

# LBS

## USER MANUAL



### **LMI Sensors-95**

Valkenburgerweg 223  
6419 AT HEERLEN  
The Netherlands

Telephone : +31 (0) 45 5719300  
Fax : +31 (0) 45 5742500

*Serial number : \_\_B04\_\_*

## **SAFETY REGULATIONS**

The "LXS-range" from LMI Sensors-95 are precision instruments in which a semi-conductor laser is being used as a light source.

Power : 5 mWatt  
Spectrum: 670 nm, visible red light

According to the European Safety norm the laser diode is classified in classe IIIa.

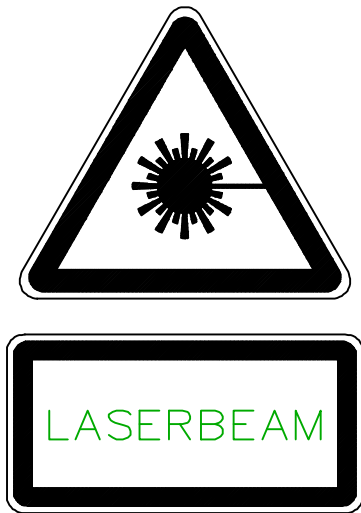
***Do not point the sensor at any person.***

## Labels

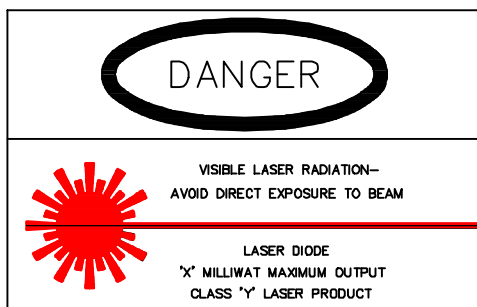
The following labels must always be shown perceptible on the lasersensor (if not possible: in the direct surrounding).

Standard, the sensors have been supplied for the required labels by LMI Sensors-95.

### - **Standard Laser Symbol**



### - **Classification laser**



## General

The producer and supplier are not responsible for damage, which is caused by inexpert use and/or faulty working of the sensor.

In connection with safety reasons the lasersensor only needs to be installed and maintained by authorized personnel. In cause of malfunction, please contact LMI Sensors-95.

## INSTALLATION

When installing the "Laser Beam Sensor" you need to take the following items into account:

- During assembling and maintenance the sensor needs to be switched off. This to prevent somebody looks into the laserbeam per mistake.
- A non-solid attachment of the sensor will effect the measurement negatively.
- In spite of the sensor housing being extremely robust and the electronics, optics and laser being protected in this way, you need to take into account that vibrations c.q. Resonances in the system can cause undesirable measuring faults.
- Since this is an "optical system" you need to prevent the lenses to get dirty. This has a negative effect on the measurement.  
The cleaning of the lenses needs to take place with a suitable means for that (for example optical cleaning cloth).
- A clean environment is recommended. Smoke and dirt can influence the laserbeam.
- The maximum temperature on which the semi-conductor laser may be exposed, amounts to 50°C.
- Avoid direct radiation from sunlight.

# LBS

- Place the transmitter and the receiver in line.
- For the connections of the sensors see chapter **Connections**.
- Switch on the system and reckon with the warming-up time.
- With the potentiometer on the receiver you can adjust the amplification factor.

***Notice the following steps :***

- Receiving no laser light                      Output voltage 0Volt.
- Receiving 100% laser light                  Output voltage 10Volt
- Adjust the output voltage (10Vdc) with the potentiometer.

## Connections

Transmitter:	brown	+15 to +30 Vdc
	black/green	GND
Receiver:	brown	+15 to +30 Vdc
	black/green	GND
	yellow	OUTPUT

- N.B.** - *Only use a linear powersupply !!!*  
 - *Make sure the positive and negative supply-voltage is present at the same time !!!*

