



Xceed

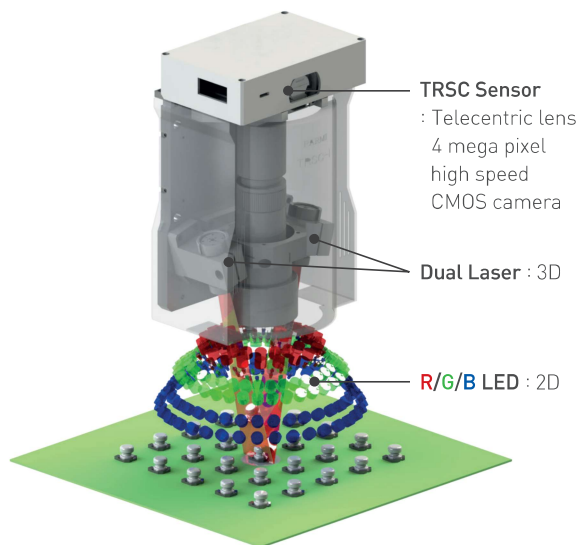
3D Automatic Optical Inspection

Key Features

- Ultra-fast laser line scan method 2D & 3D AOI
- Real 3D image regardless of the color, surface, or material of the object
- Highest inspection speed in the same field : 65 cm²/sec
- Ability to inspect components up to 40 mm tall with high accuracy
- Simple machine structure and easy maintenance
- SMT line process optimization S/W tools available
- Integrated process management based on high-performance AI

PARMI

TRSC Sensor | Ultra-Fast & High-Precision Component Inspection



Laser Scan Method

By applying PARMI's unique technology, utilizing dual lasers and a high speed CMOS camera, a height profile is created to realize real 3D shapes for the entire scan area and guarantee the best measurement accuracy and speed.

- Finely focused laser line beam scan inspection
- Ultra-fast inspection speed in the same field
- Ensures the highest measurement accuracy and reliability
- Real 3D images regardless of the color, surface finish, or material of the object
- Accurate 3D shape profiling with unique centroid measurement algorithm

Sensor Specifications

X-Y Resolution : $14 \times 14 \mu\text{m}$ ($65 \text{ cm}^2/\text{sec}$)

Telecentric lens 4 mega pixel high speed CMOS camera

Dual Laser - 3D height image acquisition

R/G/B LED - 2D color image acquisition

3.8 kg ultra-light sensor head

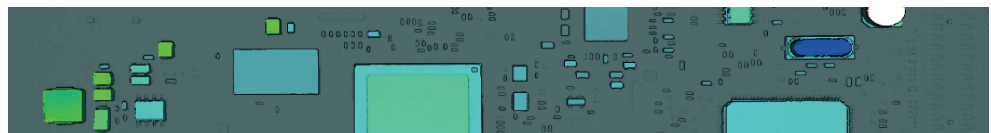
Right Laser
Left Laser



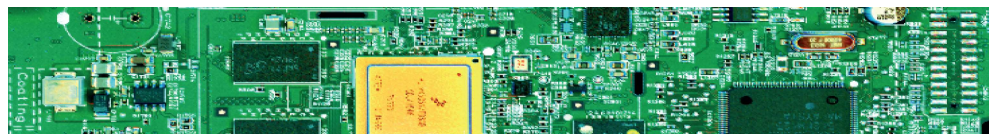
Red LED
Green LED
Blue LED



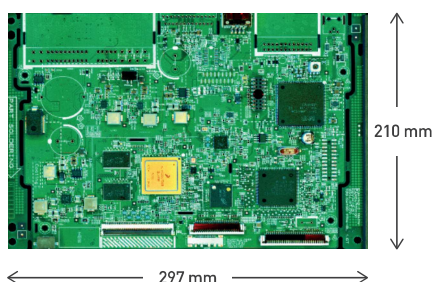
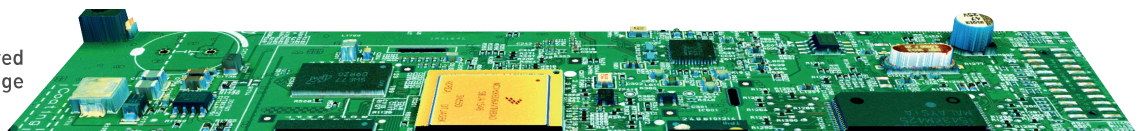
3D Height



