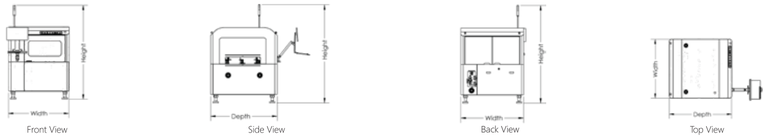
System	V510i XXL	
System Performances		
2D Inspection Functions	Missing, Offset, Skewed, Polarity, Billboard, Tombstone, Lifted/Bent Leads, Excess/Insufficient Solder, Bridging, Wrong Part (OCV Marking), Pin Through Hole (Solderability & Pin Detection)	
3D Inspection Functions	Package Coplanarity, Lifted Lead (Height Measurement), Foreign Material, Polarity Dimple Measurement	
Height Accuracy (Based on ViTrox Calibration Jig)	± 2µm	
Board & Component Level Tracebility	Camera-Read Barcodes; External Barcode Reader Configured; OCR Capability with Batch Code Logging	
System Hardware	**2D**	**3D**
Operating System	Windows 7 or 10 Pro 64 bit	Windows 7 or 10 Pro 64 bit
Camera & FOV Size	4MP Camera Link Camera: 38.5x38.5mm @ 19µm resolution 12MP Camera Link Camera: 39x52mm @ 13µm resolution	4MP Camera Link Camera: 40x40mm @ 20µm resolution 12MP CoaXPress Camera: 60x45mm @ 15µm resolution
Optical Resolution	4MP: Scalable resolution from 21µm to 8µm for 01005 inspection 12MP : 13 µm telecentric lens Option: 15 µm telecentric lens	4MP : 20µm telecentric lens Option: 15µm, 11µm telecentric lens 12MP : 13/15µm telecentric lens
Inspection Speed	4MP @ 19µm resolution: 40-55cm²/sec 12MP @ 13µm resolution: 45-60cm²/sec	4MP @ 20µm resolution: 22-37cm²/sec 12MP @ 15µm resolution: 45-60cm²/sec
3D Technologies	-	Phase Shift Profilometry's (PSP) Methodology with 4-way projectors
Lighting Module	Multiple Color, Multiple Angle, Multiple Segment LED Lighting Head, Auto Calibration	Concurrent Lighting Module
X-Y Gantry System	Gantry Robot Systems with Linear Motor and Linear Magnetic Encoders	Gantry Robot Systems with Linear Motor and Linear Magnetic Encoders
X-Y Axis Repeatability	< 8µm	< 8µm
X-Y Axis Resolution	1µm	1µm
Conveyor Width Adjustment	Auto Width Adjustment; Bottom-Up Clamping; In-line SMEMA	Auto Width Adjustment; Bottom-Up Clamping; In-line SMEMA
PCB Dimension	**XXL**	**XXL FDL**
Minimum PCB Size (L x W)	50x50mm (2"x2")	50x50mm (2"x2")
Maximum PCB Size (L x W)	620x690mm (24.4"x27.2")	DL Equal: 620x325mm (24.4"x12.8") Single Lane: 620x600mm (24.4"x23.6")
Upgradable PCB Length Option (L x W)	960x690mm (37.8"x27.2")	DL Equal: 960x325mm (37.8"x12.8") Single Lane: 960x600mm (37.8"x23.6")
PCB Thickness	0.5mm-15mm (0.02"- 0.6")	0.5mm-8mm (0.02"- 0.3")
Maximum PCB Weight	7kg (15.4lb)	7kg (15.4lb)
Upgradable PCB Weight	15kg (33.0lb)	N/A
Clearance		
Top Side of PCB	50mm (2")	50mm (2")
Bottom Side of PCB	70mm (2.76")	70mm (2.76")
Panel Edge	3.5mm (0.14")	3.5mm (0.14")
Maximum PCB Warpage Compensation	±5mm (0.2")	±5mm (0.2")
PCB Transport Height	856mm - 965mm (33.7"- 38")	856mm - 965mm (33.7"- 38")
Installation Specification		
Footprint		
Width	1410mm (4.6ft)	
Depth	1500mm (4.9 ft)	
Height	2128mm (7.0ft)	
Weight	~1350 kgs	
Electrical Supplies	100-120 V, 16A/200-240V, 8A Single Phase	
Air Requirement	0.6 Mpa/85 psi	
Software Options		
Network Offline Programming (NOLP), ViTrox Verification Tool Solution (VVTS), ViTrox Database Statistical Process (VDSPC), V-Tune, V-ONE		

Specifications are subject to change.



