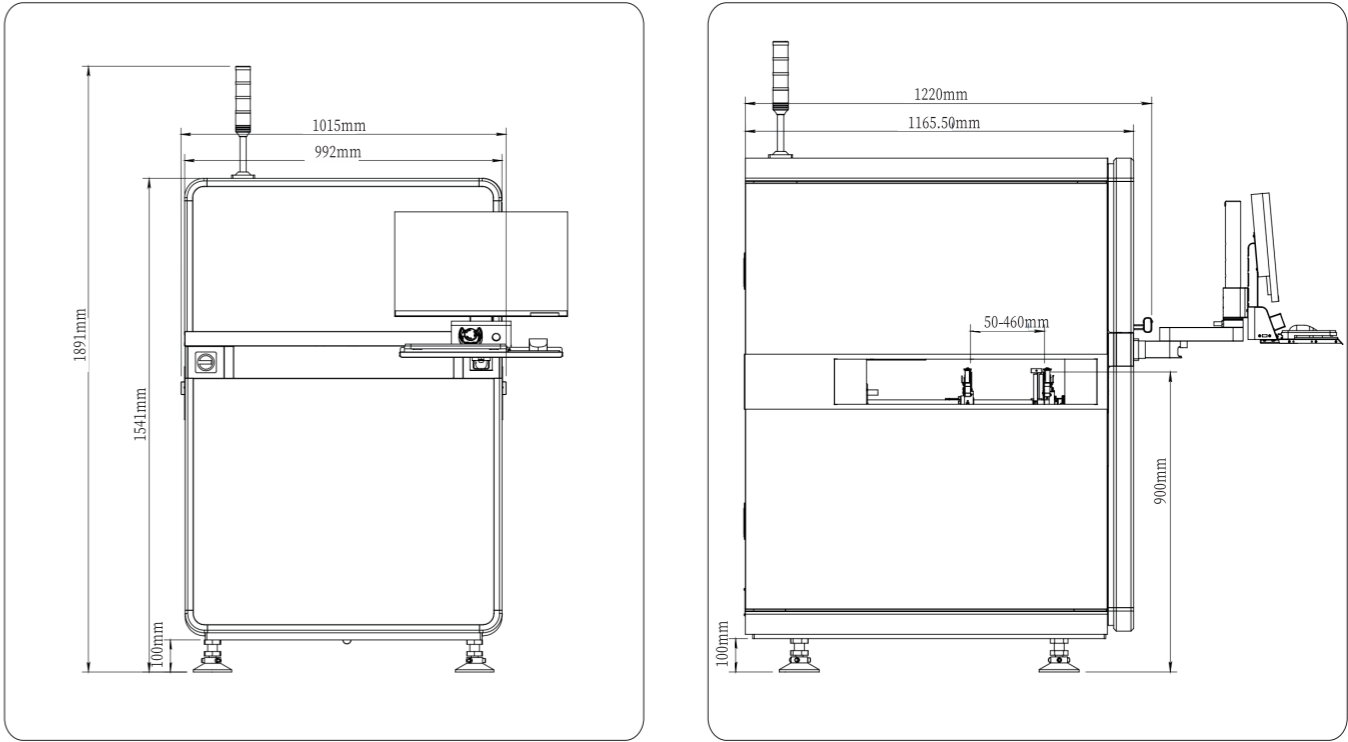


**Inline PCBA AOI For Coating**  
**To inspect defects of coating, such as excessive, insufficient, splash, bubble etc.**