2D Color



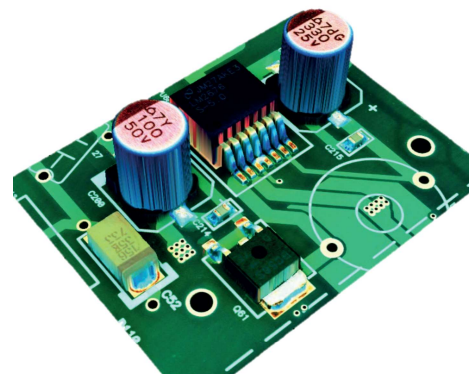
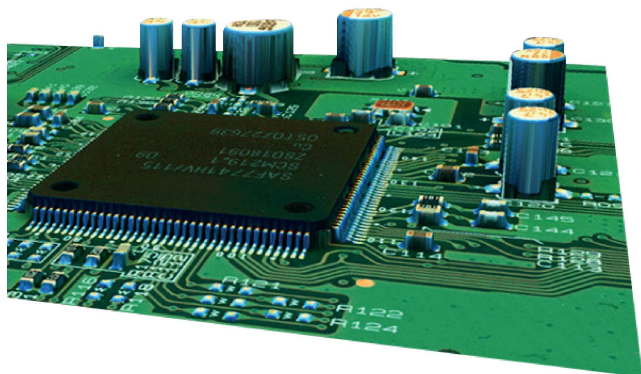
Color Textured
3D Image



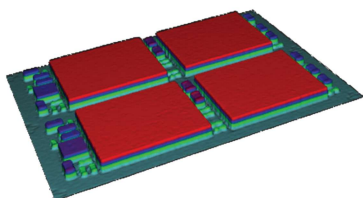
Ultra-Fast Inspection Speed in the same field

- PCB Size : $297 \times 210 \text{ mm}$ [A4 Size]
- Inspection Speed : 15 sec ($65 \text{ cm}^2/\text{sec}$)
- X-Y Resolution : $14 \times 14 \mu\text{m}$

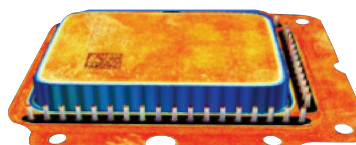
Inspection | High Bandwidth on a Broad Range of Colors & Surface Finishes



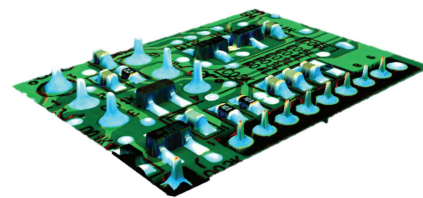
SMT



Die



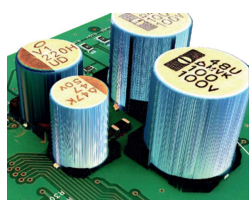
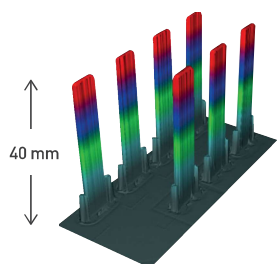
Crystal



Thru-Hole

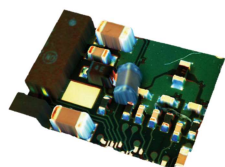
Real 3D Component Inspection

- Dimension, Missing, Wrong Component, Reverse, Misalignment (X/Y Rotation), Side Mount, Tombstone, Upside Down, Lifted (Body), Text (OCV/OCR), Solder Joint, Lead Missing, Lead Misalignment, Lead Lift, Bridge, Color Band, Pin, Pressfit, Coplanarity, etc.



Up to 40 mm High Component Inspection and Elimination of Shadow Effect

- Inspect up to 40 mm tall components with multi-scan
- Dual laser's narrow angle (14.5°) inspects low components adjacent to high components without shadow effect



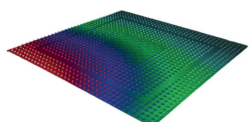
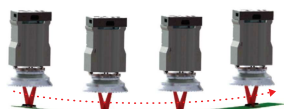
Foreign material



Contamination

PCB Surface Inspection

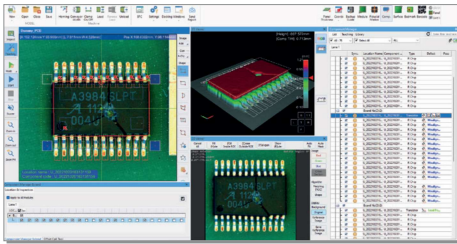
- Inspection for foreign material (FOD) / contamination on the PCB surface (perfect detection of dropped chips, solder balls, other foreign matter, etc.)
- No additional teaching or inspection time is required as the inspection proceeds simultaneously with the PCB scan



