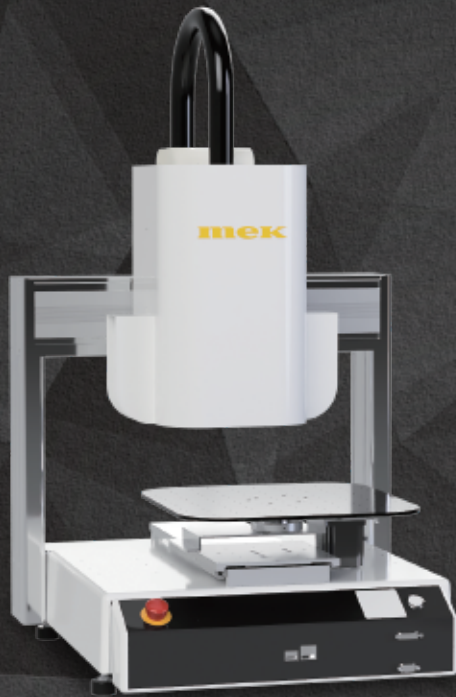


Multi-functional Desktop AOI

i22X Series

Automated Optical Inspection Device



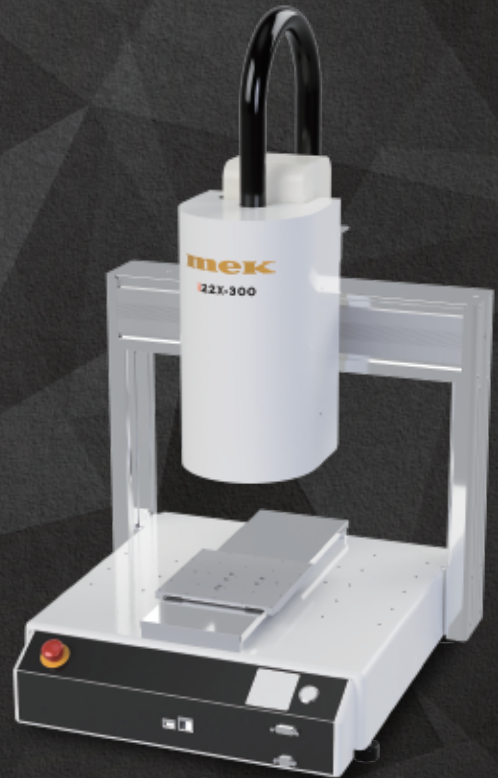
i22XDA-300



i22X-200



i22X-500



i22X-300

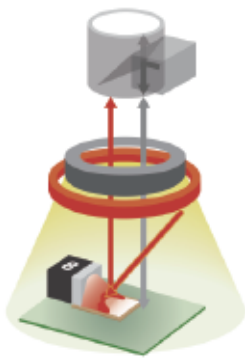
Automate your post-process visual inspection

With fine process manufacturing, on-site inspection with the naked eye alone is not enough for effective traceability; defects can slip through much too easily. Inspection after product casing creates workpiece setting space and height clearance problems. Customizing a robot and camera on your own to do inspections is very time consuming.

The i22X Series Automated Optical Inspection device solves these problems.

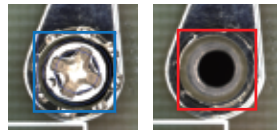
Inspection Items and Lighting Types

DL Lighting



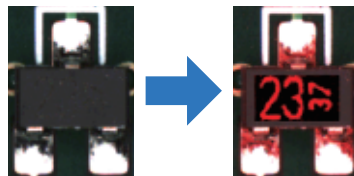
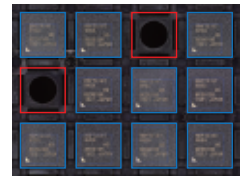
White Light +
Side Red Light +
Diffuse On-Axis LED

Various inspection capabilities, including component inspection under white light, text or solder inspection under side red light, and scratch and dent inspections under DOAL.



