



V810i S3 Series
 Advanced 3D X-Ray Inspection (AXI)



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] 1525 3666666

V810i Series

Advanced 3D X-ray Inspection (AXI)

Designed for various size of PCB assemblies to increase production efficiency and cost savings for Electronic Manufacturing Services (EMS), Original Equipment Manufacturers (OEMs), Original Design Manufacturers (ODMs), and etc.

Key Benefits



High Speed Inspection



Powerful and robust test algorithm that cover overall market test component



Lightning programming for smart and easy programming



Various Platform to cater different board sizes



World top leading AXI solution



Worldwide support coverage



Breakthrough Technologies

1

Lightning Programming

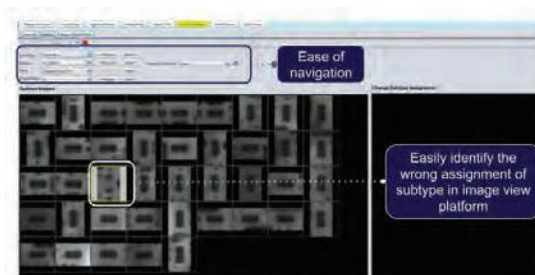
No. 1

Inline OLP Software in the Advanced X-ray Inspection

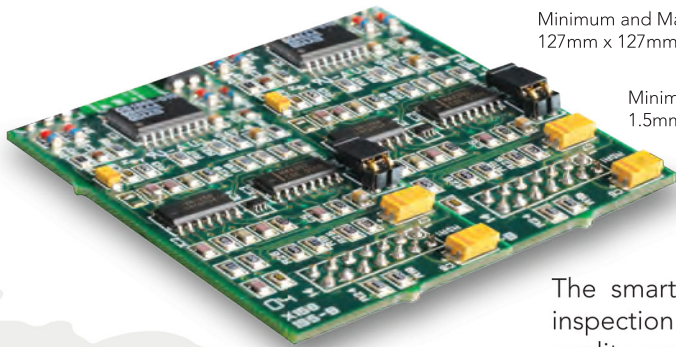
The drag and drop concept eases programming and the inline OLP concept minimizes system downtime and increases product throughput.

What is OLP?

OLP means for Offline Programming. It is a software to allow user to develop program on his/her own PC without connecting to machine.



2 Largest Board Size Platform



Minimum and Maximum Panel Size
127mm x 127mm - 1320.8mm x 1320.8mm

Minimum and Maximum Panel Thickness
1.5mm to 10mm

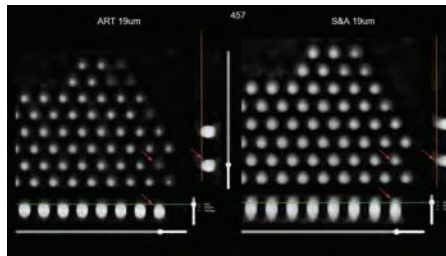
Maximum Panel Weight
25Kg



The smart V810i S2XLW AXI solution offers the world-class board inspection capabilities and software compatible with Industry 4.0 for quality-assured inspection results. With its latest capability, the largest and heaviest PCB board weighing up to 25kg and up to 1.3m x 1.3m (length x width) in size can be accommodated and inspected.

3 New Reconstruction Method for CT Technologies - Algebraic Reconstruction Technique (ART)

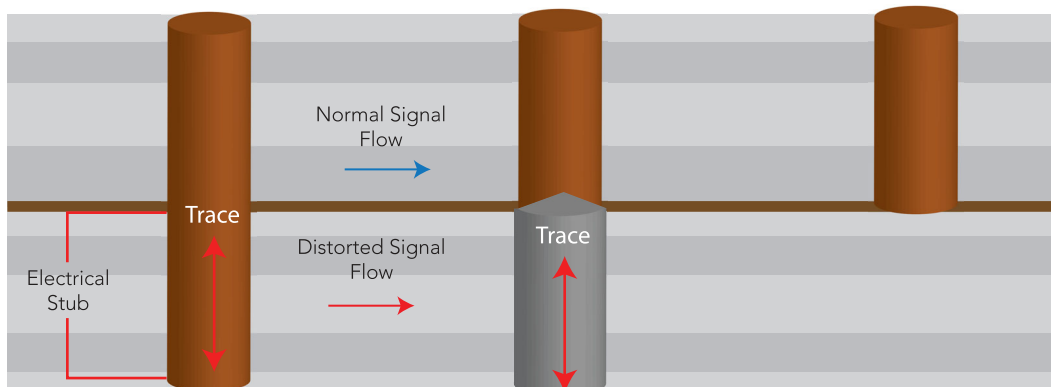
Provide alternative view (3D model) for defects buy off and increase user confidence to buy off defect. At the same time, it will generate defect failure analysis for further improvement.



