

# L-LAS Series

## ▶ L-LAS-LT-85-RA-CL (Reduced Amplification)

- Operates in an angle of total reflection
- Suitable für high-glossy objects (e.g. glass)
- Line laser <1 mW, wave length 670 nm, laser class 2
- Visible red laser line, typ. 0.3 mm x 3 mm
- Measuring range typ. 40 mm
- Start of measuring range at typ. 70 mm
- Resolution typ. 20 µm
- Interference filter and red light filter integrated
- CCD line detector with 512 pixel, 2048 subpixel
- RS232 interface (USB or Ethernet adaptor available)
- Windows® user interface
- 2 digital inputs, 2 digital outputs
- 1 analog output (0...+10V, optionally additional output 4...20mA)
- Scan frequency max. 500 Hz
- Switching state indication via 4 LEDs (2x red/grn, 2x yel/grn)
- Optics cover made of scratch-resistant glass

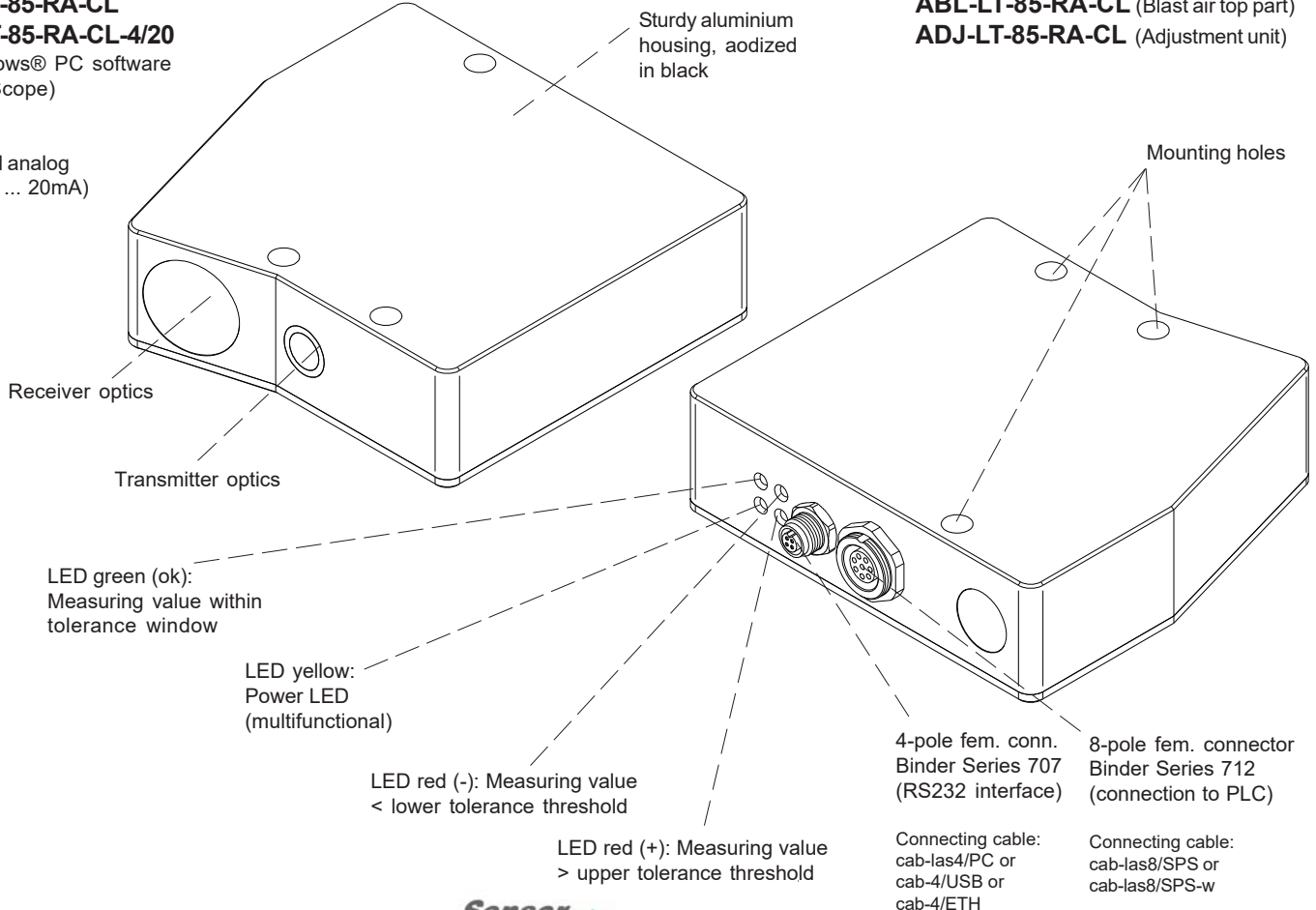


### Design

#### Product name:

**L-LAS-LT-85-RA-CL**  
**L-LAS-LT-85-RA-CL-4/20**  
 (incl. Windows® PC software  
 L-LAS-LT-Scope)

**4/20 =**  
 additional analog  
 output (4 ... 20mA)



#### Accessories: (cf. pages 8-9)

**ABL-LT-85-RA-CL** (Blast air top part)  
**ADJ-LT-85-RA-CL** (Adjustment unit)



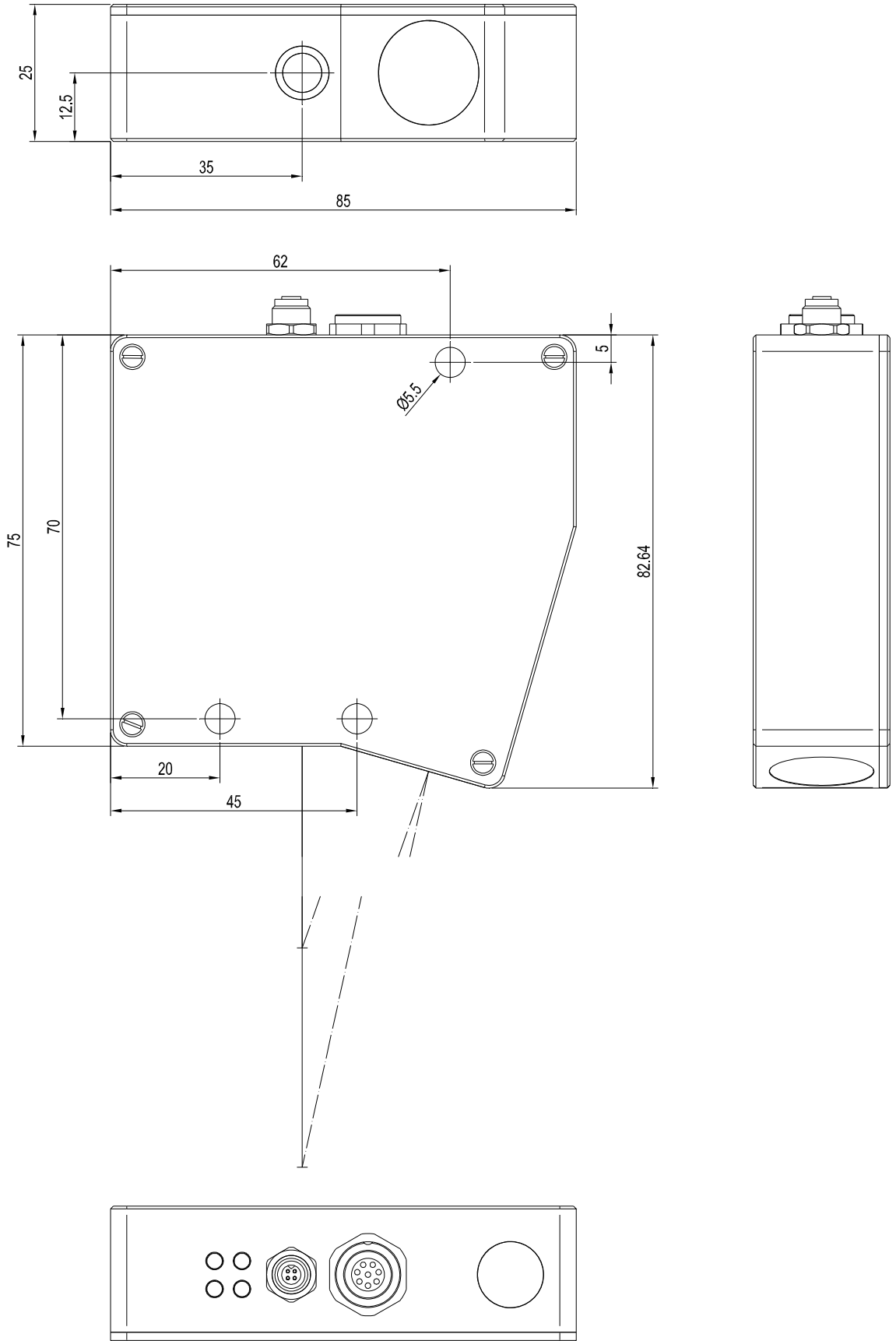
**Technical Data**

Model	L-LAS-LT-85-RA-CL	L-LAS-LT-85-RA-CL-4/20
Light source	Semiconductor laser, 670 nm, DC-operation, 1 mW max. opt. power, laser class 2 acc. to DIN EN 60825-1. The use of these laser sensors therefore requires no additional protective measures.	
Angle of total reflection	Angle of inclination of sensor: 8° (please pay attention to our mounting instructions)	
Measuring range	typ. 40 mm	
Start of measuring range End of measuring range	typ. 70 mm (measured from housing edge, cf. picture beam path) typ. 110 mm (measured from housing edge, cf. picture beam path)	
Resolution	typ. 20 µm	
Reproducibility	typ. ± 20 µm	
Linearity	≤ 0.6% of full scale output (FSO)	
Laser line geometry	typ. 3 mm x 0.3 mm	
Optical filter	Interference filter, red light filter RG630	