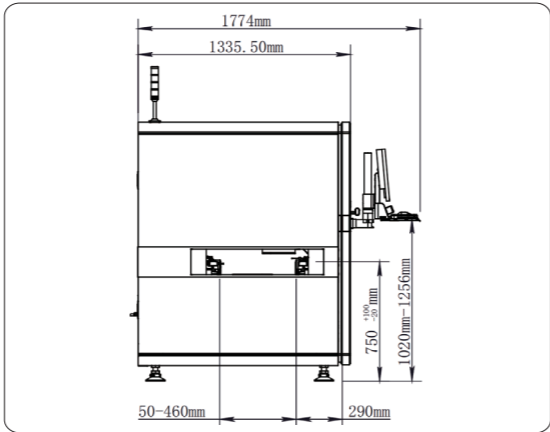
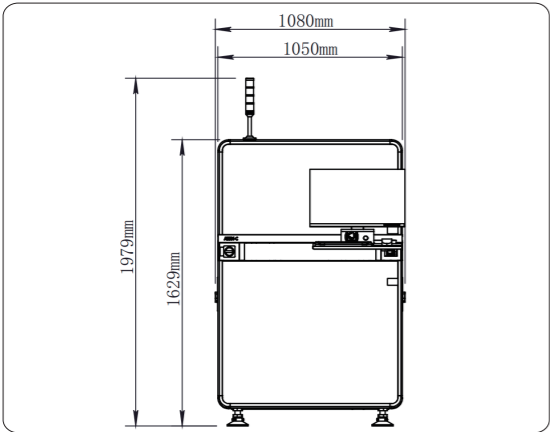
**Core Advantages**

- Intelligently lock coating border,Automatically identify coating area
- Intelligently judge bubble of targeted area. Minimum bubble diameter is up to 0.05mm
- Able to inspect coating defects. Plug-in defects, SMT defects, soldering defects and other defects can be inspected after switching light source.
- Support multi-in-1 panel inspection, mixed model inspection. Multiple configurations (whole board, double side) are available.
- Traceable data and support SPC alarm

•AIS401-C-HW



•AIS501-C-HW



•Application | Before/after curing



•Defect Type | Switch light source to inspect\*

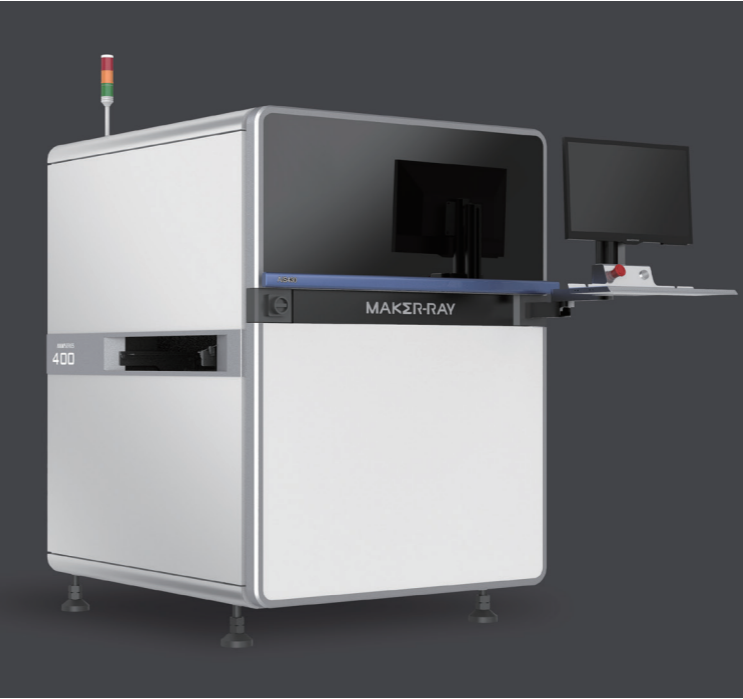
Coating

Excess		Insufficient		Splash		Bubble		Dirty			
SMT defects				Plug-in defects				Soldering defects			
Missing		Wrong		Missing		Wrong		Excess		Insufficient	
Offset		Reversed		Offset		Reversed		No solder		Bridge	
Broken		Tombstone		Broken		Extra		No foot		Solder void	
Upside-down		Dirty		Bar/QR code		No foot		Pseudo solder		Foreign matter	