Missing Screws

Missing Parts



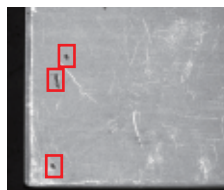
Laser Printed Text



Dents



Cracks

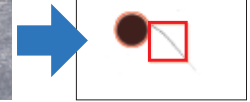


Scratches

Scratch
Inspection
Example



White Light



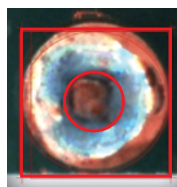
Diffuse
On-Axis LED

ML Lighting

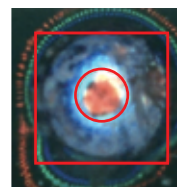


RGB +
Diffuse On-Axis LED

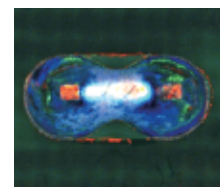
Ideal for solder inspection, capturing solder fillet shape in color under layered RGB light.



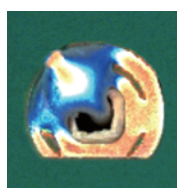
Insufficient or
No Solder



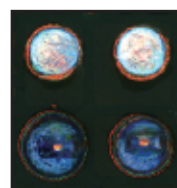
Excess solder



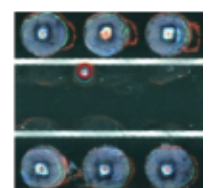
Bridge



Blowhole



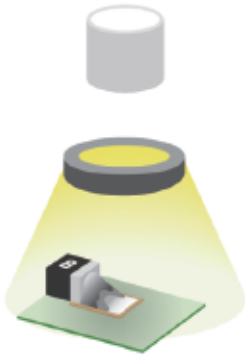
Missing pin



Solder ball

White Lighting

Combine white light with a macro lens for wide angle view inspection; ideal for simple inspections including text, color difference, wrong component and more.



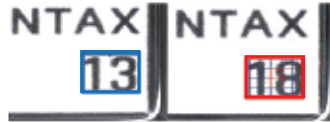
White Light



Wrong Component



LED Status Check

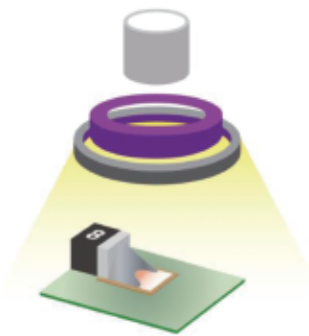


Text

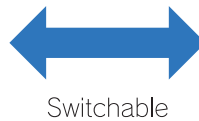
(Optional OCR also available)

UV Lighting

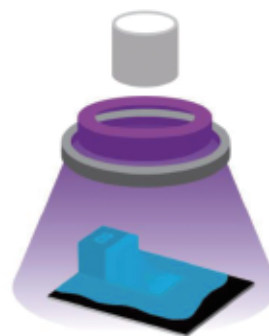
Specialized lighting for inspecting dispensing coverage of fluorescent moisture-proof coating. The white light inspects components and recognizes fiducials; the UV light inspects the coating itself.



White Light

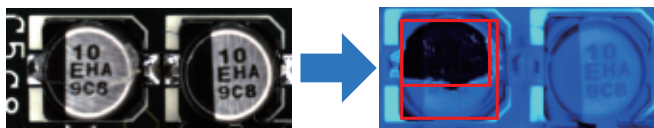


Switchable

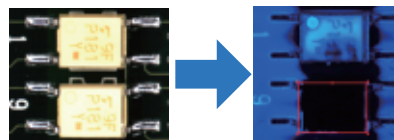


UV Light

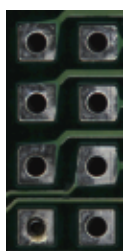
- Check the dispensing coverage and the surrounding area for splashes