Analog output (ANA)	1x voltage output (0 ... +10V)	1x voltage output (0 ... +10V) 1x current output (4 ... 20mA)
Digital outputs (OUT0, OUT1)	OUT0: (-) Measuring value < lower tolerance threshold OUT1: (+) Measuring value > upper tolerance threshold pnp bright-switching/npn dark-switching or pnp dark-switching/npn bright-switching, adjustable under Windows®, 100 mA, short-circuit proof	
Digital inputs (IN0, IN1)	IN0: External trigger, IN1: Teach/Reset (double function), Input voltage +Ub/0V, with protective circuit	
Voltage supply	+24VDC (± 10%)	
Sensitivity setting	adjustable under Windows® via PC	
Laser power correction	adjustable under Windows® via PC	
Current consumption	typ. 200 mA	
Enclosure rating	Electronics: IP64, optics: IP67	
Temperature stability	0.01% of measuring range/°C	
Temperature ranges	operating temperature range: -10°C ... +50°C storage temperature range: -20°C ... +85°C	
Housing material	Aluminum, anodized in black	
Housing dimensions	LxWxH approx. 82.7 mm x 85 mm x 25 mm (without flange connectors)	
Type of connector	8-pole circular fem. connector type Binder 712 (PLC/Power) 4-pole circular fem. connector type Binder 707 (PC/RS232)	
Connecting cable	to PLC: cab-las8/SPS or cab-las8/SPS-w to PC/RS232 interface: cab-las4/PC or cab-las4/PC-w to PC/USB interface: cab-4/USB or cab-4/USB-w to PC/Ethernet interface: cab-4/ETH	
LED indication (4x two-color LED)	2x two-color-LED red/green and 1x two-color-LED yellow/green for tolerance band monitoring: red (+) = Measuring value > upper tolerance threshold red (-) = Measuring value < lower tolerance threshold green (ok) = Measuring value within tolerance window 1x two-color LED yellow/green (multifunctional): yellow = Power indication	
EMC test acc. to	DIN EN 60947-5-2	
Measuring frequency	max. 500 Hz	
Max. switching current	100 mA, short-circuit proof	
Interface	RS232, parameterisable under Windows®	
Output polarity	Bright/dark-switching, can be switched under Windows®	



