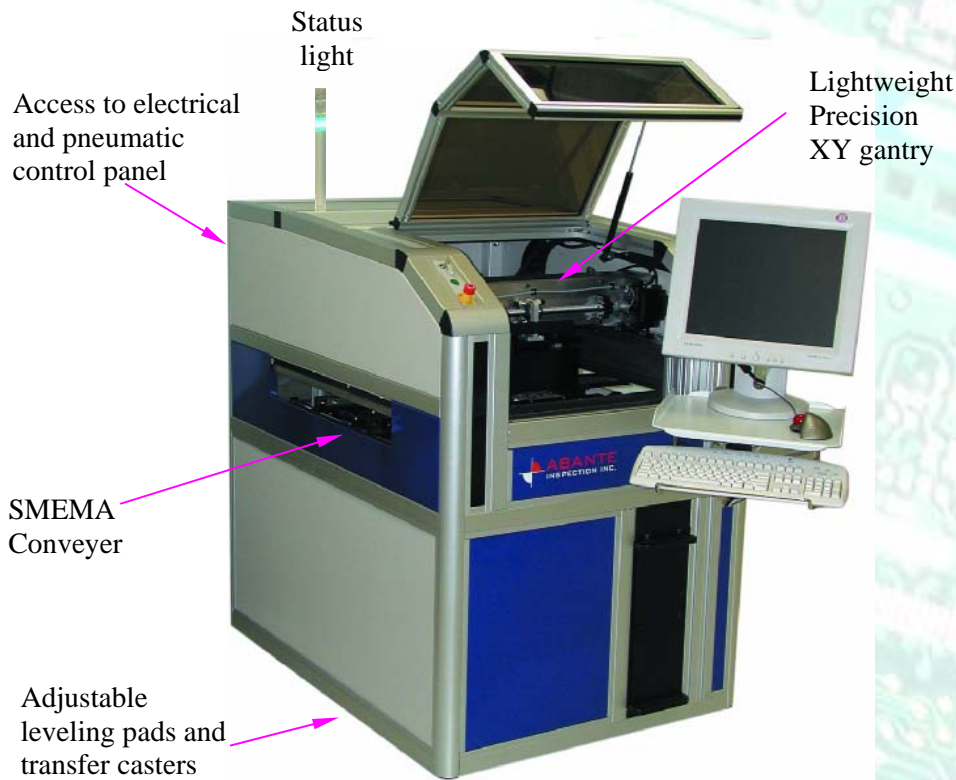


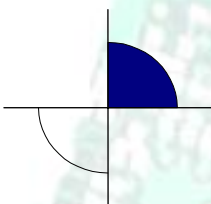
AI-816SC

FC Substrate Bump Inspection System



- **High speed – high accuracy 3D and 2D in-line inspection at production speed**

- Fully static 3D laser technology with 2D color for highly reliable measurements and defect detection
- Panel and JEDEC tray capability
- Easy to use set-up screen and reliable operation
- Accurate height, position, area and volume measurements
- Small footprint
- Tray handling and part sorting optional



Aceris 3D
INSPECTION INC.

Flip Chip Substrate Inspection



Sensor Specification SH-16

Features:

- Integrated high speed 2-D and 3-D laser sensor
- Technology: 3-D Structured Light, Class 1 "eye-safe"
- Three independently controlled strobe LED lighting modes for the 2D
- No moving parts
- Stable calibration

Technical specifications:

Resolution Height (3-D):	0.13 – 0.17µm
Resolution Lateral (3-D):	6 – 7.6µm
Scan direction resolution (3D):	1 – 50 microns in 1µ steps
Profiles per second:	>7,500
Points per profile:	2350
3-D Points/sec:	up to 60 million
Swath size:	14-18 mm
Dept of field (Z):	0.3 mm optimum, 0.7mm acceptable
2D camera resolutions:	7.5µm per pixel nominal (2M pixel camera)
Repeatability height:	<1.5µm at 3σ
Repeatability volume:	<5% nominal at 3σ (worst case for small bumps)
Repeatability position:	<3.6µm at 3σ
Speed:	UPH is over 3000 FC substrates per hour for 3x8 trays

Computing Specifications

The menu-driven graphics software, navigated by a trackball is user-friendly and provides graphical depiction of data where appropriate.

Operating System:

- Microsoft Windows® XP Workstation.

