


# RIEGL LD90-3100HS general purpose distance meter

<b>LD90-3100HS</b> <i>High-Speed</i> distance meter for robotics applications, automatic anti-collision systems, etc.	Measuring range depending on the reflection coefficient $\rho$ of the target	
	good, diffusely reflecting targets, $\rho \geq 80\%$	up to 150 m <sup>1)</sup>
	bad, diffusely reflecting targets, $\rho \geq 10\%$	up to 50 m <sup>1)</sup>
	Reflecting foil <sup>2)</sup> or plastic cat's-eye reflectors	> 1000 m
	Minimum distance, typically	1 m
	Accuracy <sup>3)</sup>	typically $\pm 15$ mm, in the worst case $\pm 50$ mm
	Measuring time (ms or s) <sup>4)</sup>	5ms 10ms 20ms 50ms 0.1 0.2 0.5 1
	Statistical deviation (mm) <sup>5)</sup>	$\pm 30$ $\pm 20$ $\pm 15$ $\pm 10$ $\pm 7$ $\pm 5$ $\pm 3$ $\pm 2$
	Resolution (mm) <sup>5)6)</sup>	20 20 10 10 5 5 2 2
	Divergence of the infrared measuring beam <sup>7)</sup>	1.8 mrad
	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.	

- 1) typical values for average conditions. In bright sunlight, the operational range is considerably shorter than under an overcast sky. At dawn or at night the range is even higher.
- 2) reflecting foil 3M 3000X or equivalent, minimum dimensions 0.45 x 0.45 m<sup>2</sup>
- 3) standard deviation, plus distance depending error  $\leq 20$  ppm
- 4) selectable via RS232/RS422
- 5) depending on measuring time
- 6) chosen automatically by the internal microprocessor
- 7) 1 mrad corresponds to 10 cm beamwidth per 100 m of distance

## Selectable data processing modes

**The characteristics of the instrument can be adapted to the actual measurement situation by choosing between four different data processing programs:**

The program FAST enables the quickest possible measurement at undisturbed conditions simply by averaging the single-pulse distance values which are acquired within the selected measuring time.

The program STANDARD provides a very useful clutter suppression: occasional echo signals caused not by the target itself but by

backscattering of particles between target and instrument (e.g. clouds of material in a dusty silo, or raindrops and snowflakes in free air) are eliminated and not taken into account.

The program MAXIMUM DISTANCE is optimized for undisturbed level measurements in a silo at the cost of a slightly higher acquisition time.

The program MINIMUM DISTANCE is ideal for measurements to small targets which are not easy to aim at, as it eliminates background echoes.

*General technical data and dimensions as given in our general data sheet LD90-3 series.*

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 RIEGL LD90-3100HS, 25/03/2010



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### LD90-3300

Powerful distance and speed meter for long ranges and/or badly reflecting targets:

Height-of-flight measurements on planes or helicopters, tide gage in hydrography, level measurement in large coal silos, etc.

Measuring range depending on the reflection coefficient $\rho$ of the target	
good, diffusely reflecting targets, $\rho \geq 80\%$	up to 400 m <sup>1)</sup>
bad, diffusely reflecting targets, $\rho \geq 10\%$	up to 120 m <sup>1)</sup>
Reflecting foil <sup>2)</sup> or plastic cat's-eye reflectors	> 1000 m

Minimum distance, typically	2 m
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#### Distance measurement:

Accuracy <sup>3)</sup> typically  $\pm 50$  mm

Measuring time (ms or s) <sup>4)</sup>	10ms	20ms	50ms	0.1	0.2	0.5	1	2
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Statistical deviation (cm) <sup>5)</sup>	$\pm 10$	$\pm 7$	$\pm 5$	$\pm 3$	$\pm 2$	$\pm 1.5$	$\pm 1$	$\pm 0.7$
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Resolution (cm) <sup>5)6)</sup>	10	10	5	5	2	2	1	1
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#### Speed measurement:

Measuring range 0 to  $\pm 30$  m/s

Accuracy  $\pm 0.5$  m/s

Measuring time, typically <sup>4)</sup> 0.5 s

Divergence of the infrared measuring beam <sup>7)</sup> 1.6 mrad

Laser product classification according to IEC60825-1:2007

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### LD90-3300HR

**High-Range version** of LD90-3300 for use in ship-docking systems, for scanner applications, etc.

Measuring range depending on the reflection coefficient $\rho$ of the target	
good, diffusely reflecting targets, $\rho \geq 80\%$	up to 500 m <sup>1)</sup>
bad, diffusely reflecting targets, $\rho \geq 10\%$	up to 150 m <sup>1)</sup>
Reflecting foil <sup>2)</sup> or plastic cat's-eye reflectors	> 1000 m

