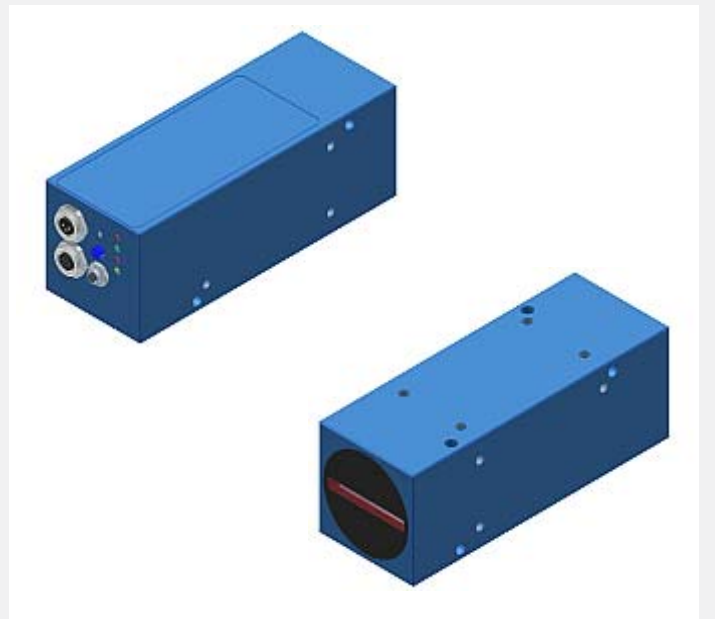


# L-LAS Series

## L-LAS-TB-35

- Line laser <math><0.4\text{ mW}</math>, wave length 670 nm, laser class 1
- Visible laser line, typ. 35 mm x 2 mm
- Measuring range typ. 35 mm
- Resolution typ. 9  $\mu\text{m}$
- Working distance up to 500 mm
- Integrated interference filter
- CCD line detector with 1024 pixel, 4096 subpixel
- External teach button and potentiometer for tolerance setting
- RS232 interface (USB or Ethernet adaptor is available)
- 2 digital inputs, 3 digital outputs
- 1 analog output (0 ... +10V or 4 ... 20mA)
- Switching state indication via 4 LEDs (1x grn, 2x red, 1x yel)



### Design

#### Product name:

**L-LAS-TB-35-T** (Transmitter)

**L-LAS-TB-35-R** (Receiver)

**L-LAS-TB-35-R-4/20** (Receiver 4...20mA)

(incl. Windows® PC software

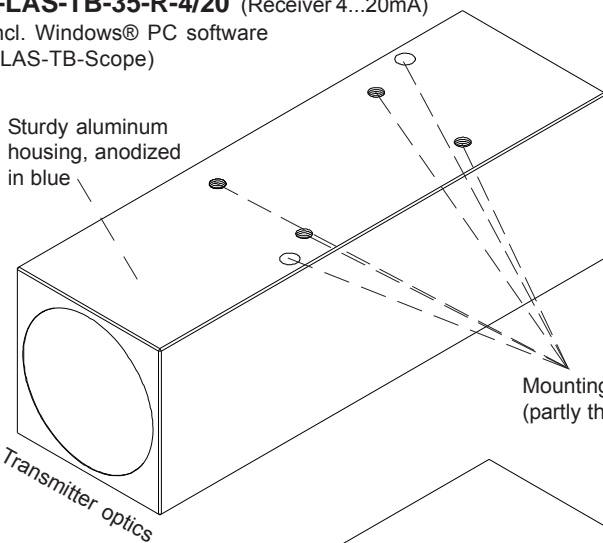
L-LAS-TB-Scope)