Category	Item	AIS401-C-HW
PCBA specification	Size	50*50~510*460mm ( Large board mode 690*460mm )
	Thickness	0.5mm-6mm
	Height of elements	Top: 25mm; Bottom: 80mm
	Processing edge	3.7mm
Optical specification	Camera	12MP, color
	Optical source	UV+W / UV+RGBW
	FOV	40*30mm
	Resolution	10um
Inspection-related function	Coating	Excessive or less UV/UF gel, bubble in UV/UF gel
	Components	Missing, reversed, offset, broken, extra,foreign matter, dirty , etc.
	Solder	Insufficient,excessive,missing, bridge,solder void,etc.
	Other function	Bar code Recognition / QR code Recognition/ OCR
	Mixing boards inspection	Yes,Support calling program automatically
	Algorithm	CNN, color contrast, outline recognition, offset inspection, template matching, OCR ,etc.
Software system	Speed	0.23sec/FOV
	Operating system	Ubuntu 18.04 LTS 64bit
	Function	Remote control, remote assistance, CAD file import and user-defined model training
	Communication method	Standard SMEMA interface
	Data output	Autogenerated statistic analysis SPC
Hardware specification	Special function	Automatic search of elements and quick programming
	Industrial control host	CPU: intel i5 Display card: Nvida Independent GPU Accelerator Card Memory: 64GDDR4, 256G SSD+2T Mechanical Hard Disk Network: 1000M Wired Network Card
	Display	23.8 inch FHD display
	Motion mechanism	High precision lead screw + servo motor
Appearance/ electric	Rail width control	Manual/auto
	Dimention and weight	(L*H*W) 1015*1541*1170mm, net weight:750Kg
	Power supply and power	AC 220V, rated power 380W
	Air source	0.4-0.6Mpa
	Work environment	Temperature: 10~45°C, Humidity: 30~85%RH

AIS43X Series-3D

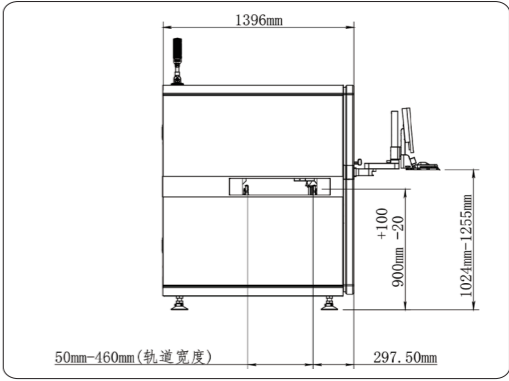
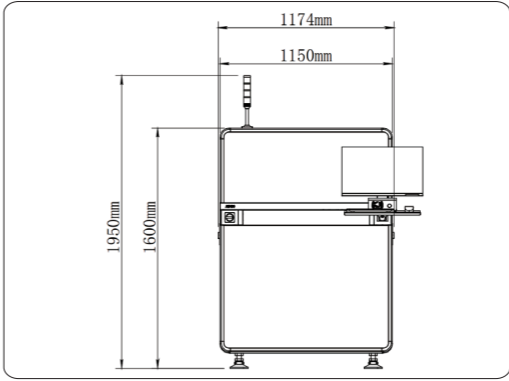
Category	Item	AIS501-C-HW
PCBA specification	Size	50*50mm~510*460mm (Large board mode:730*460mm)
	Thickness	0.5mm-6mm
	Height of elements	Top:75mm, Bottom:50mm(can be adjusted to 75mm)
	Processing edge	3mm
Optical specification	Camera	12MP, color
	Optical source	UV+W optical source / UV+RGBW
	FOV	10um@30*40mm, 15um@ 60*45mm
	Resolution ratio	15um/10um
Inspection-related function	Coating	Excessive or less UV/UF gel, bubble in UV/UF gel
	Components	Missing, reversed, offset, broken, extra, foreign matter, dirty, etc.
	Solder	Insufficient, excessive, bridge, no foot, solder void, etc. ( UV+RGBW source)
	Other function	Bar code Recognition / QR code Recognition/ OCR
	Mixing boards inspection	Yes, support calling program automatically
	Algorithm	CNN, color contrast, outline recognition, offset inspection, template matching, OCR, etc.
	Speed	0.23sec/FOV
Software system	Operating system	Ubuntu 18.04 LTS 64bit
	Function	Remote control, remote assistance, CAD file import and user-defined model training
	Communication method	Standard SMEMA interface
	Data output	Autogenerated statistic analysis SPC
	Special function	Automatically search of elements and quick programming
Hardware specification	Industrial control host	CPU: intel i7 Display card: Nvida Independent GPU Accelerator Card Memory: 64G DDR4, 240G SSD+2T Mechanical Hard Disk Network: 1000M Wired Network Card
	Display	23.8 inch FHD display
	Motion mechanism	High precision lead screw + servo motor
	Rail payload	≤4KG
	Rail width control	Manual/auto
Appearance/ electric	Dimention and weight	(L*H*W)1080*1629*1335mm, net weight:1000KG
	Power supply and power	AC 220V, rated power 500W
	Air source	0.4-0.6Mpa
	Work environment	Temperature:10~45°C. Humidity: 30~85%RH