Dispensing Coverage



Splash



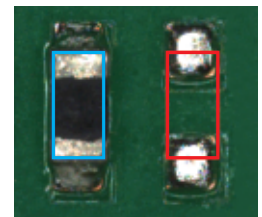
Through-hole



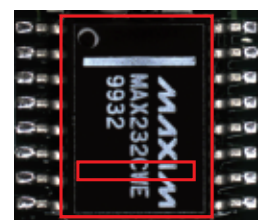
Connector



- Check Components



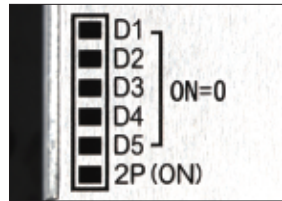
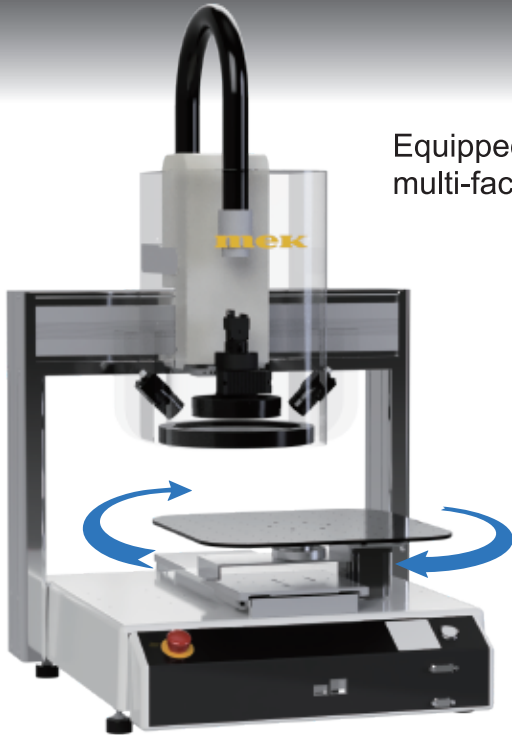
Inspection



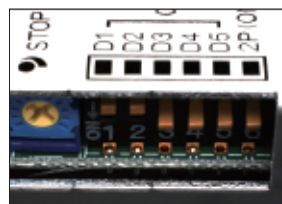
Polarity

i22XDA-300

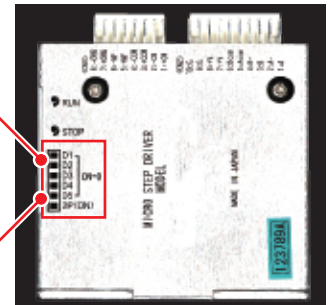
Equipped with a two-angle camera and rotary table to combine multi-faceted inspection with the conventional vertical inspection.



Main Camera

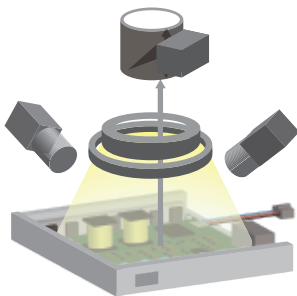


Angular Camera

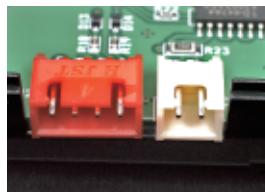
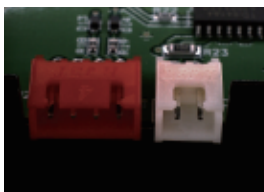


Assembled Product

Angular Camera+ Dedicated Lighting



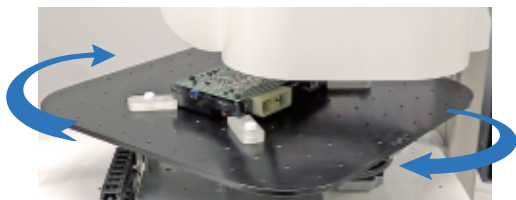
White Light +
Side White Light +
Diffuse On-Axis LED



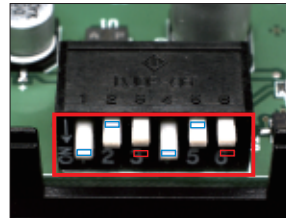
Automatic wide view inspection (approx. 30×30mm) with the camera on an angle. Special lighting for shadow free inspection.

Rotary Table

360° horizontal rotation for inspection from all directions (-180°to 180°). Easy to operate, just select the rotation angle with a click of your mouse!



