



Shadow Measurement Sensor Large 30x1 mm Area

- Repeatability of 30 microns
- Frequency response up to 5 kHz
- Noncontact measurement
- Simple analog output
- Rugged industrial packaging
- Includes sensor controller
- Ideal for diameter and height measurements

Technical Specification

Model Number		Beam Height (H)	Beam Width (W)	Resolution (Worst Case) Note 1	Resolution (Typical) Note 2	Separation Distance (S)
BBS 30x1	mm	30	1	0.030	0.003	<1000
	in.	1.18	0.039	0.0012	0.00012	<39.4

Note 1: Resolution at full bandwidth (0.1 - 0.2% of H).

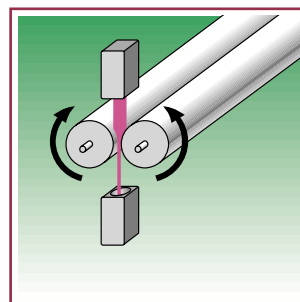
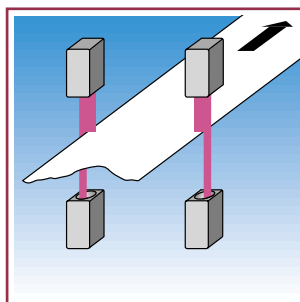
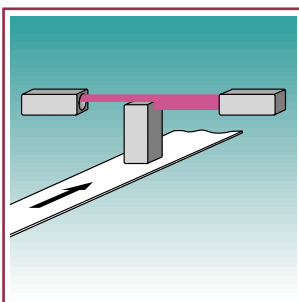
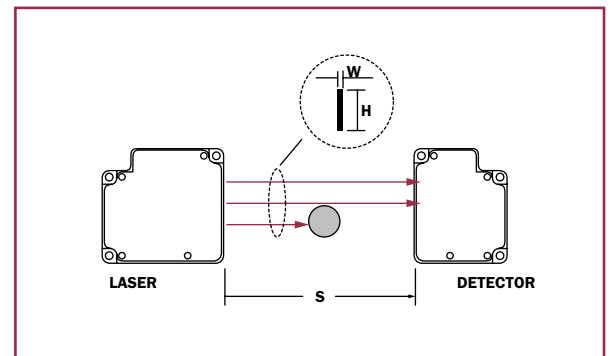
Note 2: Resolution at 128 sample averaging.

BBS sensors are large area shadow type sensors, using a modulated laser source to back light the object being measured. The portion of this light that reaches the receiver (detector) is proportional to the dimension of the part.

Shadow measurement is simple and accurate, and works on any opaque material. Color and reflectivity changes on the part surface have no effect on measurement.

For large object measurement, such as diameter gaging, two sensors can be implemented to measure each edge, with the difference proportional to part diameter.

Where shadow measuring can be applied to 1 D measurements, the BBS sensor family provide a simple, fast, cost effective solution.



BBS - Big Beam Sensor

LASER SOURCE

Laser Type	GaAlAs	Enclosure	NA
Laser Class	1M	Temperature	°C 0-50
Laser Source Power	mW 5		°F 32-122
Wavelength	nm 785	Temp. Fluctuation	% of MR / °C 0.01
Modulation Frequency	Hz 50 000	Relative Humidity	% <95 non-condensing
Lifetime expectancy	hr 100 000		

ENVIRONMENTAL

ELECTRICAL

Power supply voltage	VDC 12-26	Dimensions - Laser	mm 64 x 68 x 20
Current draw	mA 100	Dimensions - Detector	mm 64 x 52 x 20
Analog output signal	VDC 1-5	Weight - Laser	g 120
Frequency response	kHz 5	Weight - Detector	g 90
Comparator Low	NPN "open collector", <100mA & <40V	Weight - Controller	g 290
Comparator High	NPN "open collector", <100ma & <40V	Cable Lengths (Sensor & Detector)	m 1.5
		Cable Length (Controller)	m 2.5

