

# AIS 40X-HW

Inline PCBA SMD Automatic Optical Inspection Machine



Fast Programming

01

AI simplifies programming and greatly improved programming efficiency

Strong Recognition

02

Intelligent OCR recognition, more powerful interception of wrong materials

High precision

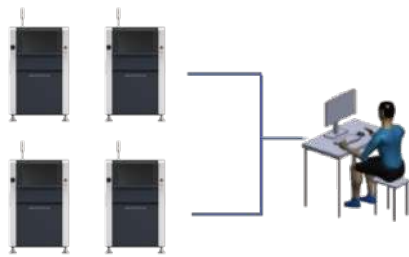
03

Higher detection accuracy, meet the requirements of precision device detection

CHOICE DISPOSITION

Repair station  
MKR-AOI-RS100

For reviewing the inspection results. It can quickly identify defective areas to guide maintenance and can be used with AOI in a one-to-one or one-to-many review.



SPECIFICATION

Category	Item	AIS401-HW	AIS401-D-HW
Board Info	Dimension	Single Lane: 50* 50mm-510* 460mm Dual Lane: 50* 50mm-690* 460mm	Single Lane: 50* 50mm-510* 610mm (Large board mode supports 690* 610mm) Dual Lane: 50* 50mm-510* 330mm(Large board mode supports 690* 330mm)
	Thickness	0.5mm-6mm	
	Height Clearance	900mm	
	Max weight	≤3KG	
	Max Component Height	Top: 25mm, Bottom: 80mm	
	Edge Clearance	3.7mm	3mm
Vision Module	Camera & Light Source	12MP color high speed camera & RGB+W	
	Resolution & FOV	10um: 40mm* 30mm/ 15um: 60mm* 45mm (Option)	
	Inspection Speed	0.23sec/FOV	
Inspection	SMD Defects	Wrong, Missing, Polarity(Reversed), XY Offset, Angle Offset, Damaged, Skewed, Etc.	
	Main Algorithm	AI Algorithm Mainly: AI Skew Algorithm, AI Missing Algorithm, OCR Algorithm, AI Solder Algorithm, AI Solder Hole Algorithm, AI Bridging Algorithm, AI No Pin Algorithm, etc.	
	Multi-scene Inspection	Support Auto Change Program, multi-panel, mixed components, etc	
Programming	Programming Method	1. Support importing CAD file    2. AI One-click search for components and solder; intelligent identifies and matching parameters	
	In-line on fly programming and finetuning	Feature allow users perform programming , components changes or parameters updates without stop or distract the active production line.	
	Component Library	Feature allow user store default parameter setting for specific component become standart or template for common parts and improve shorten programming time.	
Other Features	Barcode Identification	1D / 2D barcode & QR code identification(5*5mm above)	
Hardware	Industrial Computer	CPU: intel i5       Graphics: Nvidia GTX1050Ti       Memory: 32G DDR4       Storage: 256G SSD+2T HDD Network: 1000M network card	
	Display	23.8 inch	
	Operating System	Ubuntu 18.04 LTS 64bit	
	Communication	Standard SMEMA interface	
	Width Adjustment	Manual/automatic	
	Motion Structure	High precision screw + servo motor	
	Dimension and Weight	(L*H*W) 1015*1512*1070mm (Tower light excluded) 670Kg	(L*H*W) 1015*1512*1330mm (Tower light excluded), 790Kg
	Power Supply and Power	AC 220V. Rate power 380W	
	Air	0.4-0.6Mpa	
	Environmental Requirements	Temperature: 10~45°C. Humidity: 30~85%RH	



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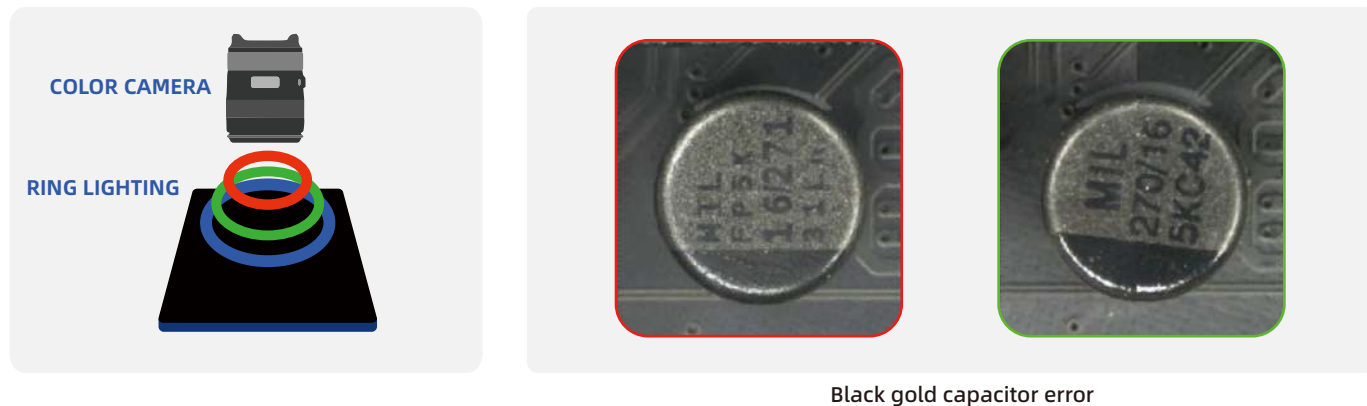