Dimensions

L-LAS-LT-85-RA-CL  
L-LAS-LT-85-RA-CL-4/20

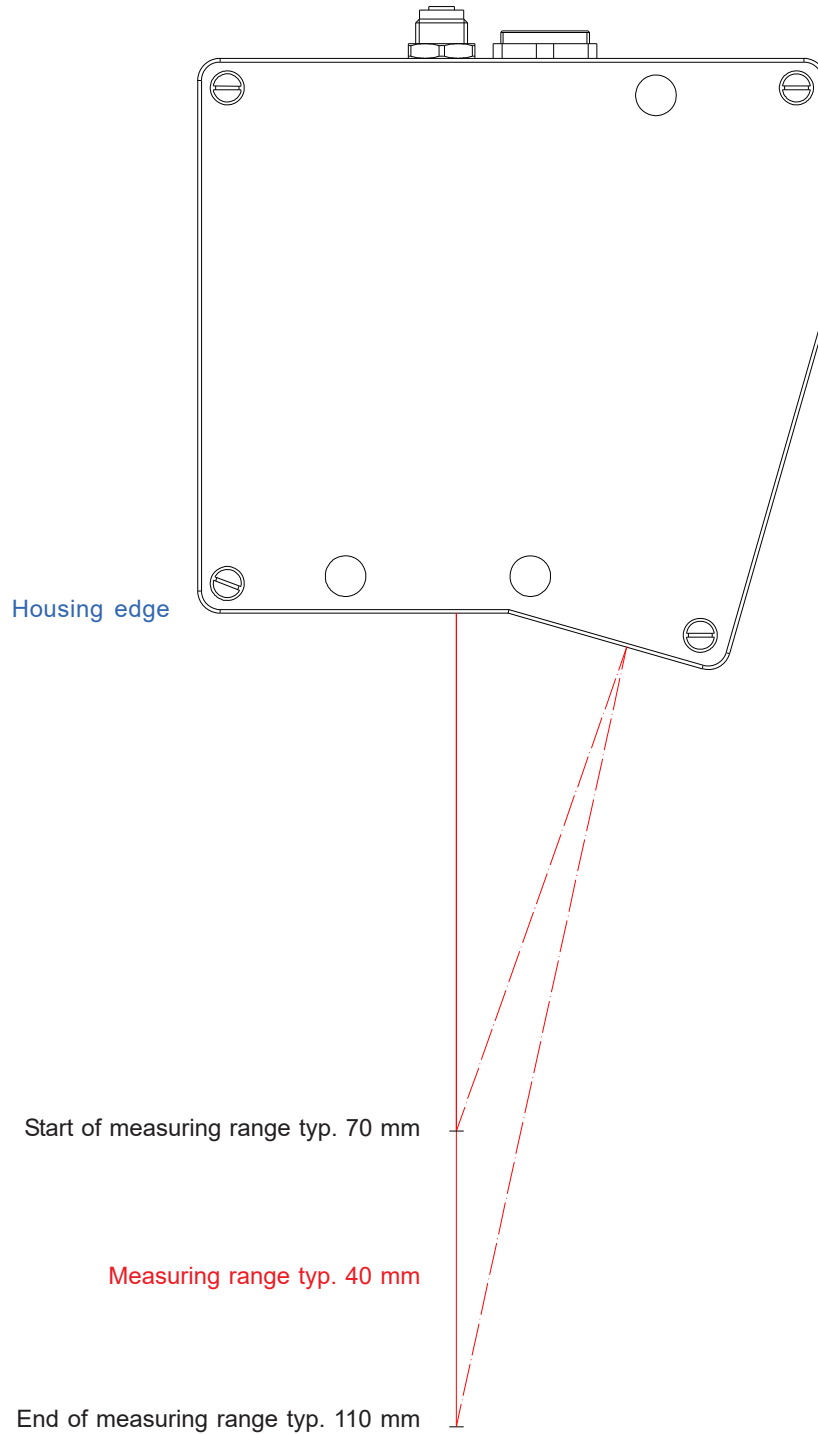


All dimensions in mm