#### Accessories: (cf. page 8)

**TRA-L-LAS-TB-35-200**

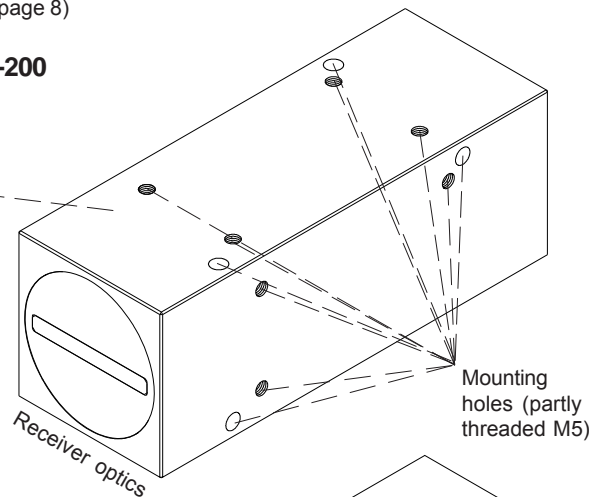
(Mounting plate)

Sturdy aluminum housing, anodized in blue



Mounting holes (partly threaded M5)

Sturdy aluminum housing, anodized in blue



Mounting holes (partly threaded M5)

Receiver optics

**L-LAS-TB-35-R**  
(receiver)

4-pole fem. connector Binder Series 707 (RS232 interface)

Connecting cable: cab-las4/PC or cab-4/USB or cab-4/ETH

8-pole fem. connector Binder Series 712 (PLC)

Connecting cable: cab-las8/SPS

3-pole fem. connector Binder Series 712 (conn. to transmitter)

Connecting cable: cab-las3-male

**L-LAS-TB-35-T**  
(transmitter)

3-pole fem. connector Binder Series 712 (connection to receiver)

LED display  
red (+), green, red (-), yellow:  
Measured value > upper tolerance threshold  
Measured value within tolerance window  
Measured value < lower tolerance threshold  
LED yellow (multifunctional)

Potentiometer for tolerance setting

Teach button for set point teaching



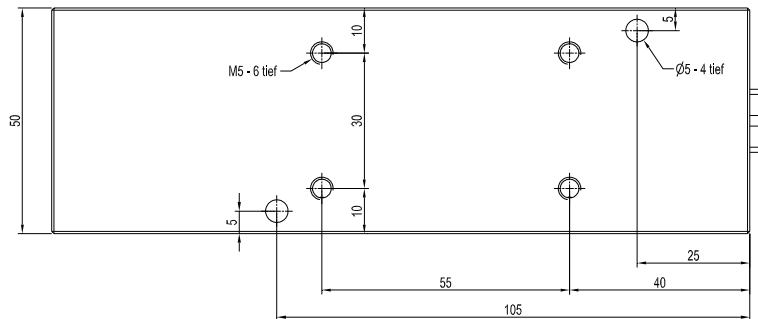
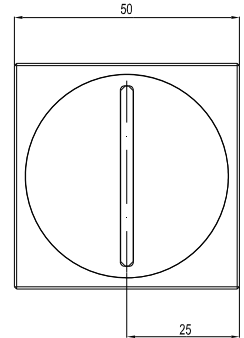
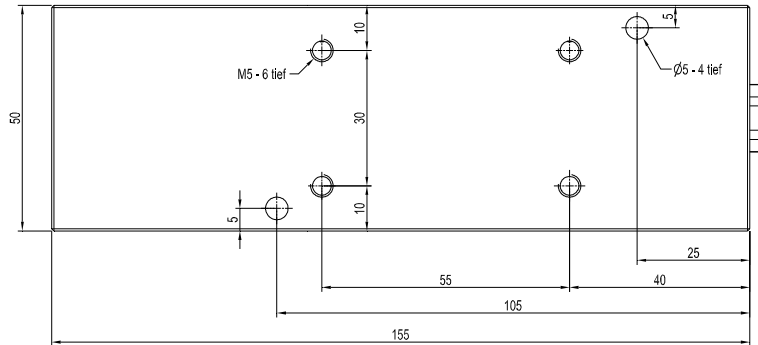
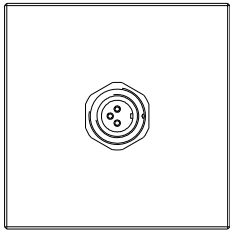