YouTube

## CORE ADVANTAGES

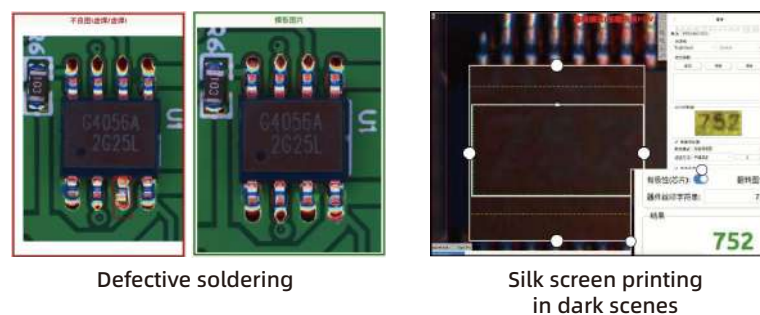
### Self-developed specific light source system for better imaging effect

The independently developed multi-channel light source system is highly adaptable and compatible with different inspection items such as SMD and solder joints. Optimize the saturation and brightness of the imaging screen so that the device characters and the same or similar colors between the device and the body, and the some features of the solder joints can be clearly presented.



### AI intelligent detection. Lower false call

1. The AI combined algorithm is used to directly restore the solder fullness and defects such as exposed copper and cold solder, not affected by the solder paste brand, oven temperature and other conditions that cause differences in solder imaging shape and color, and has higher reliability.
2. The intelligent positioning + end-to-end character recognition solution does not require manual pre-processing and is easy to program. It has high character recognition accuracy for blurred/dirty silk screens, close characters, and dark scenes.



### AI minimalist programming. Saving manpower, effort, and cost

Based on AI deep learning algorithms and big data training, embedded intelligent algorithms such as whole board solder balls, holes, bridging and missing. Auto-search for components and solder joints during programming, with intelligent parameter matching, allowing engineers to quickly see programming results and assist in rapid programming.

Traditional Algorithm	Operating mode	AI Algorithm
Manual programming	Programming	Intelligent programming
30 min		5 min
50%	False Call Rate	Almost zero

\*Taking the same person programming the same board as an example

## MORE FUNCTIONS



**Supports sampling inspection of the entire board or components to improve inspection efficiency**

When it needs to conduct spot checks on a certain device, the detection mode can be customized to intelligently shield items that do not require detection, meeting the needs of multi-scene detection.



**Genetic algorithm path planning, faster detection speed**

Upgrade the traditional path planning, intelligently plan the shooting path, take pictures quickly during flight, reduce the number of FOVs, and increase the detection speed.

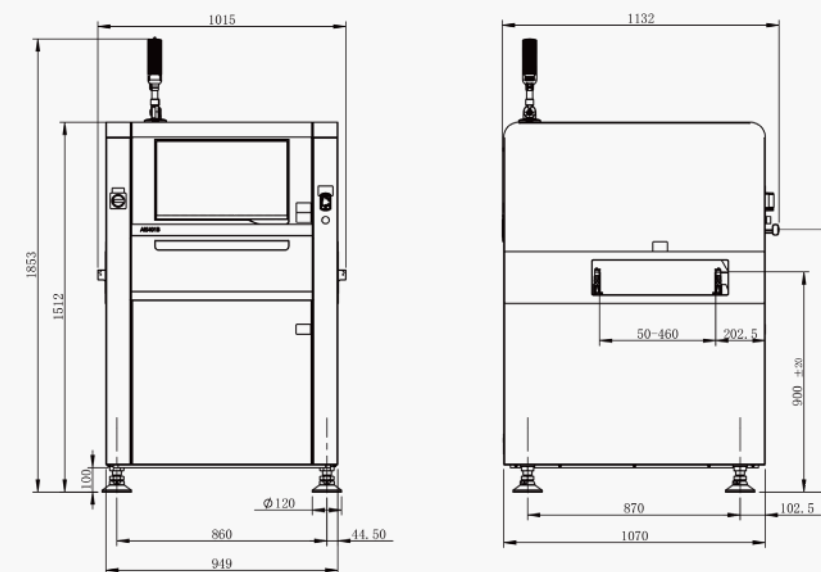


**One-to-many review, improve work efficiency**

Used with the review workstation, it can realize centralized management, one-to-many review, and improve work efficiency.

## ARCHITECTURE DRAWING

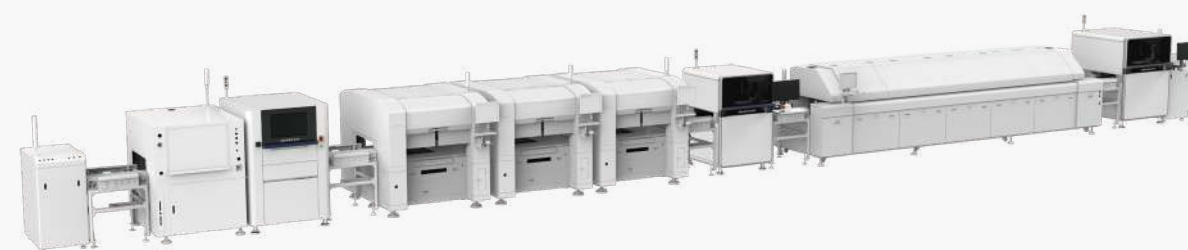
### AIS401-HW



Unit: mm

## APPLICATION SCENARIO

### Before/after reflow oven



## INSPECTABLE DEFECTS

