

INDUSTRIAL DISTANCE SENSOR

LD90-450

- **Industrial distance sensing**
- **Anti-Collision sensing on cranes**
- **Level measurement in silos**



The *RIEGL* LD90-4 is an economically priced, high-reliability distance sensor for industrial use "reflectorless" or with retroreflecting targets. The implemented "High Penetration" technology allows its use even under conditions of bad visibility, e.g. rain, dust, fog etc.

- **"High-Penetration" Technology**
- **Internal Fault-Detection**
- **Analog and serial data outputs**
- **PNP Transistor switching outputs**
- **Low power consumption**

visit our webpage
www.riegl.com



RIEGL
LASER MEASUREMENT SYSTEMS

Specifications LD90-450

Measuring range

depending on the reflection coefficient ρ of the target

good, diffusely reflecting targets, $\rho \geq 80\%$ ^{1) 2)}

bad, diffusely reflecting targets, $\rho \geq 10\%$ ¹⁾

Reflecting foil ³⁾

Minimum distance ⁴⁾

Accuracy ^{5) 6)}

Resolution of digital data output

Measuring time ⁷⁾

Reproducibility (mm) ⁸⁾

Divergence of the infrared measuring beam ⁹⁾

up to 150 m

up to 50 m

1000 m

1 m

typically ± 25 mm

5 mm

175ms 300ms 500ms 1s 2s

± 50 ± 30 ± 20 ± 15 ± 10

2 mrad

1) for measuring time 1 s; for shorter measuring time the maximum range is slightly lower

2) target size $\geq 0.5 \times 0.5$ m²

3) reflecting foil 3M680, size $\geq 0.5 \times 0.5$ m²

4) minimum distance 2 m for full accuracy with reflecting foil

5) standard deviation, plus distance depending error ≤ 20 ppm

6) ≥ 10 min after power up

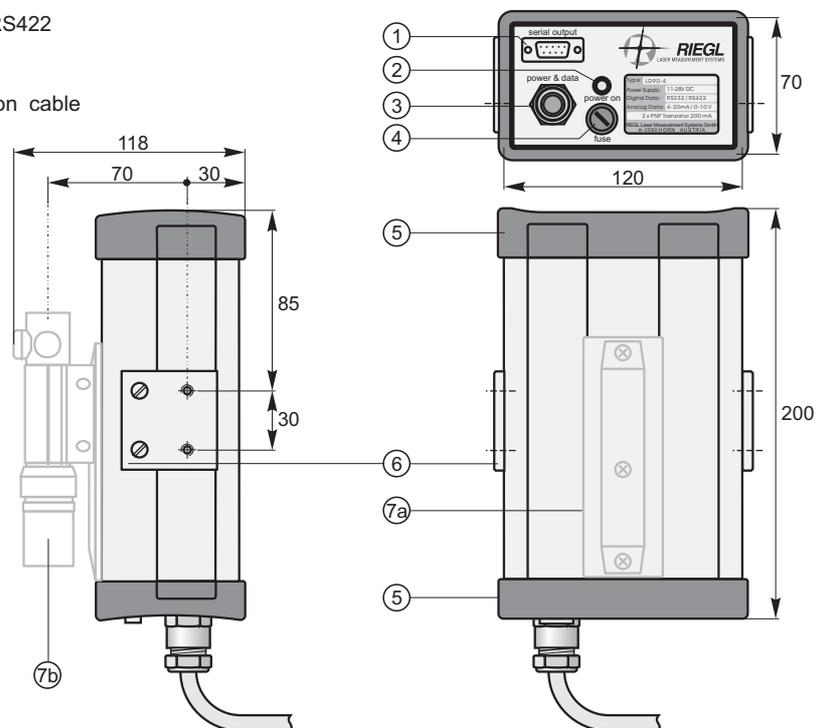
7) adjustable via RS232/RS422

8) depending on measuring time

9) 1 mrad corresponds to 100 mm increase of beamwidth per 100 m of distance

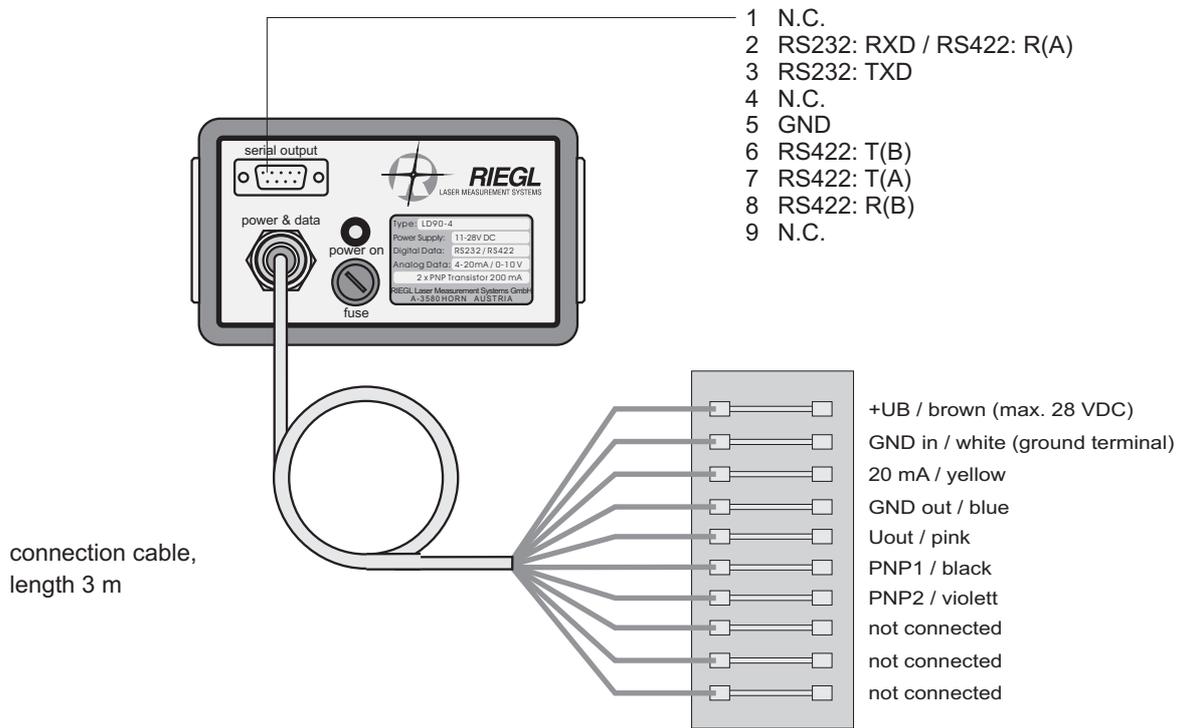
Elements of operation and dimensional drawings

