

ATHENA

3D Automated Optical Inspection system



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TECHNOLOGY AND FEATURES

World's Best High Speed Measurement and Inspection Capability

As applying 12-way and 16-way projectors including the existing 8-way projectors with the basis of advanced technology, ATHENA minimizes errors caused by shadow effects for 3D measurement of all models and simultaneously performs 100% 2D & 3D inspection in all FOV areas. This makes it possible to achieve a near-perfect detection while significantly reducing false calls.

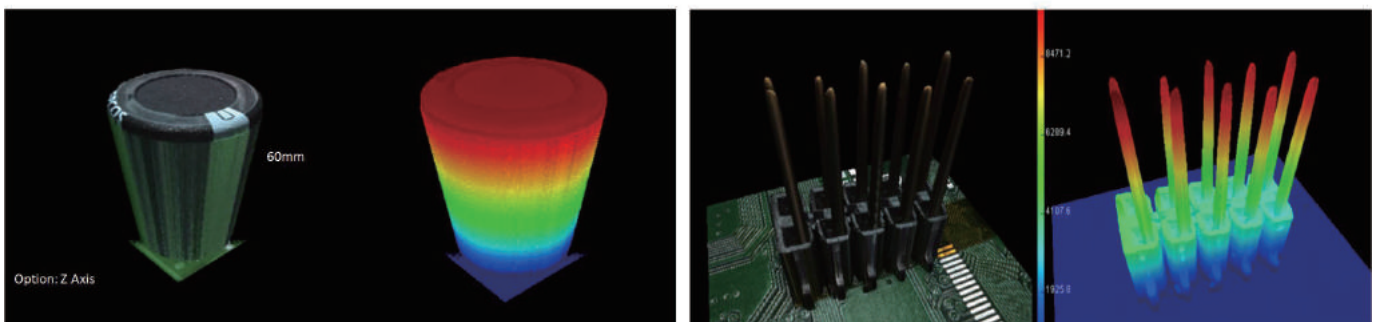
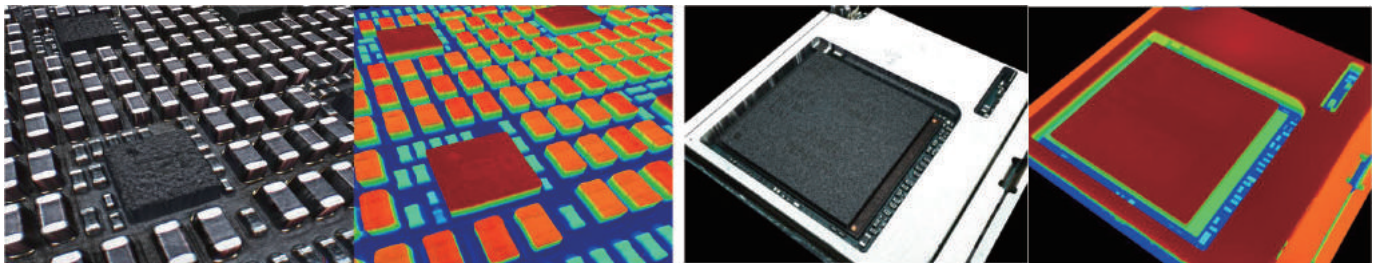
PEMTRON's existing head type has been upgraded to New head for 3D formation that is identical to the real image and more stable based on the accumulated technology for decades.

