



# Agilent *Medalist* sj5000 Automated Optical Inspection Solution

## Data Sheet



The Agilent *Medalist* sj5000 Automated Optical Inspection solution provides the ultimate synergy in inspection coverage, flexibility, supportability, and programming methodology.

The imaging chain of the sj5000 is one of the most advanced designs in the industry. High rates of image acquisition, structured tri-colored lighting schemes, and a large digital camera combine to provide as many as eight pictures of every component while still maintaining one of the fastest inspection speeds in the industry.

sj5000 inspection algorithms mirror those of our previous product lines, providing superior coverage of solder joint defects, low contrast component location, wrong part, and much more.

Operator interfaces are available for Simplified and Traditional Chinese, Japanese, Hungarian, German, and English language formats today, with more options on the way.

Advanced optical design, next generation controls, and superior inspection coverage make the sj5000 an optimal solution for your test and measurement needs.



# SPECIFICATIONS

## Software Systems

Operating environment	Windows® XP SP2 operating system with easy-to-use GUI and password-protected user levels
Vision algorithms	Parametric component models, self learning classifiers, color learning, geometric pattern matching, solid shape modeling (SSM)
Statistical analysis	Supports Agilent's proprietary SPC and defect prevention packages, complete with test output files
Data transfer interface	DVD/CD-RW, USB drives, and Ethernet
<b>Functionality</b>	
Post-reflow inspection	Coverage: Missing, offset, skewed, polarity, billboard, tombstone, lifted/bent leads, excess/insufficient solder, bridging, wrong part, and traceability
Pre-reflow inspection	Coverage: Missing, offset, skewed, polarity, billboard, wrong part inspection, extra part inspection, and traceability
2D Paste inspection	Coverage: Paste registration, bridging, and other print related defects
Inspection speed <sup>1</sup>	Post reflow: 5 in <sup>2</sup> /sec (32 cm <sup>2</sup> /sec) Pre-reflow: 6.3 in <sup>2</sup> /sec (41 cm <sup>2</sup> /sec)
Traceability	
Board level	External barcode reader configured; Camera-read barcodes
Component level	OCR capability with batch code logging

<sup>1</sup> Inspection speeds may vary. Contact your local Agilent sales representative for specific questions about your application or product.

## Hardware Systems

Computer system	HP Workstation; Intel® Core™2 Duo Processor; 1 GB RAM; 1 x 250 SATA HDD; 17 inch flat screen monitor
Host protocols	10/100/1000-BaseT Ethernet; TCP/IP or MS Network (and other common XP supported networking protocols)
CAD file formats	Standard import functionality for numerous CAD file formats using CAMCAD, including BOM files for version control and non-populated inspections
Camera system	4 mega pixel digital camera. 19 µm per pixel resolution (scalable from 21 to 12 µm for 01005 inspection) Field of view: 44.7 mm x 32.8 mm
Lighting system	Multiple color, multiple angle, multiple segment LED lighting head, auto-calibration
Board conveyor	In-line SMEMA conveyor Auto-width adjust Bottom-up clamping
XY robot system	Gantry robot systems with linear motors and linear magnetic encoders Repeatability: < 8 µm Encoder resolution: 1 µm
Enclosure	Designed to conform to CE Mark standards for electrical and mechanical industrial safety
Supplies	Electricity 100-240 V, 16 A
Temperature	Operating temperatures 5 °C to 40 °C, maximum board temperature: 80 °C
Hardware options	Dual lane conveyor Hardware staging
Software options	Agilent Process Control Software Offline Programming (OLP) Station Solutions associated with Intelligent Test Framework, including Agilent Medalist Repair Tool and Medalist Quality Tool

# SPECIFICATIONS

## Board Dimensions

Maximum board size <sup>2</sup>	510 mm by 510 mm (20 inch by 20 inch)
Minimum board size	50 mm by 50 mm (2 inch by 2 inch)
Maximum board size for dual lane conveyor hardware option	216 mm by 510 mm (8.5 inch by 20 inch)
Maximum board thickness	4 mm (0.16 inch)
Minimum board thickness	0.5 mm (0.02 inch)
Board weight	Up to 3 kg (6.6 lb)
Maximum area that can be inspected	510 mm by 503 mm (20 inch by 19.8 inch)
Clearance	
- Top side of board	41 mm (1.61 inch)
- Bottom side of board	50 mm (1.97 inch)
- Minimum edge clearance	3.5 mm (0.14 inch)
- Conveyor height range	821 mm to 965.2 mm (32.4 inch to 37.9 inch)