**Technical Data**

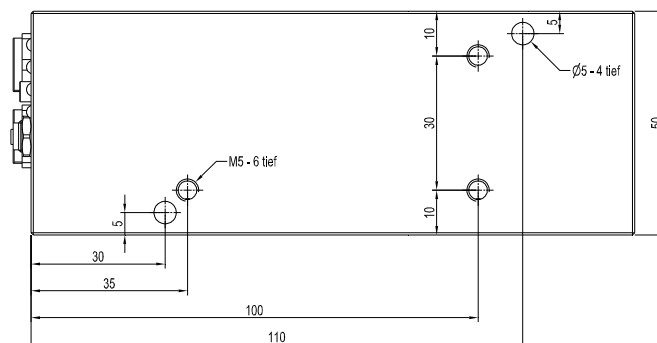
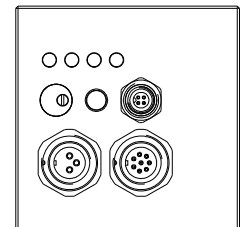
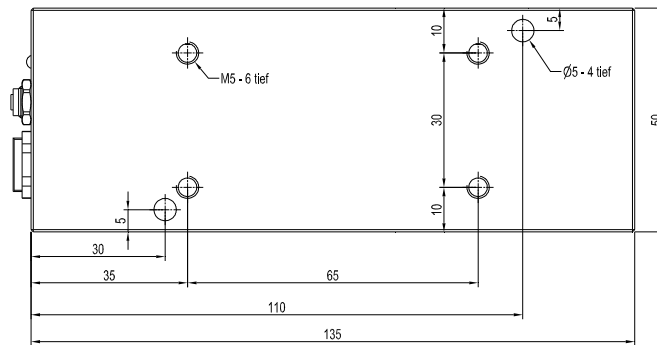
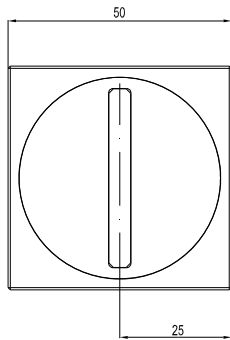
Model	L-LAS-TB-35-T L-LAS-TB-35-R	L-LAS-TB-35-T L-LAS-TB-35-R-4/20
Laser	Semi conductor laser, 670 nm, DC operation, <0.4 mW max. optical power, laser class 1 acc. to DIN EN 60825-1. The use of these laser transmitters therefore requires no additional protective measures.	
Measuring distance	up to 500 mm	
Measuring range	typ. 35 mm	
Resolution	typ. 9 µm	
Reproducibility	typ. ± 9 µm	
Linearity	typ. 0,1% FSR (full scale range)	
Optical filter	Interference filter, red light filter RG630	
Analog output (ANA)	Voltage output: 0 ... +10V	Current output 4 ... 20mA
Digital outputs (OUT0, OUT1, OUT2)	pnp bright-switching (pnp n.c.)/npn dark-switching (npn n.o.) or pnp dark-switching (pnp n.o.)/npn bright-switching (npn n.c.), 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	under Windows® via PC	
Laser power correction	Dynamic/static mode adjustable under Windows® via PC	
Current consumption	typ. 200 mA	
Enclosure rating	Electronics: IP54, optics: IP67	
Operating temperature range	-10°C ... +50°C	
Storage temperature range	-20°C ... +85°C	
Housing material	Aluminum, anodized in blue	
Housing dimensions	Transmitter: LxWxH approx. 155 mm x 50 mm x 50 mm (without connector) Receiver: LxWxH approx. 135 mm x 50 mm x 50 mm (without connectors)	
Type of connectors of receiver	8-pole female connector type Binder Series 712 (PLC/Power) 4-pole M5 female connector Typ Binder Series 707 (PC/RS232) 3-pole female connector Binder Series 712 (connection to the transmitter)	
Type of connector of transmitter	3-pole female connector Binder Series 712 (connection to the receiver)	
Teach button	Teach button at the housing for set point value teaching	
LED indication	LED red (+) : Measured value > upper tolerance threshold LED green : Measured value within tolerance window LED red (-) : Measured value < lower tolerance threshold LED yellow : Multifunctional LED	
EMC test acc. to	DIN EN 60947-5-2	
Scan frequency	max. 250 Hz	
Max. switching current	100 mA, short-circuit-proof	
Interface	RS232, parameterisable under Windows®	
Connecting cables	Connection to PC: cab-las4/PC or cab-4/USB or cab-4/ETH Connection to PLC: cab-las8/SPS or cab-las8/SPS-w Connection of transmitter and receiver: cab-las3-male (max. length 15 m)	
Output polarity	Bright-/dark-switching, adjustable under Windows®	