Simple Head Composition

More space, convenient maintenance, concise assembly and setting

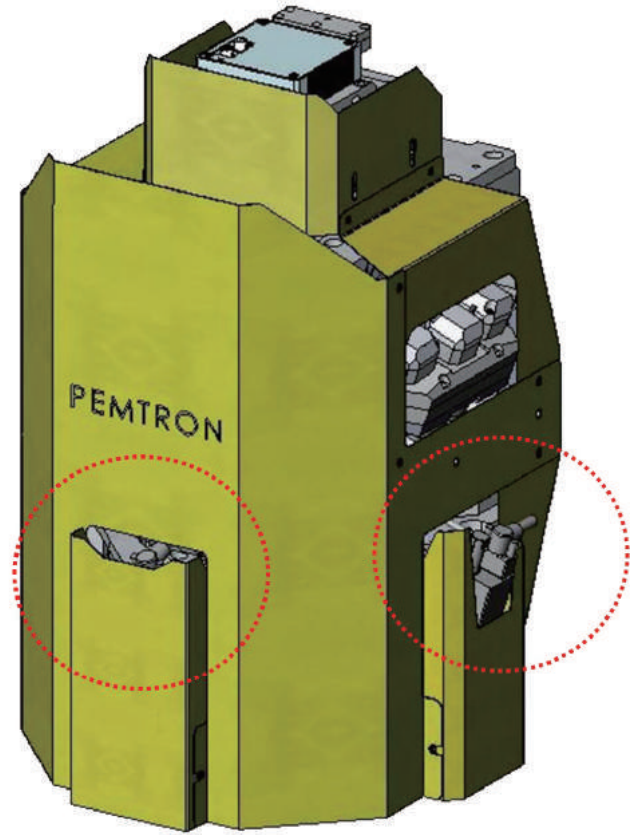
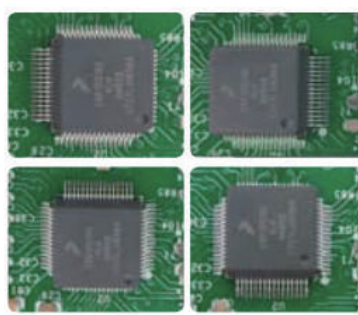
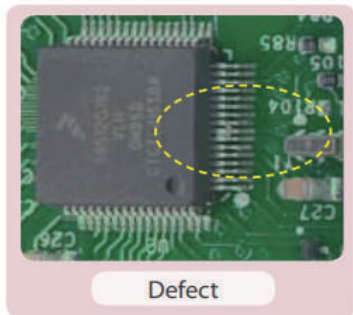
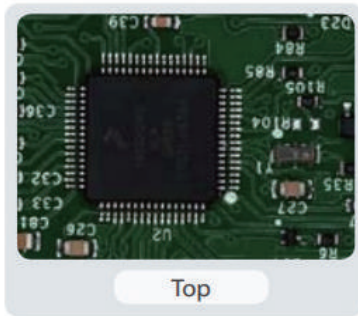
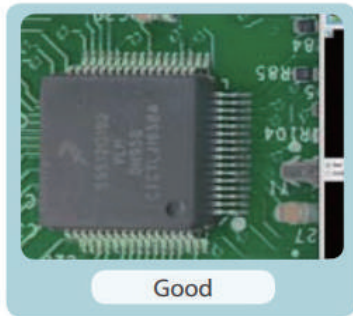
More Advanced 3D Technology

- ▶ More stable and accurate 3D realization by installing additional projectors
- ▶ 8-way(option 12-way) / 12-way(option 16-way)
- ▶ Formation of chip 3D among dense components and narrow parts
- ▶ Improved repeatability
- ▶ 3D formation same as real image





An Accurate and Convenient Inspection by Using Side Camera

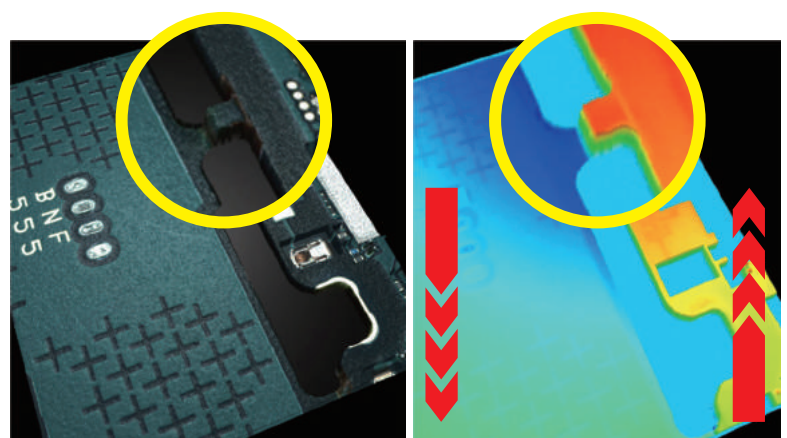


- 4-way side camera (Optional)
- Possible to detect inside bridge which can't be detected with top camera
- Possible to detect inside of the connector
- Convenient teaching by using the existing algorithm
- Real time inspection algorithm for side camera