- Alternative view (3D model) for defects buyoff
- Increase users confident to buyoff defects
- Defect failure analysis

4 Backdrill Inspection

Back drilling, is a technique used at high speed multi-layered boards to remove the unused portion, or stub, or copper barrel from a thru-hole in a printed circuit board in order to minimize signal integrity degradation and reduce via-to-via crosstalk.



A typical through hole VIA without backdrill results in reflections, capacitance, & inductance discontinuities which will degrade the signal integrity

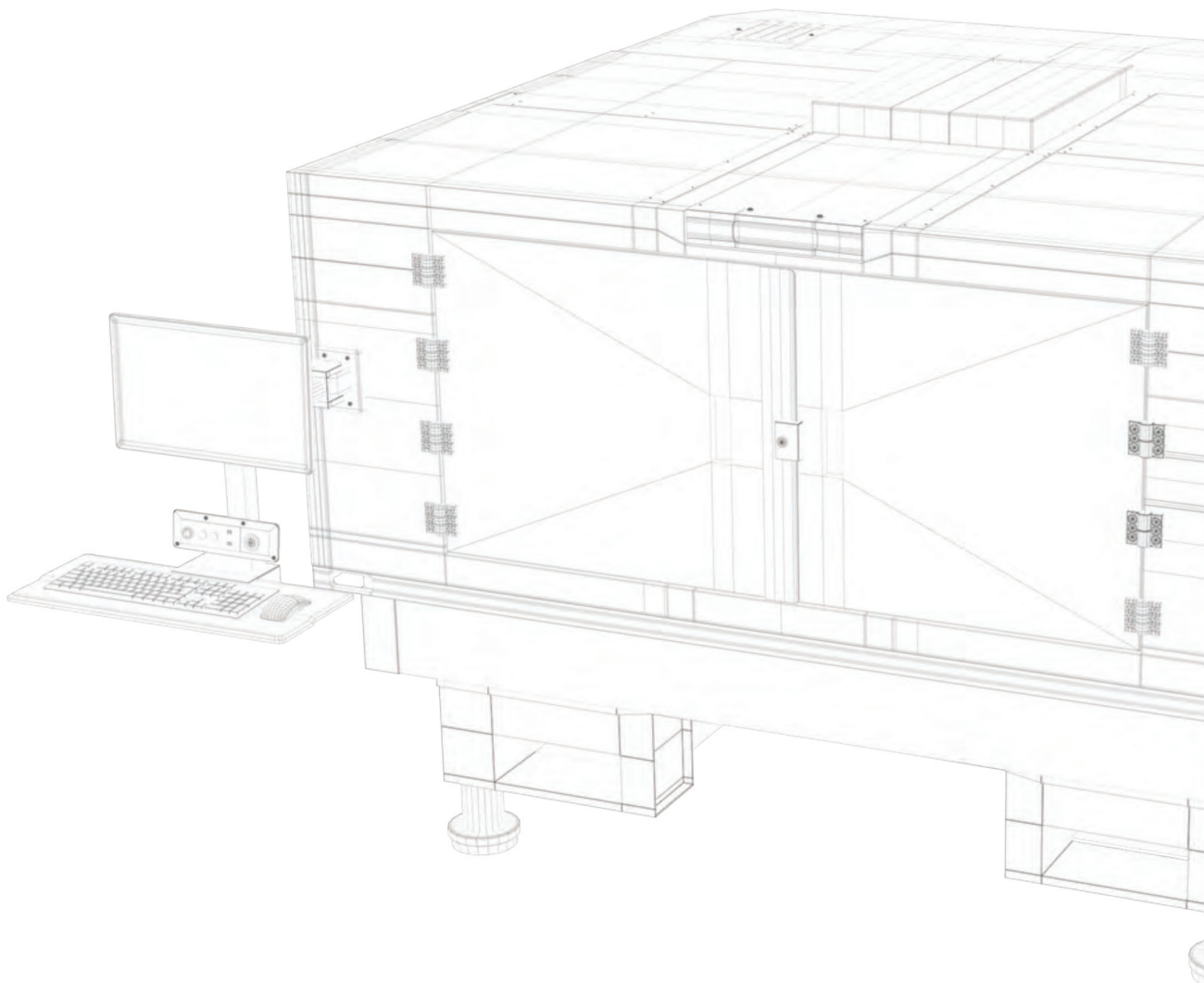
Backdrill the unused stub with a controlled depth

After backdrill, the signal will not flow to unwanted stub and minimize signal integrity degradation

V810i Series

Advanced 3D X-ray Inspection (AXI)

Designed for various sizes of PCB assemblies to increase production efficiency and cost savings for Electronic Manufacturing Services (EMS), Original Equipment Manufacturers (OEMs), Original Design Manufacturers (ODMs), and etc.



