

Venus 510 3D AOI

A 3D automated optical inspection configuration for PCB assemblies up to 510 × 510 mm. Camera resolution, component access and inspection criteria should be reviewed together to match the system to your assemblies and quality requirements.



Selection highlights

- PCB range: 50 × 50 to 510 × 510 mm
- 12 MP main camera; 21 MP option
- 12 µm standard camera resolution; optional alternatives

Applications to evaluate

- Post-reflow inspection of visible components and solder joints
- Assembly review using optical and height information
- PCB production requiring a 510 × 510 mm board envelope

How the configuration supports your process

Match optics to the assembly

The documented standard main camera is 12 MP with 12 µm resolution. Alternative camera configurations are available. Select optics against package dimensions, surface conditions and the defects to be evaluated.

Review component and transport clearance

The listed maximum component inspection height is 35 mm, while transport clearance is 50 mm above and below the board. Transport clearance should not be treated as the validated inspection range.

Plan inspection access

An optional side camera can be discussed for accessible side views. Optical inspection requires a line of sight; hidden solder joints may require a different inspection method.

Venus 510 | Technical reference

Values below are drawn from the product documentation. Confirm the ordered configuration and installation specification before purchase.

Parameter	Documented configuration / value
PCB size range (L × W)	50 × 50 to 510 × 510 mm
Maximum PCB thickness	6 mm
Maximum component inspection height	35 mm
Main camera	12 MP standard; 21 MP optional
Camera resolution	12 μm standard; 15 / 7 / 10 μm optional
Side camera	Optional
Transport clearance	Top 50 mm / bottom 50 mm
PCB bending adjustment	±4 mm
Board flow	Left-to-right, right-to-left, left-to-left or right-to-right; program configuration
Dimensions (L × W × H)	1100 × 1450 × 1600 mm
Power supply	AC 200-240 V, 50/60 Hz
Power consumption	500 W standard / 800 W maximum
Control platform	Windows 10 listed in source documentation; confirm delivered software version

Minimum package capability and acceptance thresholds must be evaluated for the selected optics and application; no universal defect-detection rate is implied.

Reference: <https://vzaoi.com/en/product-155954-319057.html>

Prepared from supplied product documentation; this selection brief does not replace the agreed quotation or acceptance specification.

Plan your Venus 510 configuration

Base configuration and options

The documented optical setup uses a 12 MP main camera and 12 µm resolution. Actual inspection capability depends on the chosen optics, programming, board geometry and acceptance criteria.

- 21 MP main-camera configuration
- 15 µm, 7 µm or 10 µm camera-resolution alternatives
- Side-camera configuration

Installation and project inputs

Confirm PCB support, conveyor handshakes, data outputs and available floor space. Provide representative good and defective samples for inspection programming and acceptance review. Confirm air, network and utility requirements in the installation drawing.

Common selection questions

Can 3D AOI inspect every hidden BGA joint?

No. Optical inspection depends on visibility. X-ray or other methods may be needed for hidden solder joints.

Is the 50 mm clearance the inspection-height limit?

No. The product data separately lists 35 mm maximum component inspection height and 50 mm transport clearance.

Discuss your application with JCX

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Product page: <https://jcx-smtmachine.com/product/venus-510-3d-aoi/>

Provide board dimensions, representative samples, materials where relevant, and your inspection or process acceptance criteria. Support, training and integration scope are agreed for each project.