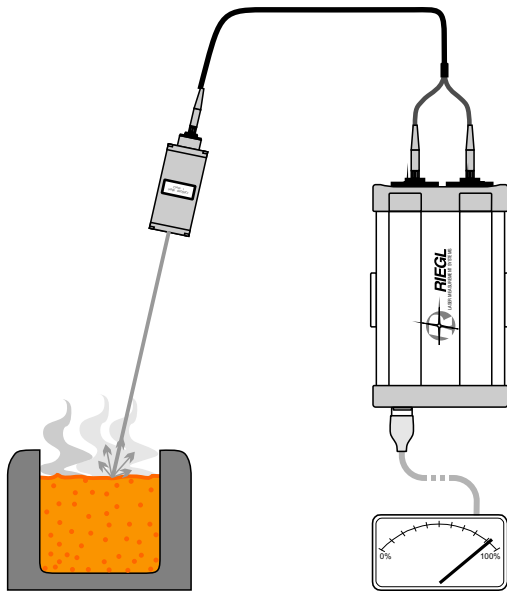
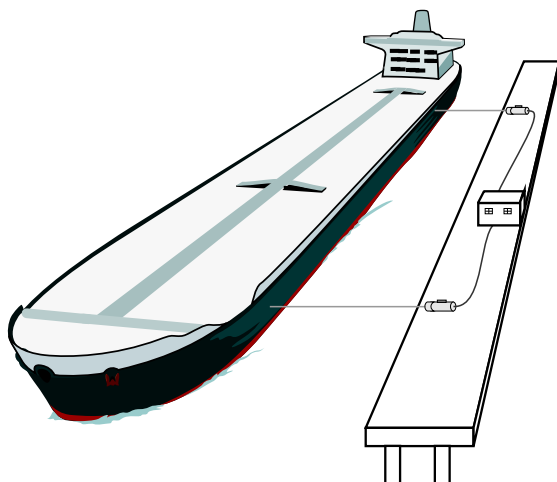
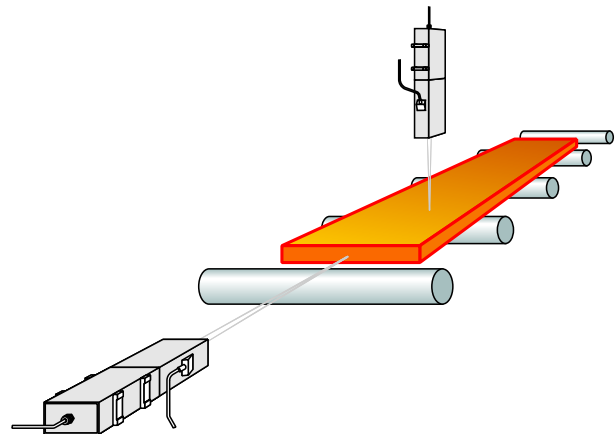


# LASER DISTANCE and LEVEL SENSOR **LD90-3-GF** *with glass-fiber coupled* REMOTE OPTICAL HEAD



- *Distance and level measurements in high-temperature areas*
- *Level measurement of liquid steel in melting pots or in transfer ladles*
- *Robotic applications in nuclear power plants*

- *Measurement of the position, width, and thickness of glowing slabs in rolling mills*



- *Sensor for ship docking*
- *Laser altimeter*
- *Crane coordinate measurement*

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**RIEGL**  
LASER MEASUREMENT SYSTEMS

## General

The distance and level meter LD90-3-GF with glass-fiber coupled optical head makes use of the time-of-flight method to determine the distance of a remote target by measuring the transit-time between transmission and reception of a short laser pulse.

