

# LDM42A

## Laser Distance Measurement Sensors

The LDM42A is an optoelectronic distance measuring device for industrial applications with an analogue interface (4 mA to 20 mA).

It works contact-free on the principle of comparative phase measurement (amplitude modulation) and facilitates precisely accurate measurement of distances.

It distinguishes itself through high precision as well as high independence from the surface of the measuring object. The red, visible laser beam allows for easy alignment.

There are several accessories and options available for the LDM42A to set up robust and reliable solutions for a big variety of applications.



### Key Features

- Millimetre precise measurement on various surfaces
- Long range reflector-less distance measurement
- With additional reflectors on the target object measurements over 100 m
- Operation in extreme ambient temperatures with high precision and range
- High supply voltage range between 10 V and 30 V DC with low power consumption
- Safe operation through laser class 2
- Easy adjustment through visible laser beam
- One connection cable for supply voltage, serial data interface, switching and analogue output
- Customized parameterization via PC
- Display of measured values in meters, feet, inches and others due to free scaling
- Robust, compact housing, easy to install, protection standard IP 65

### Applications

- Distance measurement and determination of position
- Diameter measurement of rolls / coils
- Fill level measurement
- Position control
- Monitoring of safety-relevant parts
- Monitoring of lifting plants / lifting height measurement and positioning of elevators
- Monitoring and positioning of cranes and conveyor systems

### Options and accessory

- Grey filter for signal attenuation
- Mounting bracket
- Digital display for analog signals
- Optional temperature controlled heating
- Protective housing
- Protective housing with water cooling
- Protective tube with purge air connector
- Protective window

## Technical Data

Measurement range <sup>1)</sup>	0.1 m ... 150 m total 0.1 m ... 30 m on almost any natural surfaces Over 100 m achievable depending on the degree of reflection of surfaces
Measurement uncertainty <sup>2,3)</sup>	±2 mm under defined measuring conditions ±3 mm (+15 °C ... +30 °C) ±5 mm (-10 °C ... +50 °C)
Resolution	0.1 mm, free scalable, standard 1 mm
Reproducibility <sup>3)</sup>	0.5 mm
Measurement time	0.1 s ... 6 s adjustable or automatic in mode DT 0.1 s, fixed, in mode DW on white surface 20 ms in mode DX on white surface
Max. movement speed	4 m/s in measurement mode DX
Max. acceleration	2.5 m/s <sup>2</sup> in measurement mode DX
Laser divergence	0.6 mrad
Beam diameter	< 11 mm in 10 m < 35 mm in 50 m < 65 mm in 100 m
Laser classification	Laser class 2 acc. to DIN EN 60825-1:2014 (650 nm, red)
Supply voltage	10 V ... 30 V DC
Power consumption	Ca. 1.5 W in measurement mode Ca. 25.7 W with optional heating
Operating temperature	-10 °C ... +50 °C -40 °C ... +50 °C with optional heating <sup>4)</sup>
Storage temperature	-40 °C ... +70 °C
Serial interface <sup>5)</sup>	RS232 or RS422, max. baud rate 115.200, ASCII, Parameterization, control of measurement modes, display of measured values, device information and errors
Digital output	High-side switch, maximum load 0.5 A Programmable switching threshold and hysteresis
Digital input	External trigger, 3 V ... 24, programmable delay
Analog output	4 mA to 20 mA, Programmable distance range, adjustable reaction on error (3 mA, 21 mA or last valid measured value)
Housing material	Aluminum, powder-coated
Size	195 mm × 96 mm × 50 mm
Weight	800 g
Protection class	IP 65
Shock resistant	10 g / 6 ms (DIN ISO 9022-3-31-01-1)
MTBF	30000 hours @ 25 °C
Mounting	4 drill holes for M6 screws, 100 mm x 85 mm
Options	Viton® gaskets (-v), integrated heating (-h), pressure regulation unit (-d)

<sup>1)</sup> Dependent on target reflectance, influence of extraneous light and atmospheric

<sup>2)</sup> Statistical spread 95 %, Measurement on planar, vertical white surface at standstill or in continuous, + 15 °C ... +30 °C

<sup>3)</sup> Dependent on target reflectance, influence of extraneous light and atmospheric

<sup>4)</sup> Please specify optional heating when placing the order (-h)

<sup>5)</sup> Please specify option RS422 when placing the order (-RS422)