

Multi-functional Desktop AOI

i22X Series



i22XDA-300



i22X-200



i22X-500



i22X-300

Automate the visual inspection in post-process

The visual inspection in the production site cannot secure the traceability of inspection result. Also there is a possibility of escaping the defects.

Workpiece setting space and clearance issue occurs with the inspection after casing.

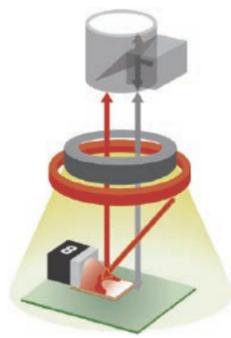
A device setup takes time if you customize the robot and camera by your own for inspection.

i22X series is the inspection system which can solve these issues.

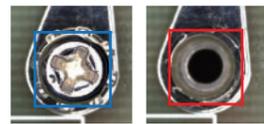
Type of lighting and inspection item

DL type Lighting

Variety of visual inspection is possible such as component inspection with white lighting, text or solder inspection with red side lighting, and scratch or dent inspection with Diffuse-On Axis lighting.

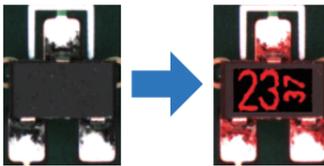
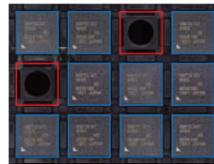


White light + side red light + Diffuse-On Axis LED

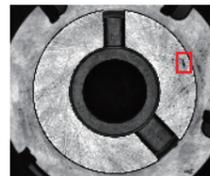


Screw presence

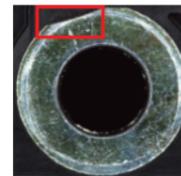
Missing parts in tray



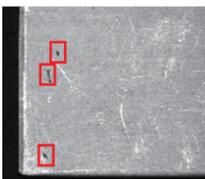
Text for laser printing



Dent



Crack

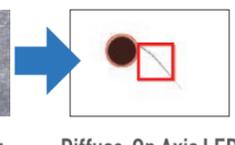


Scratch

Example of scratch inspection



White lighting



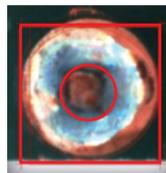
Diffuse-On Axis LED

ML type Lighting

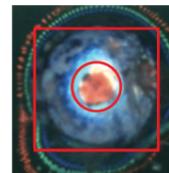
Suitable for solder inspection with capturing image of solder fillet slant in color by layered RGB lighting.



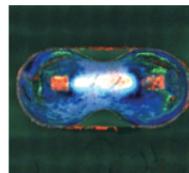
RGB + Diffuse-On Axis LED



Shortage solder, Insufficient solder



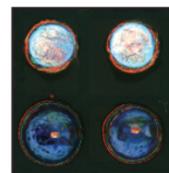
Excess solder



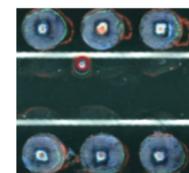
Bridge



Blowhole



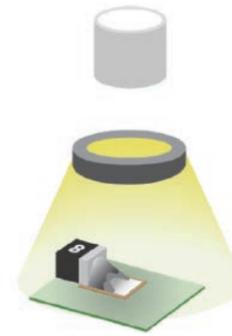
Missing pin



Solder ball

White Lighting

Wide angle view inspection is possible by combination with macro lens. Suitable for simple inspection such as text, color difference, or wrong component.



White light



Wrong component



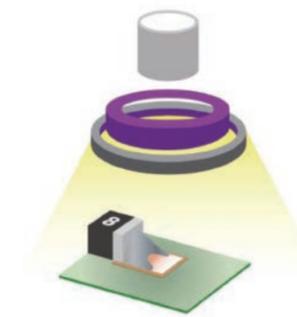
LED lighting status



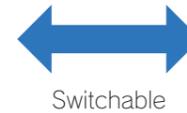
Text
(OCR for optional)

UV Lighting

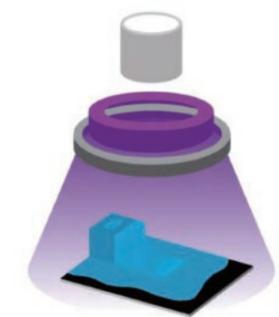
Lighting specialized for coverage inspection of moisture-proof coating with fluorescent agent. White lighting is for component inspection and fiducial recognition. UV lighting is for conformal coating inspection.