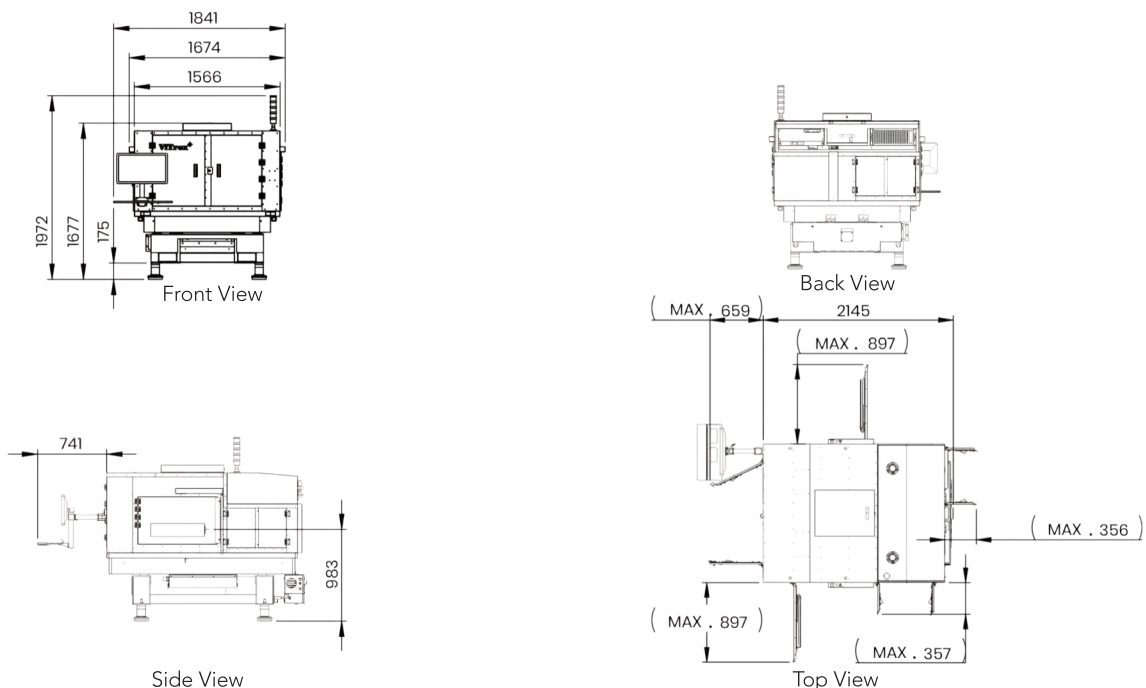
V810i S2 EX

System Controller	Integrated controller with 8 Core Intel Xeon processors		
Operating System	Windows 10 (64-bit)		
Test Development Environment			
User Interface	Microsoft Windows based software solution with easy-to-use GUI and password-protected user levels		
Off-line Test Development Software	Optional for off-line PC		
CAD Conversion Tool	Support 4 different types of CAD in V810i software and optional software available to translate other CAD data to ViTrox's format		
Typical Test Development Time	4 hours to 1.5 days to convert raw CAD file and develop application		
Line Integration			
Transport Heights	865mm - 1025mm		
Line Communication Standard	SMEMA, HERMES		
Barcode Readers	Compatible with most industry standard barcode readers		
Performance Parameters *			
Typical Image Acquisition Rate	51.68cm ² /sec (8 in ² /sec) at 19μm		
False Call Rate	500 - 1000ppm		
Minimum Features Detection Capability	Joint pitch ¹	Short pitch ²	Solder thickness
	0.3mm and above	0.045mm	0.0127mm
Allowable Panel Characteristics **			
Maximum PCB Size (L x W)	609.6mmx482.6mm (24"x19")		
Minimum PCB Size (L x W)	76.2mmx76.2mm (3"x3")		
Maximum PCB Inspectable Area	609.6mmx474.9mm (24"x18.7")		
Maximum PCB Thickness	7mm (275 mils)		
Minimum PCB Thickness	0.5mm (20 mils)		
PCB Warp	Downside < 3.3mm; Upside < 1.5mm		
Maximum PCB Weight	4.5kg		
Top Clearance of PCB with System Resolution	50mm @ 23μm resolution; 38mm @ 19μm resolution; 38mm @ 10.5μm resolution [#] ; 11mm @ 11μm resolution; 11mm @ 6μm resolution [#] (Calculated from Board Top surface)		
Bottom Clearance of PCB	70mm		
PCB Edge Clearance	3mm		
100% Press-fit Testability	Yes (With PSP2 / PSP2.1 feature)		
PCB Temperature	40°C		

Specifications are subject to change.