**Beam Path**

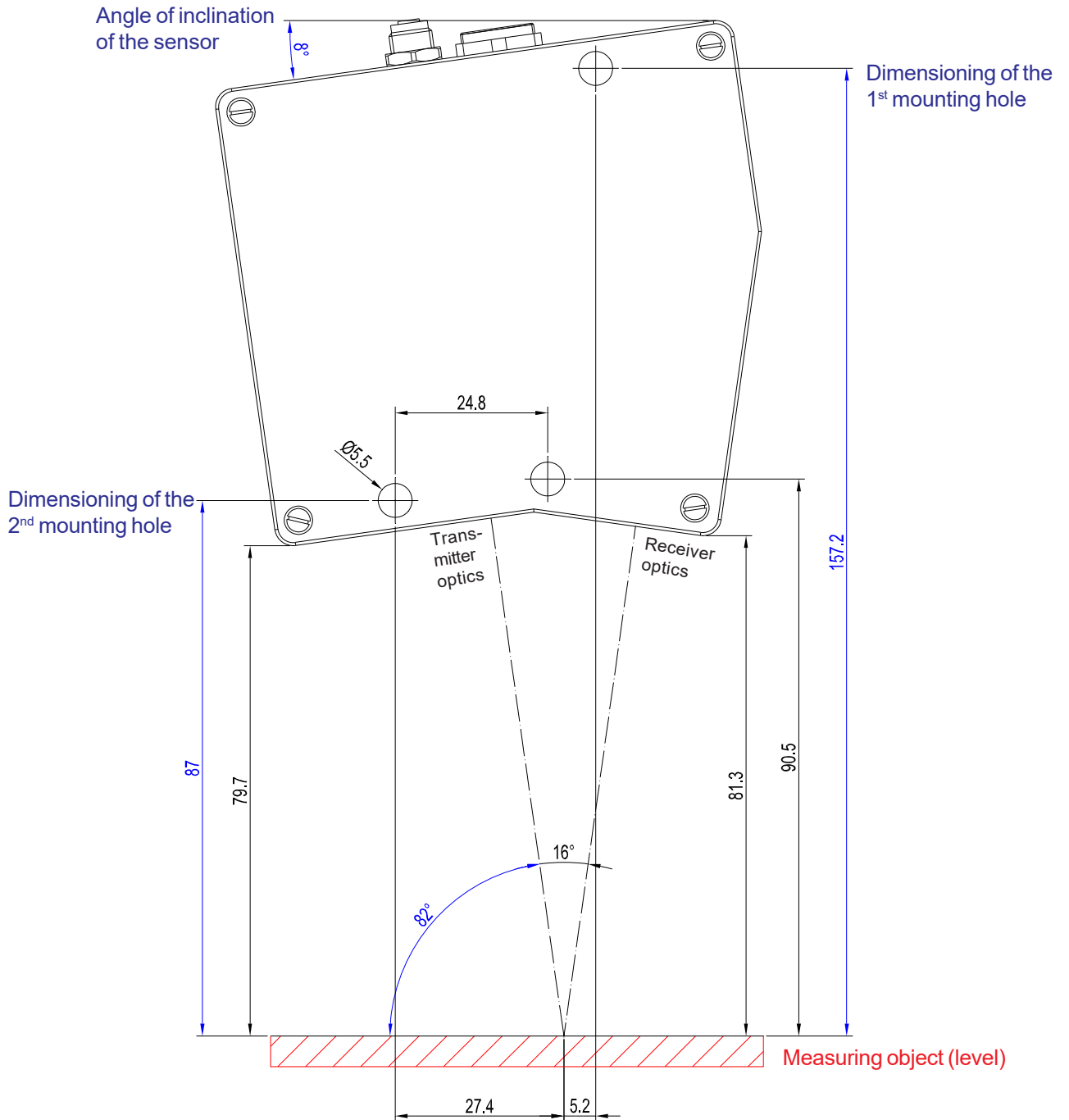
L-LAS-LT-85-RA-CL  
L-LAS-LT-85-RA-CL-4/20