White lighting



Switchable

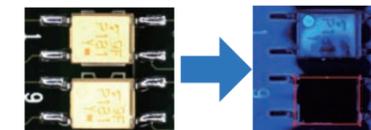


UV lighting

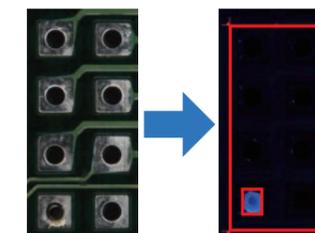
● Detect coating coverage non-coverage and splash



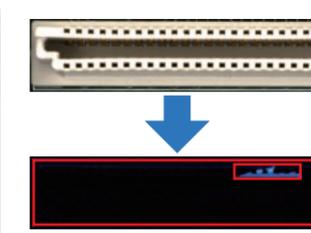
Coating coverage / non-coverage



Splash

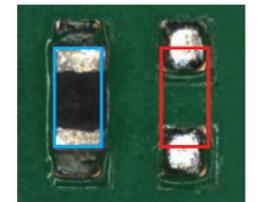


Through-hole

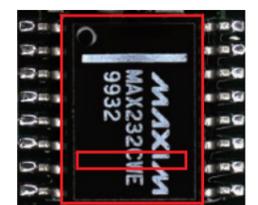


Connector

● Component Inspection



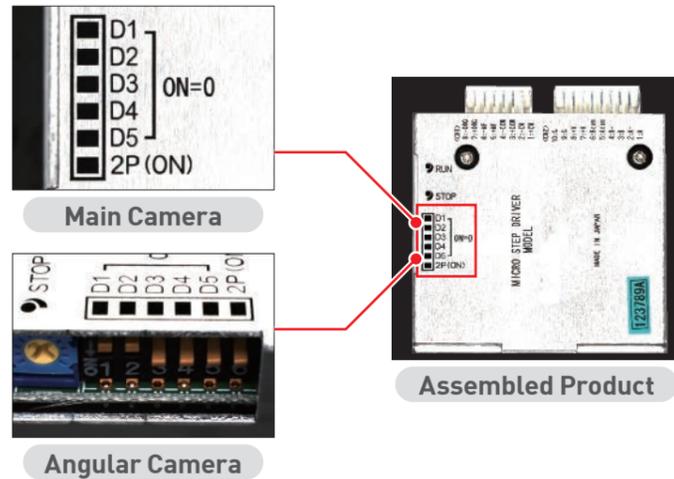
Component Inspection



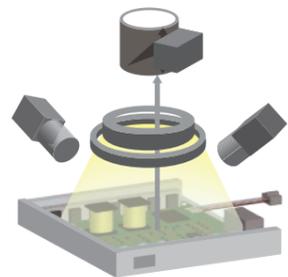
Polarity

i22XDA-300

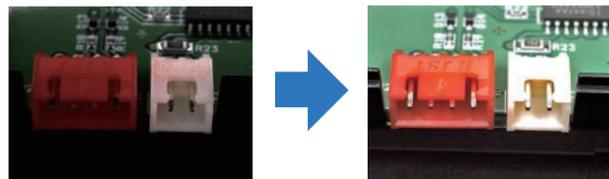
Equipped with “Two-angle Camera” and “Rotary Table” for multi-face inspection without changing the conventional straight-up inspection



Angular Camera + Exclusive Lighting



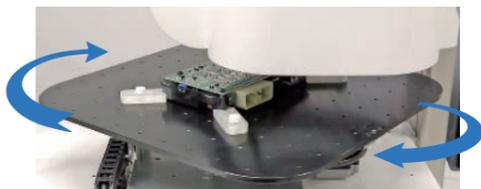
White light
+ side white light
+ Diffuse-On Axis LED



Automatic inspection from an angle with a wide view (approx. 30 x 30 mm).
Specially designed lighting allows for shadow-free inspection.

Rotary Table

360° horizontal rotation for omnidirectional inspection (-180° to 180°).
Easy to operate, just select the rotation angle with the mouse.