Front View | Side View | Back View | Top View

Specification

System	V510i DUO	
System Performances		
2D Inspection Functions	Missing, Offset, Skewed, Polarity, Billboard, Tombstone, Lifted/Bent Leads, Excess/Insufficient Solder, Bridging, Wrong Part (OCV Marking), Pin Through Hole (Solderability & Pin Detection)	
3D Inspection Functions	Package Coplanarity, Lifted Lead (Height Measurement), Foreign Material, Polarity Dimple Measurement	
Height Accuracy (Based on ViTrox Calibration Jig)	± 2µm	
Board & Component Level Tracebility	Camera-Read Barcodes; External Barcode Reader Configured; OCR Capability with Batch Code Logging	
System Hardware	**2D**	**3D**
Operating System	Windows 7 or 10 Pro 64 bit	Windows 7 or 10 Pro 64 bit
Camera & FOV Size	4MP Camera Link Camera 38.5mmx38.5mm @ 19µm resolution	4MP Camera Link Camera 40mmx40mm @ 20µm resolution
Optical Resolution	Default: Scalable from 21µm to 8µm for 01005 inspection	Default: 20µm telecentric lens Option: 11µm telecentric lens
Inspection Speed	4MP @ 19µm resolution: 40-55cm²/sec	4MP @ 20µm resolution: 22-37cm²/sec
3D Technologies	-	Phase Shift Profilometry's (PSP) Methodology with 4-way projectors
Lighting Module	Multiple Color, Multiple Angle, Multiple Segment LED Lighting Head, Auto Calibration	Concurrent Lighting Module
X-Y Gantry System	Gantry Robot Systems with Linear Motor and Linear Magnetic Encoders	Gantry Robot Systems with Linear Motor and Linear Magnetic Encoders
X-Y Axis Repeatability	< 8µm	< 8µm
X-Y Axis Resolution	1µm	1µm
Conveyor Width Adjustment	Auto Width Adjustment; Bottom-Up Clamping; In-line SMEMA	Auto Width Adjustment; Bottom-Up Clamping; In-line SMEMA
PCB Dimension	**2D**	**3D**
Minimum PCB Size (L x W)	30x30mm (1.2"x1.2")	50x50mm (2"x2")
Maximum PCB Size (L x W)	DL Equal: 330x235mm (13"x9.2") Single Lane: 330x420mm (13"x16.5")	DL Equal: 330x235mm (13"x9.2") Single Lane: 330x420mm (13"x16.5")
PCB Thickness	0.5mm-4mm (0.02"- 0.16")	0.5mm-4mm (0.02"- 0.16")
Maximum PCB Weight	3kg (6.6lb)	3kg (6.6lb)
Clearance		
Top Side of PCB	50mm (2")	50mm (2")
Bottom Side of PCB	70mm (2.76")	70mm (2.76")
Panel Edge	3.5mm (0.14")	3.5mm (0.14")
Maximum PCB Warpage Compensation	±5mm (0.2")	±5mm (0.2")
PCB Transport Height	856mm - 965mm (33.7"- 38")	856mm - 965mm (33.7"- 38")
Installation Specification		
Footprint		
Width	1340mm (4.4ft)	
Depth	1500mm (4.9 ft)	
Height	2060mm (6.8ft)	
Weight	~1100 kgs	
Electrical Supplies	100-120 V, 16A/200-240V, 8A Single Phase	
Software Options		
Network Offline Programming (NOLP), ViTrox Verification Tool Solution (VVTS), ViTrox Database Statistical Process (VDSPC), V-Tune, V-ONE		

Specifications are subject to change.