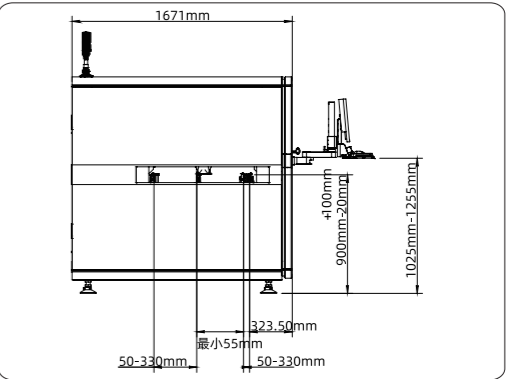
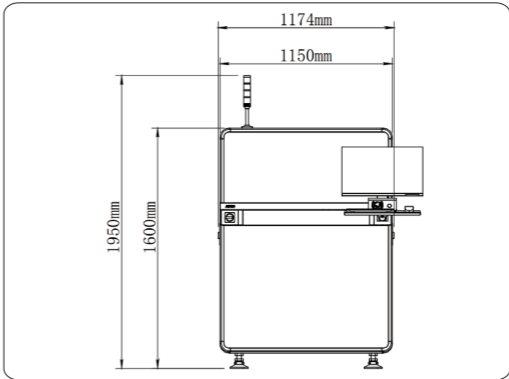
Inline PCBA AOI for SMT Components (3D)  
To inspect defects of SMT components and solder  
3D imaging, minimizing shadow problems

- Core Advantages
- Intelligently remove noise with depth map. Solve distortion problem in 3D imaging.
  - Measurement height can be configured, meeting a variety of inspection requirements
  - Dynamic self-adoption reference plane algorithm to calibrate substrate height
  - Multi-frequency four-step phase algorithm to strengthen robustness, avoiding influence of illumination changing imaging