Mounting Hints

Laser line sensors of type L-LAS-LT-...-RA work at high glossy (mirroring) measuring objects in an angle of total reflection.

Please pay attention to the following hints for mounting the L-LAS-LT-85-RA-CL sensor:



All dimensions in mm

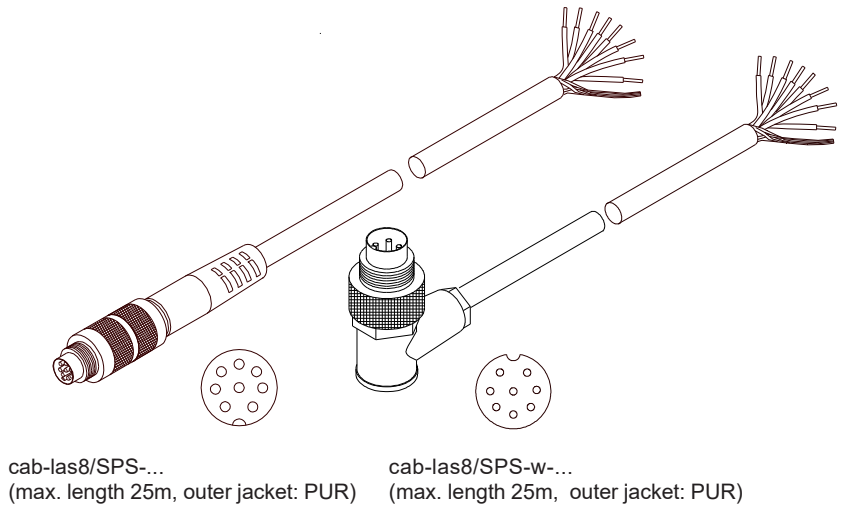


**Connector Assignment**

**Connection to PLC:  
8-pole fem. connector Binder Series 712**

Pin:	Color:	Assignment:
1	white	GND (0V)
2	brown	+24VDC (± 10%)
3	green	IN0 (EXT TRIGGER)
4	yellow	IN1 (TEACH / RESET)
5	grey	OUT0 (-)
6	pink	OUT1 (+)
7	blue	GND (0V) or <b>in case of -4/20: ANA (current 4 ... 20mA)</b>
8	red	<b>ANA (voltage 0 ... +10V)</b>

Connecting cable:  
cab-las8/SPS-(length) or  
cab-las8/SPS-w-(length) (angle type 90°)  
(standard length 2m)



