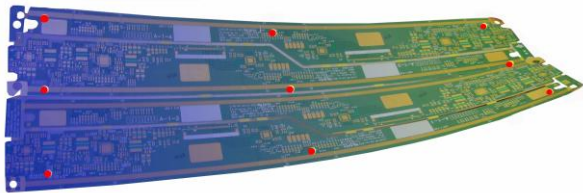
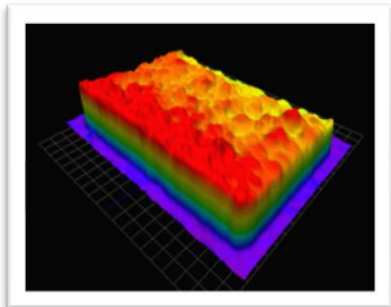
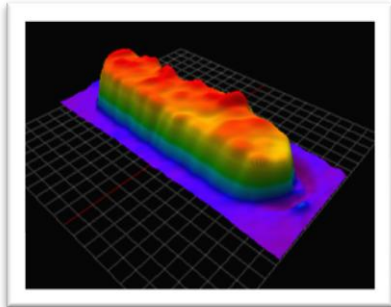


TECHNOLOGICALLY ADVANCED

MS-11 Series

MIRTEC



- High Speed Precision In-Line SPI System
- Exclusive **FIFTEEN MEGA PIXEL** ISIS® Vision System
- 10 Micron / Pixel Precision Telecentric Compound Lens Design
- 2 Micron Height Accuracy
- Precision Closed Loop Servo Motor System
- Extremely Simple Programming and Operation
- “World Class” Global Customer Support



- **MOIRÉ** 3D Phase Step Image Processing
- Advanced Dual Probe **SHADOW FREE** Design
- Superior Solder Profile Characterization
- Absolute Repeatability and Reproducibility
- Precision Laser PCB Warpage Compensation



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MS-11 Series Features and Specifications

Max PCB Size Range	
MS-11	50 mm x 50 mm to 510 mm x 460 mm (2.0" x 2.0" to 20.1" x 18.1")
MS-11U	60 mm x 60 mm to 660 mm x 610 mm (2.36" x 2.36" to 26.0" x 24.1")
MS-11DL (Dual Lane)	50 mm x 50 mm to 330 mm x 250 mm (2.0" x 2.0" to 12.99" x 9.84")

Image Transfer Technology			
15 Mega Pixel Camera	3,904 x 3,904 Pixels	CoaXpress Type	120 fps
		Camera Link Type	45 fps
4 Mega Pixel Camera	2,352 x 1,728 Pixels	Camera Link Type	180 fps

ISIS® Vision System (FOV Size)				
15 Mega Pixel Camera	3,904 x 3,904 Pixels	Option 1	Pixel Resolution : 20 um	78.08 mm x 78.08 mm (3.07" x 3.07")
		Option 2	Pixel Resolution : 15 um	58.56 mm x 58.56 mm (2.31" x 2.31")
		Option 3	Pixel Resolution : 10 um	39.04 mm x 39.04 mm (1.54" x 1.54")
4 Mega Pixel Camera	2,352 x 1,728 Pixels	Option 1	Pixel Resolution : 20 um	47.04 mm x 34.56 mm (1.85" x 1.36")
		Option 2	Pixel Resolution : 15 um	35.28 mm x 25.92 mm (1.39" x 1.02")
		Option 3	Pixel Resolution : 10 um	23.52 mm x 17.28 mm (0.926" x 0.68")

3D Inspection Technology			
3D Inspection Technology	Shadow Free - Moiré 3D Phase Step Image Processing		
Height Resolution	0.1um		
Height Accuracy	Calibration Jig	2 um	
Height Repeatability	Calibration Jig	±1%	
Volume Repeatability	Calibration Jig	±2%	
Solder Height	Maximum	450 um	
	Minimum	40 um	
PCB Warpage	±5 mm		
Measurement Capability	Volume, Area, Height, X-Y Position, Bridge, Shape, Etc.		
Teaching Software	Gerb Pad	Option : e-PM SPI	

Maximum Inspection Speed				
15 Mega Pixel Camera	CoaXpress @ 120fps	Option 1	Pixel Resolution : 20 um	110 cm2/sec (17.05 in2/sec)
		Option 2	Pixel Resolution : 15 um	66 cm2/sec (10.23 in2/sec)
		Option 3	Pixel Resolution : 10 um	30 cm2/sec (4.65 in2/sec)
	Camera Link @ 45 fps	Option 1	Pixel Resolution : 20 um	82 cm2/sec (12.71 in2/sec)
		Option 2	Pixel Resolution : 15 um	47 cm2/sec (7.285 in2/sec)
		Option 3	Pixel Resolution : 10 um	22 cm2/sec (3.41 in2/sec)
4 Mega Pixel Camera	Camera Link @ 180 fps	Option 1	Pixel Resolution : 20 um	41 cm2/sec (6.355 in2/sec)
		Option 2	Pixel Resolution : 15 um	23 cm2/sec (3.565 in2/sec)
		Option 3	Pixel Resolution : 10 um	9 cm2/sec (1.395 in2/sec)

System Specifications			
Lens Configuration	Precision Telecentric Compound Lens Design		
Laser PCB Warpage Compensation	1um / Point		
PCB Top Side Clearance	45mm		
PCB Bottom Side Clearance	25mm (Option : 50.8 mm)		
Maximum PCB Warpage	±3mm		
Barcode System (Option)	1D or 2D Barcode Reader		
Built-in SPC	Statistical Process Control Software (Local)		
Built-in Repair	Repair Plus Software (Local)		
Teaching Software	Gerb Pad	Optional : e-PM SPI	
Robot Positioning System	X/Y Axis	Precision Cosed Loop Servo Motor System	
	Resolution	1 um	
	Repeatability	±10 um	
Power Requirements	MS-11 / MS-11U	Single Phase(s) 200~240V 50~60Hz, 1.1 KW	
	MS-11DL	Single Phase(s) 200~240V 50~60Hz, 1.5 KW	
Air Requirements	5 Kgf / cm2 (0.5 Mpa); (7 PSI)		

Machine Dimensions and Weight		
MS-11	1,100 mm W x 1,500 mm D x 1,500 mm H (43.3" x 59" x 59")	1,000 Kg (2,205 lbs.)
MS-11U	1,270 mm W x 1,680 mm D x 1,500 mm H (50" x 66" x 59")	1,300 Kg (2,866 lbs.)
MS-11DL (Dual Lane)	1,100 mm W x 1,500 mm D x 1,500 mm H (43.3" x 59" x 59")	1,200 Kg (2,646 lbs.)