

L-LAS Series

► L-LAS-TB-6-T-CL L-LAS-TB-6-R-CL (-R-4/20-CL)

- Line laser <0.4 mW, wave length 670 nm, laser class 1
- Visible laser line, typ. 9.5 mm x 1.5 mm
- Measuring range typ. 6.4 mm
- Resolution typ. 2 µm
- Working distance up to 2000 mm
- Integrated interference filter
- CCD line detector with 512 pixel, 4096 subpixel (8-fold)
- RS232 interface (USB or Ethernet converter is available)
- 2 digital inputs, 2 digital outputs
- 1 analog output (0 ... +10V),
with type 4/20: 2 analog outputs (0 ... +10V and 4 ... 20mA)
- Max. scan frequency selectable via software (750 Hz or 1.5 kHz)
- Switching state indication via 4 LEDs (1x grn, 2x red, 1x yel)



Design

Product name:

L-LAS-TB-6-T-CL (Transmitter)

L-LAS-TB-6-R-CL (Receiver)

L-LAS-TB-6-R-4/20-CL (Receiver, 4 ... 20mA)

(Receiver incl. Windows® PC software L-LAS-TB-Scope)

4/20 = additional analog output 4 ... 20mA

(Position of laser line as shown in the picture)

Accessories: (cf. pages 8/9)

TRA-L-LAS-TB-CL-L... (mounting plate)

ABL-TB-6-CL (blast air top-part)

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

Connecting cable:
cab-las8/SPS

4-pol. M5 fem. connector
Binder Series 707
(RS232)

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

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

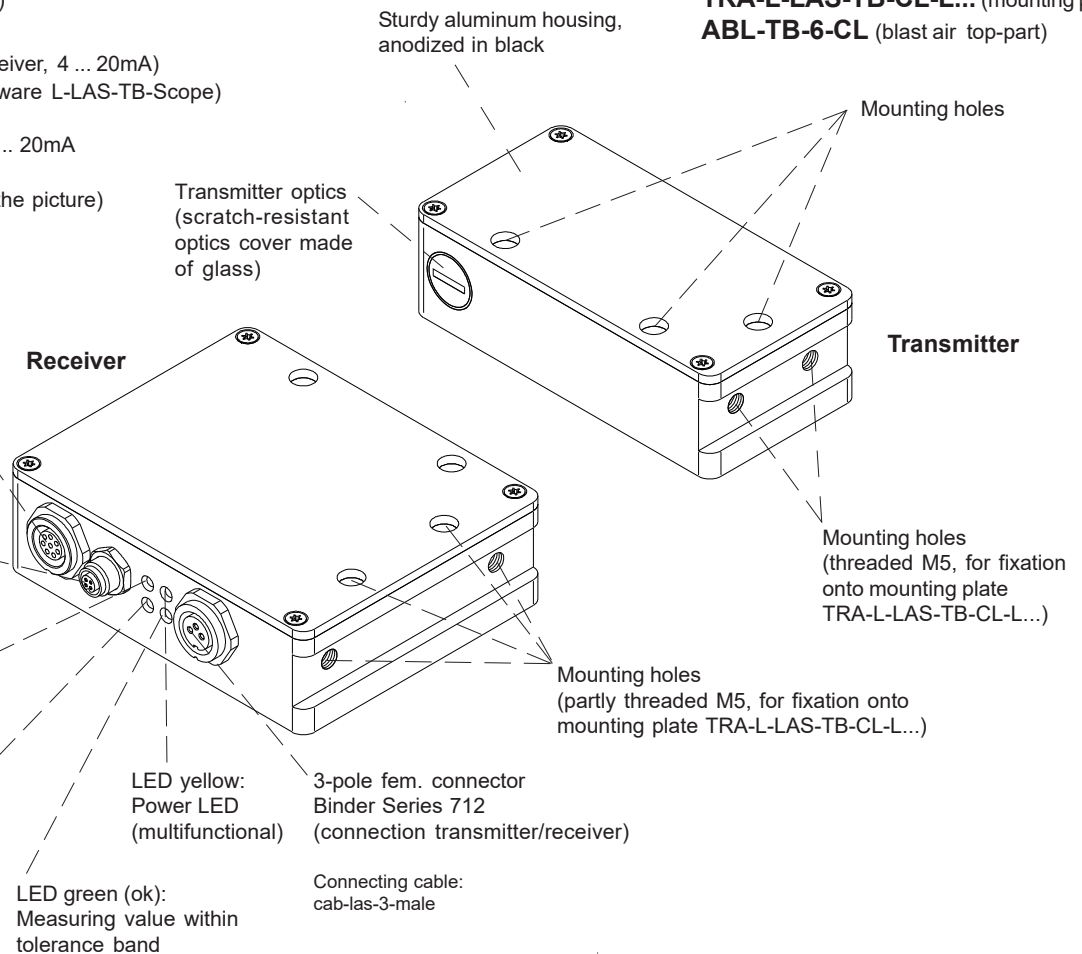
LED red (-):
Measuring value < lower
tolerance threshold