Dimensions

L-LAS-TB-35-T  
(Transmitter)



L-LAS-TB-35-R or  
L-LAS-TB-35-R-4/20  
(Receiver)



All dimensions in mm



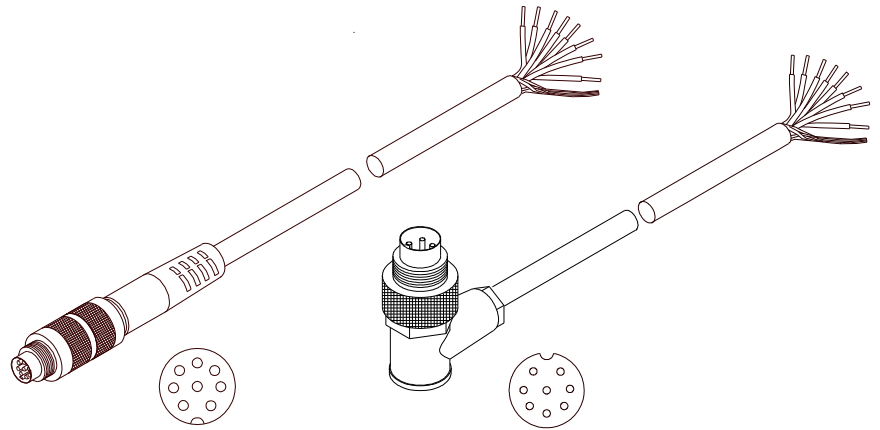
**Connector Assignment**

**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	OUT2 (OK)
8	red	ANA (0 ... +10V)
<b>in case of version -4/20:</b>		
<b>ANA (4 ... 20mA)</b>		



cab-las8/SPS-...  
(max. length 25m, outer jacket: PUR)

cab-las8/SPS-w-...  
(max. length 25m, outer jacket: PUR)

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)