- (1) 9pole socket for RS232/RS422 data interface
- (2) LED "POWER ON"
- (3) Cable gland for connection cable
- (4) Fuse holder

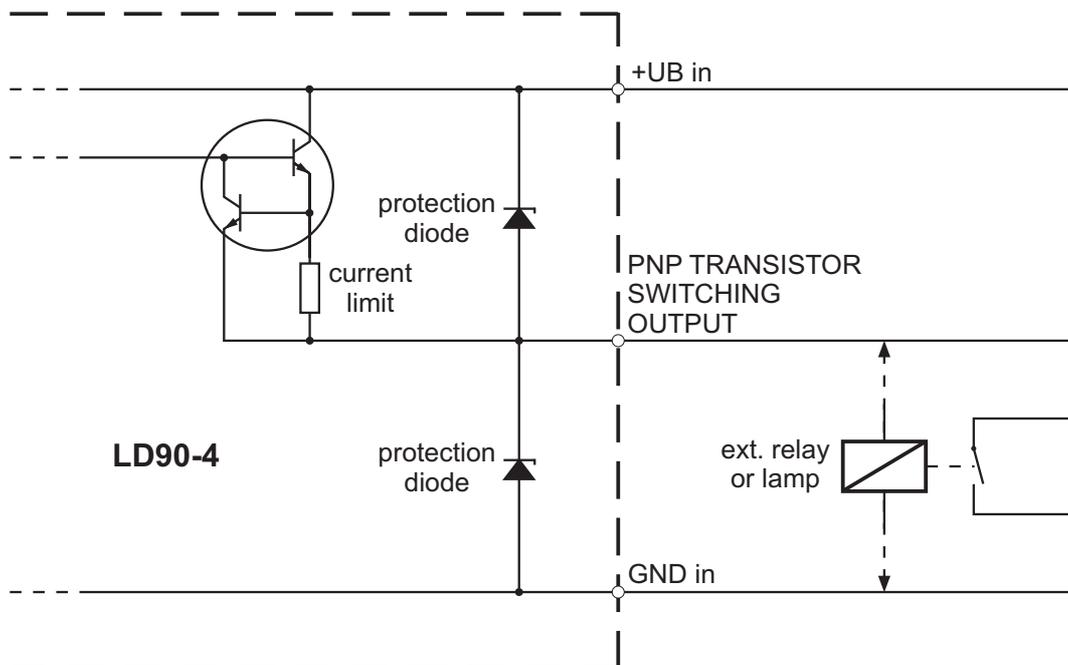


- (5) Rubber-armed front and rear side
- (6) Mounting plates with 2xM6 threads on both sides of the instrument
- (7a) Mounting for telescope (optional)
- (7b) Telescope (optional)
- (8) Receiver lens
- (9) Transmitter lens

Pinning



2 x PNP Transistor switching output



General technical data LD90-450

Data interface

Serial interface	RS232 or RS422 ¹⁾ Baud rate 300 Bd ... 19200 Bd ¹⁾
Analog current	4-20 mA ²⁾ , not galvanically isolated resolution 16 Bit, linearity 0.5 ‰ of full scale
Analog voltage	0-10 V ²⁾ , source resistance 1 kOhm resolution 12 Bit, linearity 4 ‰ of full scale
Switching output	2 x PNP transistor driver ³⁾ built-in thermal and short-circuit protection switching current 200 mA max. switching voltage = supply voltage

Power supply

voltage range 11-28 Volts DC
voltage ripple ≤ 1 Vpp
built-in protecting circuitry against
over & under voltage and reverse polarity
power consumption approx. 4 Watts

Temperature range

Operation	-10°C to +50°C
Storage	-20°C to +60°C

Physical data

Case	Aluminium, colorless anodized, front and rear side rubber armoured
Dimensions	200 x 120 x 70 mm (L x W x H)
Weight	approx. 1.6 kg
Protection class	IP64

Laser Product Classification

according to IEC60825-1:2007

The following clause applies for instruments delivered into the United States:
Complies with 21 CFR 1040.10 and 1040.11 except for deviations
pursuant to Laser Notice No. 50, dated June 24, 2007.



CE This device conforms to the directive 2004/108/EC of the European Parliament and of the Council concerning electromagnetic compatibility and is therefore marked with the **CE** sign.

- 1) Selectable via serial interface
- 2) Operating range selectable via serial interface
- 3) Switching points adjustable via serial interface

Information contained herein is believed to be accurate and reliable. However, no responsibility is assumed by *RIEGL* for its use. Technical data are subject to change without notice. Data sheet LD90-450, 28/07/2010



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