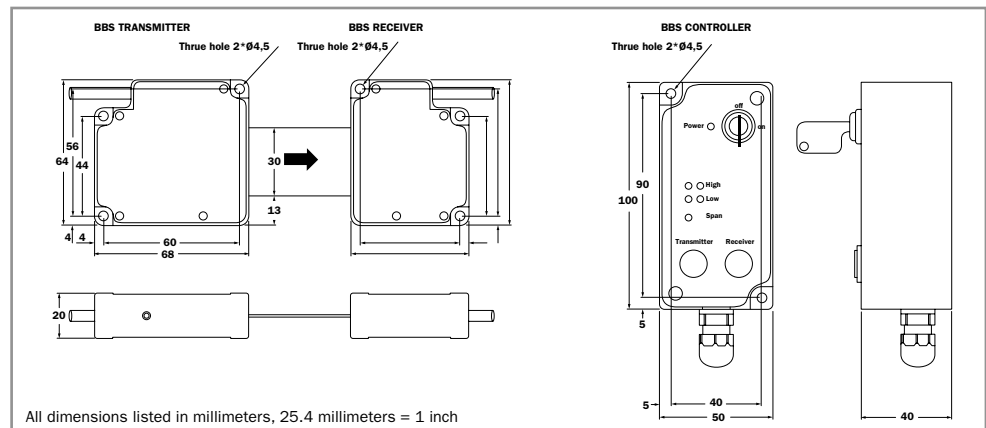
PHYSICAL

CONNECTION WIRING CONTROLLER

Green Ground
 Brown Power 12-26 VDC
 Black Shield
 Yellow Analog Out 1-5 VDC

COMPARATOR

Grey Ground
 Red High
 Blue Low



1- YEAR LIMITED WARRANTY

The company will replace or, at the company's option, repair any system or part with respect to such system or parts shall be limited to repair and replacement, F.O.B: our 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 the repair and replacement. 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 vision sensors are manufactured under one
 5,114,230; 5,164,579; 5,362,970; 5,51
 foreign patents pending.

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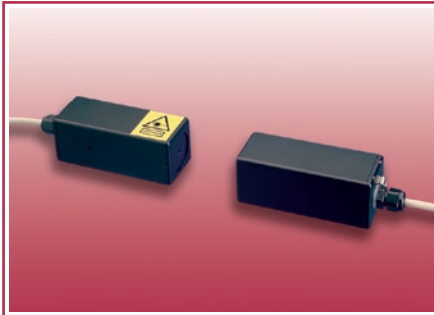
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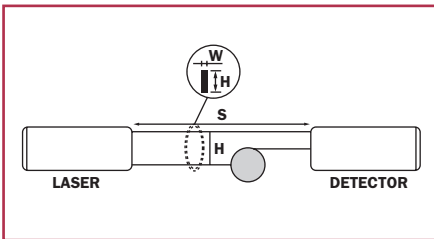
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Shadow Measurement Sensor

- Fast frequency response
- Noncontact measurement
- Simple analog output
- Rugged industrial packaging
- Ideal for diameter and height measurements



Options & Accessories

- High speed analog out (up to 10 kHz)
- Analog current out (0/4 - 20 mA) instead of voltage out

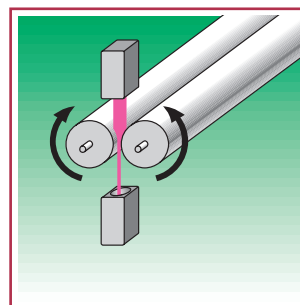
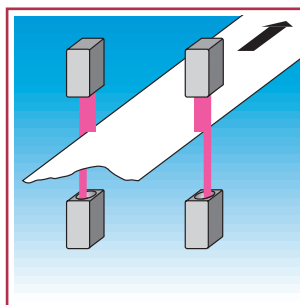
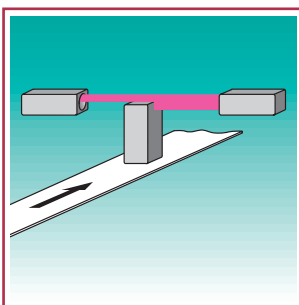
Technical Specification

Model Number	Beam Height (H)	Beam Width (W)	Resolution (Worst Case) <small>Note 1</small>	Resolution (Typical) <small>Note 2</small>	Linearity	Separation Distance (S)
LBS 2x1	mm 2	1	0.002	0.0002	0.010	<1000
	in. 0.079	0.039	0.00008	0.000008	0.0004	<39.4
LBS 5x1	mm 5	1	0.005	0.0005	0.025	<1000
	in. 0.197	0.039	0.0002	0.00002	0.001	<39.4
LBS 10x1	mm 10	1	0.015	0.0015	0.075	<1000
	in. 0.394	0.039	0.00059	0.000059	0.003	<39.4
LBS 20x1	mm 20	1	0.040	0.004	0.200	<1000
	in. 0.787	0.039	0.00157	0.000157	0.0079	<39.4
LBS 24x1	mm 24	1	0.05	0.005	0.250	<1000
	in. 0.945	0.039	0.0020	0.0002	0.0098	<39.4

LBS Sensor Models: LBS 5x1, LBS 10x1 and LBS 20x1 also available with 2 mm beam width.