Computer:

- Dual Opteron Processor PC
- 4 Gigabytes RAM,
- 80 Gigabyte or larger Hard Drive,
- 3.5" Floppy Diskette,
- CD ROM,
- Custom interface board for the 3D cameras,
- PCI frame grabber for the 2D camera,
- Motion control and I/O interface board,
- 100 Base T Ethernet,

Software Features:

- Gerber file input (RS-274X).
- On/off-line Set-up software facilitates quick inspection program creation utilizing board image.
- Easy to use fiducial teach program.
- Utilities to see both 2D and 3D images; home and jog slides and perform calibration.
- Graphical and numerical feedback during inspection.
- Excel and data base compatible result files.
- Graphical result presentation capabilities.
- SPC capability
- Network interface: up to 8 remote result review station and one set-up client remote station

Defects and Metrology

The AI-816SC system inspects wet paste, reflowed bumps and coined bumps. It includes inspection software to detect and classify bump defects such as bridges, missing and extra, as well as perform measurements on individual bumps and report defects when they are outside user-specified limits.

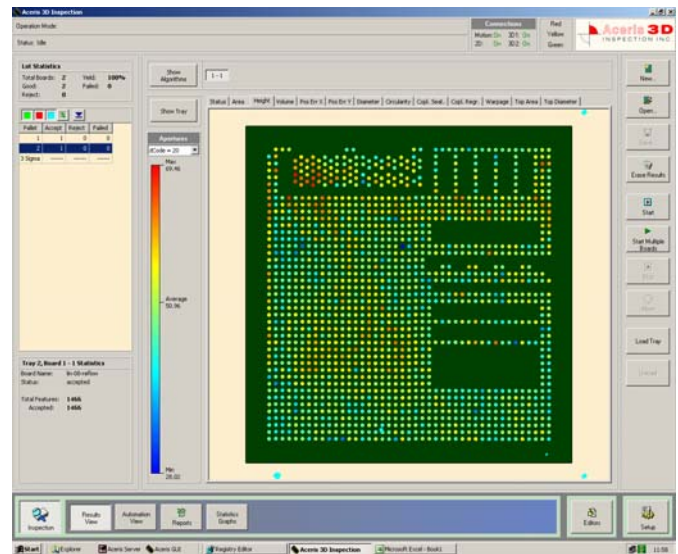
Defect detection:

- foreign material
- bridging
- missing
- substrate defects within bump area (PVI)

Metrology:

- area μm^2 , square mils and % of set value
- height μm , mils and % of set value
- volume μm^3 , cube mils, and % of set value
- displacement (in X and Y) μm , mils and % of set value

All measurement values have user selectable limits. Any value out of the preset limit will be flagged as defect. Statistical process control is feasible using the data collected in the measurement data base.



User friendly

Conveyor Specification

Two types are available: - one for PCB panels and one for JEDEC trays

Features:

- Stopper pop-up control with photo eye for predetermined "Y" position
- Cylinder on rear rail for registration of carrier against "X"
- Top reference point, lifting mechanism ("Z" axis)
- Variable speed edge carry belt (15m per minute min.)
- PLC controlled
- SMEMA interface
- Dual speed
- Manual width adjust for panels – fixed width in case of JEDEC trays

The conveyor operates as follows (PCB panels):

1. Conveyor brings the PCB to the Y stop.
2. Lift cylinders, acting on the lift bracket, push the PCB against the Z reference.
3. X axis cylinder pushes panel against the X reference rail.

Technical Data (PCB panels):

Adjustable width:	75mm to 200mm (3" to 8")
Conveyor length:	1 Meter
Product length:	100mm to 400mm (4" – 16")
Belt edge contact:	4.8mm (0.187")
Maximum conveyable board size:	200 x 400 mm (8" x 16")
Maximum inspection area:	200 x 400 mm (18 x 23.625")
Minimum board size:	101 x 75 mm (4 x 3")
Board thickness range:	0.5 - 5.05 mm (0.02 - 0.2")
Board edge clearance:	Top: 3mm (0.12"), Bottom: 4.8mm (0.187")
Conveyor height (adjustable):	813 to 965 mm (32 to 38")

System Specifications

Electrical requirement:	100-120/220-240 V, 50/60 Hz, 15 A, single phase
Compressed air:	80 to 100 psi (@ 4cfm)
Operating temperature:	5 - 40°C (40 - 100°F), 18 - 28°C optimum
Storage temperature range:	- 20 to 70°C (-4 - 158°F)
Humidity:	30 - 90% non-condensing
Dimensions:	(h x w x d) 140 x 93 x 101 cm (55 x 36.5 x 40")
Weight:	300 kg (660 lbs)

Specifications subject to change without notice