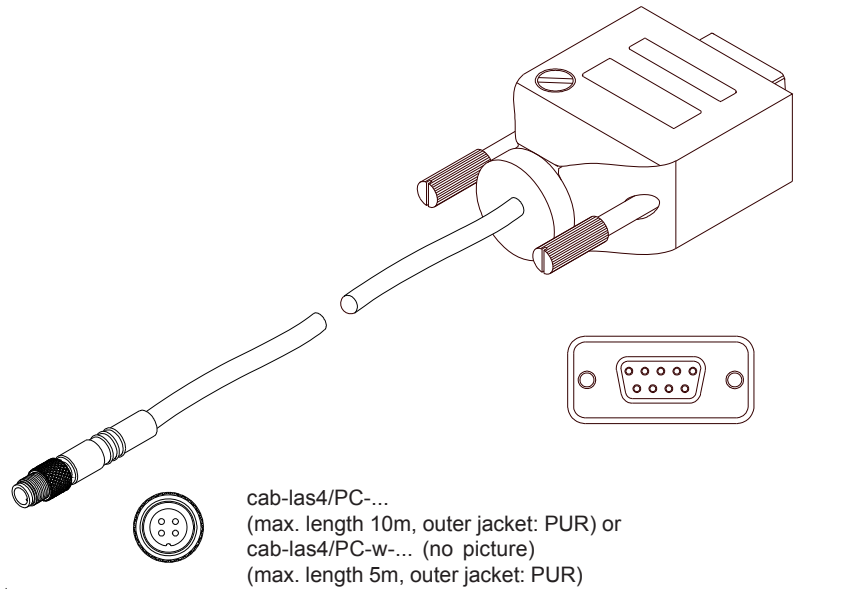
**alternative:**

**Connection to local network via Ethernet bus:**

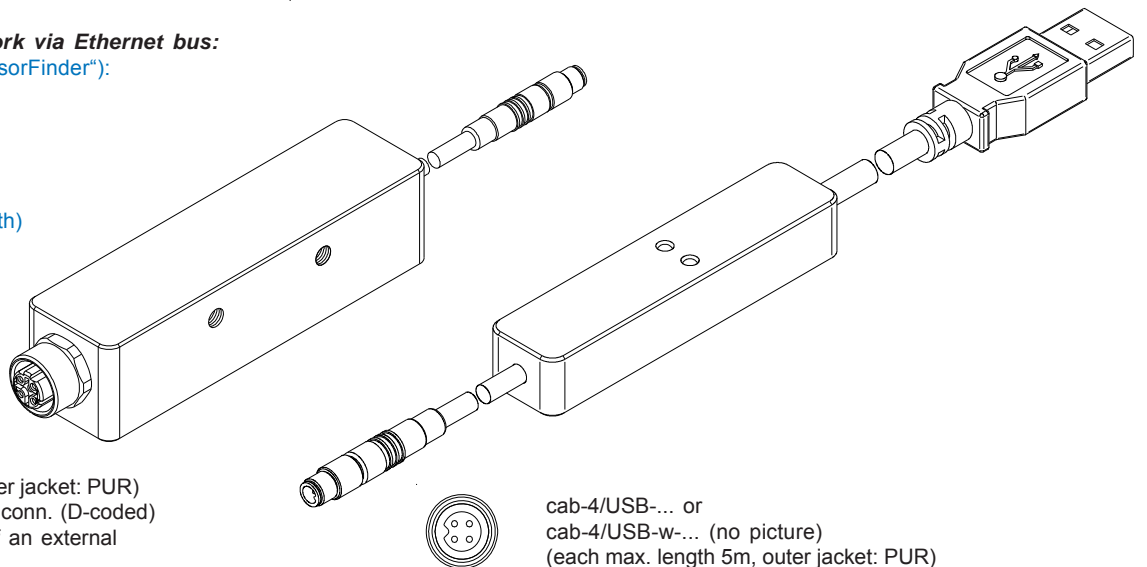
Adapter (incl. software „SensorFinder“):  
cab-4/ETH-500  
(standard length 0.5m)

Optional:

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



cab-las4/PC-...  
(max. length 10m, outer jacket: PUR) or  
cab-las4/PC-w-... (no picture)  
(max. length 5m, outer jacket: PUR)



cab-4/ETH-500  
(length 0.5m, outer jacket: PUR)  
4-pole M12 fem. conn. (D-coded)  
for connection of an external  
CAT5 cable, e.g.  
cab-eth/M12D-RJ45-flx-(length)

cab-4/USB-... or  
cab-4/USB-w-... (no picture)  
(each max. length 5m, outer jacket: PUR)



## Connector Assignment

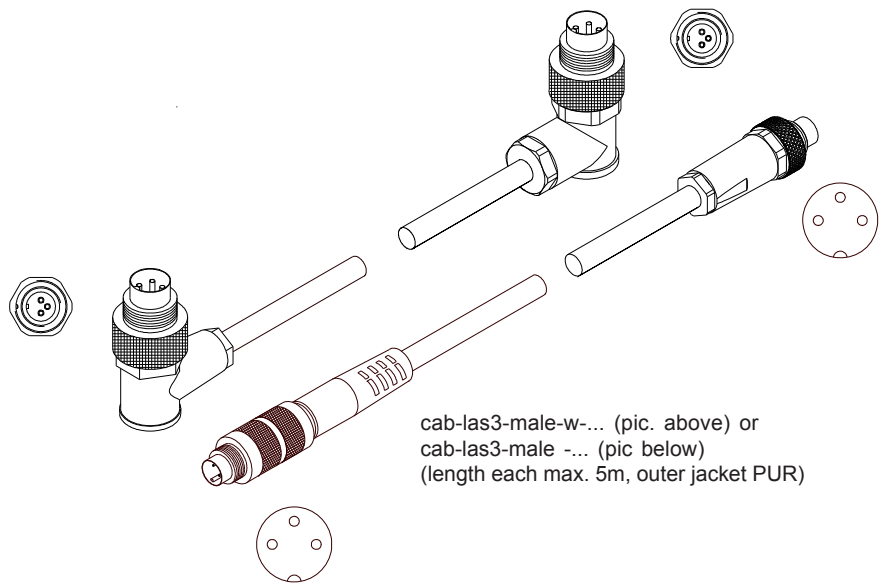
### Connection L-LAS-TB-...-T to L-LAS-TB-...-R (or L-LAS-TB-...-R-4/20) 3-pol. fem. connector Binder series 712

