



## PI-1000ML 2D (SO) Lead Inspection System (In-tape solution)

### Overview

PI-1000ML is a high-speed machine inspection system for final inspection and measurement of 2D SOIC lead, Mark and Orientation inside carrier tape pocket.

The combination of software and optical module eliminates underkill and overkill problem. Special optical had help to reduce the reflection issue on both carrier tape and package body reflection issue. Intelligent software helps to differential reflection from Lead. Optional feature for handling shiny lead is also available.

Reduction of Reflection

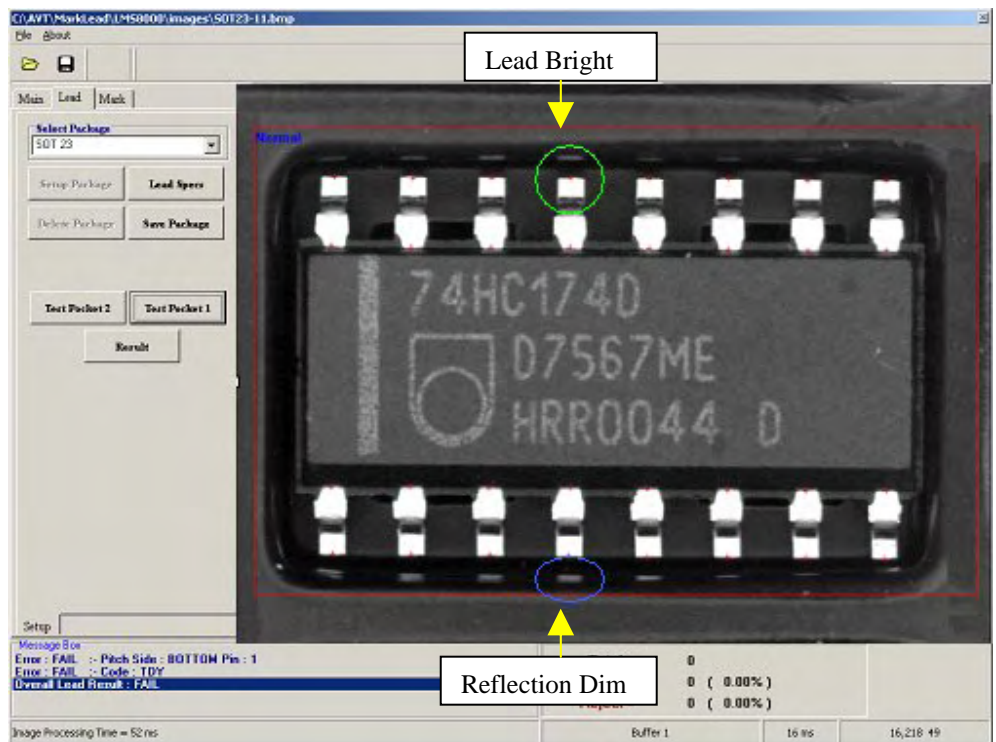
Shiny Lead

### Feature

1. Simple setup
2. Simple calibration procedure using hardware setup tool.
3. Individual lead specification can be specified.
4. Defects images log. Up to 20 defects images will be saved.
5. Consecutive failure feature are user settable.
6. 1 camera is used to capture the image of both Mark and Lead. These shorten acquisition time.

### System Configuration

PI-1000ML 2D comes with “an optical Module”, “a vision system” and “an application software”.