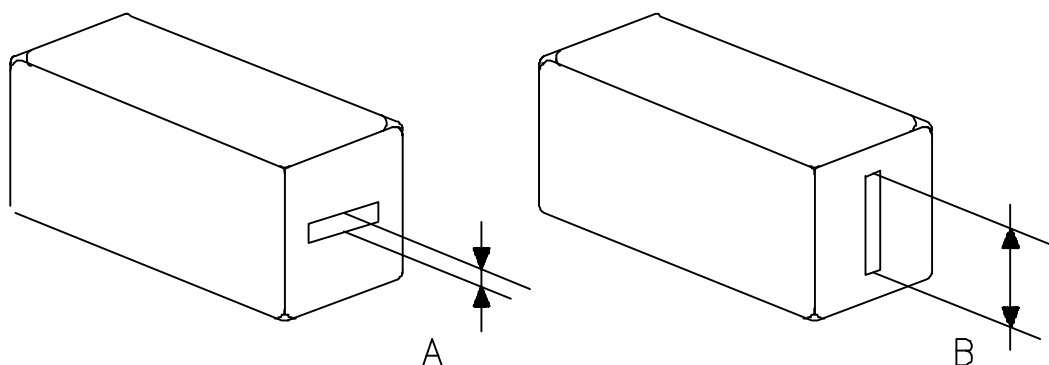
## Warming-up time

Please reckon with a warming-up time of  $\pm 10$  minutes.

# Specifications

---

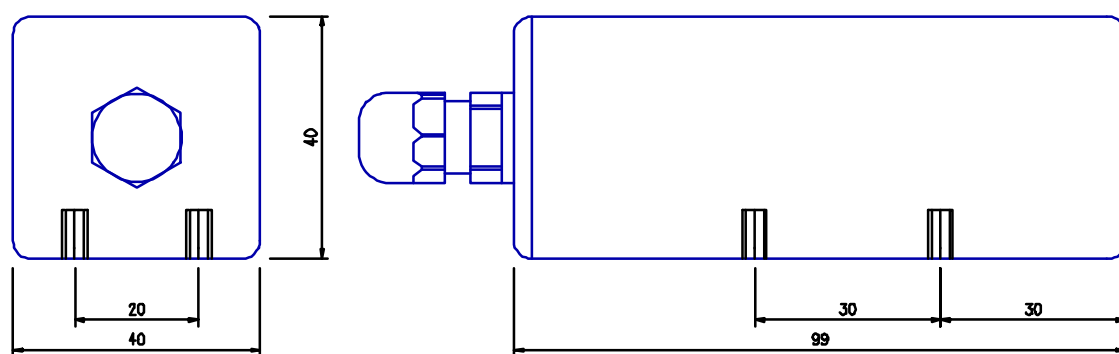
Laserbeam	B x A in mm
Accuracy (*)	>0.005 / 0.12 mm
resolution (*)	>0.001 / 0.024 mm
Measuring frequency	1 kHz (optional 10kHz)
Modulation frequency	50 kHz
Temperature range	0 - 50°C
Humidity	max 90%
Output	0-10 Vdc
	$R_{load} > 4k\Omega$
Power supply	15 - 30 Vdc
Power consumption	max. 5W
Laserdiode	5mW (655nm)



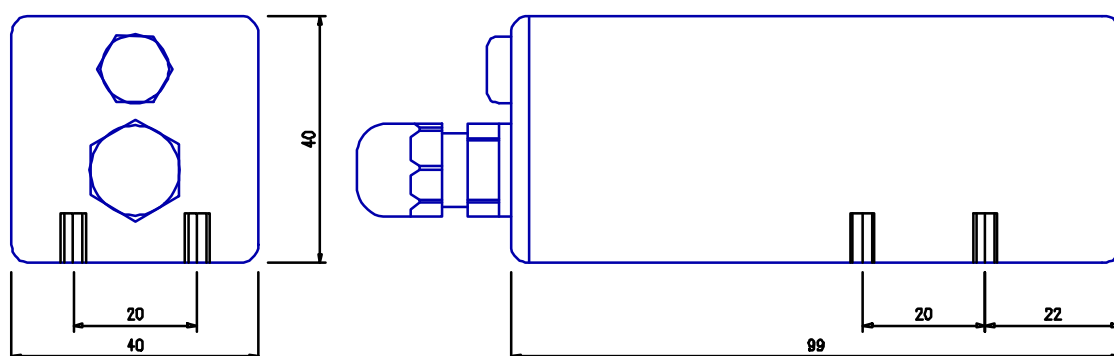
\* Resolution and accuracy depend of measuring-range.

## DIMENSIONS

### Transmitter



### Receiver



Fastening screw thread: M4