LED yellow:
Power LED
(multifunctional)

LED green (ok):
Measuring value within
tolerance band

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

Connecting cable:
cab-las-3-male





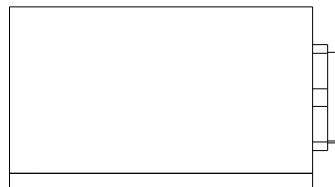
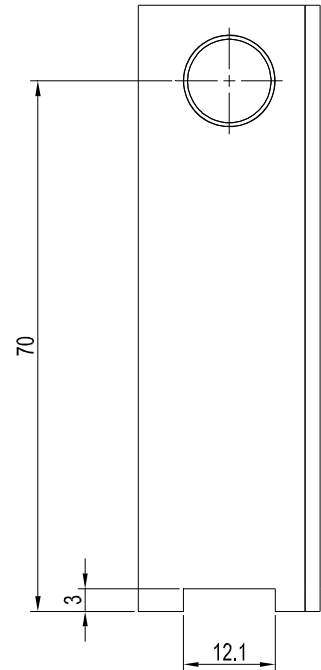
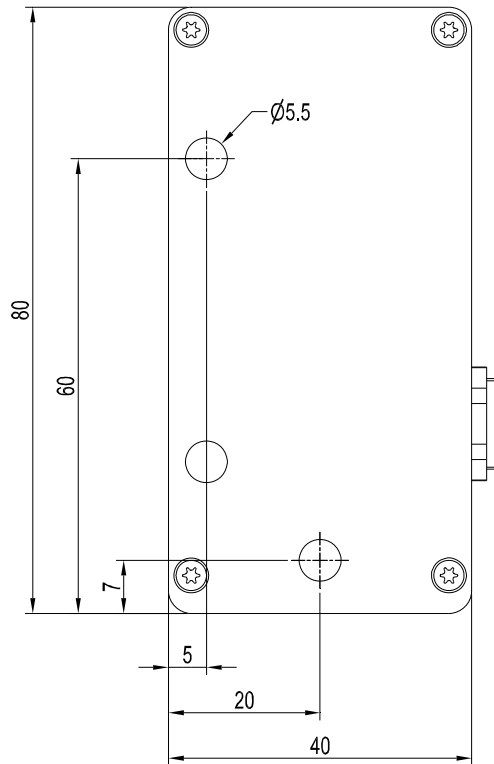
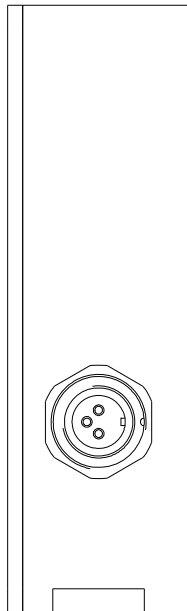
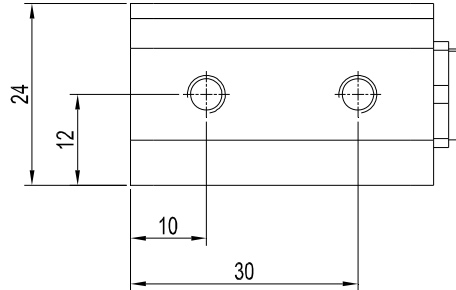
Technical Data