Installation Specification

System footprint (Width X Depth X Height)	1566mmx2145mmx1972mm
Weight	3800kgs
Electrical Supplies	200 – 240 VAC three phase; 380 – 415 VAC three phase wye (+/- 5) (50Hz or 60Hz)
Air Requirement	552kPA (80psi)



*Note:

1. Assuming pad width is 50% of pitch.
2. The reported values for minimum feature detection assume that the feature is in a single plane of focus and that there are no X-ray absorbers in the X-ray path or in the immediate area of the feature other than those found in a typical multi-layer printed circuit board.

**Note:

1. Panels are handled on width edges. Panels with edge cut outs may require the use of a carrier.
2. Maximum panel size dimensions and weight must include carrier if applicable.
3. Smaller panels are possible with the use of panel carriers.
4. With panels of this thickness, imaging results can be affected by PCBA layout.
5. Measured from the bottom of the panel including a maximum warp.

#2x2 binning camera configuration, Hardware upgrade is required.

V810i S2 XXL

System Controller	Integrated controller with 8 Core Intel Xeon processors
Operating System	Windows 10 (64-bit)

Test Development Environment

User Interface	Microsoft Windows based software solution with easy-to-use GUI and password-protected user levels
Off-line Test Development Software	Optional for off-line PC
CAD Conversion Tool	Support 4 different types of CAD in V810i software and optional software available to translate other CAD data to ViTrox's format
Typical Test Development Time	4 hours to 1.5 days to convert raw CAD file and develop application

Line Integration

Transport Heights	865mm - 1025mm
Line Communication Standard	SMEMA, HERMES
Barcode Readers	Compatible with most industry standard barcode readers

Performance Parameters *

Typical Image Acquisition Rate	51.68cm ² /sec (8 in ² /sec) at 19µm		
False Call Rate	500 - 1000 ppm		
Minimum Features Detection Capability	Joint pitch ¹	Short pitch ²	Solder thickness
	0.3mm and above	0.045mm	0.0127mm

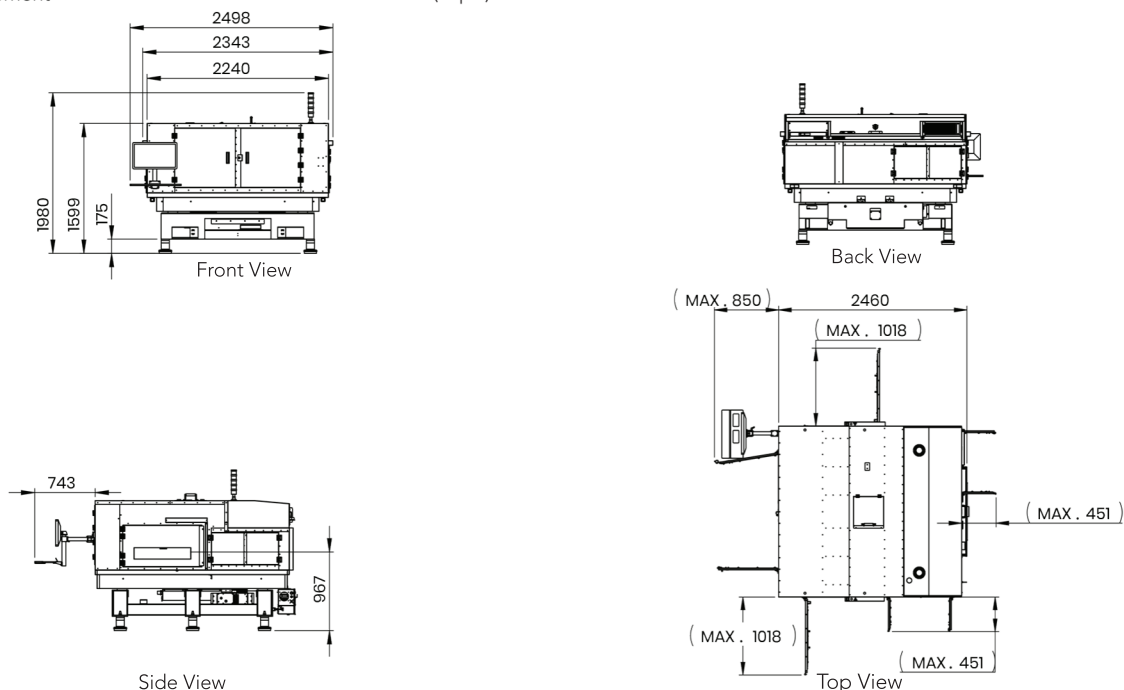
Allowable Panel Characteristics **

Maximum PCB Size (L x W)	965.2mmx660.4mm (38"x26")
Minimum PCB Size (L x W)	76.2mmx76.2 mm (3"x 3")
Maximum PCB Inspectable Area	965.2mmx654.4mm (38"x25.7")
Maximum PCB Thickness	12.7mm (500 mils)
Minimum PCB Thickness	0.5mm (20 mils)
PCB Warp	Downside < 3.3mm; Upside < 3.3mm
Maximum PCB Weight	15kg
Top Clearance of PCB with System Resolution	25mm @ 19µm resolution; 15mm @ 13µm resolution (Calculated from Board Top surface)
Bottom Clearance of PCB	80mm
PCB Edge Clearance	3mm
100% Press-fit Testability	Yes (With PSP2 / PSP2.1 feature)
PCB Temperature	40°C

Specifications are subject to change.