**Connection to PC:  
4-pole fem. connector Binder Series 707**

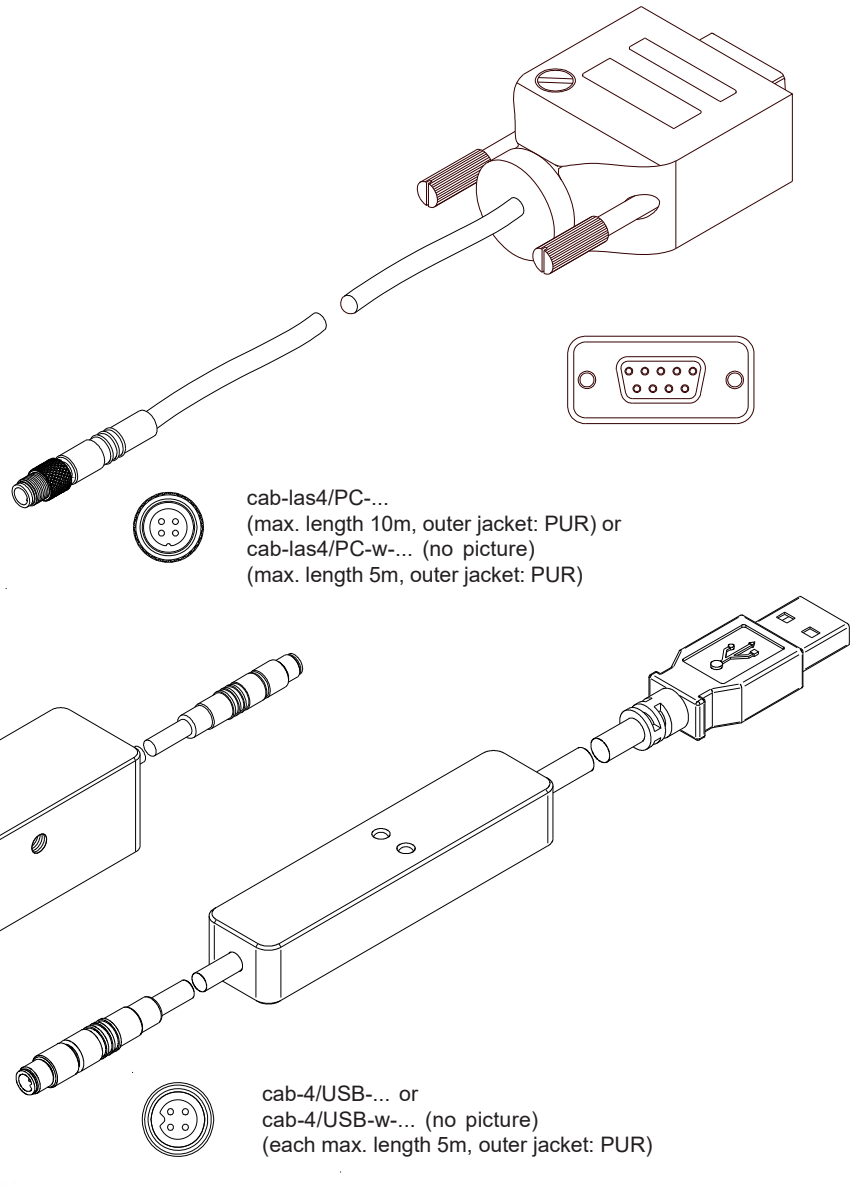
Pin:	Assignment:
1	+24VDC (+Ub, OUT)
2	GND (0V)
3	RxD
4	TxD

**Connection via RS232 interface at the PC:**  
Connecting cable:  
cab-las4/PC-(length)  
cab-las4/PC-w-(length) (angle type 90°)  
(standard length 2m)

**alternative:**  
**Connection via USB interface at the PC:**  
Connecting cable (incl. driver software):  
cab-4/USB-(length)  
cab-4/USB-w-(length) (angle type 90°)  
(standard length 2m)

**alternative:**  
**Connection to local network via Ethernet bus:**  
Adapter (incl. software „SensorFinder“):  
cab-4/ETH-500  
(standard length 0.5m)

Optional:  
External CAT5 cable, e.g.  
cab-eth/M12D-RJ45-flx-(length)



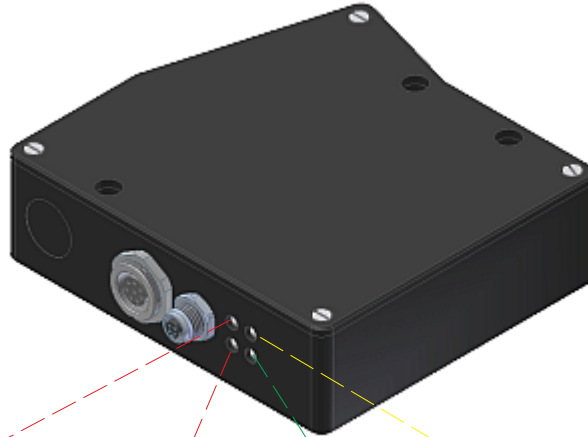


**LED Display**

**LED display:**

(+) ● ● Power

(-) ● ● (ok)



**LED red (+):** ●  
Measuring value > upper tolerance threshold (OUT1)

**LED red (-):** ●  
Measuring value < lower tolerance threshold (OUT0)

**LED green (ok):** ●  
Measuring value within tolerance window

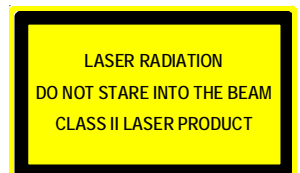
**LED yellow:** ●  
Power LED (multifunctional)



**Laser Warning**

The laser line sensors of L-LAS-LT Series comply with laser class 2 according to EN 60825-1. The use of these laser transmitters therefore requires no additional protective measures.

The laser line sensors of L-LAS-LT Series are supplied with a laser warning label.

