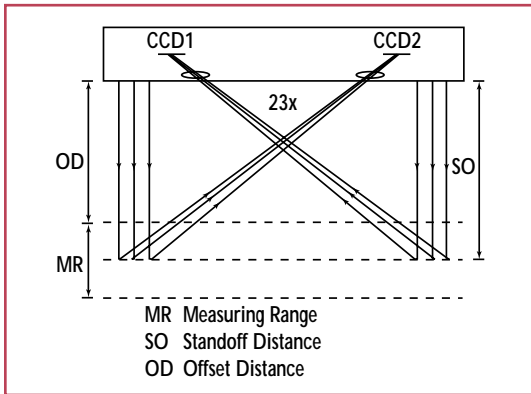


M24 Multi-Point Sensor

Multi-point Triangulation Principle

The M-24 optical scanner is a general-purpose profile scanner capable of supplying a 3-D profile with 23 lasers. Two groups of lasers (a group of 11 and a group of 12) emitted by laser diodes are projected onto the object to be measured via a system of lenses. Reflection off the object's surface produces diffusely scattered light. After passing through imaging optics, a portion of the light falls onto two position sensitive linear CCD line elements with a resolution of 2048 points. Displacing the object will lead to a change in angle (in relation to the sensor). As a result, the light spot will hit the CCD more to the left or more to the right. In turn, the change in position of the light spot will lead to a change in the output of each measuring point by the signal processing electronics, which includes a 16-bit micro-controller. The RS-485 (optional RS-232) interface provides a simple connection with a PC. Software is available on a 3.5 in. disk. The scan head has 23 measuring points with an interval spacing of 1 in. and is capable of measuring a width of 23 in. at a frequency of 1100 Hz per point. The M-24 contains two high-power DSP computer chips and can be linked with other M-24 units to provide an effective scan width of any size. An internal feedback loop automatically compensates for differences in detected light intensity due to the object's color and texture by varying power to the laser diode. The scan head contains a built-in display for diagnostics and easy installation.

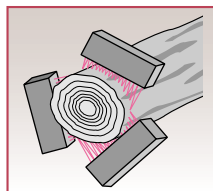
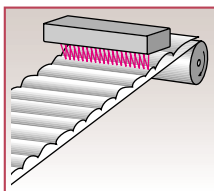


Technical Specifications

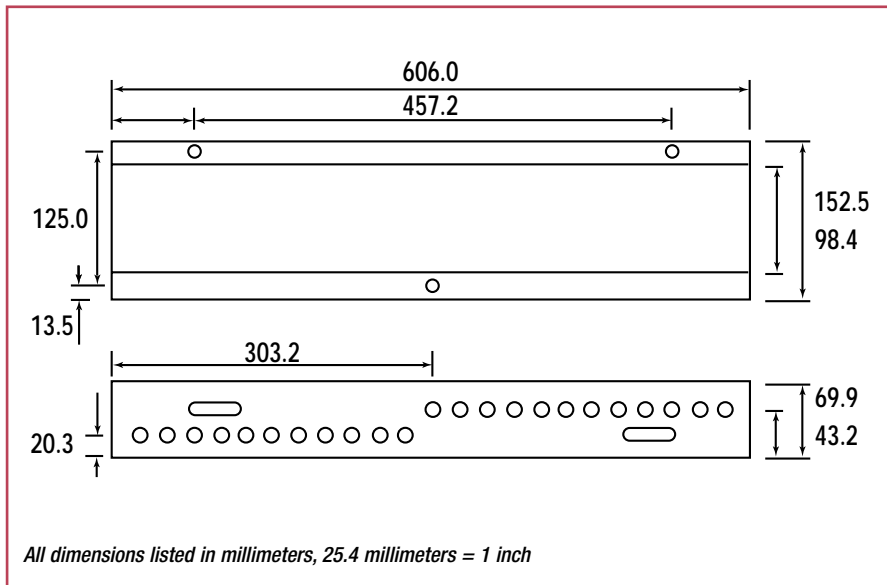
Model Number	Measurement Range (MR)	Stand Off (SO)	Offset Distance (OD)	Resolution*	Linearity** at SO	Triangulation Angle at SO	Spot Size at SO
M-24 14-24	mm 610	660	355	0.254	0.660	15-45	2 x 1
	in 24	26	14	0.010	0.026	15-45	0.08 x 0.04

* - Resolution is target dependent and reported without averaging at full bandwidth (worst case). Data averaging will improve resolution specifications (see chart in general brochure).

** - Linearity is calculated as 0.1% of Actual Measurement Reading (AMR).



LASER SOURCE		Standard	ENVIRONMENTAL		
Laser type		GaAlAs	Enclosure		IP-65 / NEMA 4
Laser class		IIIb	Temperature	°C	0 - 50
Laser source power	mW	5		°F	32 - 122
Wavelength	nm	780	Temp. Fluctuation	% MR / °C	0.01
Lifetime expectancy	hr	100,000	Relative Humidity	%	<90 non-condensing
ELECTRICAL		Standard	PHYSICAL		
Power supply (linear)	VDC	+15 ±5%	Dimensions	mm	606 x 152 x 70
Current draw	A	3		in.	23.85 x 6.00 x 2.75
Digital Outputs		RS-232 / RS-485	Weight	g	5600
Frequency response	Hz	1,100 (per point)		lbs.	12.3
Detector type		Dual CCD	Cable length	m	2.5
				ft.	8.2



CONNECTION WIRING

A	Receive Data (Rx+)
B	Receive (Rx-)
C	Power (+15 VDC)
D	Ground
E	Transmit (Tx+)
F	Transmit (Tx-)

1- YEAR LIMITED WARRANTY

The company will replace or, at the company's option, repair any system or parts thereof which are found defective in material or workmanship within one year from the date of shipment. Our obligation with respect to such system or part thereof shall be limited to repair and replacement F.O.B. company's facilities, and in no event shall the company be liable for incidental, consequential or special damages, or for transportation, installation, adjustment or other expenses which may arise in connection with such system or parts. This warranty is expressly made in lieu of any and all other warranties, expressed or implied, including warranties of merchantability and fitness. No waiver, alteration, or modification of the foregoing warranty shall be valid unless made in writing and signed by an executive of the company.

LMI laser sensors are manufactured under one or more of the following U.S. patents: 4,305,661; 4,373,804; 4,375,921; 4,394,683; 4,576,482; 4,667,231; 4,875,776; 5,056,922; 5,114,230; 5,164,579; 5,362,970; 5,510,625; 5,670,787; 5,684,292; 5,691,545; 5,734,172; 5,811,827; 5,854,491; 5,877,491; 5,880,459; 5,940,302; 5,981,965. Other US and foreign patents pending.



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