

LDM302A

Laser distance measurement device

The laser distance measurement sensor LDM302A is technically based on the versatile LDM301A. It has, however, especially been optimized for reliable distance measurements on poorly reflecting surfaces.

The proven time-of-flight measurement principle combines high resistance against ambient interferences with the safety of laser class 1. The high-energy, but very short laser pulses allow for measurements with centimeter precision and a high repetition rate..

The signal processing that has been changed compared against the LDM301A ensures reliable measurements up to 200 m without reflectors with a target reflectivity of only 6 %.

The sensor can also be used in harsh industrial environments, such as ports or open cast mines due to the integrated heating and the protective housing according to protection class IP 67. The LDM302A offers the option to add visors or additional interfaces such as Profibus DP.



Key Features

- Large operating range on poorly reflecting surfaces without reflector
- Laser-Time-of-Flight measurement allows for very short measuring times
- Safe operation through invisible laser, class 1 laser
- Integrated red pilot laser, optional visor for alignment
- Programmable analogue output 4 mA to 20 mA
- Serial programming interfaces RS232 or RS422
- Compact design, protection class IP 67
- Customized parameterization via the PC software LDMTool
- Easy installation and operation

Applications

- Positioning of vessels in docking support systems
- Process monitoring in steel and rolling mills
- Monitoring of conveying systems
- Position control in mining

Options and accessory

- Alignment aid RED DOT
- Mounting bracket
- Digital display for analogue signals
- Protective housing
- Connection box
- Profibus Gateway

Technical Data

Measuring range ¹⁾	
Total range	0.5 m ... 3000 m
Range on target board	30 m ... 3000 m
Range on natural surface, 80% reflectivity ²⁾	0.5 m ... 500 m
Range on natural surface, 6% reflectivity ²⁾	0.5 m ... 200 m
Measurement uncertainty	± 60 mm
Measurement repeatability	± 20 mm
Resolution	1 mm
Measuring time	10 ms
Measuring range for velocity ³⁾	0 m/s ... 100 m/s (measuring time 0.1 s .. 0.5 s)
Measuring laser	905 nm (infrared), laser class 1, EN 60825-1:2014
Laser divergence of measuring Laser ⁴⁾	3.7 mrad
Pilot laser	650 nm (visible red), laser class 2, EN 60825-1:2014, ≤ 1 mW (on, off, flashing)
Operating temperature	-40 °C ... +60 °C
Storage temperature	-40 °C ... +70 °C
Supply voltage	10 V ... 30 V direct current
Power consumption	< 5 W (operation without heating) 11.5 W (operation with heating 24 V)
Interfaces	RS232 oder RS422 Transmission rate 1,2 kBaud ... 460,8 kBaud, ASCII, 8N1 Programming with Windows terminal programm (e.g. LDMSTool or Hyper-Terminal)
Analog output	Programmable distance range limits, 4 mA ... 20 mA
Switching outputs	2 x „High-Side“ Output current max. 0.2 A, permanently short-circuit-proof adjustable window function
Housing	Aluminium anodized
Size	136 mm × 57 mm × 104 mm
Weight	Ca. 800 g
Protection standard	IP 67
Shock resistance	10 g / 6 ms persistence shock DIN ISO 9022-3-31-01-1
MTBF	13,000 hours (MIL HDBK 217 F N2)

¹⁾ Depending on target reflectance, influence of extraneous light and atmospheric conditions

²⁾ Natural, diffuse reflecting surfaces;

³⁾ Measuring distance to an object: 0.5 m ... 700 m

⁴⁾ Laserspot diameter in 100 m appr. 370 mm