Pin: Assignment:

- |   |                        |
|---|------------------------|
| 1 | +5VDC                  |
| 2 | 0V (GND)               |
| 3 | I-CONTROL (0V ... +5V) |

#### Connecting cable:

- cab-las3-male-(length)
- cab-las3-male-w-(length) (angle type 90°)
- (standard length 2m)



cab-las3-male-w-... (pic. above) or  
cab-las3-male -... (pic below)  
(length each max. 5m, outer jacket PUR)







LED Display

Potentiometer for tolerance setting



TEACH/RESET button for set point teaching or reset to maximum values (input IN1, pin 4, yellow, 8-pole PLC female connector)



-  LED red (+)  
Measuring value > upper tolerance threshold
-  LED green  
Measuring value within tolerance window
-  LED red (-)  
Measuring value < lower tolerance threshold
-  LED yellow  
Sensor adjustment (multifunctional LED)



Laser Information

The laser line sensors of L-LAS-TB series comply with laser class 1 according to EN 60825-1. Under reasonably foreseeable conditions a class 1 laser is safe. The reasonably foreseeable conditions are kept during specified normal operation. The use of these laser transmitters therefore requires no additional protective measures.

The laser line sensors of L-LAS-TB series are supplied with an information label „CLASS 1 LASER PRODUCT“.