Minimum distance, typically	5 - 10 m
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#### Distance measurement:

Accuracy <sup>3)</sup> typically  $\pm 50$  mm

Measuring time (ms or s) <sup>4)</sup>	10ms	20ms	50ms	0.1	0.2	0.5	1	2
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Statistical deviation (cm) <sup>5)</sup>	$\pm 10$	$\pm 7$	$\pm 5$	$\pm 3$	$\pm 2$	$\pm 1.5$	$\pm 1$	$\pm 0.7$
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Resolution (cm) <sup>5)6)</sup>	10	10	5	5	2	2	1	1
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#### Speed measurement:

Measuring range 0 to  $\pm 30$  m/s

Accuracy  $\pm 0.5$  m/s

Measuring time, typically <sup>4)</sup> 0.5 s

Divergence of the infrared measuring beam <sup>7)</sup> 1.6 mrad

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.



- 1) Typical values for average conditions. In bright sunlight, the operational range is considerably shorter than under an overcast sky. At dawn or at night the range is even higher.
- 2) reflecting foil 3M 3000X or equivalent, minimum dimensions 0.45 x 0.45 m<sup>2</sup>
- 3) standard deviation, plus distance depending error  $\leq 20$  ppm
- 4) selectable via RS232/RS422
- 5) depending on measuring time
- 6) chosen automatically by the internal microprocessor
- 7) 1 mrad corresponds to 10 cm beamwidth per 100 m of distance

## Selectable data processing modes

***The characteristics of the instrument can be adapted to the actual measurement situation by choosing between four different data processing programs:***

The program FAST enables the quickest possible measurement at undisturbed conditions simply by averaging the single-pulse distance values which are acquired within the selected measuring time.

The program STANDARD provides a very useful clutter suppression: occasional echo signals caused not by the target itself but by

backscattering of particles between target and instrument (e.g. clouds of material in a dusty silo, or raindrops and snowflakes in free air) are eliminated and not taken into account.

The program MAXIMUM DISTANCE is optimized for undisturbed level measurements in a silo at the cost of a slightly higher acquisition time.

The program MINIMUM DISTANCE is ideal for measurements to small targets which are not easy to aim at, as it eliminates background echoes.

*General technical data and dimensions as given in our general data sheet LD90-3 series.*

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 RIEGL LD90-3300, 25/03/2010





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# RIEGL LD90-31K-HiP "High Penetration", long-range distance meter

Laser Distance Meter for use without reflectors which, because of its "High Penetration" facility under conditions of bad visibility, is especially well suited for long-range ship-docking systems and for laser altimetry, etc.<sup>1)</sup>

The LD90-31K-HiP can be equipped with a filter for attenuating the laser beam if Laser Class 1 is required:

	beam-attenuating filter not attached	beam-attenuating filter attached
<b>Measuring range</b> depending on the reflection coefficient $\rho$ of the target <sup>2)</sup> good, diffusely reflecting targets, $\rho \geq 80\%$ bad, diffusely reflecting targets, $\rho \geq 10\%$ Reflecting foil <sup>3)</sup> or plastic cat's-eye reflectors	up to 1500 m up to 500 m 2500 m	up to 1000 m up to 350 m 2500 m
<b>Laser product classification</b> 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.	 <p>Viewing the laser output with certain optical instruments designed for use at a distance (for example, telescopes and binoculars) may pose an eye hazard.</p>	

Accuracy <sup>4)</sup> <sup>5)</sup>	typically $\pm 5$ cm, in the worst case $\pm 10$ cm			
Resolution	1 cm			
Measuring time (s) <sup>6)</sup>	0.3	0.5	1	2
Statistical deviation (cm) <sup>7)</sup>	typically $\pm 5$	$\pm 3$	$\pm 2$	$\pm 1$

Minimum distance <sup>8)</sup>	1 m
Divergence of the infrared measuring beam <sup>9)</sup>	approx. 1.6 mrad
Data interface	RS232 & RS422 (selectable), baud rate between 300 Bd and 38.4 kBd