Model	L-LAS-TB-6-T-CL L-LAS-TB-6-R-CL	L-LAS-TB-6-T-CL L-LAS-TB-6-R-4/20-CL
Laser	Semiconductor laser, 670 nm, DC operation, < 0.4 mW max. opt. power, laser class 1 acc. to DIN EN 60825-1. The use of these laser sensors therefore requires no additional protective measures.	
Working distance	Transmitter / receiver distance up to 2000 mm	
Measuring range	typ. 6.4 mm	
Resolution	typ. 2 µm	
Reproducibility	typ. ± 2 µm	
Linearity	typ. 0,2% of full scale	
Optical filter	Interference filter	
Analog output (1x or 2x)	1x voltage output (0 ... +10V)	1x current output (4 ... 20mA) 1x voltage output (0 ... +10V)
Digital outputs (2x) (OUT0, OUT1)	OUT0: (-) measuring value < lower tolerance threshold OUT1: (+) measuring value > upper tolerance threshold pnp bright-switching (pnp n.c.)/nnp dark-switching (nnp n.o.) or pnp dark-switching (pnp n.o.)/nnp bright-switching (nnp n.c.), adjustable under Windows®, 100 mA, short-circuit-proof	
Digital inputs (2x) (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	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	Aluminium, anodized in black	
Housing dimensions	Transmitter: LxWxH approx. 80 mm x 65 mm x 24 mm (without flange connectors) Receiver: LxWxH approx. 80 mm x 40 mm x 24 mm (without flange connectors)	
Connector type receiver	8-pole circular fem. connector type Binder 712 (PLC/Power) 4-pole M5 circular fem. connector typ Binder 707 (RS232/PC) 3-pole circular fem. connector type Binder 712 (connection to transmitter)	
Connector type transmitter	3-pole circular fem. connector type Binder 712 (connection to receiver)	
LED display	LED red (+) : Measured value > upper tolerance threshold LED green : Measured value lies within tolerance window LED red (-) : Measured value < lower tolerance threshold LED yellow: for sensor adjustment (multifunctional)	
EMC test acc. to	DIN EN 60947-5-2	
Scan frequency	Normal Speed Modus (high resolution): max. 750 Hz Double Speed Modus (half resolution): max. 1.5 kHz adjustable under Windows®	
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 Connecting cable transmitter/receiver: cab-las3-male	
Output polarity	Bright-/dark-switching, adjustable under Windows®	



Dimensions

L-LAS-TB-6-T-CL:
(Transmitter)

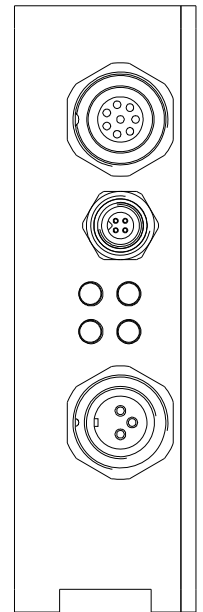
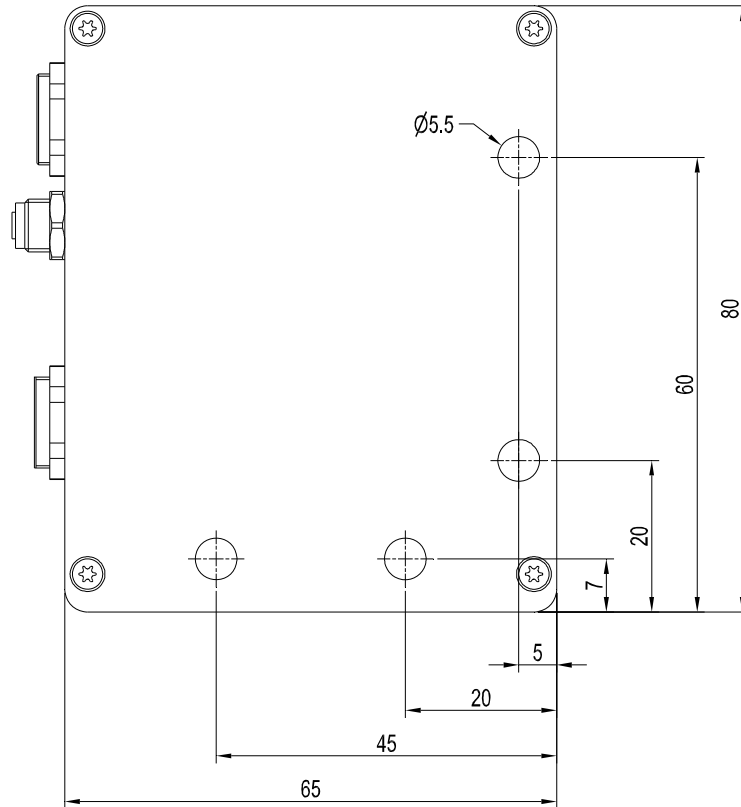
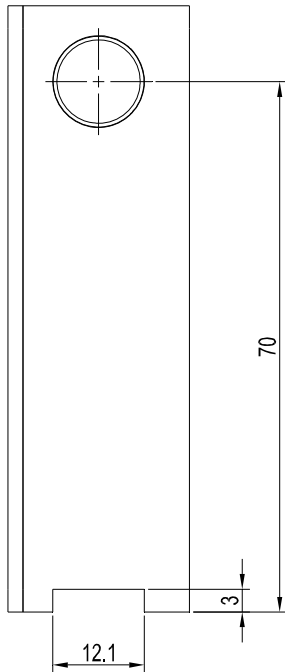
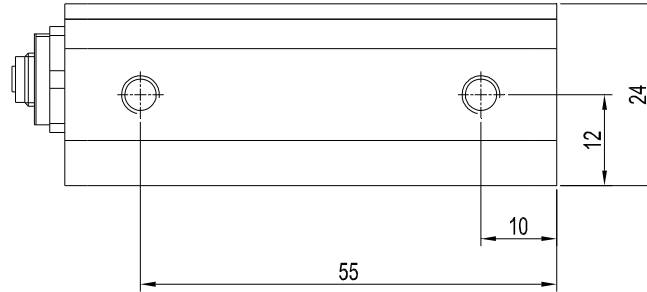