Installation Specification

System footprint (Width X Depth X Height)	2240mmx2460mmx1980mm
Weight	6500kgs
Electrical Supplies	200 – 240 VAC three phase; 380 – 415 VAC three phase wye (+/- 5) (50Hz or 60Hz)
Air Requirement	552kPA (80psi)



*Note:

1. Assuming pad width is 50% of pitch.
2. The reported values for minimum feature detection assume that the feature is in a single plane of focus and that there are no X-ray absorbers in the X-ray path or in the immediate area of the feature other than those found in a typical multi-layer printed circuit board.

**Note:

1. Panels are handled on width edges. Panels with edge cut outs may require the use of a carrier.
2. Maximum panel size dimensions and weight must include carrier if applicable.
3. Smaller panels are possible with the use of panel carriers.
4. With panels of this thickness, imaging results can be affected by PCBA layout.
5. Measured from the bottom of the panel including a maximum warp.

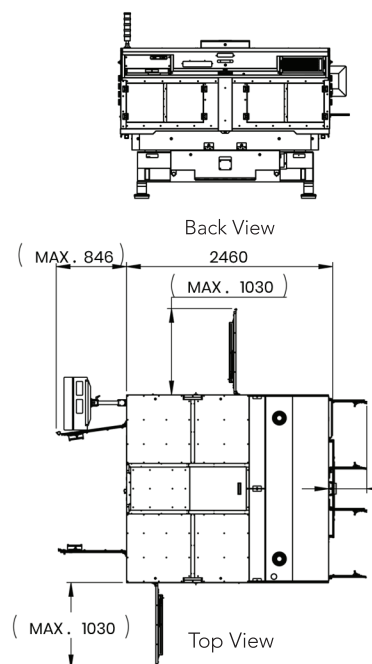
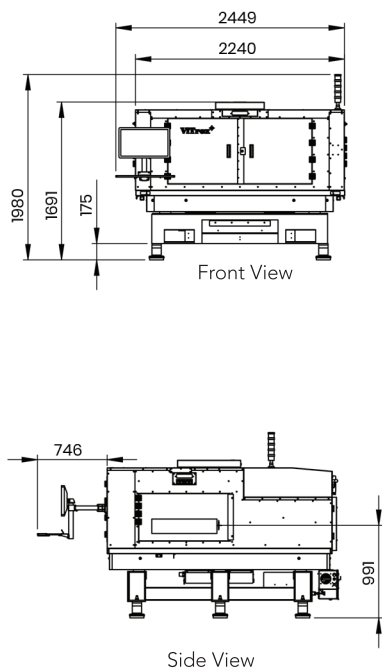
V810i S2 XLT

System Controller	Integrated controller with 8 Core Intel Xeon processors		
Operating System	Windows 10 (64-bit)		
Test Development Environment			
User Interface	Microsoft Windows based software solution with easy-to-use GUI and password-protected user levels		
Off-line Test Development Software	Optional for off-line PC		
CAD Conversion Tool	Support 4 different types of CAD in V810i software and optional software available to translate other CAD data to ViTrox's format		
Typical Test Development Time	4 hours to 1.5 days to convert raw CAD file and develop application		
Line Integration			
Transport Heights	865mm - 1025mm		
Line Communication Standard	SMEMA, HERMES		
Barcode Readers	Compatible with most industry standard barcode readers		
Performance Parameters *			
Typical Image Acquisition Rate	51.68cm ² /sec (8 in ² /sec) at 19μm		
False Call Rate	500 - 1000 ppm		
Minimum Features Detection Capability	Joint pitch ¹	Short pitch ²	Solder thickness
	0.3mm and above	0.045mm	0.0127mm
Allowable Panel Characteristics **			
Maximum PCB Size (L x W)	965.2mmx660.4mm (38"x26")		
Minimum PCB Size (L x W)	76.2mmx76.2mm (3"x3")		
Maximum PCB Inspectable Area	965.2mmx654.4mm (38"x25.7")		
Maximum PCB Thickness	12.7mm (500 mils)		
Minimum PCB Thickness	0.5mm (20 mils)		
PCB Warp	Downside < 3.3mm; Upside < 3.3mm		
Maximum PCB Weight	15kg		
Top Clearance of PCB with System Resolution	50mm @ 19μm resolution; 31mm @ 15μm resolution; 13mm @ 11μm resolution; 31mm @ 10μm resolution [#] 13mm @ 7.5μm resolution [#] (Calculated from Board Top surface)		
Bottom Clearance of PCB	80mm		
PCB Edge Clearance	3mm		
100% Press-fit Testability	Yes (With PSP2 / PSP2.1 feature)		
PCB Temperature	40°C		

Specifications are subject to change.