Note 1: Worst Case Resolution - at full bandwidth.

Note 2: Typical Resolution - at 128 sample averaging.



LBS - Laser Beam Sensor

LASER SOURCE

Laser Class	2 (IEC)	Enclosure	NA
	II FDA	Temperature	°C 0-50
			°F 32-122
Wavelength	nm 655	Temp. Stability	% of MR / °C 0.01
Modulation frequency	Hz 50 000	Relative Humidity	% <95 non-condensing
Lifetime expectancy	hr 100 000		

ENVIRONMENTAL

ELECTRICAL

Power supply voltage	VDC +15 to +30 linear	Dimensions	mm 99 x 40 x 40
Current draw	mA <200	(Each, Laser & Detector)	in. 3.90 x 1.57 x 1.57
		Weight	kg 0.3
Frequency response	Hz 3 000 (Optional 10 000) modulated	(Each, Laser & Detector)	lbs. 0.66
Detector type	Photodiode	Cable Length	m 2.5
		(Each, Laser & Detector)	ft. 8.2

PHYSICAL

OUTPUT INTERFACES

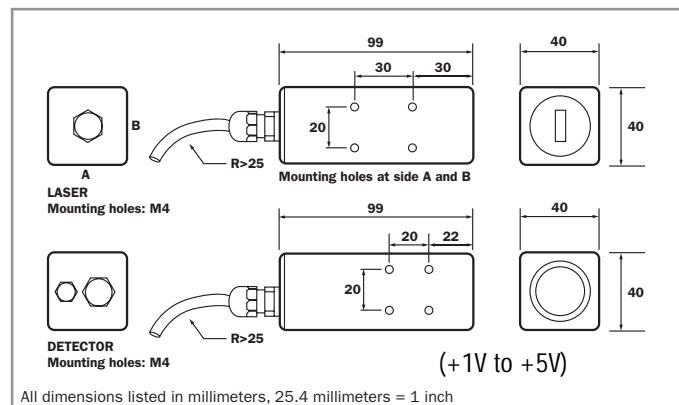
Analog voltage output	0-10 VDC
Analog current output (optional)	0/4-20 mA

(Voltage out standard, current out option replaces voltage out)

CONNECTION WIRING

Emitter	Brown Green/Black	Power +15 to +30 VDC Ground
Receiver	Brown Green/Black Yellow Pink (option)*	Power +15 to +30 VDC Ground Analog voltage out (0 to 10 V) Analog current out (0/4 to 20 mA)

* Must specify with factory order
(Voltage out standard, current out option replaces voltage out)



All dimensions listed in millimeters, 25.4 millimeters = 1 inch

1- YEAR LIMITED WARRANTY

The company will replace or, at the company's option, repair any system or parts of a system which are found defective in material or workmanship within one year from the date of shipment. Our obligation with respect to such system or parts shall be limited to repair and replacement, F.O.B: our 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 vision 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.

Complies with FDA performance standards for laser products except for deviations pursuant to Laser Notice No. 50, dated July 26, 2001.



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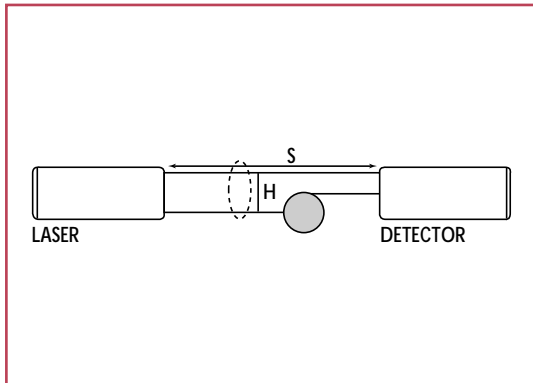