Front View | Side View | Back View | Top View

ViTrox Technologies Sdn. Bhd. [507043-P]
746, Persiaran Cassia Selatan 3, Batu Kawan Industrial Park, 14110 Bandar Cassia, Penang, Malaysia. Tel: [+60] 4 545 9988 Fax: [+60] 4 545 9987 Email: enquiry@vitrox.com

ViTrox Worldwide Sales & Service
North America South America Europe Asia Pacific

China Division
Tel: [+86] 512 6251 9891

ViTrox USA (San Jose)
Tel: [+1] 970 481 3663

ViTrox Technologies GmbH
Tel: [+49] 40 2286 4672

www.vitrox.com

[V510i 3D Series] REV01/ 04-2019

ViTrox ...innovating vision

V510i 3D Series

Advanced 3D Optical Inspection (AOI)

WHAT IS V510i 3D Series?

The next generation solutions that provide true Advanced 3D Optical Inspection (AOI) for the PCBA SMT and semiconductor industries.

BENEFITS

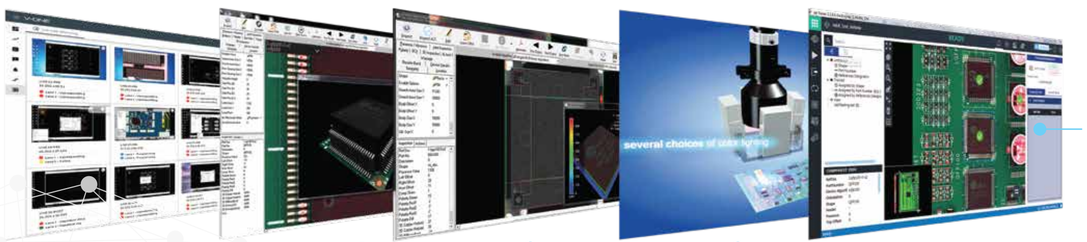
- One click 2D+3D algorithms auto conversion.
- Expeditious programming time.
- High speed inspection and efficiency.
- High production yield, throughput and quality.
- Low ownership cost.
- Smart Factory M2M connectivity through V-ONE.

V510i 3D Series WITH V-ONE

V-ONE enabled customizable data analytics feature to help users monitor process performance and improve production quality.

COVERAGE

Eligible to various M2M connectivity initiatives such as IPC-CFX, IPC-HERMES-9852, SECS/GEM, CAMX, REST and SMEMA.



Control Tower - software | 3D component - Coverage | V-tune - software | Multi-angle Lighting | Easy Programming

PROGRAMMING FEATURES

- Support up to 26 types of extensive industry CAD format.
- Automated Algorithm Assignment for rapid programming time and optimal parameters from predefined golden library compliance to IPC A-610 standard.
- Automated 2D to 3D Algorithm Conversion enables easy programming.

SOFTWARE FEATURES

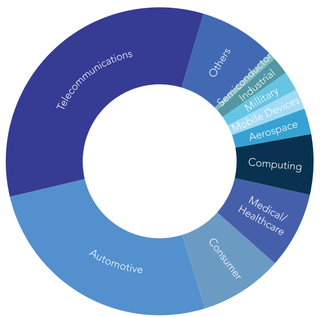
- V-Library as the Centralized Library and Database management tool to ensure easy management and standardization of libraries across machines.
- Live Inspection image saving during the inspection process for easy traceability without additional inspection time.
- The Control Tower Concept to manage multiple AOI systems from remote station which aligns with the trend of Industry 4.0.

HARDWARE FEATURES

- Multi-layer and multi-angle lighting system with an additional layer of tri-color to capture a true colour image.
- Multiple high speed and high-resolution projectors in the 3D module to illuminate the fringe pattern lighting from different directions to minimize occlusion.
- The methodology of high speed multi frequency Phase Shift Profilometry (PSP) enables high productivity and high detectability.
- A wide range of vision resolution for different industries.