Installation Specification

System footprint (Width X Depth X Height)	2240mmx2460mmx1980mm
Weight	6500kgs
Electrical Supplies	200 – 240 VAC three phase; 380 – 415 VAC three phase wye (+/- 5) (50Hz or 60Hz)
Air Requirement	552kPA (80psi)



*Note:

1. Assuming pad width is 50% of pitch.
2. The reported values for minimum feature detection assume that the feature is in a single plane of focus and that there are no X-ray absorbers in the X-ray path or in the immediate area of the feature other than those found in a typical multi-layer printed circuit board.

**Note:

1. Panels are handled on width edges. Panels with edge cut outs may require the use of a carrier.
2. Maximum panel size dimensions and weight must include carrier if applicable.
3. Smaller panels are possible with the use of panel carriers.
4. With panels of this thickness, imaging results can be affected by PCBA layout.
5. Measured from the bottom of the panel including a maximum warp.

#2x2 binning camera configuration, Hardware upgrade is required.

V810i S2 XLW

System Controller	Integrated controller with 8 Core Intel Xeon processors		
Operating System	Windows 10 (64-bit)		
Test Development Environment			
User Interface	Microsoft Windows based software solution with easy-to-use GUI and password-protected user levels		
Off-line Test Development Software	Optional for off-line PC		
CAD Conversion Tool	Support 4 different types of CAD in V810i software and optional software available to translate other CAD data to ViTrox's format		
Typical Test Development Time	4 hours to 1.5 days to convert raw CAD file and develop application		
Line Integration			
Transport Heights	865mm - 1025mm		
Line Communication Standard	SMEMA, HERMES		
Barcode Readers	Compatible with most industry standard barcode readers		
Performance Parameters *			
Typical Image Acquisition Rate	51.68cm ² /sec (8 in ² /sec) at 19µm		
False Call Rate	500 - 1000 ppm		
Minimum Features Detection Capability	Joint pitch¹	Short pitch²	Solder thickness
	0.3mm and above	0.045mm	0.0127mm

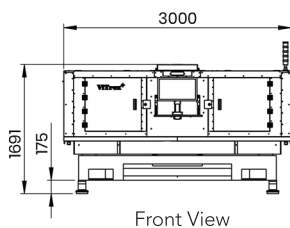
Allowable Panel Characteristics **

Maximum PCB Size (L x W)	1320.8mmx1320.8mm (52"x 52")		
Minimum PCB Size (L x W)	127mmx127mm (5"x 5")		
Maximum PCB Inspectable Area	1320.8mmx1300.48mm (52"x 51.2") <i>(Dual Stage Inspection with External Rotator)</i>		
Maximum PCB Thickness	10mm (393 mils)		
Minimum PCB Thickness	1.5mm (60 mils)		
PCB Warp	<2mm downward, 1mm upwards (without PSP); <3mm downward, <1.5mm upwards (with PSP)		
Maximum PCB Weight	25kg		
Top Clearance of PCB with System Resolution	50mm @ 19µm resolution; 31mm @ 15µm resolution; 14mm @ 11µm resolution <i>(Calculated from Board Top surface)</i>		
Bottom Clearance of PCB	80mm		
PCB Edge Clearance	10mm		
100% Press-fit Testability	Yes (With PSP2 / PSP2.1 feature)		
PCB Temperature	40°C		

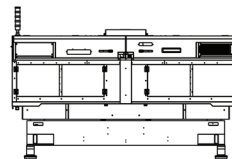
Specifications are subject to change.

Installation Specification

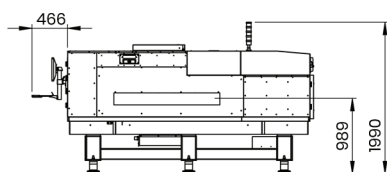
System footprint (Width X Depth X Height)	3300mmx3300mmx1990mm
Weight	11000kgs
Electrical Supplies	200 – 240 VAC three phase; 380 – 415 VAC three phase wye (+/- 5) (50Hz or 60Hz)
Air Requirement	828kPa (120psi)



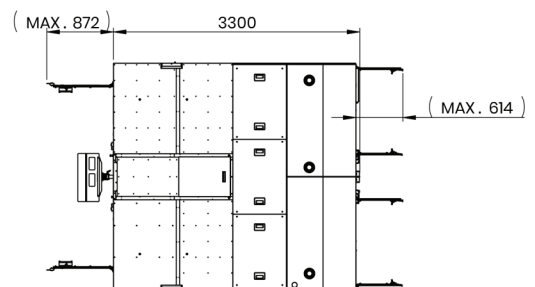
Front View



Back View



Side View



Top View

*Note:

1. Assuming pad width is 50% of pitch.
2. The reported values for minimum feature detection assume that the feature is in a single plane of focus and that there are no X-ray absorbers in the X-ray path or in the immediate area of the feature other than those found in a typical multi-layer printed circuit board.