• AIS430-HW



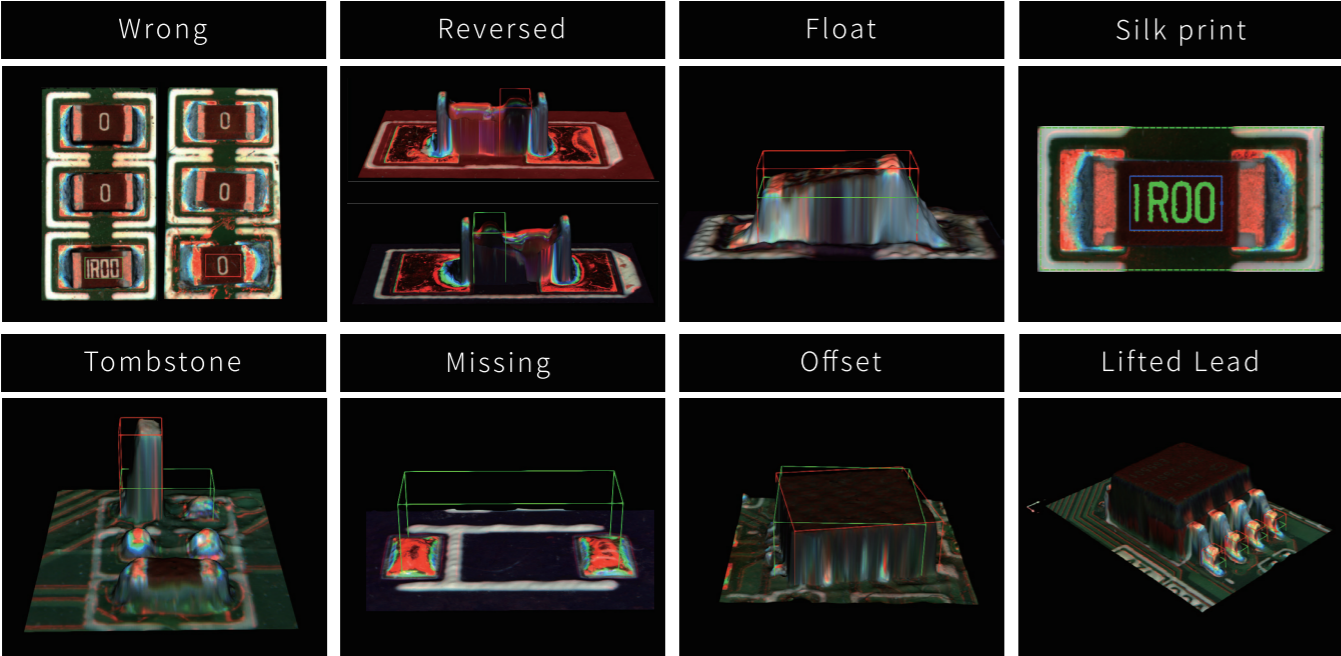
• AIS430-D-HW



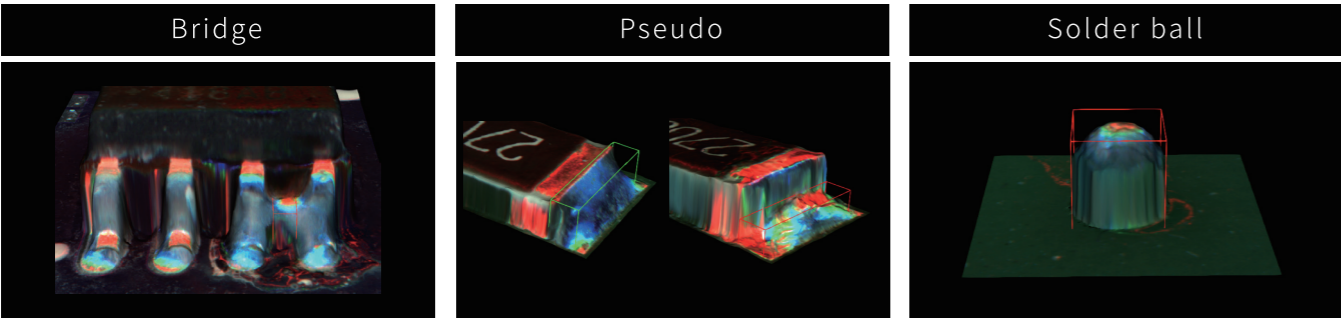
•Application | After reflow



•Defect Type | SMD



•Defect Type | Solder



•Specification

Category	Item	AIS430-HW	AIS430-D-HW
PCBA specification	Size	50*50mm~510*460mm (Large board mode: Max710*460mm)	50*50mm~510*610mm (single rail operation) 50*50mm~510*330mm (Dual rail operation)
	Thickness	0.5mm-6mm	
	Height of elements	Top: 30mm; Bottom: 50mm (Top could be 50mm)	
	Processing edge	3.7mm	
Optical specification	Camera	12MP, color	
	Optical source	RGB + W four color integral light source+ 4 optical source for projection	
	FOV	10um@40*30mm; 15um@60*45mm	
Inspection-related function	Components	Lead, float, missing, reversed, offset, upside-down, tombstone, broken, extra,foreign matter, dirty, etc.	
	Solder	Insufficient,excessive,missing, bridge,solder void,etc.	
	Other function	Bar code Recognition / QR code Recognition/ OCR	
	Mixing boards inspection	Yes,Support calling program automatically	
	Algorithm	CNN, color contrast, outline recognition, offset inspection, template matching, character comparison, OCR ,etc.	
	Speed	0.55sec/FOV	
Software system	Operating system	Ubuntu 18.04 LTS 64bit	
	Function	Remote control, remote assistance, CAD file import and user-defined model training	
	Communication method	Standard SMEMA interface	
	Data output	Autogenerated statistic analysis SPC	
	Special function	Automatic search of elements and quick programming	
Hardware specification	Industrial control host	CPU: intel i7 Display card: Gigabyte RTX3060 12G display Memory: 64G DDR4 , 256G SSD+6T Mechanical Hard Disk Network: 1000M Wired Network Card	
	Display	23.8 inch FHD display	
	Motion mechanism	High precision lead screw + servo motor	
	Rail width control	Manual/auto	
Appearance/ electric	Dimention and weight	(L*H*W) 1174*1600*1396mm, net weight:870KG	(L*H*W) 1174*1642*1671mm, net weight:1080KG
	Power supply and power	AC 220V, rated power 540W	AC 220V, rated power 540W
	Air source	0.4-0.6Mpa	
	Work environment	Temperature: 10~45°C, Humidity: 30~85%RH	