MBS Miniature Beam Sensor

Shadow Measurement Principle

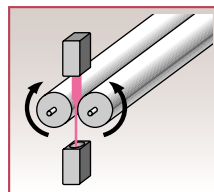
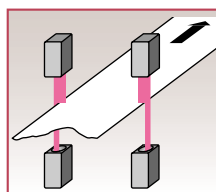
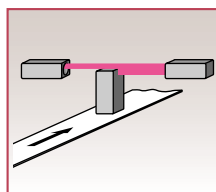
Shadow measurement uses a separate emitter and receiver. The emitter contains a laser diode, which projects a modulated laser beam onto the receiver. The portion of the light emitted that reaches the receiver depends on the dimensions of the object in the light beam. The amount of light reaching the receiver is the difference between the amount of light emitted by the emitter and the cross-sectional surface area of the object. The standard receiver has a resolution of 1000 steps. This implies that a light beam with a height of 10mm in the measuring direction, it is divided into 1000 parts of 10 micron each. The emitter and receiver can be separated by up to 1 meter.



Technical Specifications

Model Number		Beam Height (H)	Beam Width (W)	Resolution* 0.1% of Y	Repeatability 0.1% of Y	Separation Distance (S)
MBS 10 x 1	mm	10	1	0.010	0.010	1000
	in	0.394	0.039	0.00039	0.00039	39.4

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

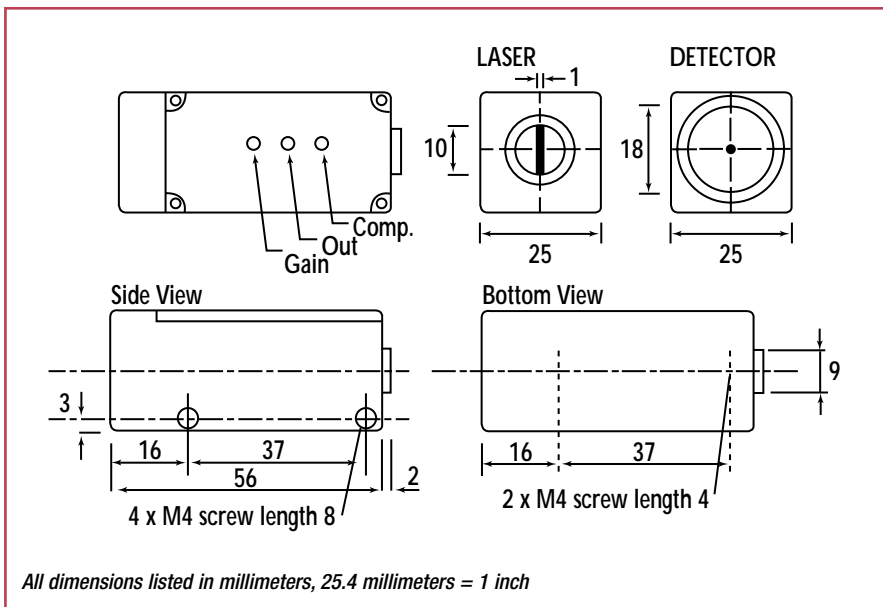


Features

- Rugged CNC-Milled Aluminum Housing
- Comparator Output for Setting of Thresholds

LASER SOURCE		Standard	ENVIRONMENTAL	
Laser type		GaAlAs	Enclosure	N/A
Laser class		I	Temperature	°C 0 - 50
Laser source power	mW	5		°F 32 - 122
Wavelength	nm	780	Temp. fluctuation	% MR / °C 0.01
Modulation Frequency	Hz	5,000	Relative humidity	% <90 non-condensing
Lifetime expectancy	hr	100,000		

ELECTRICAL		Standard	PHYSICAL	
Power supply voltage	VDC	+12 to +26	Dimensions	mm 56 x 25 x 25
Current draw	mA	< 80		in. 2.20 x 0.98 x 0.98
Analog output signal	VDC	+1 to +5	Weight	g 100
Frequency response, modulated	Hz	500		lbs. 0.22
Detector type		PSD	Cable length	m 2.5
				ft. 8.2



CONNECTION WIRING		Emitter
Brown	Power	(+12 to +26 VDC)
Green / Black	Ground	
White	Reserved	
CONNECTION WIRING		Receiver
Brown	Power	(+12 to +26 VDC)
Green / Black	Ground	
White	Comparator out (NPN)	
Yellow	Analog out	(+1V to +5V)

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