Real-Time PCB Warpage Measurement

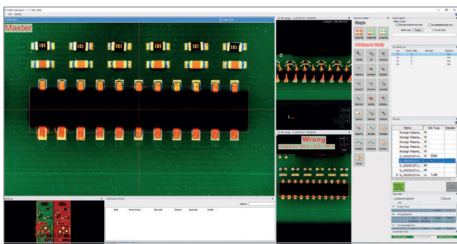
- Accurate base acquisition with real-time Z-axis control while scanning the PCB
- Guaranteed measurement accuracy to ± 5 mm of PCB warpage

Software | Easy and Convenient User-Oriented S/W Tools



Component Inspection Program [A0Iworks]

- Quick and easy component teaching
- Real-time teaching and debugging support without interruption of machine operation
- Docking window method that can configure UI according to user preference



Verification Program [Veriworks]

- A program that secondarily judges detected defects
- Real-time 2D & 3D defect image analysis
- Multi-line remote judgment function supported
- Search defect history by scanning barcodes



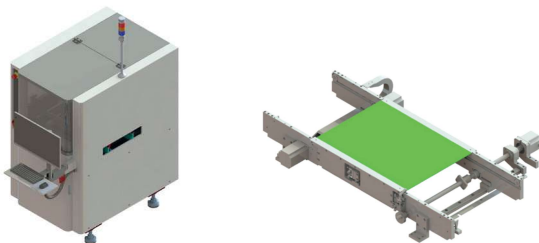
Statistical Process Analysis Program [SPCworksXceed]

- Practical and field-ready integrated process analysis function
- Provides various variables/attributes data (by defect/panel/period, etc.)
- Remote data access via network (LAN)

Hardware | Special Configurations

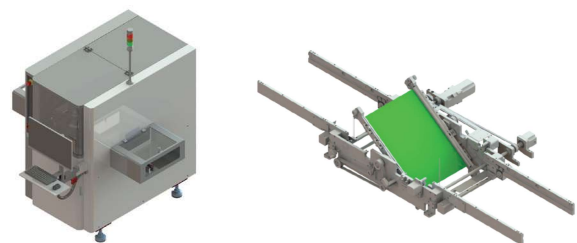
Xceed STD

- Single lane
- 1 Stage/3 Stage (Entry/Exit)



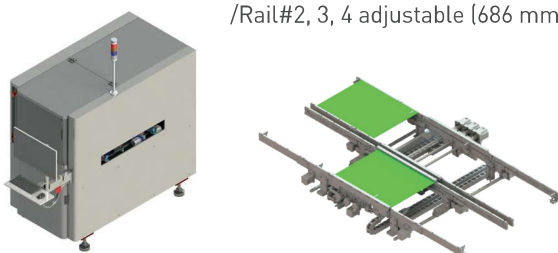
Xceed DSI

- Double side inspection (Top/Bottom)
- Integrated PCB flip conveyor



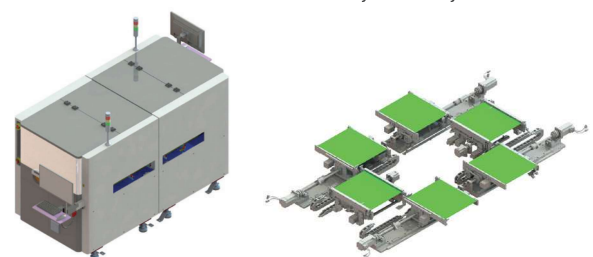
Xceed Dual

- Dual lane (Front/Rear)
- Rail#1 fixed
/Rail#2, 3, 4 adjustable (686 mm)



Xceed Duo

- Rear structure (686 mm)
- Shuttle conveyor (Entry/Exit)



Industry 4.0 | Smart Innovation of Workflow



Integrated Process Management

- **MES**
: Integrated production management system
- **Chip Mounter-AOI Feedback**
: Feedback of the misalignment position of mounted components to the chip mounter
- **RMC**
: Real-time remote monitoring of machine status in all production lines on one screen
- **S/W Automatic Update**
: Keep SPI/AOI software up to date

