



**LASER SENSORS**

**Powerful sensors to meet growing demands**

## Laser Sensor LAM / LAR



### Features

- ▶ Measurement ranges up to 400 mm
- ▶ Operating temperature -10 to 50 °C
- ▶ Protection class up to IP67
- ▶ Measuring frequency max. 100 kHz
- ▶ Individual parametrization by teach-in procedure
- ▶ Excellent for highly dynamic measurements
- ▶ Switching output
- ▶ Ethernet-interface

### Introduction

Linearities and resolutions in the  $\mu\text{m}$  or sub- $\mu\text{m}$  range make LAM and LAR series triangulation lasers the perfect sensors when pinpoint accuracy is required. LAM sensors have the option to individually adjust the measuring frequency to max. 100 kHz. This even allows for highly dynamic measurements. The LAR series with built-in display is suitable for accurate readings on site.

### Technical data

GROUP ▶ CHARACTERISTICS ▼	LAM-S	LAM-F	LAR
Measuring range max.	200 mm		400 mm
Linearity max. <sup>1)</sup>	1 $\mu\text{m}$	1.5 $\mu\text{m}$	10 $\mu\text{m}$
Resolution max.	0.02 $\mu\text{m}$	0.05 $\mu\text{m}$	2.4 $\mu\text{m}$
Output analogue	0...5 V, $\pm 5$ V, $\pm 10$ V, 0...20 mA, 0...10 V, 4...20 mA		0...5 V, 4...20 mA
Switching output	PNP		PNP / NPN
Output digital	Ethernet		-
Response time	0.1 ms	0.01 ms	<1.5 ms
Operating temperature	0...50 °C		-10...+45 °C
Protection class	IP64 / IP40 (electronics)		IP67
Spot laser diameter <sup>1)</sup>	0.1...2 mm		0.050...0.5 mm
Laser class	2		
Housing	Aluminum die cast		

<sup>1)</sup>based on the measurement range

# Laser Sensor LAS



## Features

- ▶ Measurement ranges:  
10, 40, 100, 200, 250, 300, 500, 800 mm
- ▶ Individual parametrization by teach-in procedure
- ▶ Spot and line laser versions
- ▶ Operating temperature 0 to 50 °C
- ▶ Output analogue 4...20 mA and/or 0...10 V
- ▶ Very precise distance measurement on most materials
- ▶ Measuring frequency 1 kHz
- ▶ Protected against reverse polarity and short circuit

## Introduction

LAS laser sensors use a built-in microcontroller for a very precise output signal proportional to the distance measured. The small, visible laser spots ensure aiming the sensor is easy and accurate. Distances to rough surfaces can be measured using a fine laser line in place of the laser spot.

## Technical data

GROUP ► CHARACTERISTICS ▼	LAS-TM	LAS-TB	LAS-T5	LAS-T
Measuring range max.	500 mm	100 mm	500 mm	800 mm
Linearity max. <sup>1)</sup>	±6 µm	±45 µm	±12 µm	±110 µm
Resolution max.	2 µm	15 µm	4 µm	20 µm
Output analogue	4...20 mA , 0...10 V			
Switching output	-	-	-	-
Response time	<0.9-2 ms	<2 ms	<0.9 ms	<4 ms
Operating temperature	0...50 °C			
Protection class	IP67			
Spot laser diameter <sup>1)</sup>	0.2...1 mm	0.1...0.74 x 1.1...3.7 mm <sup>2)</sup>	0.2...2 mm	2 mm
Laser class	2	1	2	
Housing	Zinc / Aluminum	Aluminum	Zinc	Aluminum

<sup>1)</sup> based on the measurement range

<sup>2)</sup> line laser

# Laser Sensor LAV / LLD-150 / LLD-500



## Features

- ▶ Measurement ranges from 0.1 to 500 m (teachable)
- ▶ Operating temperature -40° to 60°C
- ▶ Output analogue 4...20 mA
- ▶ Outputs digital RS232, RS422, RS485, SSI, Profibus
- ▶ Protection class max. IP67
- ▶ Measuring frequency max. 100 Hz
- ▶ Resolution max.  $\pm 0.1$  mm
- ▶ Laser class 2

## Introduction

Laser sensors measure greater distances using the runtime principle. In order to be able to aim the laser spot accurately over great distances, the LAV and LLD sensors require a reflective panel with the highest possible reflection. In addition to the classic analogue output, the sensors also feature interfaces to connect to networks.

## Technical data

GROUP ▶ CHARACTERISTICS ▼	LAV	LLD-150	LLD-500
Measuring range	8 m / 50 m	150 m	500 m
Linearity max. <sup>1)</sup>	$\pm 25$ mm	$\pm 2$ mm	$\pm 1$ mm
Resolution	<5 mm	$\pm 0.1$ mm	
Output analogue	4...20 mA		
Output digital	IQ-Link	RS232, RS422, Profibus, SSI	RS232, RS422, RS485, SSI / Profibus
Switching output	2x	1x	3x
Measuring frequency	50 Hz	10 or 50 Hz	variable up to 100 Hz
Operating temperature	-30...50 °C	-40...50 °C	-40...60 °C
Protection class	IP65		IP67
Laser class	2		
Housing	Plastics, ABS	Aluminum	

<sup>1)</sup>based on the measurement range

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