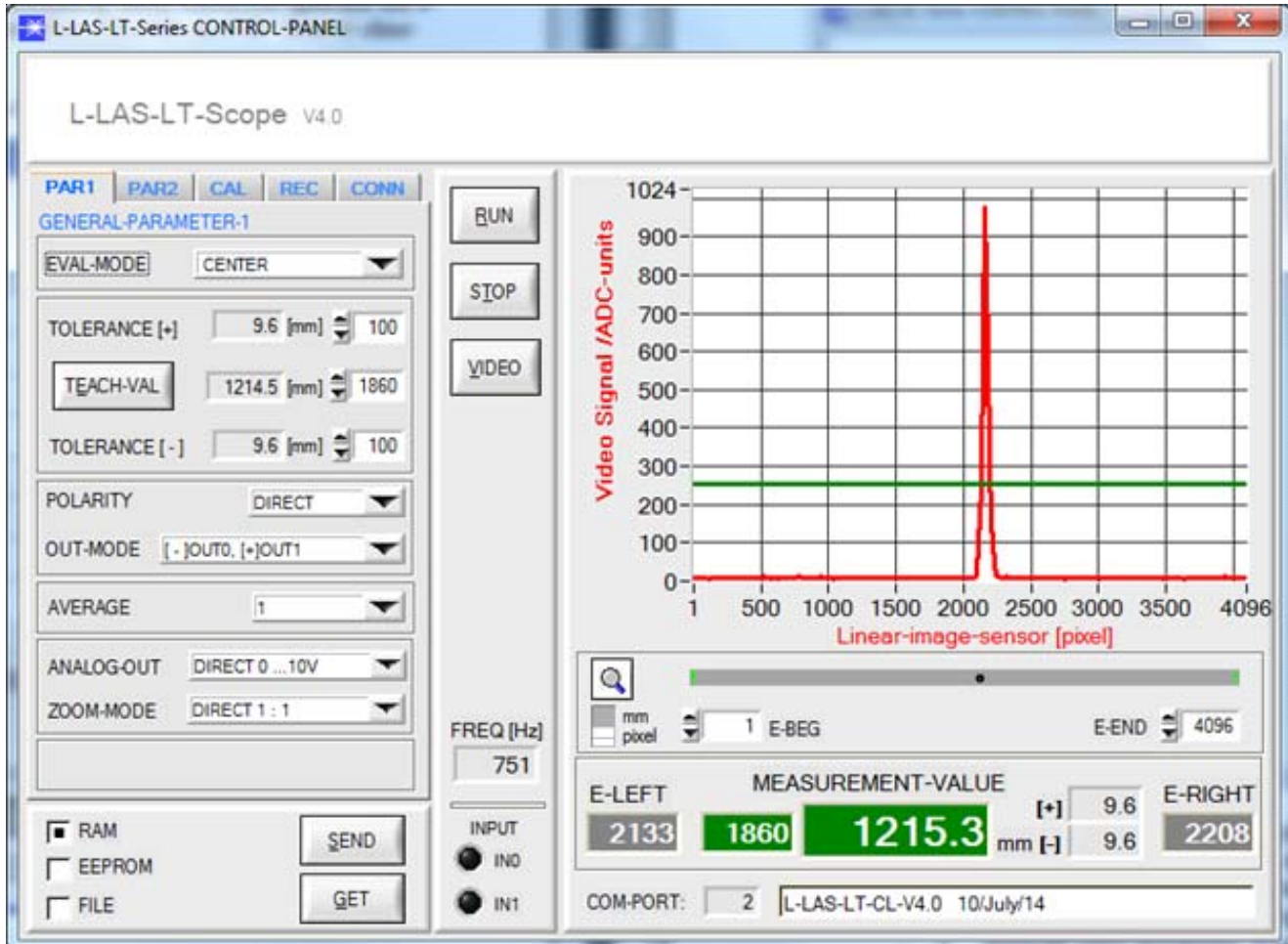




**Parameterization**
**Windows® PC software L-LAS-LT-Scope:**

(The current software version is available for download on our website.)

The L-LAS-LT sensor can be easily parameterised with the Windows® user interface. For this purpose the sensor is connected to the PC with the serial interface cable cab-las4/PC (or with USB cable cab-4/USB or with Ethernet adaptor cab-4/ETH). When parameterisation is finished, the PC can be disconnected again.

**Windows® user interface:**

With the help of the L-LAS-LT-Scope software the following settings can be made at the sensor:

- Setting of laser power and type of automatic power correction
- Polarity of digital outputs
- Different evaluation modes
- Start of the teach process by software button
- Setting of tolerance ranges for monitoring the measured value

Furthermore, various numerical and graphical measured quantities can be visualized with the L-LAS-LT-Scope software. For example, the raw data of the CCD line sensor can be displayed graphically and numerically.