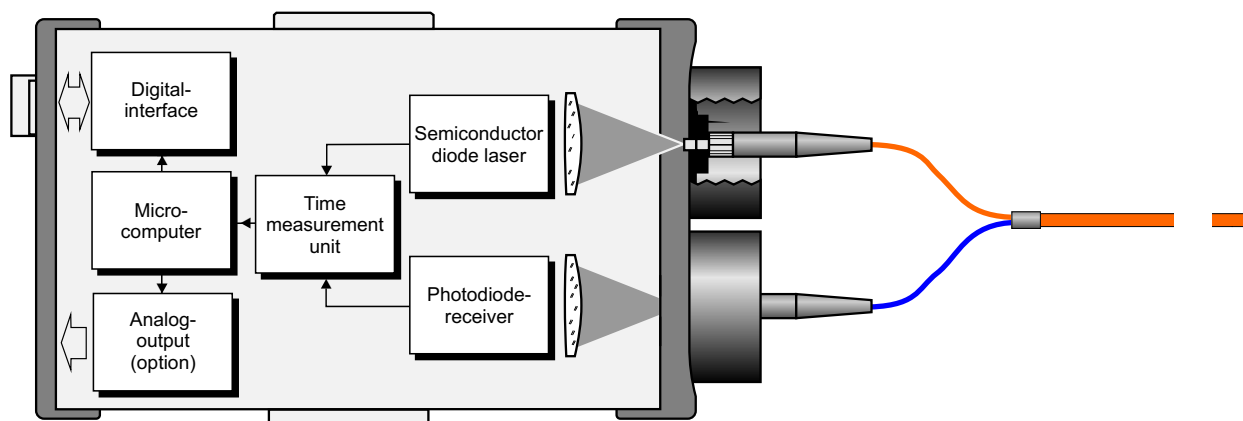
Distance measurements can be performed to both non-cooperative and cooperative targets with high accuracy, interference immunity, and excellent reliability. The serial interface allows communication and operation of the instrument. Furthermore, the LD90-3-GF can be equipped with the various digital and analog data outputs frequently used in industry.

***The measuring system consists of a lightweight and small optical head and a separate electronics box, connected by a duplex glass-fiber cable with connectors on both sides. Its length can be chosen between 4 m and up to more than 100 m.***

***The main features and advantages of this flexible and powerful configuration are:***

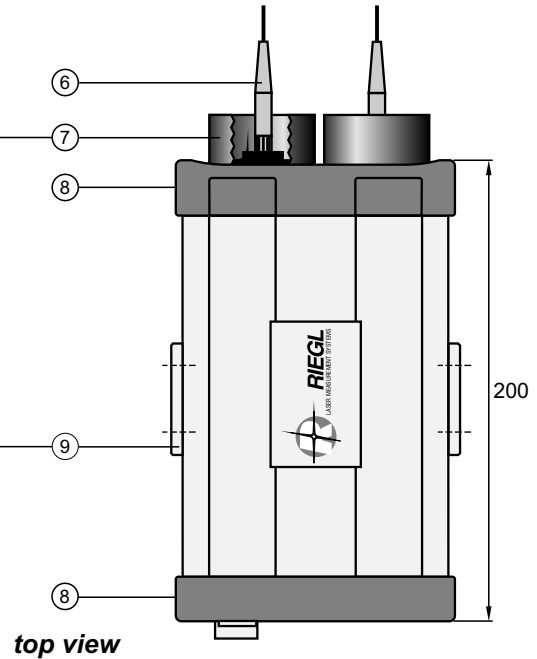
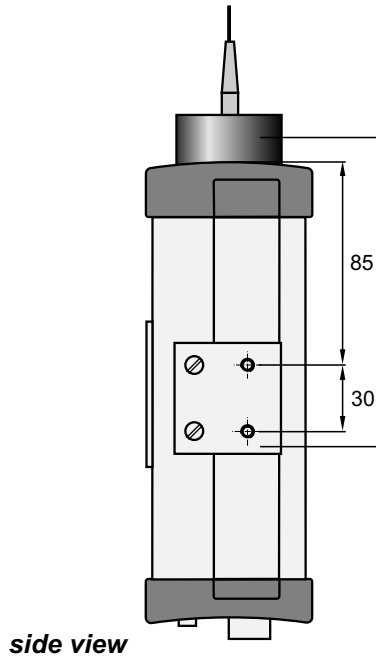
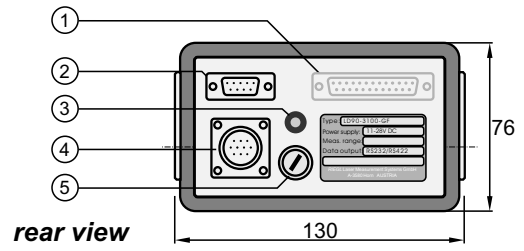
- The LD90-3-GF electronics unit can be combined with various optical heads to suit nearly any requirement.
- The optical head contains no electronics and is therefore extremely small, lightweight, inexpensive, high-temperature resistant, and insensitive against electromagnetic or ionizing radiation.
- The optical head can be operated in high-temperature areas, whereas the electronics box can be remotely installed in a protected area.
- The glass-fiber cable provides galvanic insulation between optical head and electronics box.
- Installation as well as replacement of parts of the system in case of servicing requirements is easy and cost-effective.

