

# LDM41P and LDM42P

## Precise laser distance measurement for Profibus DP

The LDM41P is an optoelectronic distance measuring device for industrial applications with integrated Profibus DP interface.

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

Both, the LDM41P and the LDM42P distinguish themselves through high precision as well as high independence from the surface of the measuring object. The red, well visible laser beam allows for easy alignment. The LDM42P has been further developed for fast distance measurements on white surfaces.

Through the integrated Profibus DP interface it is possible to read in data of several devices into a control easily.



### Key Features

- Millimeter precise measurement on various surfaces
- High 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
- Common flexible interface cable for supply voltage, switching output and analog output
- Direct connection to Profibus DP
- Setup of measurement mode, inside temperature measurement, switch-off Laser (Stand-by)
- Controlled by Profibus control byte
- 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 <sup>1)</sup>	0.2 m ... 30 m on almost all natural surfaces, up to 100 m achievable depending on the degree of reflection of surfaces
Measuring uncertainty <sup>2)</sup>	±2 mm under defined measuring conditions <sup>3)</sup> ±3 mm (+15 °C ... +30 °C) ±5 mm (-10 °C ... +50 °C)
Resolution	0.1 mm, freely scalable
Reproducibility <sup>4)</sup>	0.5 mm
Measuring time	0.24 s ... 6 s adjustable or automatically in mode DT 0.1 s in mode DW on white surface 20 ms in mode DX on white surface (only LDM42P)
Laser divergence <sup>5)</sup>	0.6 mrad
Laser class	Laser class 2 acc. DIN EN 60825-1:2001-11 (650 nm, red)
Operating temperature	-10 °C ... +50 °C -40 °C ... +50 °C (with optional heating) <sup>6)</sup>
Storage temperature	-40 °C ... +70 °C
Supply voltage	10 V ... 30 V DC
Power consumption	Ca. 3.5 W Ca. 24 W (with optional heating)
Serial interface	RS232, 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 threshold and hysteresis, "High-Side" switch, maximum load 0.5 A
Digital input	External Trigger, 3 V – 24 V, programmable delay
Fieldbus	Profibus DP-V0 Normslave 12 Mbit, autodetect
Housing material	Aluminum, powder-coated
Size	187 mm × 96 mm × 50 mm
Weight	850 g
Protection standard	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

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

<sup>2)</sup> Statistical spread 95 %

<sup>3)</sup> Measurement on planar, vertical white surface at standstill or in continuous, + 15 °C ... +30 °C

<sup>4)</sup> Dependent on target reflectance, influence of extraneous light and atmospheric

<sup>5)</sup> At a distance of 10 m the beam diameter is 6 mm, at 100 m it is 6 cm

<sup>6)</sup> Please specify optional heating when placing the order (-h)