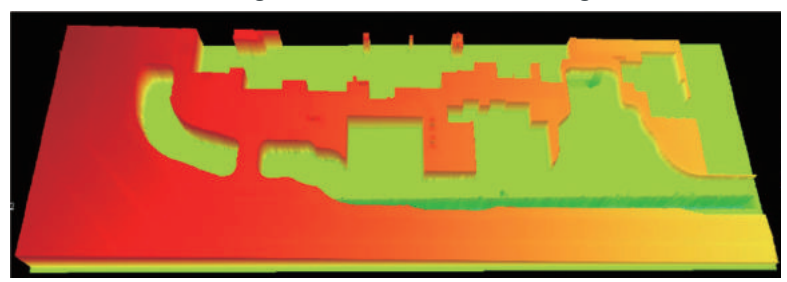
Moiré Warpage

PEMTRON can use the Moiré technology to inspect the moiré 3D warpage for the entire board not through the existing spot method

- Improved warpage inspection accuracy
- Easy operation
- Full board 3D warpage



Height Difference Due to Damage



PCB surface is implemented normal as it makes higher to the left same with actual PCB surface.

SMARTRON

Factory Optimization Solution
System RMS / Alarm / SPC / Job & Library management

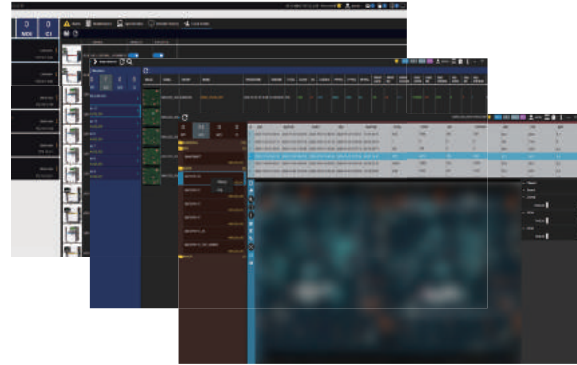


Real-time Line Monitoring and Control
- RMS (Remote Monitoring System)
- Registered System status

Data Analytics and Reporting
- Yield / CpCpk / Job & Part analysis etc.
- Statistical Chart / Process Chart / Alarm History

Quality Management Solution
- Multiple line & systems maintenance management

Job & Library management
- Optimizing based on classified result data

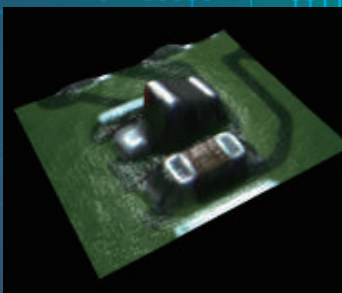


AI SMART FACTORY

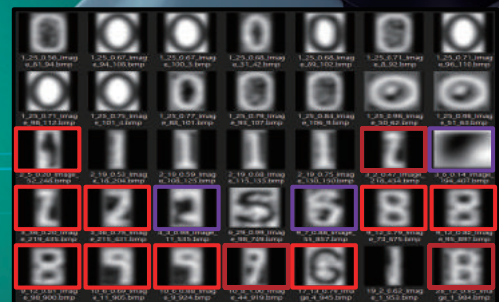
Operation management of more accuracy and convenience based on the accumulated data and technology for the last 20 years

- Auto confirmation feature decreased false call by clearly distinguishing OK and NG
- Auto judgment especially for OCR algorithm and part
- Auto debugging feature with continuous deep learning.

