LDM301A

Laser distance measurement device

The LDM301A measures distances to targets up to 3000 m away with a precision down to the centimeter. It is able to detect the speed of moving objects with high accuracy. Operated without a reflector, the LDM301A convinces with a range of 300 m on almost each surface. In addition to the large working range, the LDM301A is characterized by very short measuring times down to 0.1 ms.

The compact design of the device, the easy set-up and the standard interfaces RS422 or RS232 allow for easy installation and operation. The status of the device can be monitored via LED display during operation.

The heating integrated in the device ensures reliable operation at temperatures as low as -40 °C. The LDM301A offers the option to add a visor or additional interfaces, such as PROFIBUS DP or SSI.

Key Features

- **Large operating range, also without reflector**
- **Laser transit time measurement allows for very short measuring times**
- **Safe operation through invisible laser, class 1 laser**
- **Integrated red pilot laser, optional visor for alignment**
- **Programmable analog 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

- Process monitoring in steel and rolling mills
- Fill level measurement
- Monitoring and positioning of cranes and conveying systems
- Position control
- Measurements at difficult-to-access measuring points in cavities, tubes, containers and cases
- Position monitoring of vehicles and vessels

Options and accessory

- Alignment aid RED DOT
- Mounting bracket
- Digital display for analog signals
- Protective housing
- Connection box
- Profibus- and SSI interface (LDM301P resp. LDM301S)

Technical Data

Measuring range [1]	
Total	0.5 m … 3000
On target board	30 m … 3000 m
Natural surface, 80% reflection [2]	0,5 m … 300 m
Measurement uncertainty	±60 mm (at 2 kHz measuring rate and 2 kHz output rate) ±20 mm (at 2 kHz measuring rate and 100 Hz output rate)
Resolution	1 mm
Measuring time	0.5 ms, optional 0.1 ms
Measuring range for velocity [3]	0 m/s … 100 m/s (measuring time 0,1 s … 0,5 s)
Measuring laser [4]	905 nm (infrared), laser class 1, EN 60825-1:2014
Pilot Laser	650 nm (visible red), laser class 2, EN 60825-1:2014, ≤1 mW (on, off, flashing)
Operating modes	Single and continuous measurement with average, ext. triggering
Interfaces	RS232 or RS422 Transfer rate 1,2 kBaud … 460,8 kBaud, ASCII, 8N1 Programming with Windows terminal program (e.g. LDMTool or Hyper-Terminal) Programmable automatic start of measurement after switching on
Analog output	4 mA … 20 mA current output Programmable distance range limits Load resistance ≤ 500 Ω
Switching outputs	2 x „High-Side“ switch Max. load capacity 0.2 A, permanent short-circuit-proof Adjustable windowing function
Trigger input	Max. trigger pulse 30 VDC Trigger edge and delay adjustable
Power supply	10 V … 30 V direct current
Power consumption	< 5 W (operation without heating) 11,5 W (operation with heating at 24V)
Operating temperature	-40 °C … +60 °C (integrated automatic heating)
Storage temperature	-40 °C … +70 °C
Humidity	15 % … 90 %
Size	136 mm × 57 mm × 104 mm
Weight	Ca. 800 g
Protection standard	IP 67
EMV	EN 61000-6-2 and EN 55011
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] Dependent on target reflectance, stray light influences and atmospheric conditions
[2] Natural, diffuse reflecting surfaces; Do not use bad reflective materials (dark / black surfaces) as target under 10 m
[3] Measuring distance to objects: 0,5 m … 700 m
[4] Standard models: 1.7 mrad, Special models: 10 mrad

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