## AIS63X Series-SPI

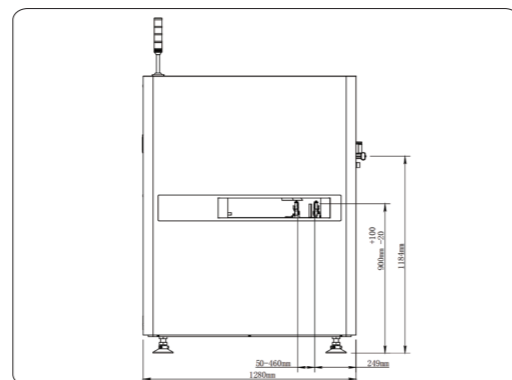
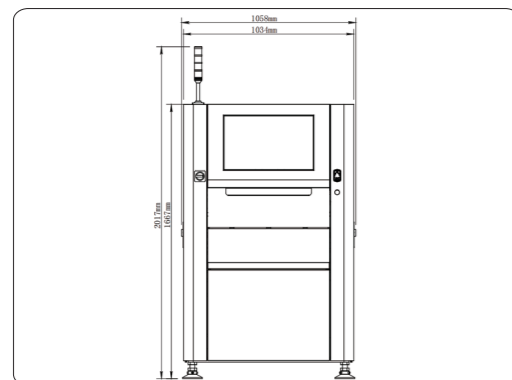


### Inline Solder Paste Inspection To inspect solder print defects such as insufficient solder, excess solder and thickness defect etc

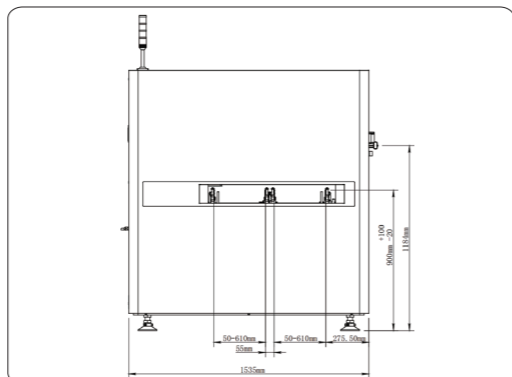
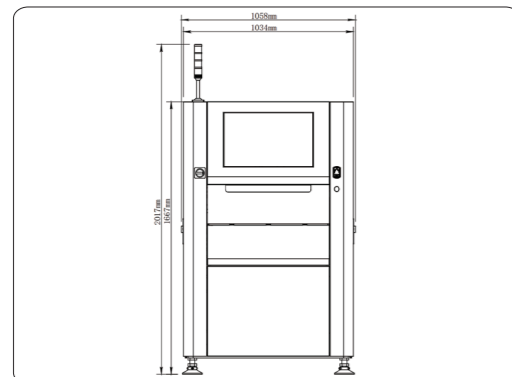
#### Core Advantages

- 3-point verification
- Realize closed-loop function combining printing machine
- NG board flying identification function & chip mounter BadMark point sharing function
- Minimalist programming, easy operation, multi-machine interconnection can be realized
- Support whole board image storage
- Realize real-time SPC monitoring and analysis