- 1) last, first, or strongest target return selectable
- 2) Typical values for average conditions and for measuring time of 2 seconds. In bright sunlight, the operational range is considerably shorter than under an overcast sky. At dawn or at night the range is even higher.
- 3) reflecting foil 3M680 or equivalent, size 0.45 x 0.45 m<sup>2</sup>
- 4) standard deviation, plus distance depending error 20 ppm
- 5)  $\geq 5$  min after power up
- 6) adjustable via RS232/RS422 or self-adapting
- 7) depending on measuring time
- 8) minimum distance 5 m for full accuracy with retroreflecting targets
- 9) 1 mrad corresponds to 10 cm beamwidth per 100 m of distance

General technical data and dimensions as given in our general data sheet LD90-3 series.

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 RIEGL LD90-31K-HiP, 25/03/2010




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# RIEGL LD90-3VHS-FLP First & Last Pulse distance meter

Laser Distance Meter for use with or without reflectors which, because of its long-range and its "First & Last Pulse"<sup>1)</sup> facility, is especially well suited for scanner applications.

<b>LD90-3100VHS-FLP</b> <b>Very High-Speed</b> , highly accurate distance meter for scanner applications.	Measuring range depending on the reflection coefficient $\rho$ of the target	
	good, diffusely reflecting targets, $\rho \geq 80\%$	2m up to 200 m <sup>2)</sup>
	bad, diffusely reflecting targets, $\rho \geq 10\%$	5 m up to 60 m <sup>2)</sup>
	Reflecting foil <sup>3)</sup> or plastic	10 m up to 350 m @ 25mm resolution
	cat's-eye reflectors	10 m up to 700 m @ 50mm resolution
	Minimum distance between two targets, typically	5 m
	Measurement accuracy <sup>4)</sup>	typically $\pm 25$ mm
	Measurement resolution (selectable)	25 mm or 50 mm
	Measurement rate	2000 Hz
	Laser wavelength	typ. 0.9 $\mu\text{m}$ (near infrared)
	Beam divergence <sup>5)</sup>	3 mrad x 0.5 mrad
	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.	
	Interface	RS422 serial interface, 115.2 kBd, asynchronous

- 1) First, Last, or First&Last target alternatively selectable
- 2) typical values for average conditions. In bright sunlight, the operational range is considerably shorter than under an overcast sky.
- 3) reflecting foil 3M DG4090 or equivalent, minimum dimensions 0.45 x 0.45 m<sup>2</sup>
- 4) standard deviation, plus distance depending error  $\leq 20$  ppm
- 5) 1 mrad corresponds to 10 cm beamwidth per 100 m of distance

*General technical data and dimensions as given in our general data sheet LD90-3 series.*

# RIEGL LD90-3VHS-FLP First & Last Pulse distance meter

Laser Distance Meter for use with or without reflectors which, because of its long-range and its "First & Last Pulse"<sup>1)</sup> facility, is especially well suited for scanner applications.

**LD90-3300VHS-FLP** Measuring range depending on the reflection coefficient  $\rho$  of the target

good, diffusely reflecting targets, $\rho \geq 80\%$	3 m up to 400 m @ 50mm resolution <sup>2)</sup>
bad, diffusely reflecting targets, $\rho \geq 10\%$	5 m up to 120 m <sup>2)</sup>
Reflecting foil <sup>3)</sup> or plastic cat's-eye reflectors	10 m up to 700 m @ 50mm resolution 10 m up to 350 m @ 25mm resolution

**Very High-Speed**  
rangefinder module  
for long range scanner  
applications.

Minimum distance between two targets, typically 5 m

Measurement accuracy <sup>4)</sup> typically  $\pm 50$  mm

Measurement resolution (selectable) 25 mm or 50 mm

Measurement rate 2000 Hz

Laser wavelength typ. 0.9  $\mu\text{m}$  (near infrared)

Beam divergence <sup>5)</sup> approx. 3 mrad

Laser product classification according to IEC60825-1:2007 <sup>6)</sup>

The following clause applies for instruments delivered into the United States:  
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Viewing the laser output with certain optical instruments designed for use at a distance (for example, telescopes and binoculars) may pose an eye hazard.