**CLASS 1 LASER PRODUCT**

DIN EN 60825-1: 2008-05



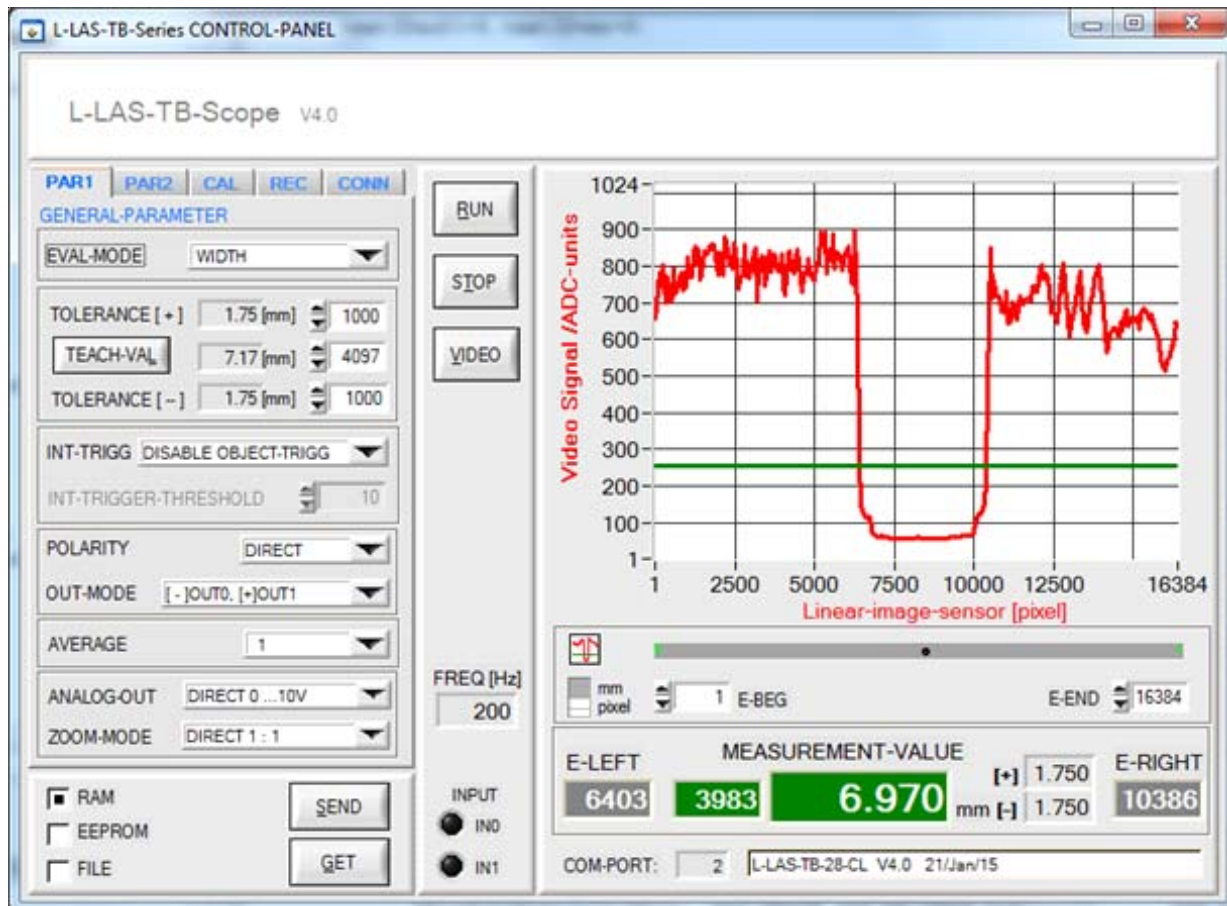
## Parameterization

### Windows® software L-LAS-TB-Scope:

The L-LAS-TB 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 the USB interface cable cab-4/USB or the Ethernet adapter cable cab-4/ETH). When parameterisation is finished, the PC can be disconnected again.

### Windows® user interface:



With the help of the L-LAS-TB-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-TB-Scope software. For example, the raw data of the CCD line sensor can be displayed graphically and numerically.