Inspection Example

DIP switch check

Side character inspection

Side barcode reading

Confirmation of screw tightening

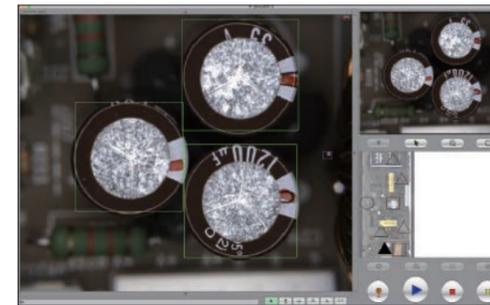
Cable color inspection

Cable insertion state

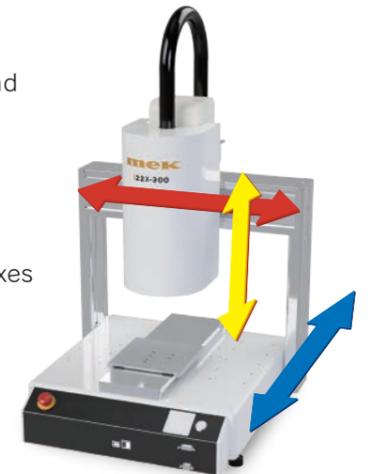
No teaching pendant necessary

Intuitive operation

Easy operation of 3 kinds of axes (XYZ axes) movement by clicking and mouse dragging. Note: i22XDA-300 has four axes including a rotary table.



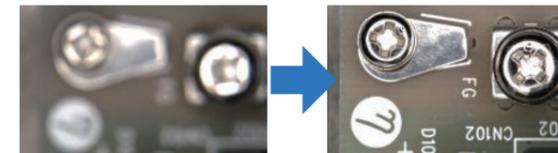
3 axes drive for XYZ axes



Z axis equipped as standard

Z axis inspection

Changeable focus for optimal image acquisition.



Z axis motion range	i22X-200	50mm
	i22X-300	100mm
	i22X-500	150mm

Support USER I/O interface

Equipped with 37 pin D-sub connector

Available output with 8 points and input with 8 points for I/O.
Possible to output OK/NG signal of inspection result and operation instruction such as inspection start.
Note: Switch Box is not available while using USER I/O.

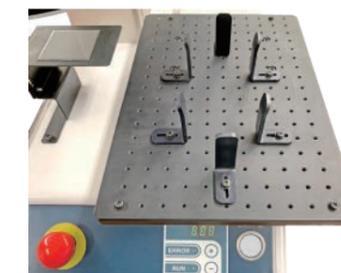


Jig installation

Possible to install the jig for Y axis table. Note: Jig is not included. Please prepare depending on workpiece.



Jig example



Base plate + L shaped bracket for top clamping



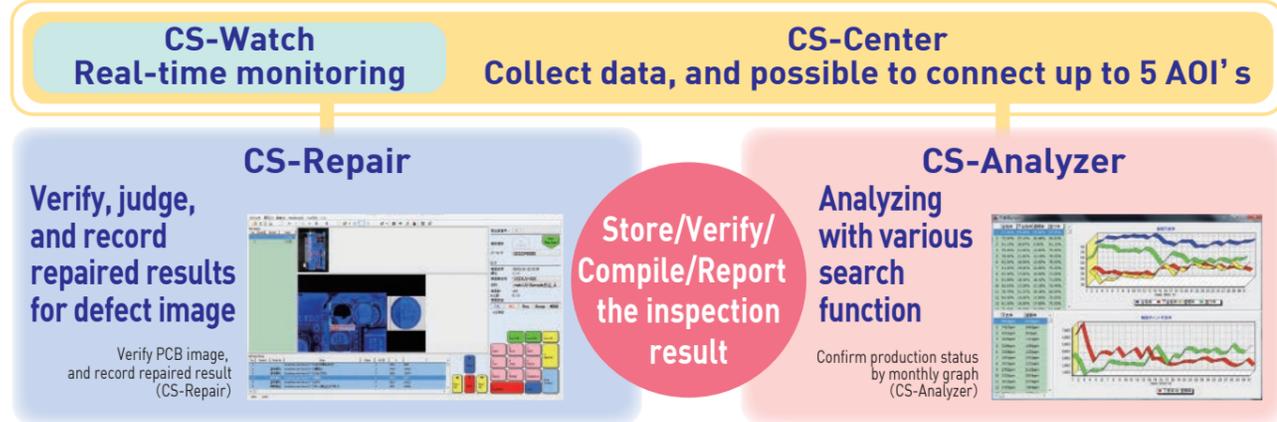
Rail jig for PCB

Catch System(Optional)

Catch System collects every information from AOI, and establishes the traceability in the production control.