Interface RS422 serial interface, 115.2 kBd, asynchronous

- 1) First, Last, or First&Last target alternatively selectable
- 2) typical values for average conditions. In bright sunlight, the operational range is considerably shorter than under an overcast sky.
- 3) reflecting foil 3M DG4090 or equivalent, minimum dimensions 0.45 x 0.45 m<sup>2</sup>
- 4) standard deviation, plus distance depending error  $\leq 20$  ppm
- 5) 1 mrad corresponds to 10 cm beamwidth per 100 m of distance
- 6) For the unscanned laser beam only. For a scanned beam, laser class 1 (eyesafe) is in most cases achievable.

General technical data and dimensions as given in our general data sheet LD90-3 series.

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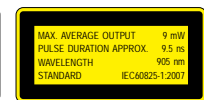
# RIEGL LD90-3EHS extremely high-speed distance meter

Laser Distance Meter for use with or without reflectors which, because of its long-range, and its "First & Last Pulse" <sup>1)</sup> facility, is especially well suited for scanner applications.

<b>LD90-3100EHS-FLP</b> <i>Extremely High-Speed,</i> highly accurate distance meter for scanner applications	Measuring range depending on the reflection coefficient $\rho$ of the target for natural targets, $\rho \geq 80\%$ 2m up to 200 m <sup>2)</sup> for natural targets, $\rho \geq 10\%$ 5 m up to 60 m <sup>2)</sup> for retroreflecting targets <sup>3)</sup> 10 m up to 350 m @ 25mm resolution 10 m up to 700 m @ 50mm resolution
	Minimum distance between two targets, typically 5 m
	Measurement accuracy <sup>4)</sup> typically $\pm 25$ mm
	Measurement resolution (selectable) 25 mm or 50 mm
	Measurement rate <sup>5)</sup> up to 12 000 Hz
	Laser wavelength typ. 0.9 $\mu\text{m}$ (near infrared)
	Beam divergence <sup>6)</sup> 3 mrad x 0.5 mrad
	Laser product classification according to IEC60825-1:2007 <sup>7)</sup>
	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.
	Viewing the laser output with certain optical instruments designed for use at a distance (for example, telescopes and binoculars) may pose an eye hazard.
Interface	Parallel interface, ECP standard (extended capabilities port)



<b>LD90-3300EHS-FLP</b> <i>Extremely High-Speed</i> distance meter for long-range scanner applications	Measuring range depending on the reflection coefficient $\rho$ of the target for natural targets, $\rho \geq 80\%$ 3 m up to 400 m @ 50mm resolution <sup>2)</sup> 3 m up to 350 m @ 25mm resolution <sup>2)</sup> for natural targets, $\rho \geq 10\%$ 5 m up to 120 m <sup>2)</sup> for retroreflecting targets <sup>3)</sup> 10 m up to 700 m @ 50mm resolution 10 m up to 350 m @ 25mm resolution
	Minimum distance between two targets, typically 5 m
	Measurement accuracy <sup>4)</sup> typically $\pm 50$ mm
	Measurement resolution (selectable) 25 mm or 50 mm
	Measurement rate <sup>5)</sup> up to 12 000 Hz
	Laser wavelength typ. 0.9 $\mu\text{m}$ (near infrared)
	Beam divergence <sup>6)</sup> approx. 3 mrad
	Laser product classification according to IEC60825-1:2007 <sup>7)</sup> class 3R laser product
	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.
	Viewing the laser output with certain optical instruments designed for use at a distance (for example, telescopes and binoculars) may pose an eye hazard.
Interface	Parallel interface, ECP standard (extended capabilities port)