2 Larger boards can be accommodated. Contact your Agilent sales representative for details.

## System Dimensions

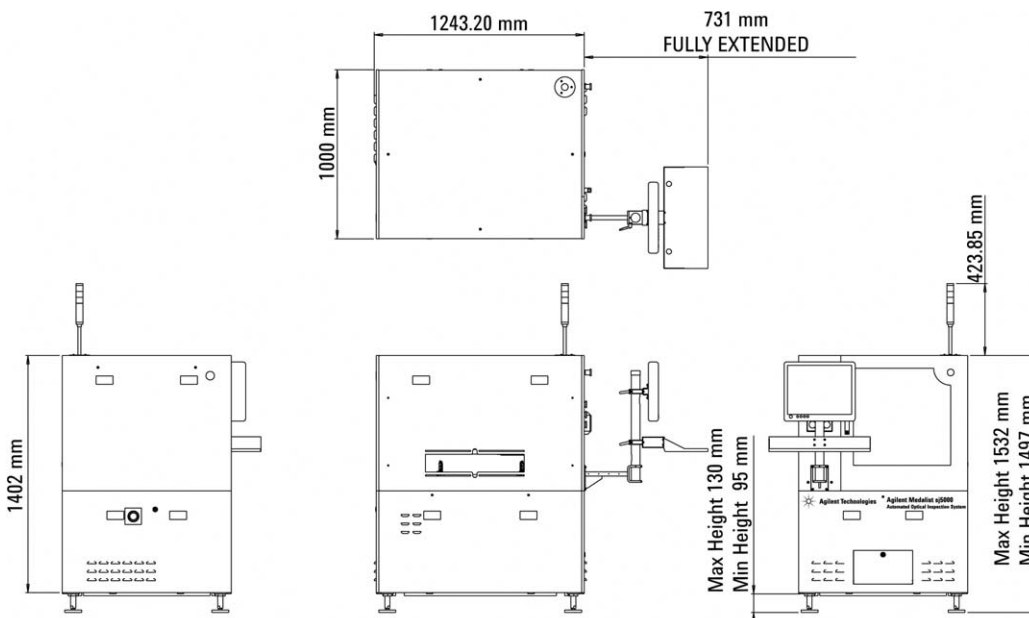
### sj5000

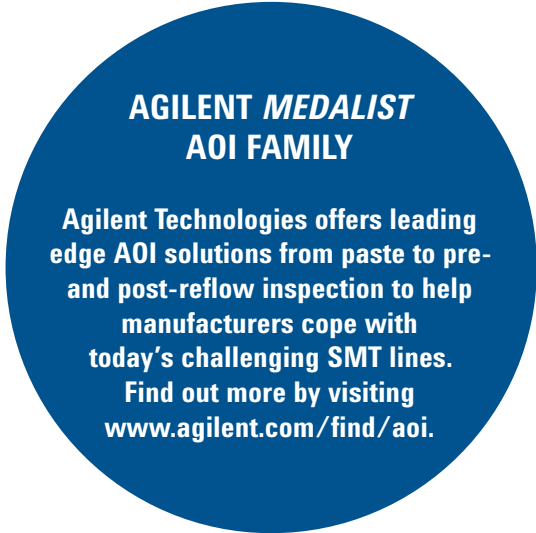
Footprint	
Width	1000 mm (3.3 ft)
Depth	1281 mm (4.2 ft) <sup>3</sup>
Height	1975 mm (6.5 ft) <sup>4</sup>
Weight	~ 750 kg (1653 lb)

3 Excluding keyboard, monitor, arm, isolator and hood handles

4 Including lighting tree and adjustable feet (set to 95 mm)

## Schematic of Medalist sj5000 system dimensions





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