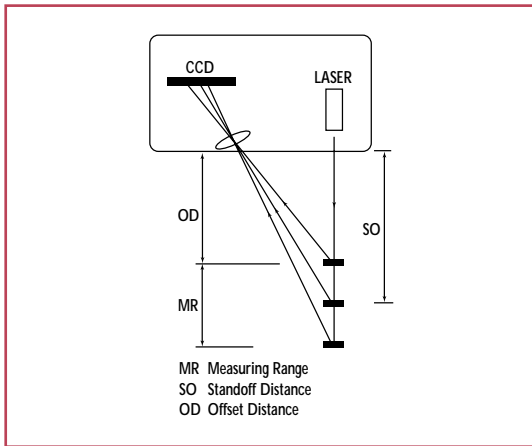




DLS-2000 Single Point Sensor

Triangulation Measurement Principle

A light beam emitted by a laser diode is 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 a position-sensitive CCD line element. If the object is located exactly in the focal point of the laser beam (center of measurement range), the reflected light spot will hit the CCD exactly in the middle. 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 change in the output of the sensor by the signal processing electronics, which includes a 16-bit micro-controller. 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 RS-485 interface provides a simple connection with PCs and PLCs for configuration of parameters such as min/max range, output, offset, out of range indication. After configuration, all parameters are stored in a flash EPROM allowing the DLS-2000 to operate as a stand-alone sensor. Software is available on a 3.5 in. disk. The DLS-2000 also has a 0 to 10 VDC and 4 to 20 mA analog outputs as well.

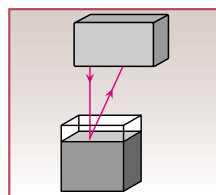
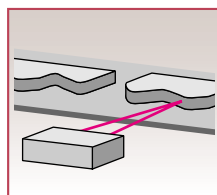
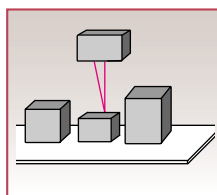


Technical Specifications

Model Number	Measurement Range (MR)	Stand Off (SO)	Offset Distance (OD)	Resolution*	Linearity** at SO	Triangulation Angle at SO	Spot Size at SO
DLS 2000	mm	300	250	0.076	0.250	21	3 x 1
	in	11.81	9.84	0.003	0.010	21	0.12 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). The DLS-2000 can achieve a resolution of better than 0.001 inches (0.0254 mm) on a static white paper target.

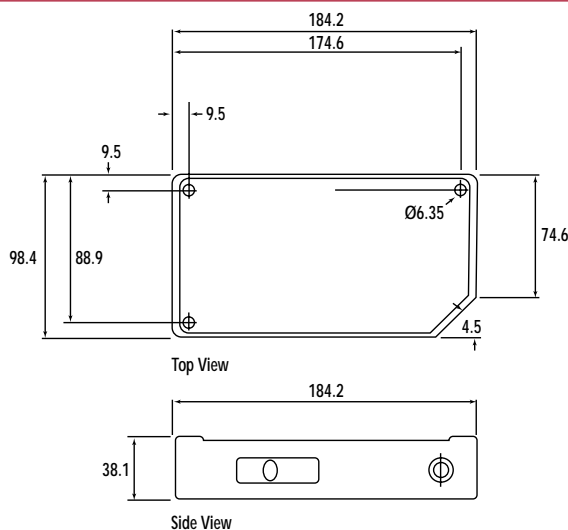
** - Linearity is calculated as 0.1% of Actual Measurement Reading (AMR).



LASER SOURCE		Standard	ENVIRONMENTAL		
Laser type		InGaAlP	Enclosure		IP-65 / NEMA 4
Laser class		IIIa	Temperature	°C	0 - 50
Laser source power	mW	5		°F	32 - 122
Wavelength	nm	670	Temp. Fluctuation	% MR / °C	0.01
Lifetime expectancy	hr	100,000	Relative Humidity	%	<90 non-condensing
ELECTRICAL		Standard	PHYSICAL		
Power supply voltage	VDC	+15 to +30	Dimensions	mm	184 x 99 x 38
Current draw	mA	< 250		in.	7.25 x 3.88 x 1.5
Analog output signal	VDC	0 to +10	Weight	g	681
Frequency response	Hz	1800		lbs.	1.5
Detector type		CCD	Cable Length	m	2.5
				ft.	8.2

OUTPUT INTERFACES

Interface, analog / digital	0-10 VDC	RS-485
Data update frequency / frequency response	1800 Hz	600 Hz



All dimensions listed in millimeters, 25.4 millimeters = 1 inch

CONNECTION WIRING

1	Receive (Rx+)
2	Receive (Rx-)
3	Transmit (Tx+)
4	Transmit (Tx-)
5	Out of Range
6	Analog out (0V to +10 V)
7	Common
8	Common
9	Analog out (4 to 20 mA)
10	Sync
11	Power (GND)
12	Power (+15 to +30 VDC)

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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