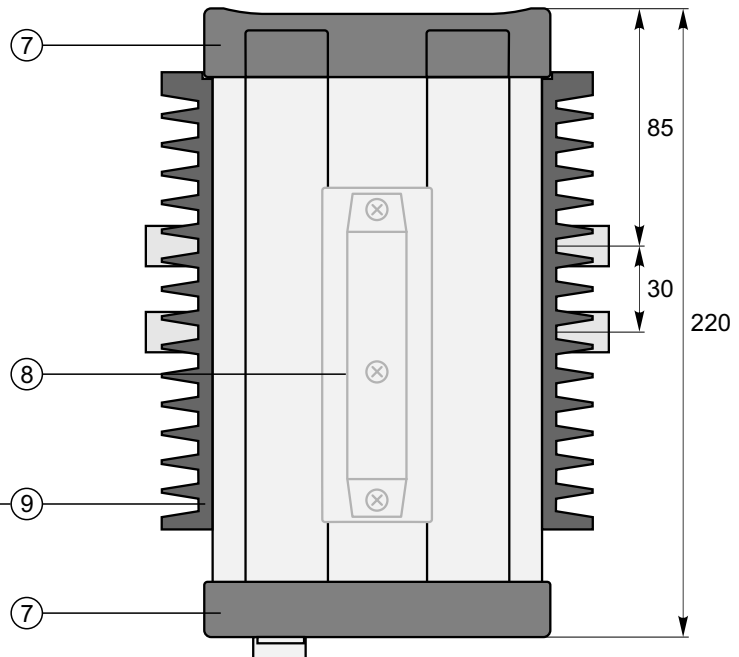
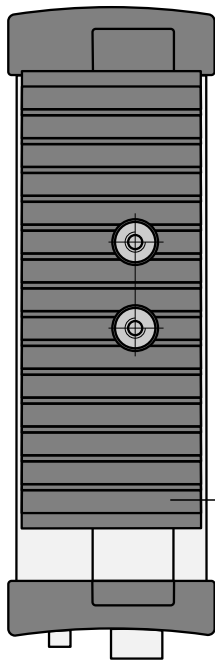
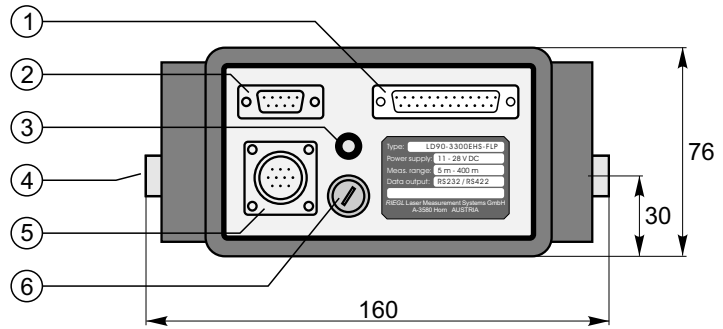


- 1) First, Last, or First&Last target alternatively selectable
- 2) typical values for average conditions. In bright sunlight, the operational range is considerably shorter than under an overcast sky. At dawn or at night the range is even higher.
- 3) reflecting foil 3M DG4090 or equivalent, minimum dimensions 0.45 x 0.45 m<sup>2</sup>
- 4) standard deviation, plus distance depending error  $\leq 20$  ppm
- 5) adjustable in steps by software command; up to max. 12019 Hz ( $\pm 2$  Hz)
- 6) 1 mrad corresponds to 10 cm beamwidth per 100 m of distance
- 7) For the unscanned laser beam only. For a scanned beam, laser class 1 (eyesafe) is in most cases achievable.

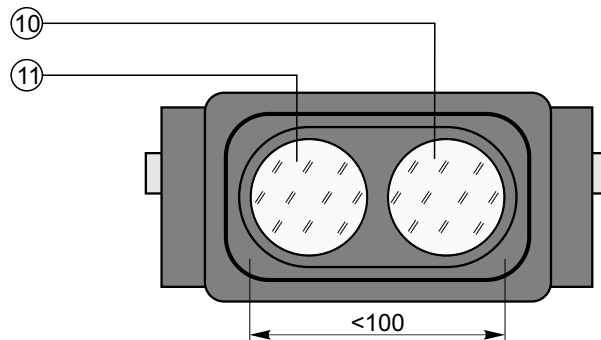
General technical data as given in our general data sheet LD90-3 series.

# RIEGL LD90-3EHS dimensional drawings

- (1) ECP interface
- (2) 9pole socket for RS232 / RS422 data interface
- (3) LED "POWER ON"
- (4) 4xM6 threads on both sides for mounting the instrument
- (5) 10 pole socket for power supply
- (6) Fuse holder



- (7) Rubber-armoured front and rear panel
- (8) Mounting for aiming device (optional)
- (9) Cooling block
- (10) Receiver lens
- (11) Transmitter lens




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# RIEGL LD90-3200HiP "High Penetration" level meter

