

Laser-Triangulation with CMOS-Technology

Laser-Distance-Sensor

Series LDS 60

- **Measuring range** 20, 50, 100, 200 mm
- **Resolution** 4, 10, 50, 100 µm
- **Outputs** 4-20 mA / 1-5 VDC
- **Measuring rate** 500 Hz
- **Small dimensions** (65 x 50 x 20) mm

Basic features:

- Center distance **40-160 mm**
- Resolution typ. **4-100 µm**
- Analogue output **4-20 mA**
optional: 1-5 VDC
- High linearity
- Colour insensitive measurement
- Laser Class 2
- Protection IP 67
- CE

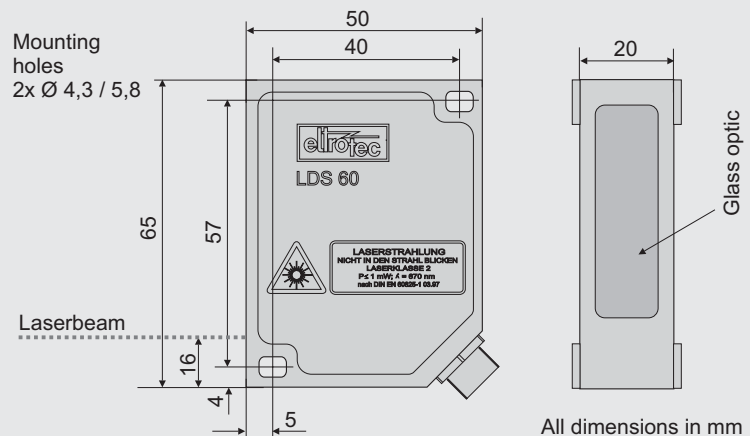
Typical applications:

- Distance measurement
- Thickness measurement
- Positioning of robotic arm
- Profile checking
- Out-of-balance measurement
- Control of overlapping
- Position on conveyor deformation
- Stroke, oscillation

Advantages:

- Metal housing
- Small dimensions
- High resolution
- High linearity
- Vibration resistance 15 g/
(10 Hz - 1 kHz)

Dimensions



Wiring connections

Pin	Colour	Reference
1	gn	Error output, open collector NPN; switching to GND, U _{ce} max. 30 VDC, 100 mA, short circuit protected
2	ye	Laser ON/OFF connect pin 2+6 => Laser ON
3	bl	N.C.
4	pink	N.C.
5	gr	Output 4-20 mA, short circuit protected
6	bn	GND
7	wt	Supply 12-30 VDC inverse polarity protected
(---)		Shield (PE)

Description

The Laser Triangulation Sensor LDS 60 is based on latest **CMOS** technology. It is working with a visible red laser. The measuring values are linearised by an internal signal processor. Due to this the sensor measures the distance very accurate and independent from colour of surface. The LDS 60 provides an analogue output with 4-20 mA. Optional there is a connection cable with shunt for 1-5 VDC output available.

Technical data

Electrical data	Supply voltage	12-30 VDC, typ. 24 VDC, 150 mA
	Measuring rate	500 Hz
	Analogue output	4-20 mA (option: 1-5 VDC)
Light source	Wavelength	typ. 670 nm, visible/red
	Power	< 1 mW
	Laser Class	2 DIN (EN 60825-1:11.01)
Data on ambience conditions	max. operating temp.	0 to +55 °C (+32 to +130 °F)
	max. storage temp.	-20 to + 70 °C (-4 to +158 °F)
	Protection class/ weight	IP 67/ approx. 100 g
	EMC	EN 50081-1 , EN 50082-2

Specific data	Sensor LDS 60/...			
	20	50	100	200**
Measuring range	+/- 10 mm	+/- 25 mm	+/- 50 mm	+/- 100 mm
Center distance	40 mm	70 mm	100 mm	160 mm
Linearity typ.	+/- 20 µm	+/- 50 µm	+/- 100 µm	+/- 200 µm
Resolution*stat.(typ.) dyn. at 1 kHz	4 µm	10 µm	50 µm	100 µm
	10 µm	25 µm	100 µm	200 µm
Spot diameter Ø typ. at center distance	~0.3 mm	~0.1 mm	~0.13 mm	~2 mm
Temp. stability	0.03 % of measuring range / °C		0.08 % o.m.r. / °C	

* All values at white, diffuse reflecting surfaces (AL₂O₃- ceramic) as reference

Ordering information

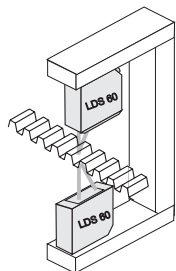
LDS 60	20	50	100	200
Part No.	10653338	10653339	10653340	10653341

plug connector included

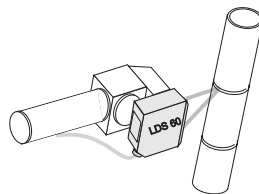
** Other ranges see LDS 70, LDS 85, LDS 100 on request or www.eltrotec.com

Cable length:3 m, plug M12, 7-pin, output 4-20 mA 11242835

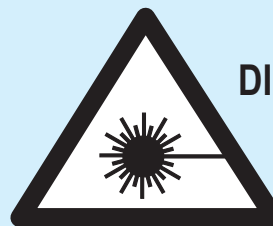
Cable length:3 m, plug M12, 7-pin, output 1-5 VDC 11242836



Contour, thickness and profile measurement



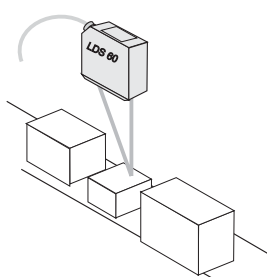
Positioning of robotic arm.
Edge detection



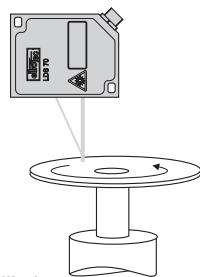
LASER CLASS 2
DIN EN 60825-1: 11.01

Laser radiation
Avoid exposure to beam

Sensors of CLASS 2 don't need environment with special protection



Displacement measuring



Oscillation,
Out-of balance measurement

Presented by: