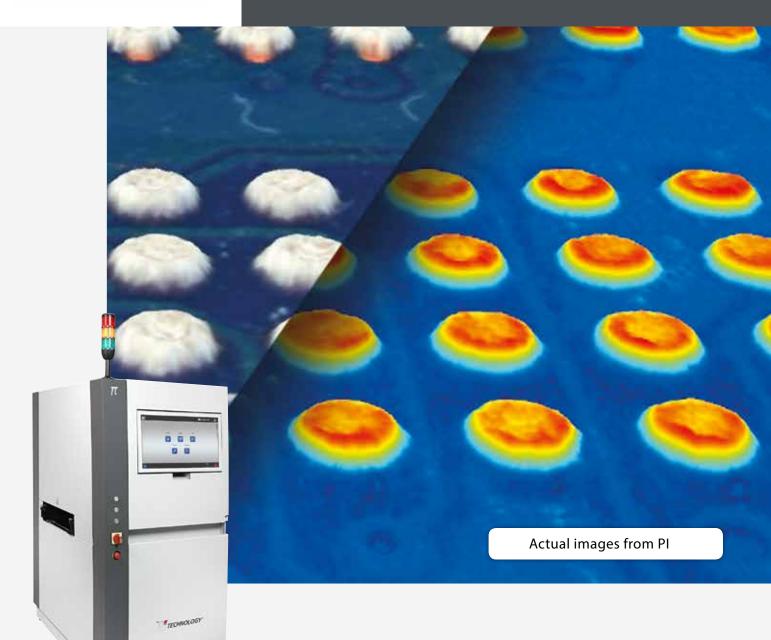




# Industry's new choice to control print process

3D SPI







# Inspect with simplicity

A natural user interface accessible to anyone

PI is useable by anyone.

Operators, not just engineers, can program the machine. Pl's powerful capabilities are just a fingertip away.

 Plisdesignedtooperatesolelywithatouchscreen icon based interface with no keyboard and no mouse.



 Anyone is up and runnig after just an hour's training.

 Calibration is done at a press of button with embeddedgeometricandradiometriccalibration toolstoensureconsistentperformanceovertime, and machine-to-machine portability.



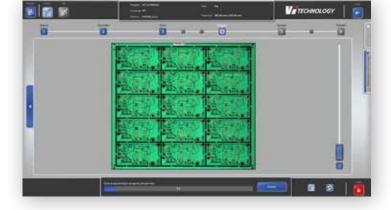


# Inspect without effort

Let the machine program itself

PI is the only SPI to program automatically. Auto-programming enables high quality inspection independently of programmer's skill level.

 Just scan a bare board, to ensure accurate measurement, and let the machine program itself.



 With auto-programming, fine tuning is no longer required. Performance is consistent, regardlessofcolororfinishvariations. Thus, PI is ideal for New Product Introduction.



• In addition to paste inspection, PI offers simultaneous glue dot inspection.

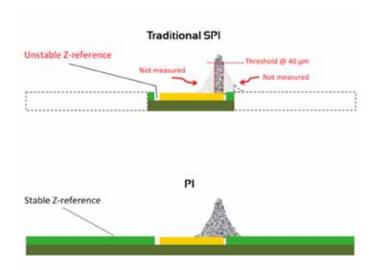


# Inspection without doubts

Demand accuracy, not just repeatability

PI's patended Z-referencing technology overcomes the limitation of traditional SPIs and brings unprecedented accuracy to paste volume measurement.

- Accuracy in production is about Z-referencing. All traditional SPIs set threshold (typically 40 µm) under which height and thus volume is no longer measured. As a result, volume is underestimated on small pads, precisely when you need to know much paste is truly deposited.
- Pl's patented Z-referencing method leverages the entire textured 3D board information, not just cropped images around pads, to define stable and accurate Z-reference.
- Pl'smulti-frequency,multipatternMoirécombined withpatenteddualZaxismotion,offeruniquewrap compensationtodeliveraccuratemeasurementsin real production environments, with no false calls.
- High resolution textured 3D images provide unambiguousinformationfordefectclassification.







# Inspect with a purpose

Control the print process to increase yield

PI's automatic pad grouping by AAR is just one the many features targeted specifically at process control. Combined with SIGMA Link software suite, inspection data becomes actionable process information.

 Improveyour processand set to learnces independently of products with automatic pad grouping by AAR (Area Aperture Ratio)



 Understand your process with an extra-large review image in textured 3D for easy diagnostic.

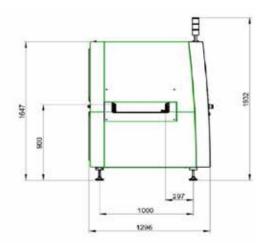


 Monitoryourprocessinreal-timewithSIGMA Analysis - Off-line SPC - or simply with PI's embedded SPC.