AI Inspection

- **AI Model Change**
: Automatically performs model creation and change without operator intervention
- **AI Teaching**
: Complete model programming with one click
- **AI OCR**
: High-performance AI text inspection based on vast learning data - greatly reduces false calls
- **AI Verification**
: AI 2nd judgment automation

Rapid Process Analysis

- **SPI-AOI Linkage Analysis**
: SPI-AOI defect history tracking on one screen
- **Defect Analysis**
: Provides analysis data such as defect type/ratio/location
- **Yield Analysis**
: Yield graph provided by period/model

Efficient Storage Operation

- **Server Centralization**
: Efficient DB integrated management by building a central server system
: Systematic inspection specification management with component library function
- **Automated Data Management**
: Stable data preservation with data backup/deletion automation

Specifications

Model	Xceed	Xceed L	Xceed XL	Xceed XXL	Xceed Dual	Xceed Dual L	Xceed Duo	Xceed DSI
Vision Module : TRSC-I								
Measuring Principle	Shadow Free Dual Laser Optical Triangulation							
Camera	4M Image Sensor / Telecentric Lens							
Illumination	R.G.B LED 3 Stage Lightings							
Scan Speed (sq.cm/sec)	65							
X-Y Resolution (μm)	14 × 14							
Scan Path Width (mm)	32							
Height Resolution (μm)	0.4							
Performance								
Height Repeatability	[Less than 3 mm : 3 μm @ 3σ Limit] / [Higher than 3 mm : 6 μm @ 3σ Limit], on a certification target							
Height Accuracy	[Less than 3 mm : 3 μm @ 3σ Limit] / [Higher than 3 mm : 25 μm @ 3σ Limit], on a certification target							
Measurement								
Inspection Type	Dimension, Missing, Wrong Component, Reverse, Misalignment (X/Y Rotation), Side Mount, Tombstone, Upside Down, Lifted (Body), Text (OCV/OCR), Solder Joint, Lead Missing, Lead Misalignment, Lead Lift, Bridge, Color Band, Pin, Pressfit, Coplanarity, etc.							
PCB Warpage (mm)	±5 (2%)							
Max. Component Height (mm)	40 (Option 60)							
Panel Dimension								
Min. Size (mm)	50 × 50							
Max. Size (mm)	410 × 350 (3 Stage Conveyor Option : 410 × 350)	510 × 510	900 × 610	1,200 × 450	410 × 320 (3 Stage Conveyor Option : 410 × 320)	510 × 320	350 × 250	420 × 350
Thickness (mm)	0.4 ~ 5	0.4 ~ 5	0.4 ~ 10	0.4 ~ 10	0.4 ~ 5	0.4 ~ 5	0.4 ~ 5	0.4 ~ 3
Max. Weight (kg)	2	4	6	6	2	2	2	3
Top/Bottom Edge Clearance (mm)	2.5 / 3.3	2.5 / 3.3	2.5 / 4	2.5 / 4	2.5 / 3.3	2.5 / 3.3	2.5 / 3.3	3 / 3
Top/Bottom Clearance (mm)	40 / 50	40 / 50	40 / 50	40 / 50	40 / 30	40 / 30	40 / 20	40 / 40
System Dimension								
W×D×H (mm)	850 × 1,205 × 1,525 (3 Stage Conveyor Option : 1,310 × 1,205 × 1,525)	950 × 1,365 × 1,525	1,400 × 1,540 × 1,525	1,720 × 1,350 × 1,525	850 × 1,580 × 1,510 (3 Stage Conveyor Option : 1,450 × 1,645 × 1,510)	950 × 1,580 × 1,510	1,210 × 1,212 × 1,510 [1set] 1,210 × 2,434 × 1,510 [2set]	1,610 × 1,365 × 1,525
Weight (kg)	730	820	930	1,140	760	850	800 (1set)	800
Conveyor Height (mm)	860 ~ 970							
Conveyor Speed Range (mm/sec)	300 ~ 1,000							
Panel Flow Direction	Left to Right, Right to Left (Factory Setting)							
Conveyor Width Adjusting	Auto							

※ Specifications in this catalog are subjected to change without notice for quality improvement.

Rev.1

Xceed Platform



Xceed MICRO

Ultra-Precise, High-Resolution 3D AOI



Xceed SPI

Micro Solder Inspection 3D AOI



Xceed DSI

Double Side Inspection 3D AOI



Xceed BSI

Bottom Side Inspection 3D AOI

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