AI



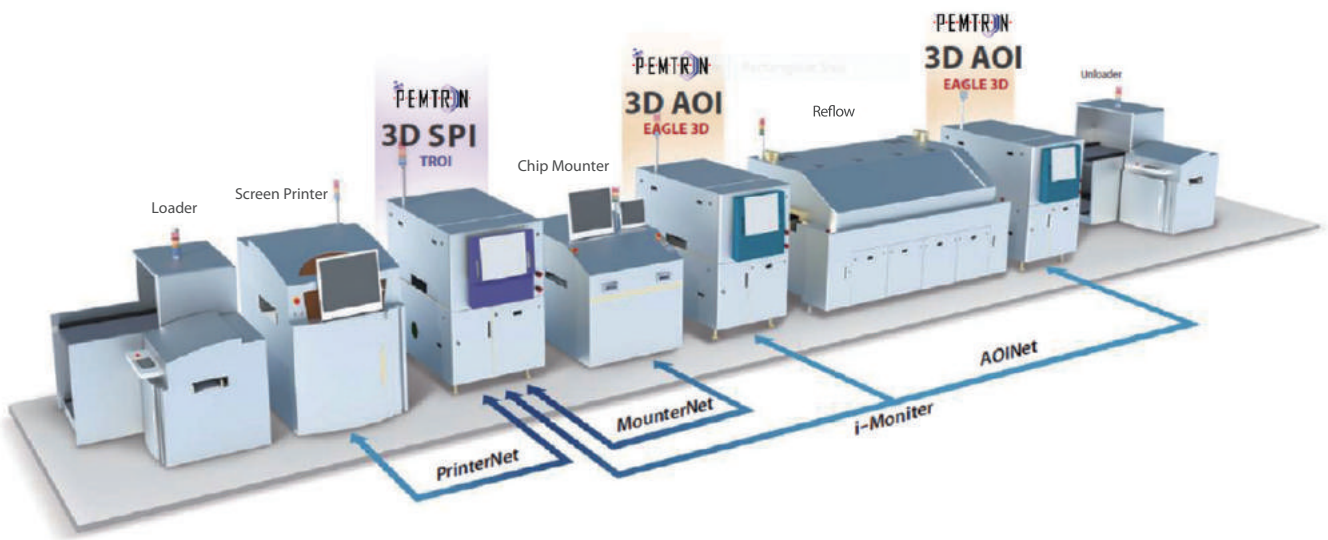
Lift
 Chip
 missing



Real Time Process Management Quality Management Solutions

Inspection Result Information Auto Sync.

- ◆ **Printer Net**
 - Closed Loop Solution with Screen Printer
- ◆ **Mounter Net**
 - Closed Loop Solution with Mounter
 - Bad Mark Mounter Sync and Adaptive Process Control
- ◆ **APC MFB**
 - Offset Technology of Mounting Location of Mounter, Using Data of AOI Inspection
- ◆ **PEMTRON SPI & AOI Closed Loop Function**
 - Real Time Defect Confirmation
- ◆ **i-Monitor**
 - Control a Maximum of Twelve Machines with One Monitor



Accurate SPC Process Management System

- Capable of management of various statistical process data with basis of accurate measurement result extracted by SPC (Statistical Program Control)
- At-a-glance interface for operator
- Data collection in real time
- Capable of stable process management with basis of accurate data : Increasing production yield rate, Checking process status check, Identifying cause of defect, Cost Reduction, Product quality improvement, Prevention in advance

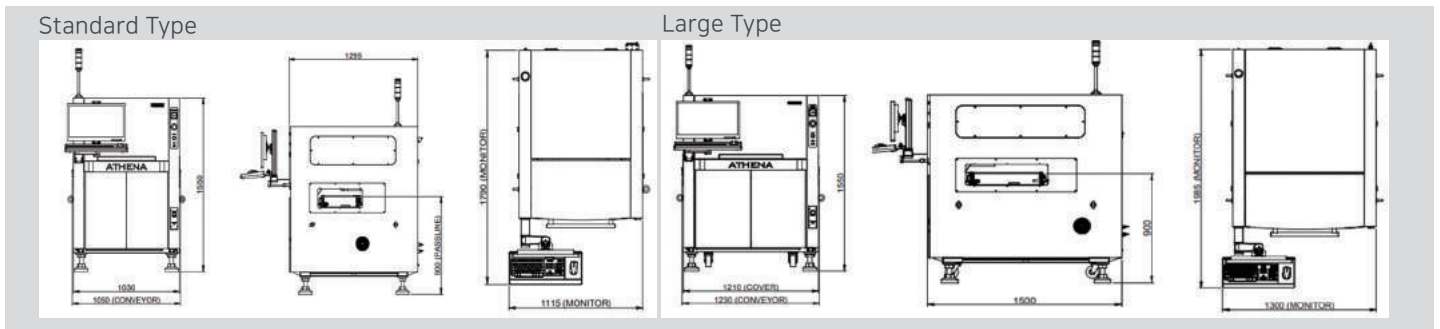
The collage displays several key software features:

- Work Part Analysis:** A detailed table of inspection data with columns for part numbers, dates, and results.
- Inspection Summary:** A summary view showing total inspection counts and defect percentages.
- Model Information:** A table listing board models and their associated inspection results.
- Inspection Data Average:** A table showing average values for various parameters like CPK, SIGMA, and USL.
- X-Bar Chart:** A statistical control chart showing volume trends over time (1999-2000).
- Board Information:** A summary table for a specific board model, including name, PCB size, total board count, and inspection results.
- Inspection Result:** A detailed table of inspection results for a specific board, including pass/good rates and defect counts.