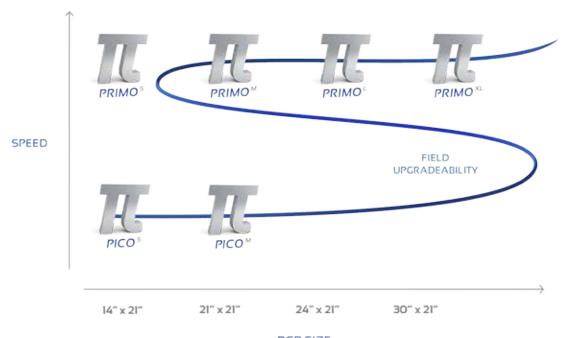
### Front view Side view





# Specifications

Inspection technology				
3D engine	360° Moiré – Shadow free Multi-camera Multi-projector Multi-nattern			
Camera	360° Moiré – Shadow free, Multi-camera, Multi-projector, Multi-pattern			
mage resolution	80 Mpixel, 12-bit CMOS sensor 160 Mpixel, 12-bit CMOS sensor			
Projection	15 μm			
•	4 HD, 10 bit Industrial projectors 8 HD, 10 bit Industrial projectors			
Field of View (X x Y)	160 mm x 55 mm 350 mm x 55 mm			
Lighting	White LED + RGB lighting			
High speed frame grabber	Up to 30 Gbit/s			
Warp compensation	+/- 5 mm with patended dual Z axis motion for real time Z and tilt adjustments			
Z-reference	Full PCB inspection for Z-referencing with no cropping around pads			
System				
Operating system	Linux			
Processor	Xeon E5-2620 v3 6-core 12-threads, 48GB Memory			
Storage capacity	6 TB, including 4 TB in RAID1			
- ' '				
Massive parallel computing	3.2 Teraflops, 1 593 - Core 6.4 Teraflops, 3 186 - Core			
Motion control	Linear optical encoder (1 μm resolution)			
Inspection performance				
Measurements	Height, Area, Volume, Offset, Bridging, Shape 2D, Shape 3D, Coplanarity			
Defect types	Insufficient / Excessive / Missing paste, Bridge, Shape 2D, Shape 3D, user defined defects			
Maximum paste size	20 mm x 20 mm			
Minimum paste size	150 μm x 150 μm			
Maximum paste height	400 μm (consult us for higher paste height)			
Height resolution	100 nm			
Height accuracy	<< 1 μm on Certification target at operating temperature			
Height repeatability	$<<$ 1 µm @ 3 $\sigma$ on Certification target at operating temperature			
Volume repeatability	$< 3\%$ @ 3 $\sigma$ on PCB at operating temperature			
Gage R&R				
-	<< 10%			
Cycle time	3 sec per Ultra-large FOV + 2.5 sec (load/unload)			
Offline programming software				
Online SPC (Statistical Process Control)	SIGMA Import (Gerber & CAD data)			
Offline SPC	Histograms, X-R charts, Signature, Cp/Cpk, Gage R&R			
	SIGMA Analysis (Web-based software)			
Options				
External barcode reader (1D/2D)	Cognex DM 150 (requires 1 000 mm conveyor)			
nternal barcode reader (1D/2D)	Yes			
Closed loop to printers	With all major printers			
' '	, ·			
Others	Consult us			
nterface				
Power requirements	IDE CATELLY COST			
Dimensions (W x D x H)	IPC-SMEMA-9851			
Weight	Single Phase 2P+ Earth, 100 - 240 VAC / 16A, no need for compressed air			
Operating temperature	1 000 mm (Option 800 mm) x 1 296 mm x 1 647 mm			
	430 kg			
Relative humidity	15°C to 30°C			
	20 – 75% (without condensing)			
Regulatory compliance				
	CE (European Cafaty Dequirements) IEC 60204 IEC (1010 1 IEC (1010 2 IEC (1000 2 2			
Norms and standards	CE (European Safety Requirements), IEC 60204, IEC 61010-1, IEC 60950, IEC 61000-2-2			



#### **PCB SIZE**

## **Specifications**

PCB handling	PI PICO / I	PI PICO / PI PRIMO		PI PRIMO	
Minimun PCB dimensions (L x W)	50 mm x 50 mm (2 x 2 inch)				
PCB thickness	0.1 mm to 5.0 mm				
Minimum edge clearance	3 mm				
Top clearance	20 mm				
Bottom clearance	50 mm				
Conveying direction	Left to right - Right to left - Left to left - Right to right				
	S	М		XL	
Maximum PCB dimensions (L x W)	350 x 533 mm (14 x 21 inch)	533 x 533 mm (21 x 21 inch)	609 x 533 mm (24 x 21 inch)	762 x 533 mm (30 x 21 inch)	
Conveying height	830 mm to 930 mm (Standard) / 900 mm to 1000 mm (Option)				
Conveyor lenght	1000 mm (800 mm option)	1000 mm	1000 mm	1250 mm	
Maximum PCB weight		4,5 kg			

Robust design Embedded guide Easy maintenance





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