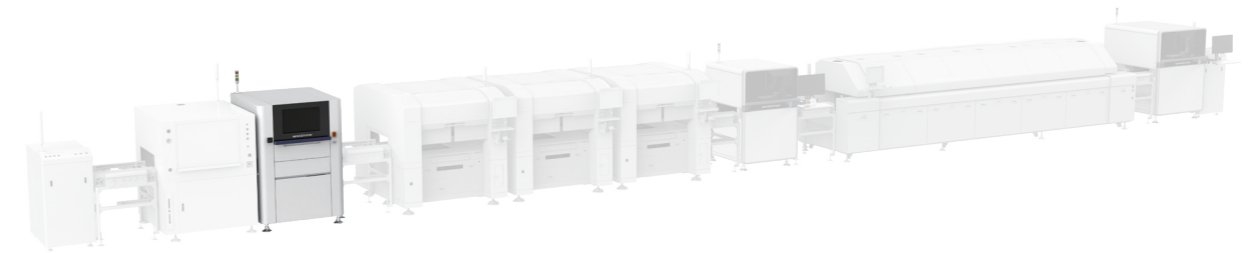
#### • AIS630B-HW/AIS630P-HW



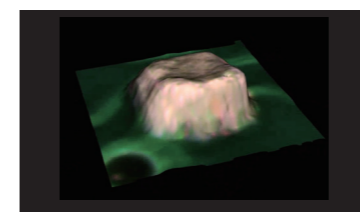
#### • AIS630P-D-HW



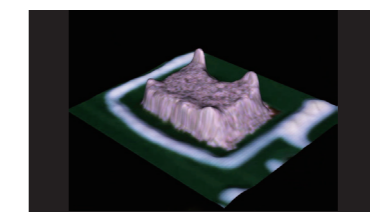
#### • Application | After printer



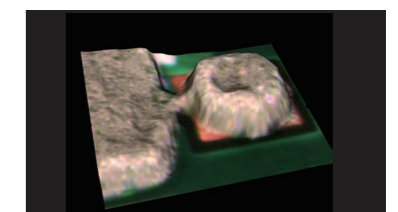
#### • Defect Type



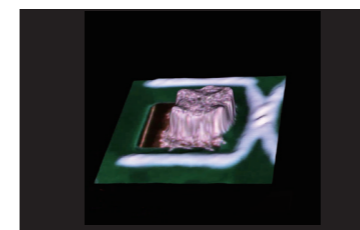
Excessive



Solder Projections



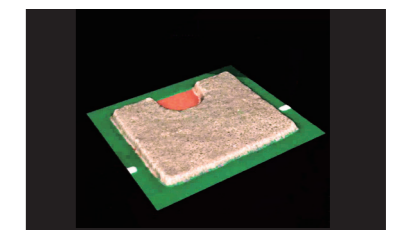
Bridge



Offset



Insufficient



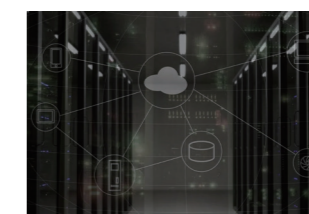
Good

#### • Tracing system and 3-point verification function\*

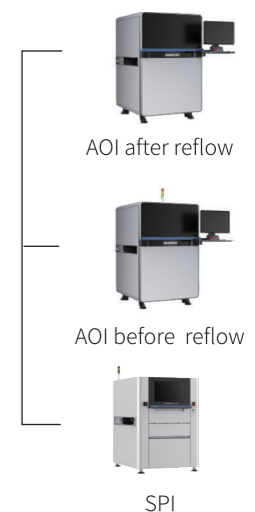
3-point verification function realized the unified monitoring of the whole production line, which is helpful for data tracing and improving production quality