Inspection Examples



DIP Switch Check



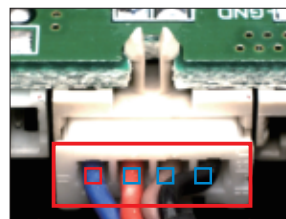
Lateral Character Inspection



Lateral Barcode Reading



Screw Tightening Check



Cable Color Inspection

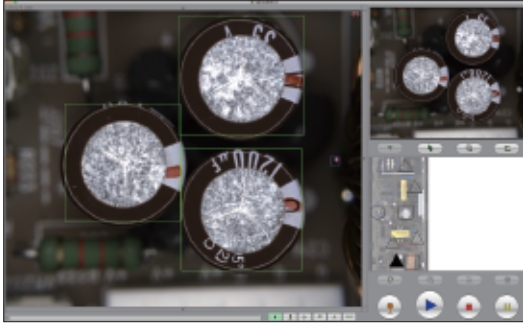


Cable Insertion Status

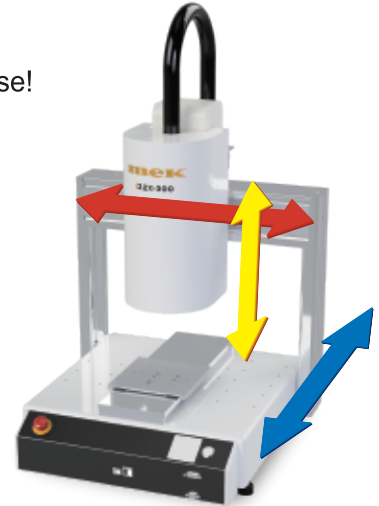
No Teaching Pendant Needed

Intuitive Operation

Easy operation of 3 axes for XYZ movement, just click and drag your mouse!
The i22XDA-300 features a rotary table for a total of 4 axes (XYZR).



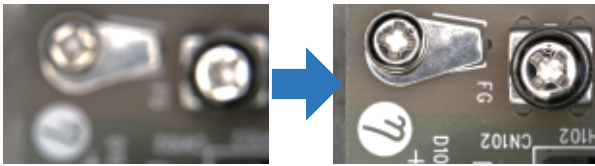
3-Axes drive for XYZ movement



Z-Axis as Standard Equipment

Vertical Axis Inspects 3D Objects

Adjustable focus for optimal image acquisition.



Z-Axis Operating Range	i22X-200	50mm
	i22X-300	100mm
	i22X-500	150mm
	i22XDA-300	50mm

USER I/O Interface

Equipped with a 37-pin D-sub Connector

8 Input and 8 Output points available.

Input inspection start and other operating commands, and output OK (Pass)/NG (Fail) inspection result signals. The Switch Box is unavailable when using the USER I/O.



Flexible Fixture Installation

Easily install a workpiece fixture on the Y-Axis* table.

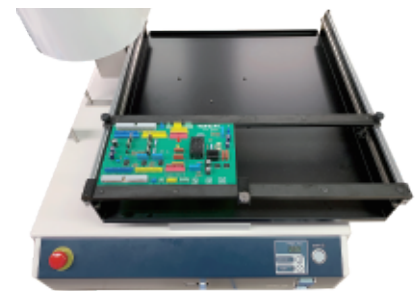
Please note the fixture is not included. Please prepare a fixture at the end-user side.