Accessories

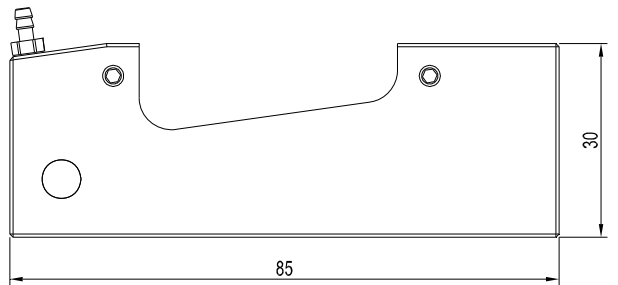
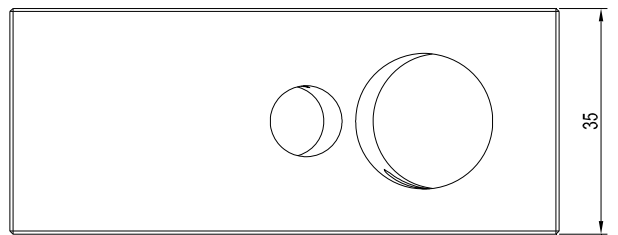
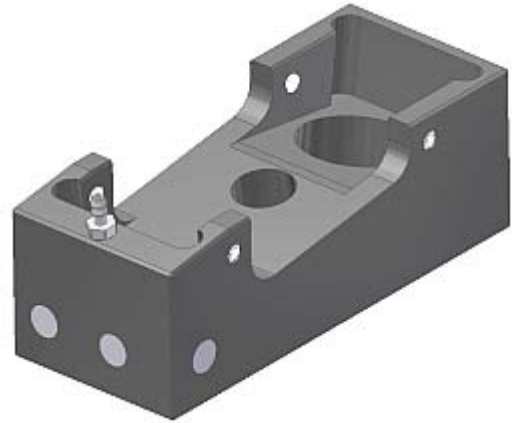
**Blast air top part for L-LAS-LT-85-RA-CL:**  
 (please order separately)

**ABL-LT-85-RA-CL**



L-LAS-LT-85-RA-CL

ABL-LT-85-RA-CL  
 (plastics housing, grey)



All dimensions in mm



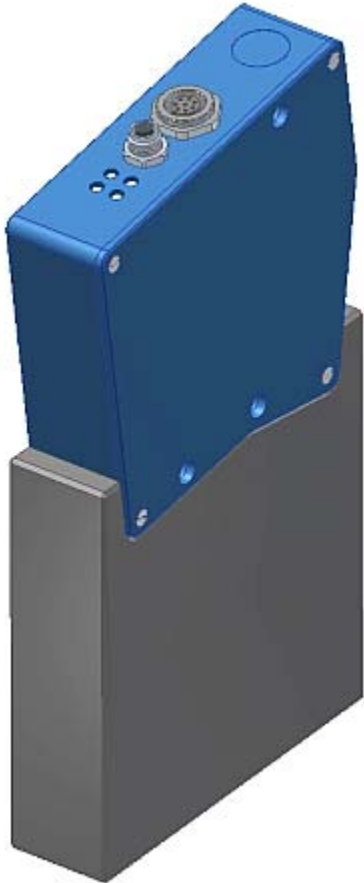
Accessories

**Adjustment unit for L-LAS-LT-85-RA-CL:**

(please order separately)

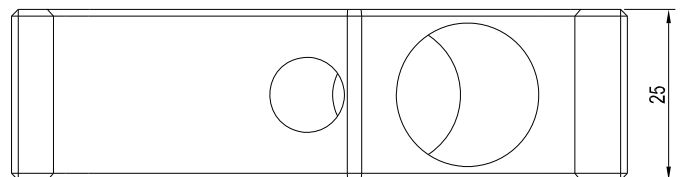
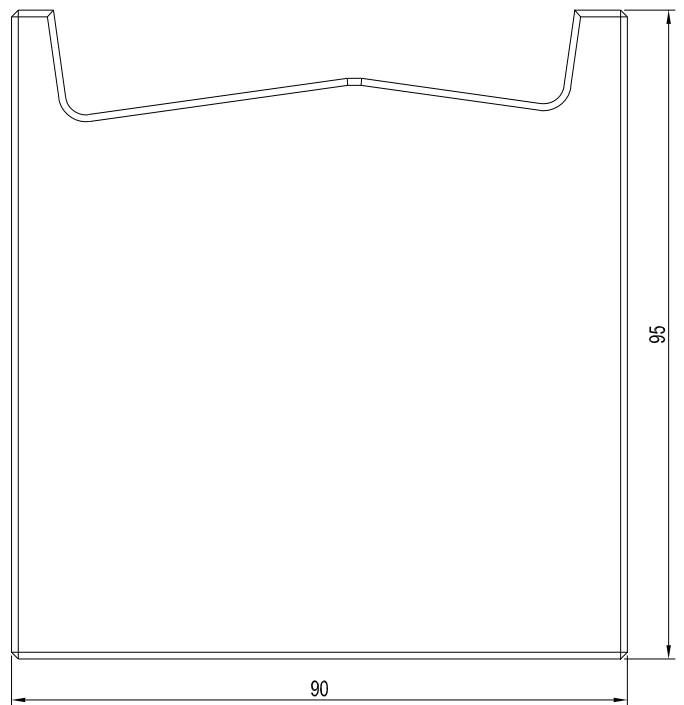
**ADJ-LT-85-RA-CL**

(plastic housing, grey)



L-LAS-LT-85-RA-CL

ADJ-LT-85-RA-CL  
(plastics housing, grey)



All dimensions in mm