**Note:

1. Panels are handled on width edges. Panels with edge cut outs may require the use of a carrier.
2. Maximum panel size dimensions and weight must include carrier if applicable.
3. Smaller panels are possible with the use of panel carriers.
4. With panels of this thickness, imaging results can be affected by PCBA layout.
5. Measured from the bottom of the panel including a maximum warp.

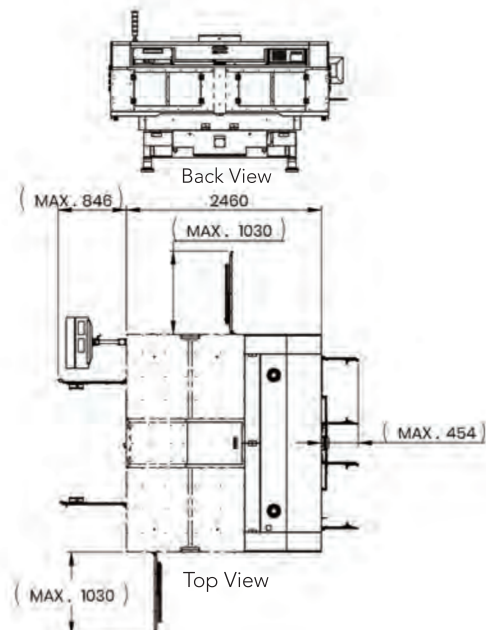
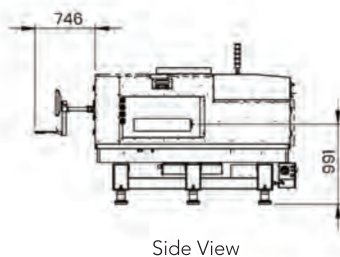
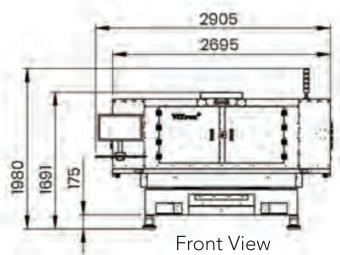
V810i S2 XLL

System Controller	Integrated controller with 8 Core Intel Xeon processors		
Operating System	Windows 10 (64-bit)		
Test Development Environment			
User Interface	Microsoft Windows based software solution with easy-to-use GUI and password-protected user levels		
Off-line Test Development Software	Optional for off-line PC		
CAD Conversion Tool	Support 4 different types of CAD in V810i software and optional software available to translate other CAD data to ViTrox's format		
Typical Test Development Time	4 hours to 1.5 days to convert raw CAD file and develop application		
Line Integration			
Transport Heights	865mm - 1025mm		
Line Communication Standard	SMEMA, HERMES		
Barcode Readers	Compatible with most industry standard barcode readers		
Performance Parameters *			
Typical Image Acquisition Rate	51.68cm ² /sec (8 in ² /sec) at 19μm		
False Call Rate	500 - 1000 ppm		
Minimum Features Detection Capability	Joint pitch¹	Short pitch²	Solder thickness
	0.3mm and above	0.045mm	0.0127mm
Allowable Panel Characteristics **			
Maximum PCB Size (L x W)	1200.0mmx660.4mm (47.24"x26")		
Minimum PCB Size (L x W)	76.2mmx76.2mm (3"x 3")		
Maximum PCB Inspectable Area	1200.0mmx654.4mm (47.24"x25.7")		
Maximum PCB Thickness	10mm (393 mils)		
Minimum PCB Thickness	1.5mm (60 mils)		
PCB Warp	<2mm downward, 1mm upwards (without PSP); <3mm downward, <1.5mm upwards (with PSP)		
Maximum PCB Weight	15kg		
Top Clearance of PCB with System Resolution	50mm @ 19μm resolution; 31mm @ 15μm resolution; 13mm @ 11μm resolution; 31mm @ 10μm resolution [#] 13mm @ 7.5μm resolution [#] (Calculated from Board Top surface)		
Bottom Clearance of PCB	80mm		
PCB Edge Clearance	3mm		
100% Press-fit Testability	Yes (With PSP2 / PSP2.1 feature)		
PCB Temperature	40°C		

Specifications are subject to change.