● Fixture Examples



Base Plate & L Brackets for Top Clamping



PCB Rail Fixture

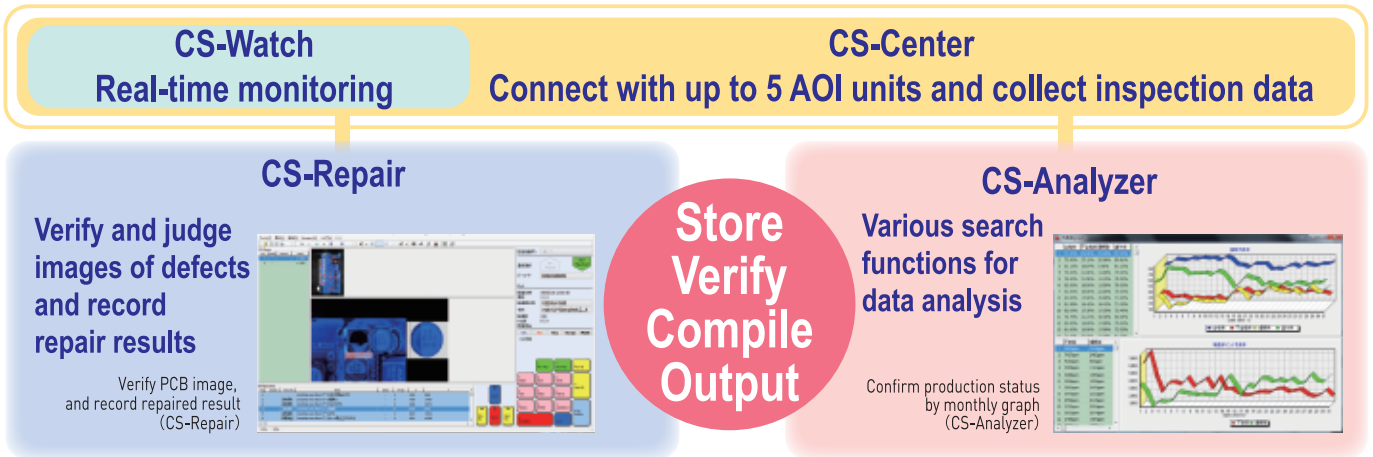
*With the i22X AOI, the Y-Axis controls the workpiece position, the X-Axis controls the camera position and the Z-Axis controls the camera height.

Catch System (optional)

Establish inspection result traceability

Dedicated PC software stores acquired inspection result data in a database, and verifies images. Compile and analyze cumulative data to grasp the operational status for each AOI unit and Improve product quality by reducing defects. The Catch System collects all available information From each AOI unit to ensure reliable production traceability.

*System requirements: A PC with a Windows® MS or Windows® 7~10 OS.



Barcode Reader Function

- Send inspection results to the Catch System
- Link inspection results to workpiece serial numbers
- Easily switch among different barcode program types

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	×	○



Read the barcode and instantly access the inspection data and/or image for that workpiece.

Offline Teaching (optional)

Create inspection data offline without stopping the AOI's operation

Make inspection data offline on the same monitor screen as the AOI device. Save images of NG (Fail) results and use OLT to perform debugging. OLT is also useful for staff training.

*System requirements: an additional MacOS® computer with the same specifications as the AOI computer.



OLT
(Offline Teaching)

Configuration	AOI Main Unit			
AOI Main Unit, MacOS®, Display, Controller, Switchbox 				
Model	i22X-200	i22X-300	i22X-500	i22XDA-300*5
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 15 μm / UV lighting : Macro lens 19 μm White lighting : Macro lens 25 μm			Main : Telecentric Lens : 15 μm Angular : Macro lens : 15 μm
Field of View	15 μm : 36×30mm / 19 μm : 46×38mm / 25 μm : 60×50mm			Main : 15 μm : 36×30mm Angular : 15 μm : approx. 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℃ / Relative humidity : 20-90% (No condensation) / Elevation : Lower than 1,000m			


*1 Dimensions exclude movable duct.

*2 Width (W) includes handling bar.

*3 For the i22X-200, the lowest point of focus is H30mm. Please elevate the workpiece if the inspection target height is lower than 30mm.

*4 Total weight for fixture and workpiece combined.

*5 The i22XDA-300 is not CE declared for import to the European Economic Area.

 **For Your Safety**

- Specifications may change without notice to improve product quality.
- To ensure safe and correct usage of this product, please read the attached operation manual before use.
- Please also review the operation manual carefully before executing any operation, regardless of whether the device is running or on standby.

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E-mail : j-industry@gm.janome.co.jp

URL : www.janome.co.jp/industrial.html

The contents of this catalog are current as of December 2021.

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<http://www.marantz-mek.co.jp>