SPECIFICATIONS

Model		ATHENA			
Camera		10MP		12MP	
Resolution		10um	15um	18 um	10um 15um
Inspect Speed		20 cm ² / sec	45 cm ² / sec	64 cm ² / sec	28.34 cm ² / sec 57.31 cm ² / sec
FOV (Field Of View)		33x30mm	49x45mm	59x54mm	41x30mm 61x46mm
Height Range		0 – 5.5mm (option 27mm)			
Height Accuracy		± 3%			
Model		ATHENA	ATHENA L	ATHENA D	ATHENA DL
PCB Inspection Size	Max. PCB Size	330 x 330mm (13 x 13 inch)	510 x 510mm (20 x 20 inch)	Dual : 330 x 280mm (13 x 11 inch) Single : 330 x 500mm (13 x 20 inch)	Dual : 510 x 300 mm (20 x 12 inch) Single : 510 x 600mm (20 x 24 inch)
	Min. PCB Size	50 x 50mm (2 x 2 inch)			
PCB Specification	Thickness	0.4 ~ 7mm			
	Top Clearance	50mm			
	Bottom Clearance	50mm			
Electrical requirements	200 ~ 240Vac, 1Phase, 50/60Hz				
Power Consumption	3.7kW (16A Max @ 220V AC)				
Dimension (W x D x H)		1050 x 1345 x 1550mm (41 x 53 x 61 inch)	1230 x 1535 x 1550mm (48 x 60 x 61 inch)	1050 x 1780 x 1565mm (41 x 70 x 62 inch)	1230 x 1825 x 1565mm (48 x 72 x 62 inch)
Weight		1050kg (2315lb)	1200kg (2646lb)	1200kg (2646lb)	1330kg (2932lb)

* Specifications subject to change without notice.



PEMTRON CORPORATION
 #1406, (Byucksan Digital Valley VI,
 Gasan-Dong) 219, Gasan digital 1-ro,
 Geumcheon-gu, Seoul, KOREA. 08501
 Tel: +82-2-1833-5220
 Fax: +82-2-2627-3770
 sales@pemtron.com

**PEMTRON TECHNOLOGY MEXICO,
 S de RL de CV**
 Nicolas Bravo #3647,
 Col. Miguel de la Madrid,
 Zapopan, Jalisco, Mexico, 45239
 Tel: +52-33-2733-9111
 jaime.arreola@pemtron.com

PEMTRON TECHNOLOGIES ASIA PTE LIMITED
 FLAT/RM 1704 17/F SINGGA COMMERCIAL CENTER
 144-151 CONNAUGHT ROAD WEST SAI YING PUN HK
 Tel: +852-3590-5175
 tao@pemtron.com

PEMTRON TECHNOLOGY, CORP
 15111 S. Figueroa St.,
 Gardena, CA 90248
 Tel: +1-800-850-8764(TRO)
 steve.wong@pemtron.com

**PEMTRON TECHNOLOGIES CO.,LTD
 (SUZHOU)**
 Rm I&J, Level 6Th, Unit 15/16, Building A,
 No.5 Xing Han Street, Suzhou, P.R CHINA
 Tel:+86-755-2165-9772
 tao@pemtron.com

PEMTRON VINA CO.,LTD
 Lot A31-A32, V2 Building, Home City Apartment,
 Trung Kinh Street, Cau Giay District, Hanoi
 Tel: +84-86-584-0329
 +82-2-2160-5011
 wjink09@pemtron.com

PEMTRON EUROPE GmbH
 Kapellenstrasse 11
 85622 Feldkirchen bei Munchen
 Tel: +49-89-877-688-42
 mvielsack@pemtron.com

**PEMTRON TECHNOLOGIES CO.,LTD
 (SHENZHEN)**
 F Zone, 4th Floor, Building 1,
 Baisha Industry Park,
 Nanshan District, Shenzhen, P.R China
 Tel: +86-755-2165-9772
 tao@pemtron.com

PEMTRON SE ASIA SDN.BHD.
 No.44-G Persiaran Bayan Bay, 11900 Bayan Baru,
 Pulau Pinang, Malaysia.
 Tel: +60-12-418-3314
 zack@pemtron.com