

TFM-1000

**THICK FILM CONDUCTOR ON CERAMIC
PRINT INSPECTION PROCESS MODULE**

MIDAS Vision's TFM-1000 automatic optical inspection (AOI) system is designed to reliably find the most important yield-limiting defects occurring in the thick film print process on hard ceramic. Using Adaptive Analysis algorithms, the system instantly identifies true defects in the screen-printed pattern, while compensating for natural process variations. The TFM-1000 comes with a set of polarizers, diffusers, and blue dichroic filters for robust imaging of gold, silver, and tungsten conductor inks, in addition to black resistive ink.

The TFM-1000 operates at high speed, and can be used for in-process print monitoring or 100% inspection. As a process monitor, the system dramatically reduces process set-up time by providing instant "first article" feedback. It also prevents large runs of defective parts during production. The system also includes a built-in verification station with magnified displays of both the color-coded analysis of each defect and the defect's video image. Automatic defective part marking capability is optional.

The TFM-1000 comes ready for integration into any manufacturing facility as a stand-alone inspection system or an island of automation with loader and un-loader. Physically, it has a small footprint, and comes with casters for easy portability. Electrically, it uses standard single-phase 110/220 VAC power. By design, it requires very little maintenance.

Manufacturing staffs will be drawn to use the TFM-1000, not only for its extraordinary ability to catch defects, but also for its fast set-up, simple operation, and effective display. Process engineers will appreciate the critical feedback it provides for production process problems and the data it generates for statistical analysis.



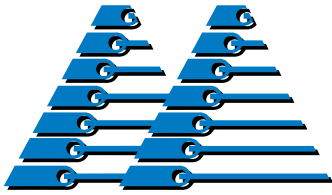
● TFM-1000 Key Features

- Extremely Accurate Inspection Of Conductor Print Pattern
- Built-in Verification Station
- Golden Sample Reference (CAD Optional)
- High Throughput Rate
- Fast Setup, Simple Operation
- Small Footprint
- Automatic Part Handling Option

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SYSTEM SPECIFICATIONS

Inspection Application	Screen-printed Thick Film (gold, silver, tungsten, black resistor, other)
Substrate Types	Hard ceramic substrate
Substrate Size (maximum)	12" x 15" (30 x 38 cm) For other sizes, contact factory.
Active Inspection Area	8" x 10" (20 x 25 cm) For other sizes, contact factory.
Inspection Resolution Options	1 mil, 0.5 mil, 0.25 mil, or 0.125 mil. (25, 13, 6, or 3 μ m) For other resolutions, contact factory.
Inspection Speed	Both line rate and sample rate models available - contact factory.
Typical Defects Detected	Pattern shorts or spacing violations Contamination Opens, neck-downs, and pinholes. Pattern miss-registration Excess screen stretch
Operation	
Inspection Reference Generation	Template from Golden Sample (or CAD-generated template using optional software module)
Defect Verification/Repair	Video Microscope for on-line verification.
Pattern Measurement Capability	Feature size and location
Defect Data Storage	ASCII delimited files for off-line use (SPC, Reporting, etc.)
Template Storage	Hard disk and vision processor RAM
New Part Set-up Time (example)	2-3 minutes for 36 in ² (232 cm ²) @ 0.5 mil (13 μ m) pixel resolution
Operator Interface	Dedicated display terminals for: graphical process feedback operator input and machine status feedback live video microscope for defect verification/repair
Typical Training Time	Operator 3 hours Technician 3 days
Options	
Software Options	CAD2MIDAS, for creating inspection templates from Gerber 274X.
Electrical Options	Additional RAM template storage (on some models) CE Approval UPS (external)
Tooling/Mechanical Options	Universal tooling plate included. Custom tooling plate design guide provided. Edge rail load/unload tooling plate. Cassette-to-cassette part handling automation. Automatic theta alignment. Defect part marking. Resolution changeover kits
Physical Specifications	
Dimensions	36"W x 36"D x 72"H (.9 x .9 x 1.8 m) Footprint Max width at monitors ~ 60" (1.5 m)
Weight	350 lbs (160 kg)
Power	110/220 VAC 7 amp (10 amp max)
Safety	Semi-S2 Compliant