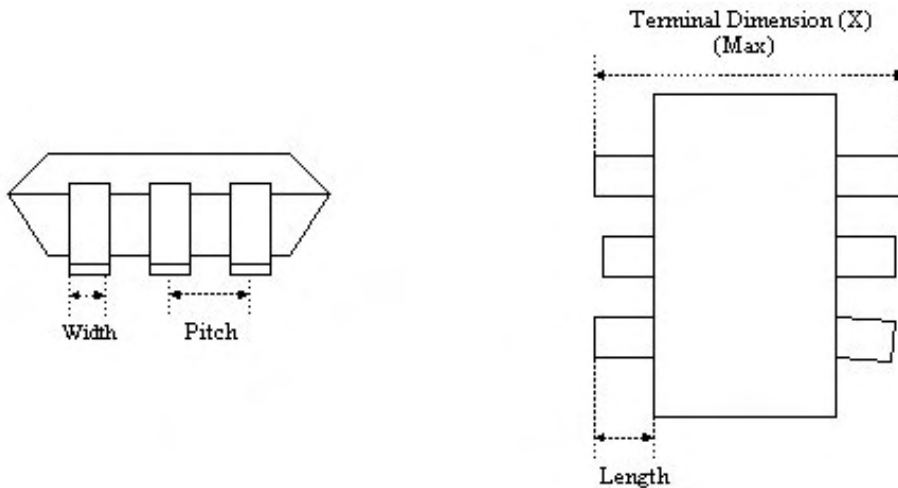


## Inspection Capabilities

Measured items	Small FOV (20 x 20 mm)			Large FOV (30 x 30 mm)		
	Accuracy <sup>1</sup> ( $\mu\text{m}$ )	Repeatability		Accuracy <sup>1</sup> ( $\mu\text{m}$ )	Repeatability	
		Static( $\mu\text{m}$ ) <sup>2</sup>	Dynamic( $\mu\text{m}$ ) <sup>3</sup>		Static( $\mu\text{m}$ ) <sup>2</sup>	Dynamic( $\mu\text{m}$ ) <sup>3</sup>
Lead Pitch <sup>4</sup>	$\pm 12$	$\pm 9$	$\pm 12$	$\pm 18$	$\pm 15$	$\pm 18$
Width <sup>4</sup>	$\pm 15$	$\pm 12$	$\pm 15$	$\pm 25$	$\pm 22$	$\pm 25$
Lead Terminal Dimension <sup>5</sup>	$\pm 15$	$\pm 12$	$\pm 15$	$\pm 25$	$\pm 22$	$\pm 25$
Length <sup>5</sup>	$\pm 18$	$\pm 15$	$\pm 18$	$\pm 30$	$\pm 27$	$\pm 30$

## Inspection Speed <sup>6</sup>

- nominal 150 msecs  
(*Inspection speed for TSOP20: 24-char includes acquisition time*)

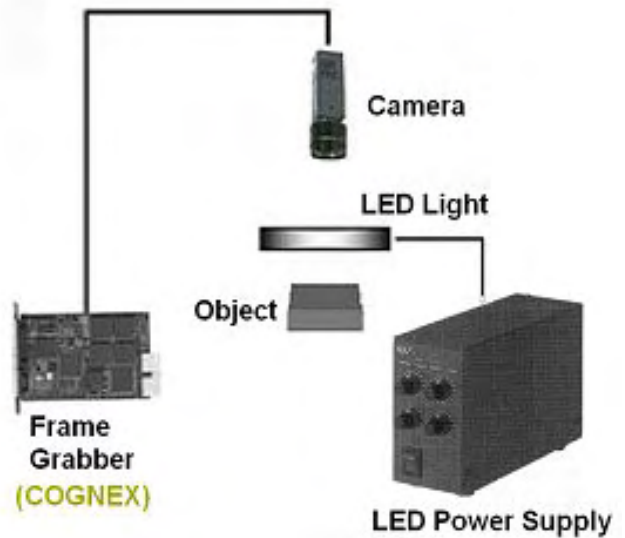


### Notes:

- Accuracy is measured on a good production device and is characterized by deviation between the average value of the distribution of results from repeated measurements.
- Static Repeatability is measured on a real device and is defined as the  $3\sigma$  value of the distribution of all lead-level deviations from the average value when performing statically 50 repeated measurements on the same device.
- Dynamic Repeatability is measured on a real device and is defined as the  $3\sigma$  value of the distribution of all lead-level deviations from the average value when performing dynamically 30 repeated measurements on the same device.
- Pitch and Width measurement is independent of the reflection of the tape.
- Accuracy for Terminal dimensions and lead length is influenced by the reflection of the tape and the depth of the pockets.
- The specifications are obtained with the devices clean of mold flash and has good lead surface finish.
- Specifications for other devices may vary slightly.

# The Systems and Components

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## Inspection System Hardware

High-Speed Vision Controller  
Cameras (Standard or High Resolution)  
Lens  
Lighting Module  
Monitor, keyboard & mouse

## Options

Custom Lens/Working Distance  
PC or Rackmount Enclosure  
Special Adaptations  
*AVT offers a range of options to meet your needs. Contact our office for details.*

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