<b>LD90-3200HiP</b> Laser Distance Meter for use with or without reflectors which, because of its "High Penetration" facility under conditions of bad visibility, is especially well suited for level measurements in large silos, distance measurement on cranes, etc. <sup>1)</sup>	Measuring range depending on the reflection coefficient $\rho$ of the target <sup>2)</sup>				
	good, diffusely reflecting targets, $\rho \geq 80\%$			up to	400 m
	bad, diffusely reflecting targets, $\rho \geq 10\%$			up to	150 m
	Reflecting foil <sup>3)</sup> or plastic cat's-eye reflectors			up to	2000 m
	Minimum distance <sup>4)</sup>				1 m
	Accuracy <sup>5) 6)</sup>	typically $\pm 25$ mm, in the worst case $\pm 75$ mm			
	Resolution (mm)				2 mm
	Measuring time (s) <sup>7)</sup>	0.3	0.5	1	2
	Statistical deviation (mm) <sup>8)</sup>	$\pm 20$	$\pm 15$	$\pm 10$	$\pm 7$
	Divergence of the infrared measuring beam <sup>9)</sup>	1.6 mrad x 0.2 mrad			
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.					
Data interface	RS232 & RS422 (selectable), baud rate between 300 Bd and 38.4 kBd				

- 1) last, first, or strongest target return selectable
- 2) Typical values for average conditions. In bright sunlight, the operational range is considerably shorter than under an overcast sky. At dawn or at night the range is even higher.
- 3) reflecting foil 3M680 or equivalent, dimensions 0.45 x 0.45 m<sup>2</sup>
- 4) minimum distance 5 m for full accuracy with retroreflecting targets
- 5) standard deviation, plus distance depending error  $\leq 20$  ppm
- 6)  $\geq 5$  min after power up
- 7) adjustable via RS232/RS422 or self-adapting
- 8) depending on measuring time
- 9) 1 mrad corresponds to 10 cm beamwidth per 100 m of distance

General technical data and dimensions as given in our general data sheet LD90-3 series.

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# RIEGL LD90-3800-FLP high-speed, long-range sensor

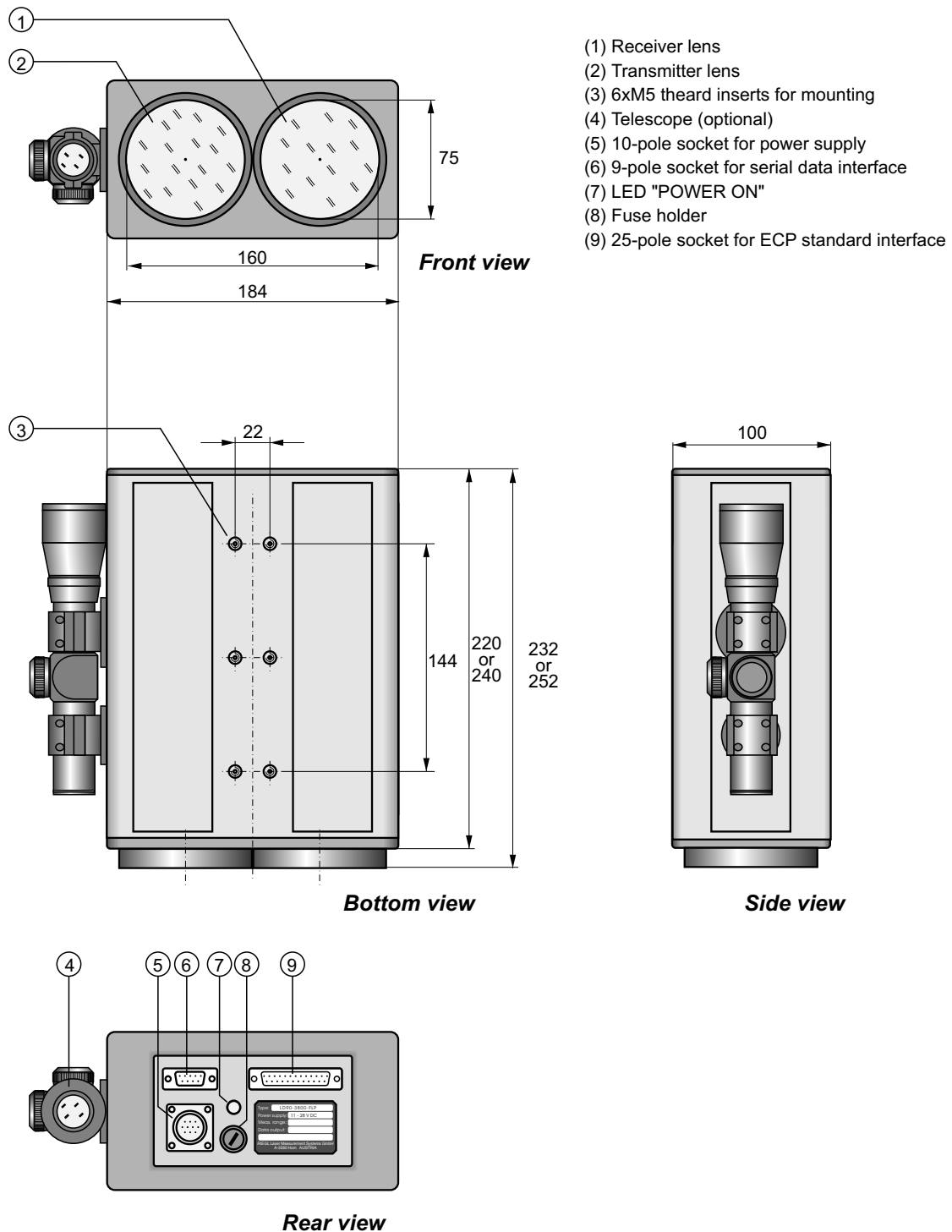
Laser Distance Meter for use with or without reflectors which, because of its high repetition rate, its long-range, and its "First & Last Pulse"<sup>1)</sup> facility, is especially well suited for airborne altimetry and scanner applications, and for use as an invader detector.