Store the inspection result to the database, and possible to confirm the image data. Possible to improve the production quality by grasping the operation status of each AOI in production line, and by collecting and analyzing the accumulated data. Catch System collects every information from AOI, and establishes the traceability in the production control.

Note: Another Windows PC is required for Catch System.



Operation with barcode

- Sending inspection result to Catch System
- Possible to assign inspection result
- Switching the programming model

Type of 2D Code	22X software support (Standard)	Smart Barcode Add-In (Optional)
QR code(Model 2)	○	○
Data matrix(Conform to ECC200)	○	○
Code 39	○	○
Code 128	○	○
interleaved 2 of 5	×	○
Micro QR	×	○



Instantly access to the inspection data or image by reading the barcode on target workpiece with barcode reader.

Off Line Teaching(Optional)

Create inspection data without stopping AOI

Possible to create inspection data by off-line, with same screen image of AOI. Debugging operation is possible with OLT by saving NG image right after the inspection. Suitable to make use for internal training.

Note: Another Mac PC which has equivalent spec. with AOI PC is required for OLT.



Configuration	AOI main unit			
AOI main unit, PC, Display, Controller, Switch box				
Model	i22X-200	i22X-300	i22X-500	i22XDA-300
External Dimension*1	W420 D434 H696mm*2	W560 D587 H722mm	W678 D731 H822mm	W560 D587 H722mm
Main Unit Weight	26kg	43kg	53kg	53kg
Controller Dimension	W300 D200 H150mm			
Controller Weight	3kg			
Power Supply	AC100V~120V / AC200V~240V(50/60Hz)			
Power Consumption	350W			
Inspection Range	W200 D200 H80mm*3	W320 D300 H100mm	W510 D510 H150mm	W280 D250 H40mm
Maximum Weight Capacity*4	5kg	5kg	5kg	5kg
XY axes Working Area	200×200mm	320×300mm	510×510mm	320×300mm
Z axis Working Area	50mm(0~-50)	100mm(0~-100)	150mm(0~-150)	50mm(0~-50)
Max. Speed XY axes	600mm/sec	600mm/sec	600mm/sec	600mm/sec
Max. Speed Z axis	250mm/sec	400mm/sec	400mm/sec	400mm/sec
Rotary table movement angle	-	-	-	-180°~+180°
Motor	Pulse motor×3			Pulse motor×4
Cameras	5 Mega pixel top camera			Main : 5 Mega pixel top camera Angular : 3 Mega pixel side camera
Main Lens	DL type Lighting·ML type Lighting : Telecentric Lens 15μm / UV lighting : Macro lens 19μm White lighting : Macro lens 25μm			Main : Telecentric Lens : 15μm Angular : Macro lens : 15μm
Field of View	15μm : 36×30mm / 19μm : 46×38mm / 25μm : 60×50mm			Main 15μm : 36×30mm Angular 15μm : 約30×30mm
Lighting System	DL type Lighting or ML type Lighting / UV type Lighting / White Lighting			White light + side white light + Diffuse-On Axis LED
Clearance	DL type Lighting 60mm / ML type Lighting 30mm / UV type Lighting 60mm / W Lighting(White) 60mm			40mm
Inspection Items	Different color·Label presence/absence·Wrong component·Polarity·Solder joint·Text·Scratch·Contamination·Barcode reading·Coating coverage and non-coverage·Splash			Different color·Label presence/absence·Wrong component·Polarity·Text·Scratch·Contamination·Barcode reading
Inspection Algorithm	Pattern Matching / Histogram / Color Matching			
Usage Environment	Temperature : 15-30°C / Relative humidity : 20-90% (No condensation) / Elevation : Lower than 1,000m			

*1...Movable duct is not included *2...Width (W) includes handling bar part

*3...For i22X-200, lowest point of focus is H30mm (Require to lift the workpiece for the target of inspection height lower than 30mm.)

*4...Total weight for jig and workpiece

 Safety Precaution

The specifications in this catalog are subject to change without notice due to improvement.

Please read the operation manual carefully,
and use machine correctly.

For secure usage of AOI, please review the operation manual carefully
and thoroughly regardless of during operation or not in operation.

Mek (Marantz Electronics)

Polluxstraat 2b,
5047RB, Tilburg, Netherlands

+31 40 711 4111
info@mek-europe.com

mek[®]
marantz electronics ltd

www.marantz-electronics.com