

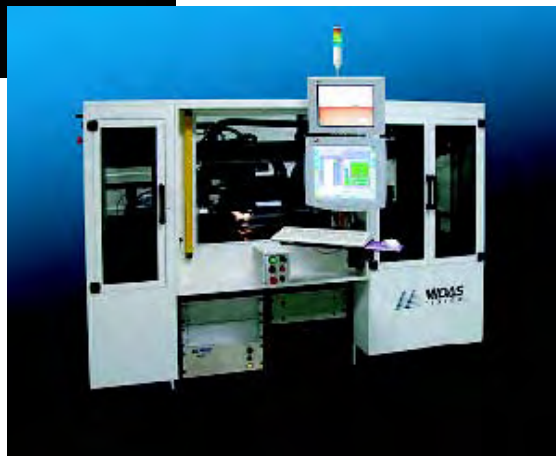
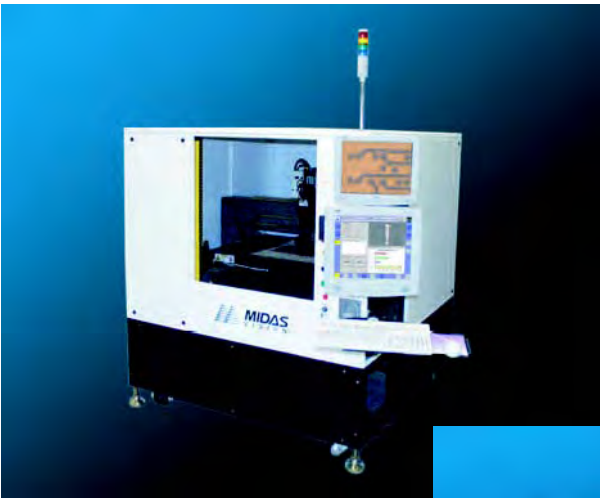
# AOI Process Modules for Yield Management

Yield management in High volume HTCC/LTCC packaging and HDI Flex circuit production

**"AOI gives us the immediate process feedback that we need to improve our yields."**

Ceramic Package and HDI Flex circuit are critical components used in many applications. The cost of low yield, defects, and premature field failures in these substrates and circuits can be very high, not only in terms of financial impact but also in a manufacturer's reputation. To improve yield and prevent the possibility of shipping defective products, manufacturers are now relying upon Automated Optical Inspection (AOI) system to greatly improve their yields, productivity, and outgoing quality.

## Benefits of Using MIDAS AOI



### Financial Impact

- Maximize yield Reduce scrap
- Reduce manual inspection costs
- Reduce cost of electrical test
- Lower package cost

### Market Impact

- Higher quality Shorten time to market
- Meet high reliability requirements
- High reputation
- Improve competitive position
- Prevent field failures

### Engineering Impact

- Focus process development efforts
- Pinpoint sources of process feedback
- Provide continuous process feedback
- Enable new package technologies

### Production Impact

- Improve scheduling impacts
- Prevent production disasters

## Robust Operation

Sophisticated defect detection algorithms in the software system automatically detect defects and adapt to non-critical circuit irregularities caused by normal process variation, thereby greatly reducing false rejects.

## Turnkey-Ready

MIDAS's process modules are ready for integration into any manufacturing facility as stand-alone process inspection module or an island-of-automation with sheet-fed or reel-to-reel loading/unloading. Its intuitive software interface and sensible ergonomics makes this system easy to use and requires minimal operator training.



**MIDAS process modules allow for Highly Effective Pass/Fail decisions while providing/logging valuable information for process and quality control. Yield-limiting defects are readily exposed, logged, and optionally presented to an operator for review.**

## Ceramic Process Module

The CC series process module inspects conductor print and vias on every layer of green sheet with resolution down to 2.5 micron. This ability provides LTCC/HTCC manufacturers with the immediate feedback necessary to refine their manufacturing process and eliminate defects and improve yield. By providing real-time process feed back, the CC series enable manufacturers to dramatically improve quality while maintaining extremely high production rates.

### Defect detection ...

- Automatically detects over 12 different types of yield-limiting defects including: Clogged, Empty/Overfilled vias, Shorts/Spacing violations, Contamination, Circuit opens, Neck-downs, "Dirty" opens, Pinholes, Pattern registration and Excess screen stretch

### High throughput ...

- Less than 14 seconds for a 153mm x 153mm green sheet at 12.5 micron resolution

### Versatile handling ...

Handles framed, unframed, manual feed or automated feed; good/bad sorting capability is an option

## FPC Process Module

The FLX series process modules inspect high-density flexible printed circuits at high speed with a precision down to a 2.5 micron resolution. This level of performance provides flexible circuit manufacturers with the immediate feedback necessary to refine their manufacturing process and improve quality while maintaining high production rates.

### Automatic defect detection ...

Pattern shorts or spacing violations, Contamination/Debris, Opens, Neck-downs, and Pinholes, Pattern registration, Excess flex panel stretch

### High throughput ...

- Less than 14 seconds for a 234cm<sup>2</sup> flexible circuit with 100 micron pitch (50 micron lines and spaces)

### Versatile handling ...

- Vacuum nest fixture for Universal Tooling, Pass/Fail sorting optional

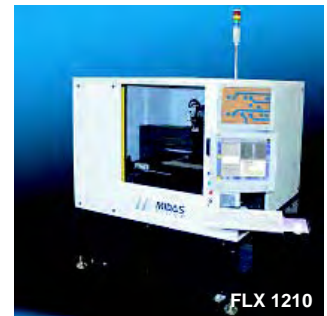
Specifications are subject to change without notice.

## Ceramic Process Module

CC-1010, Engineering unit  
CC-1210, Manual load/unload  
CC-1210A, Automated load/unload  
CC-1210M



## Flex Process Module



FLX-1210, Standard format  
FLX-1410, Large format  
FLX-1210M

## Verify Station



VRS-1200, Standard format  
VRS-1400, Large format

	Engineering unit	Production unit				
Product name	CC-1010	CC-1210M/FLX-1210M	CC-1210/FLX-1210	FLX-1410	VRS-1200	VRS-1400
Inspection area	203mm x 203mm (8" x 8")	300 mm x 300mm (12" x 12")	300 mm x 300mm (12" x 12")	609mm x 609mm (24" x 24")	300mm x 300mm (12" x 12")	609mm x 609mm (24" x 24")
Air pressure	-	90-110 psig (6.32-7.73 kg/sq cm) clean and dry with 5 micron filter in-line				
Air flow	-	3 SCFM (85 liters/min)	5 SCFM (141 liters/min)	5 SCFM (141 liters/min)	3 SCFM (85 liters/min)	3 SCFM (85 liters/min)
Electrical	110VAC, 7 amp, 1 phase (UPS provided)	208/220 VAC, 20 amp, 1phase (UPS provided)			208/220VAC, 5 amp, 1phase (UPS provided)	208/220VAC, 5 amp, 1phase (UPS provided)
Dimensions W x D x H	820mm x 750mm x 1,700mm (32" x 30" x 67")	965mm x 710mm x 1,840mm (38" x 28" x 72.5")	1,120mm x 1,120mm x 1,650mm (44" x 44" x 65")	1,650mm x 1,730mm x 1,730mm (65" x 68" x 70")	820mm x 750mm x 1,120mm (32" x 30" x 44")	1,270mm x 1,070mm x 1,525mm (50" x 42" x 60")
Weight	160kg (350lbs)	454 kg (1,000lbs)	1,300 kg (2,865lbs)	2,610 kg (5,743lbs)	160 kg (350lbs)	182 kg (400lbs)

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