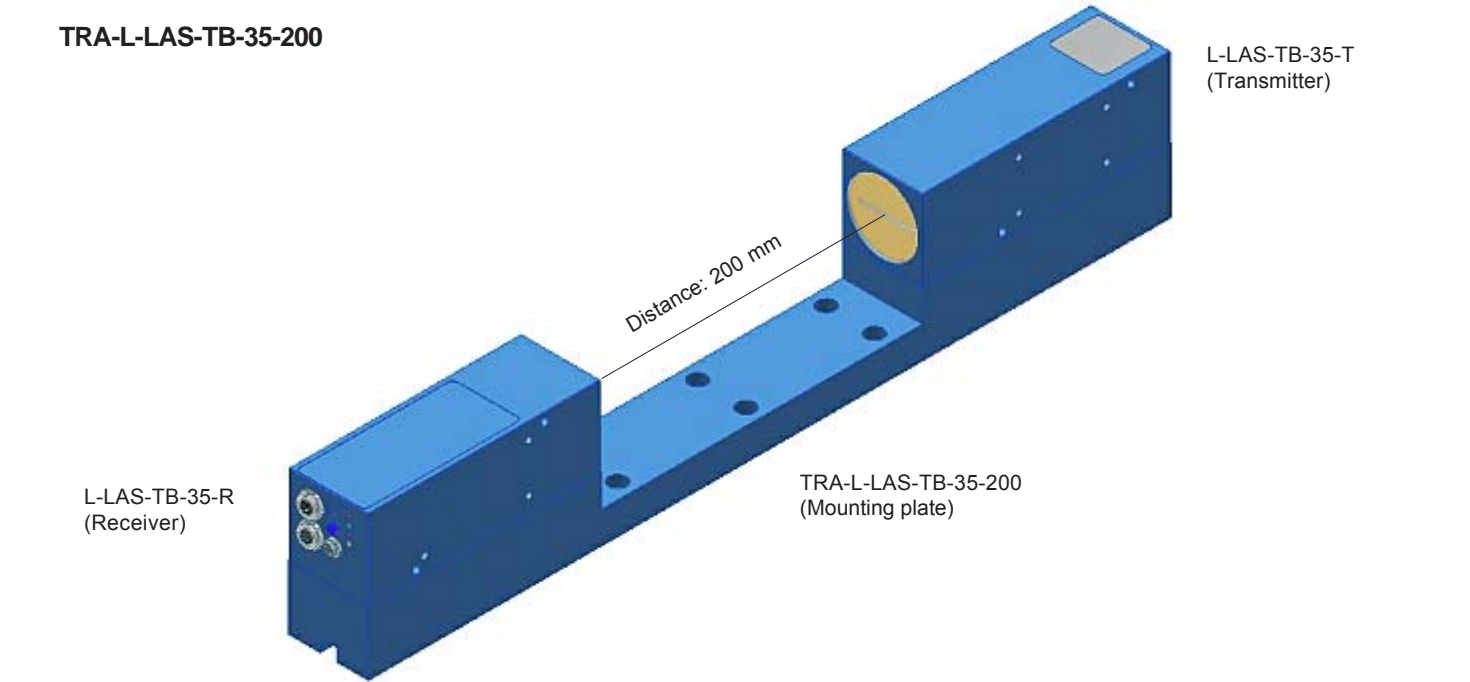


Accessories

**Mounting plate for L-LAS-TB-35-T and L-LAS-TB-35-R:**

(please order separately)

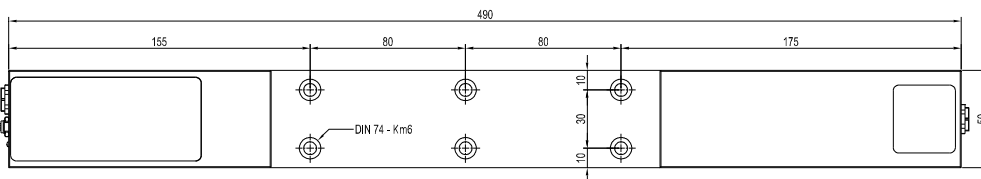
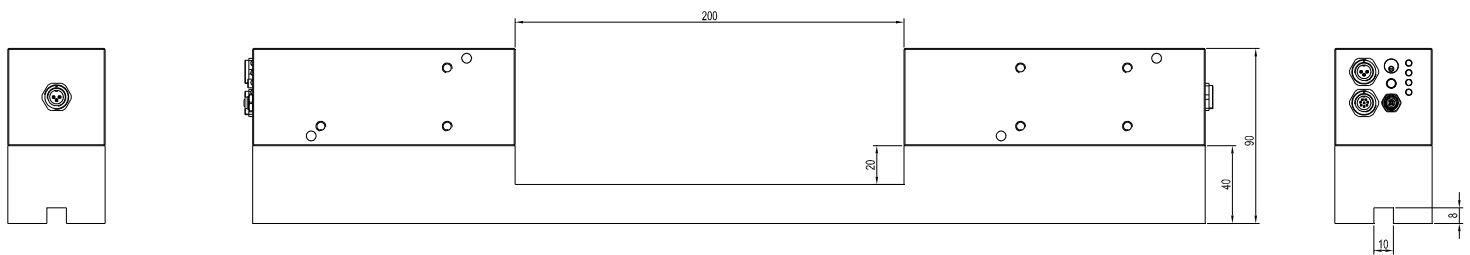
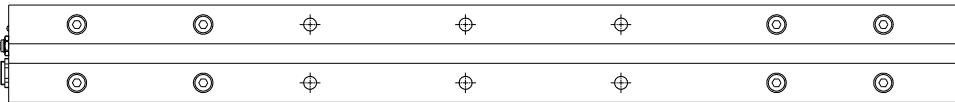
**TRA-L-LAS-TB-35-200**



L-LAS-TB-35-R  
(Receiver)

TRA-L-LAS-TB-35-200  
(Mounting plate)

L-LAS-TB-35-T  
(Transmitter)



All dimensions in mm