Bar code tracing system



Sever



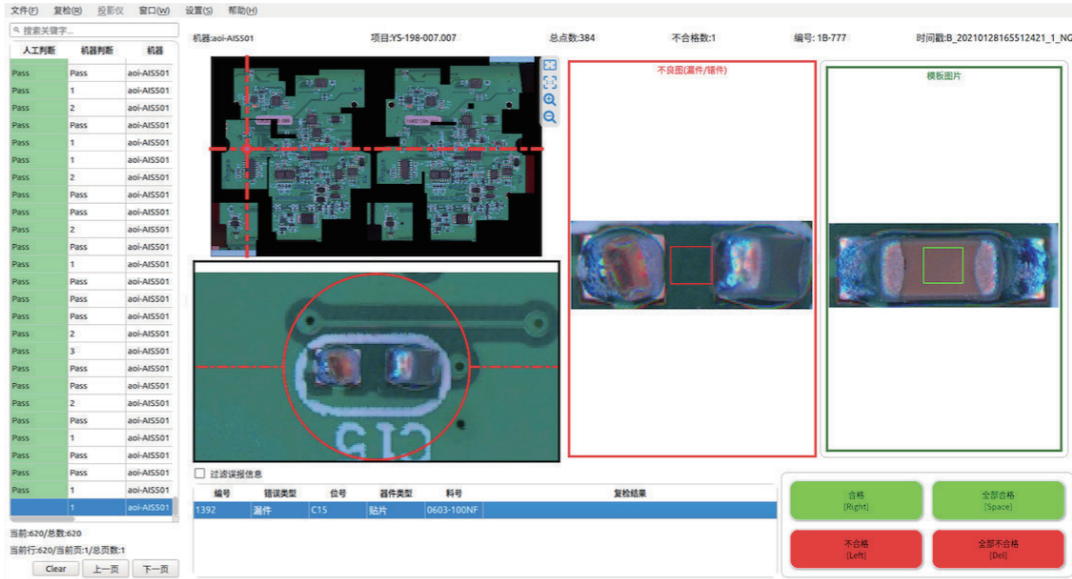
\*SPI, AOI before and after reflow should be products of Maker-Ray

•Specification

Category	Item	AIS630B-HW	AIS630P-HW	AIS630P-D-HW
PCBA specification	Size	50*50mm~510*460mm		50x50mm~510*610mm(single rail operation) 50x50mm~510*330mm(Dual rail operation)
	Thickness	0.5mm-6mm		
	Height of elements	Top:25mm, Bottom: 50mm		Top:25mm, Bottom: 50mm
	Processing edge	3.7mm		
Optical specification	Camera	5MP, color	12MP	12MP
	Optical source	RGB color integral light source single DLP/AIS630P-HW ( Dual DPL)		
	FOV	36*30mm	40*30mm	60*45mm
	Resolution ratio	15um	10um	15um
Inspection-related function	Solder	Insufficient,excessive,bridge, height,solder projections, shape,solder void,etc.		
	Other function	Bar code Recognition / QR code Recognition/ OCR		
	Mixing boards inspection	Yes,Support calling program automatically		
	Algorithm	CNN, color contrast, outline recognition, image contrast,etc.		
	Speed	0.28sec/FOV	0.33sec/FOV	0.28sec/FOV
Software system	Operating system	Ubuntu 18.04 LTS 64bit		
	Function	Remote control, remote assistance,Gerbe file import and user-defined model training		
	Communication method	Standard SMEMA interface		
	Data output	Autogenerated statistic analysis SPC		
	Special function	Automatic search of pad and quick programming		
Hardware specification	Industrial control host	CPU: intel i7 Display: Gigabyte RTX1660 6G Memory:32G DDR4 ,240G SSD+2T HDD Network: 1000M Wired Network Card	CPU: intel i7 Display: Gigabyte RTX3060 12G display Memory:64G DDR4 ,240G SSD+2T HDD Network: 1000M Wired Network Card	CPU: intel i7 Display: Gigabyte RTX3060 12G display Memory: 32G DDR4 ,240G SSD+2T HDD Network: 1000M Wired Network Card
	Display	23.8 inch FHD display		
	Motion mechanism	High precision lead screw + servo motor		
	Rail width control	Manual/auto		
Appearance/ electric	Dimention and weight	(L*H*W) 1058*1667*1280mm. net weight: 807KG		(L*H*W) 1058*1667*1535mm net weight: 1016KG
	Power supply and power	AC 220V, rated power 510W		AC 220V, rated power 540W
	Air source	0.4-0.6Mpa		
	Work environment	Temperature: 10~45°C, Humidity: 30~85%RH		

MKR-AOI-RS100 | Workstation for Maintenance

• Used with AIS30X, AIS40X, AIS50X and AIS63X to locate defects.



Advantages



9001&14001 Quality System Certificate



With over 70% of technical staffs for R & d



Share the suppliers and manufacturing system from the purchasing platform valued RMB ten-billion.



With over 10 years of experience for industrial research and development and supply chain management .Deeply research in deep learning algorithm and its visual application

Mutual Win-win Cooperation