Installation Specification

System footprint (Width X Depth X Height)	2695mmx2460mmx1980mm
Weight	6700kgs
Electrical Supplies	200 – 240 VAC three phase; 380 – 415 VAC three phase wye (+/- 5) (50Hz or 60Hz)
Air Requirement	552kPa (80psi)



*Note:

1. Assuming pad width is 50% of pitch.
2. The reported values for minimum feature detection assume that the feature is in a single plane of focus and that there are no X-ray absorbers in the X-ray path or in the immediate area of the feature other than those found in a typical multi-layer printed circuit board.

**Note:

1. Panels are handled on width edges. Panels with edge cut outs may require the use of a carrier.
2. Maximum panel size dimensions and weight must include carrier if applicable.
3. Smaller panels are possible with the use of panel carriers.
4. With panels of this thickness, imaging results can be affected by PCBA layout.
5. Measured from the bottom of the panel including a maximum warp.

V810i S3

System Controller	Integrated controller with 8 Core Intel Xeon processors		
Operating System	Windows 10 (64-bit)		
Test Development Environment			
User Interface	Microsoft Windows based software solution with easy-to-use GUI and password-protected user levels		
Off-line Test Development Software	Optional for off-line PC		
CAD Conversion Tool	Support 4 different types of CAD in V810i software and optional software available to translate other CAD data to ViTrox's format		
Typical Test Development Time	4 hours to 1.5 days to convert raw CAD file and develop application		
Line Integration			
Transport Heights	865mm - 1025mm		
Line Communication Standard	SMEMA, HERMES		
Barcode Readers	Compatible with most industry standard barcode readers		
Performance Parameters *			
Typical Image Acquisition Rate	51.68cm ² /sec (8 in ² /sec) at 19µm		
False Call Rate	500 - 1000 ppm		
Minimum Features Detection Capability	Joint pitch ¹	Short pitch ²	Solder thickness
	0.3mm and above	0.045mm	0.0127mm

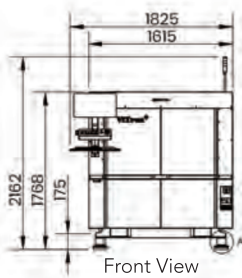
Allowable Panel Characteristics **

Maximum PCB Size (L x W)	725mmx482.6mm (28.5"x19")		
Minimum PCB Size (L x W)	63.5mmx63.5mm (2.5"x 2.5")		
Maximum PCB Inspectable Area	725mmx474.9mm (28.5"x18.7")		
Maximum PCB Thickness	7mm (276 mils)		
Minimum PCB Thickness	0.5mm (20 mils)		
PCB Warp	Downside < 3.3mm; Upside < 3.3mm		
Maximum PCB Weight	4.5kg		
Top Clearance of PCB with System Resolution	50mm @ 22µm resolution; 44mm @ 19µm resolution; 28mm @ 15µm resolution; 13mm @ 12µm resolution; 28mm @ 10µm resolution; 13mm @ 7µm resolution <i>(Calculated from Board Top surface)</i>		
Bottom Clearance of PCB	80mm		
PCB Edge Clearance	3mm		
100% Press-fit Testability	Yes (With PSP2 / PSP2.1 feature)		
PCB Temperature	40°C		

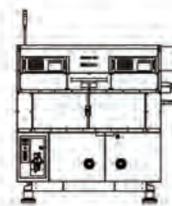
Specifications are subject to change.

Installation Specification

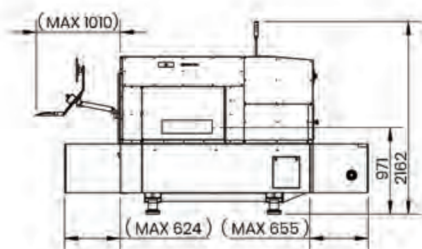
System footprint (Width X Depth X Height)	1835mmx2185mmx2162mm
Weight	4000kgs
Electrical Supplies	200 – 240 VAC three phase; 380 – 415 VAC three phase wye (+/- 5) (50Hz or 60Hz)
Air Requirement	552kPA (80psi)



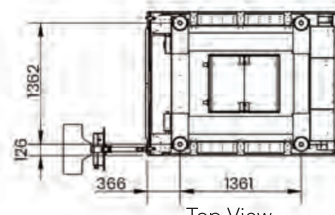
Front View



Back View



Side View



Top View

*Note:

1. Assuming pad width is 50% of pitch.
2. The reported values for minimum feature detection assume that the feature is in a single plane of focus and that there are no X-ray absorbers in the X-ray path or in the immediate area of the feature other than those found in a typical multi-layer printed circuit board.

**Note:

1. Panels are handled on width edges. Panels with edge cut outs may require the use of a carrier.
2. Maximum panel size dimensions and weight must include carrier if applicable.
3. Smaller panels are possible with the use of panel carriers.
4. With panels of this thickness, imaging results can be affected by PCBA layout.
5. Measured from the bottom of the panel including a maximum warp.