## Principle of operation - electronics unit

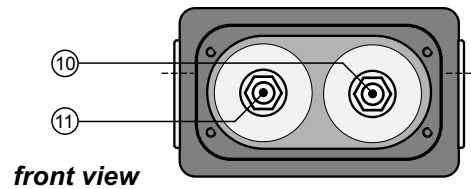


## Dimensional drawings of electronics unit

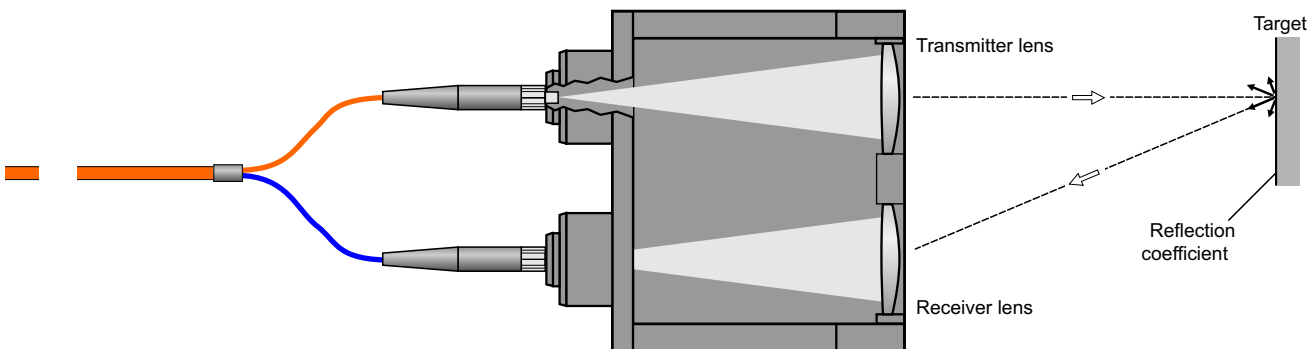
- (1) 25pole socket for ECP interface (EHS types only)
- (2) 9pole socket for RS232/RS422 data interface
- (3) LED "POWER ON"
- (4) 10pole socket for power supply, optional analog outputs, and switching output
- (5) Fuse holder
- (6) SMA glass-fiber connectors



- (7) Protecting tube for glass-fiber socket
- (8) Rubber-armoured front and rear panel
- (9) Mounting plates with 2xM6 threads
- (10) SMA glass-fiber socket for receiver
- (11) SMA glass-fiber socket for transmitter



## Principle of operation - optical head



## General technical data LD90-3-GF

### Data interfaces

RS232 & RS422 (selectable, standard for all types)

Baud rate selectable between 150 Bd and 19200 Bd,  
further 38.4 kBd and 115.2 kBd

RS422 high speed (available for VHS types only)

115.2 kBd, asynchronous

ECP (available for EHS types only)

Parallel interface (extended capabilities port)

### Available data output options (not for all types)

Analog current 4-20 mA <sup>1)</sup>, not galvanically isolated,  
resolution 16 Bit, linearity 1 ‰ of full scale

Analog voltage 0-10 V <sup>1)</sup>, not galvanically isolated, resolution 12 Bit

Switching output 2 x PNP transistor driver <sup>2)</sup>  
built-in thermal and short-circuit protection  
switching current 200 mA max.  
switching voltage = supply voltage

### Power supply

Standard 11-28 Volts DC, approx. 10 Watt  
built-in protecting circuitry for  
over-voltage and reverse polarity

Option 220 V AC external power supply module VNG95

| Temperature range | Electronics unit | Optical heads |
|-------------------|------------------|---------------|
| Operation         | -10°C to +50°C   | -20 to +80 °C |
| Storage           | -20°C to +60°C   | as above      |

| Physical data                                     | Electronics unit | MK36             | MK36-Z65       | MK42           | MK42-Z80 |
|---|------------------|------------------|----------------|----------------|----------|
| Weight (approx.)                                  | 1.5 kg           | 0.67 kg          | 0.4 kg         | 0.75 kg        | 3.0 kg   |
| Protection class<br>(glass-fiber cables attached) | IP64             | IP62             | IP62           | IP62           | IP64     |
|   | <b>MK56-Z150</b> | <b>MK75-Z210</b> | <b>MK36-HT</b> | <b>MK56-HT</b> |          |
| Weight (approx.)                                  | 6.0 kg           | 19 kg            | 10 kg          | 3.8 kg         |          |
| Protection class<br>(glass-fiber cables attached) | IP66             | IP67             | IP64           | IP60           |          |

Dimensional drawings (LxWxH) to be found on separate data sheets.

### Aiming device (optional)

Telescope attached to the optical head with a mounting plate

1) Operating range selectable via serial interface

2) 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 LD90-3-GF, 01/04/2010



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