INDUSTRIES

Certified with ISO 9001: 2015, CE, and TUV, ViTrox's products are well designed and manufactured to deliver reliable and high-quality performance to fulfill the stringent requirements in various industries such as Telecommunications, Semiconductor, Automotive, Medical/ Healthcare, and more.

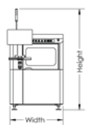


Specification

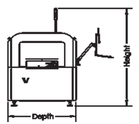
System	V510i Optimus 3D	
System Performances		
Inspection Functions	Missing, Offset, Skewed, Polarity, Billboard, Tombstone, Lifted/Bent Leads, Excess/Insufficient Solder, Overturn, Bridging, Wrong Part (OCV Marking), Pin Through Hole (Solderability & Pin Detection), Package Coplanarity, Lifted Lead (Height Measurement), Foreign Material Detection, Polarity Dimple Measurement	
Height Accuracy (Based on ViTrox Calibration Jig)	± 2um	
Board & Component Level Tracebility	Camera-Read Barcodes; External Barcode Reader Configured; OCR Capability with Batch Code Logging	
System Hardware	**4MP Camera**	**12MP Camera**
Operating System	Windows 7 or 10 Pro 64 bit	Windows 7 or 10 Pro 64 bit
Camera & FOV Size	4MP Camera Link Camera 40x40 mm @ 20µm resolution	12MP Coaxpress Camera 60x45 mm @ 15µm resolution
Optical Resolution	Default: 20µm telecentric lens* Option: 11µm telecentric lens*	Default: 15µm telecentric lens* Option: 13µm telecentric lens*
Inspection Speed	4MP @ 20µm resolution: 22.0 - 37.0cm^2/sec	12MP @ 15µm resolution: 45.0 - 60.0cm^2/sec
3D Technologies	Phase Shift Profilometry's (PSP) Methodology with 4-way projectors	Phase Shift Profilometry's (PSP) Methodology with 4-way projectors
Lighting Module	Concurrent Lighting Module	Concurrent Lighting Module
X-Y Gantry System	Gantry Robot Systems with Linear Motor and Linear Magnetic Encoders	Gantry Robot Systems with Linear Motor and Linear Magnetic Encoders
X-Y Axis Repeatability	< 8µm	< 8µm
X-Y Axis Resolution	1µm	1µm
Conveyor Width Adjustment	Auto Width Adjustment; Bottom-Up Clamping; In-line SMEMA	Auto Width Adjustment; Bottom-Up Clamping; In-line SMEMA
PCB Dimension	**Standard**	**FDL**
Minimum PCB Size (L x W)	50x50mm (2"x2")	50x50mm (2"x2")
Maximum PCB Size (L x W)	510x510mm (20"x20")	DL Equal: 510x235mm (20"x9.25") Single Lane: 510x420mm (20"x16.5")
PCB Thickness	0.5mm-4mm (0.02" - 0.16")	0.5mm-4mm (0.02" - 0.16")
Maximum PCB Weight	3kg (6.6lb)	3kg (6.6lb)
Clearance Top Side of PCB	50mm (2")	50mm (2")
Bottom Side of PCB	70mm (2.76")	70mm (2.76")
Panel Edge	3.5mm (0.14")	3.5mm (0.14")
Maximum PCB Warpage Compensation	±5mm (0.2")	±5mm (0.2")
PCB Transport Height	856mm - 965mm (33.7" - 38")	856mm - 965mm (33.7" - 38")
Installation Specification		
Footprint		
Width	1060mm (3.5ft)	
Depth	1352mm (4.4 ft)	
Height	2028mm (6.7ft)	
Weight	~830 kgs	
Electrical Supplies	100-120 V, 16A/200-240V, 8A Single Phase	
Software Options		
Network Offline Programming (NOLP), ViTrox Verification Tool Solution (VVTS), ViTrox Database Statistical Process (VDSPC), V-Tune, V-ONE		

* *Based on system configuration.*

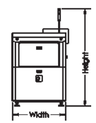
Specifications are subject to change.



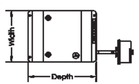
Front View



Side View



Back View



Top View