	LD90-3800VHS-FLP	LD90-3800EHS-FLP
Measurement rate	2000 Hz	12000 Hz
Data interface	RS232 or RS422 115.2 kBd	ECP standard, parallel interface
Laser product classification according to IEC60825-1:2007	 <sup>2)</sup>	 <sup>2)</sup>
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.	Viewing the laser output with certain optical instruments designed for use at a distance (for example telescopes and binoculars) may pose an eye hazard.	Viewing the laser output with certain optical instruments designed for use at a distance (for example telescopes and binoculars) may pose an eye hazard.
Physical data		
Dimensions	232 x 184 x 100 mm	252 x 184 x 100 mm
Weight	approx. 4.4 kg	approx. 4.5 kg
Protection class	IP64	IP64

LD90-3800-FLP	Measurement range <sup>3)</sup>	
	for natural targets, $\rho \geq 80 \%$	up to 750 m
	for natural targets, $\rho \geq 10 \%$	up to 250 m
	for retroreflecting targets <sup>4)</sup>	1000 m
	Minimum distance <sup>5)</sup>	10 m
	Measurement accuracy <sup>6)</sup>	typically $\pm 50$ mm
	Measurement resolution	50 mm
	Laser wavelength	typ. 0.9 $\mu$ m (near infrared)
	Beam divergence <sup>7)</sup>	1.6 mrad x 1.8 mrad
	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	
	Operation	-10 °C to +50 °C
	Storage	-20 °C to +60 °C

- 1) First, Last, or First&Last Target alternatively selectable
- 2) For the unscanned laser beam only. For a scanned beam, laser class 1 (eyesafe) is in most cases achievable.
- 3) Typical values for average conditions. In bright sunlight, the operational range is considerably shorter than under an overcast sky. At dawn or at night the range is even higher.
- 4) reflecting foil 3M DG4090 or equivalent, minimum dimensions 0.45 x 0.45 m<sup>2</sup>
- 5) short-range sensitivity reduced to avoid nearby echoes
- 6) standard deviation, plus distance depending error  $\leq 20$  ppm
- 7) 1 mrad corresponds to 10 cm beamwidth per 100 m of distance

# Dimensional drawings of RIEGL LD90-3800-FLP



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 RIEGL LD90-3800-FLP, 25/03/2010



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# RIEGL LD90-3100HS-HT high-temperature distance meter

The LD90-3100HS-HT is a laser distance meter optimized for very hot and glowing targets in steel plants, rolling mills, foundries etc. Transmitter and receiver optics are equipped with narrow-band optical filters to avoid disturbances of the measurement caused by the radiation of light and heat from the hot target surface. If necessary the front side can be equipped with an additional protection tube, which can be flushed with nitrogen or compressed air to keep the lenses clean.

