LDM41A and LDM42A
Laser Distance Measurement Sensors

T he LDM41A 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.

The sister model LDM42A has been further developed for fast distance measurements on white surfaces.

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 analog 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

Measuring range [1]	0.2 m … 30 m on almost all natural surfaces,
	Over 100 m achievable depending on the degree of reflection of surfaces
Measuring uncertainty [2]	±2 mm under defined measuring conditions [3]
	±3 mm (+15 °C … +30 °C)
	±5 mm (-10 °C … +50 °C)
Resolution	0.1 mm, free scalable
Reproducibility [4]	0.5 mm
Measuring time	0.24 s … 6 s adjustable or automatic in mode DT
	0.1 s in mode DW on white surface
	20 ms in mode DX on white surface (only LDM42A)
Laser divergence [5]	0.6 mrad
Laser class	Laser class2 acc. to DIN EN 60825-1:2001-11 (650 nm, red)
Operating temperature	-10 °C … +50 °C
	-40 °C … +50 °C (with optional heating) [6]
Storage temperature	-40 °C … +70 °C
Supply voltage	10 V … 30 V DC
Power consumption	Ca. 1.5 W
	Ca. 24 W (with optional heating)
Serial interface [7]	RS232 or optional RS422, max. Baud rate 38400, ASCII,
	Setting of measuring functions, scaling, measuring time via commands,
	display of measured values, internal temperature of the device and error code
Switching output	Programmable switching threshold and hysteresis,
	"High-Side" switch, maximum load 0.5 A
Digital Input	External trigger, 3 V – 24 V, programmable delay
Analog output	Programmable distance range limits,
	4 mA to 20 mA adjustable reaction on error(3 mA, 21 mA or last valid measured value)
Housing material	Aluminum, powder-coated
Size	187 mm × 96 mm × 50 mm
Weight	850 g
Protection class	IP 65
Shock resistance	10 g / 6 ms (DIN ISO 9022-3-31-01-1)
MTBF	30,000 hours at 25 °C
Mounting	4 drill holes for M6 screws, 100 mm x 85 mm

[1] Dependent on target reflectance, influence of extraneous light and atmospheric

[2] Statistical spread 95 %

[3] Measurement on planar, vertical white surface at standstill or in continuous, + 15 °C … +30 °C

[4] Dependent on target reflectance, influence of extraneous light and atmospheric

[5] At a distance of 10 m the beam diameter is 6 mm, at 100 m it is 6 cm

[6] Please specify optional heating when placing the order (-h)

[7] Please specify option RS422 when placing the order (-RS422)