LDM42EI

Precise laser distance measurement for Ethernet/IP

The LDM42EI is an optoelectronic distance measuring device for industrial applications with integrated Ethernet/IP interface.

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

The LDM42EI distinguishs itself by 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 LDM42EI has been further developed for fast distance measurements on white surfaces.

Through the integrated Ethernet/IP 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 Ethernet/IP**
- **Setup of measurement mode, inside temperature measurement, switch-off Laser (Stand-by)**
- **controlled by Ethernet/IP 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

Measurement range [1)]	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[2,3)]	±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
Reproducability[3)]	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/s² 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. 3.5 W Ca. 28 W with optional heating
Operating temperature	-10 °C … +50 °C -40 °C … +50 °C with optional heating[4)]
Storage temperature	-40 °C … +70 °C
Options [5)]	Viton® gaskets (-v), integrated heating (-h), pressure regulation unit (-d)
Digital output	"High-side switch, maximum load 0.5 A Programmable switching threshold and hysteresis"
Digital input	External trigger, 3 V … 24, programmable delay
Fieldbus	Ethernet/IP IO, 100 Mbit/s
Housing material	Aluminum, powder-coated
Size	198 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

1) Dependent on target reflectance, influence of extraneous light and atmospheric
2) Statistical spread 95 %, Measurement on planar, vertical white surface at standstill or in continuous, + 15 °C … +30 °C
3) Dependent on target reflectance, influence of extraneous light and atmospheric
4) Please specify the optional heating when placing the order (-h)

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