The **technical data** can, to a considerable extent, be influenced by the environmental conditions, especially by the following parameters:

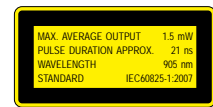
- Surface temperature and reflection characteristics of the target
- Distance of the target
- Angle of the measurement beam with respect to the surface of the target
- Optical attenuation of the gases between target and instrument

<b>LD90-3100HS-HT</b> <i>High-Speed, High Temperature distance meter</i>	Measurement range depending on the surface temperature and the reflection coefficient of the target	
	liquid steel, temperature up to 1450 °C	3 m to 7 m
	glowing slabs, temperature up to 1200 °C	2 m to 10 m
	other targets, temperature up to 800 °C	2 m to 100 m

Accuracy, typically <sup>1)</sup>	±15 mm				
Measuring time (s) <sup>2)</sup>	0.05	0.1	0.2	0.5	1
Statistical deviation (mm) <sup>3)</sup>	±20	±15	±10	±7	±5
Resolution (mm) <sup>3)4)</sup>	10	5	5	2	2
Diameter of the infrared measuring beam	approx. 30 mm at 10 m, approx. 150 mm at 50 m				

Laser product classification according to IEC60825-1:2007 class 3R laser product

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.

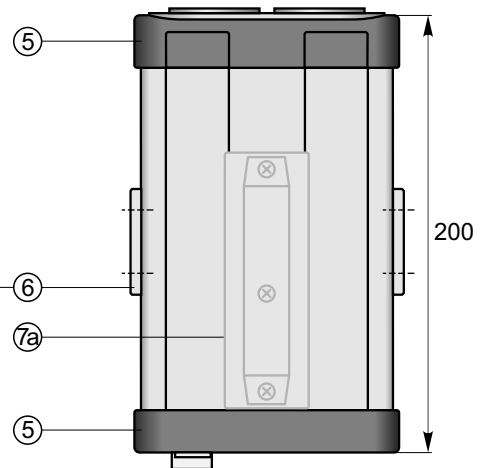
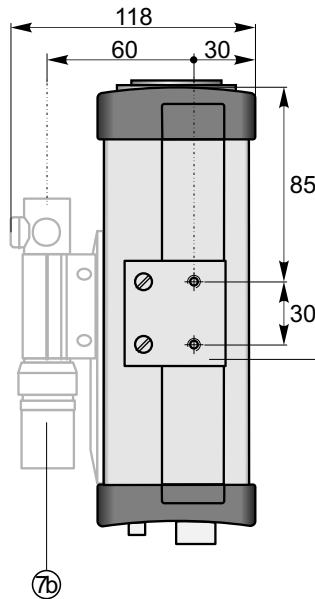
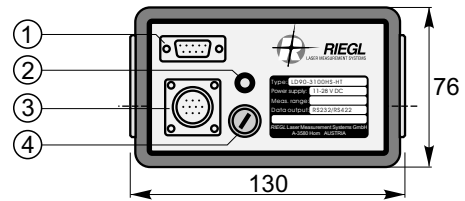


Temperature range (case temperature)	
Operation	-10 °C to +50 °C
Storage	-20 °C to +60 °C
Dimensions (L x W x H)	200 x 130 x 76 mm
Weight	approx. 1.5 kg
Protection class	IP64

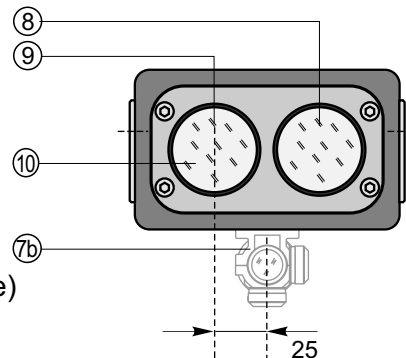
1) standard deviation  
 2) selectable via RS232/RS422  
 3) depending on measuring time  
 4) chosen automatically by the internal microprocessor

## Dimensional drawings of RIEGL LD90-3100HS-HT

- (1) 9pole socket for RS232/RS422 data interface
- (2) LED "POWER ON"
- (3) 10pole socket for power supply, optional analog outputs, and switching output
- (4) Fuse holder



- (5) Rubber-armoured front and rear panel
- (6) Mounting plates with 2xM6 threads on both sides of the instrument
- (7a) Mounting for aiming device (optional)
- (7b) Telescope (optional)
- (8) Protecting filter for receiver lens (detachable)
- (9) Protecting filter for transmitter lens (detachable)
- (10) Transmitter



All dimensions in mm.

Other parameters as given in our general data sheet LD90-3 series.

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