All dimensions in mm



Dimensions

L-LAS-TB-6-R-CL or
L-LAS-TB-6-R-4/20-CL
(Receiver)



All dimensions in mm



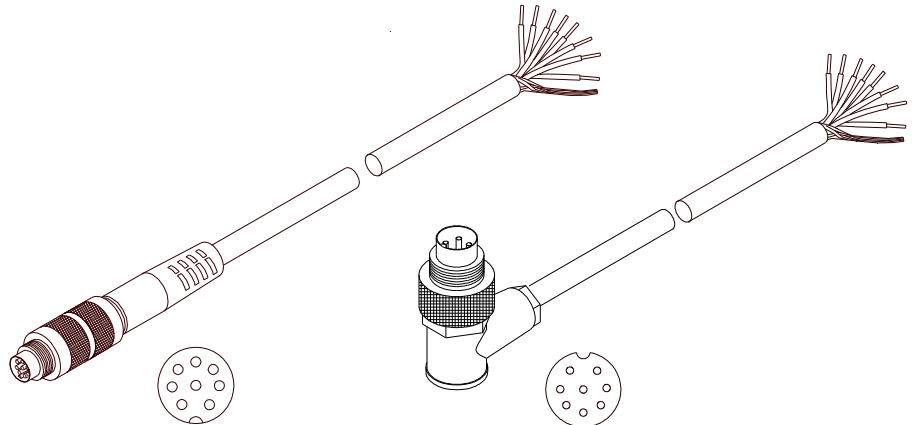
Connector Assignment

Connection to PLC:

8-pole fem. connector Binder Series 712

Pin:	Color:	Assignment:
1	white	GND (0V)
2	brown	+24VDC ($\pm 10\%$)
3	green	IN0 (EXT TRIGGER)
4	yellow	IN1 (TEACH/RESET)
5	grey	OUT0 (-)
6	pink	OUT1 (+)
7	blue	GND (0V)
or with type -4/20:		
ANA (current 4 ... 20mA)		
8	red	ANA (voltage 0 ... +10V)

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



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

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

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:

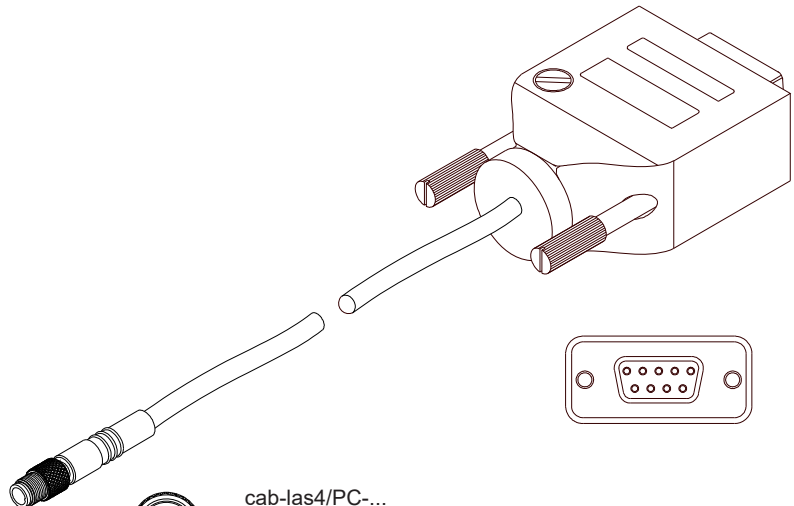
USB converter (incl. driver software):
 cab-4/USB-(length)
 cab-4/USB-w-(length) (angle type 90°)
 (standard length 2m)

alternative:

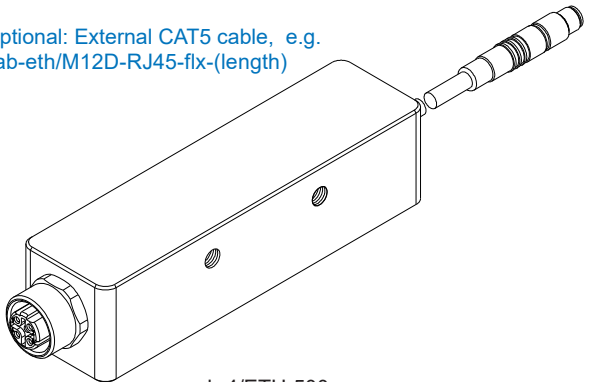
Connection to local network via Ethernet bus:

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

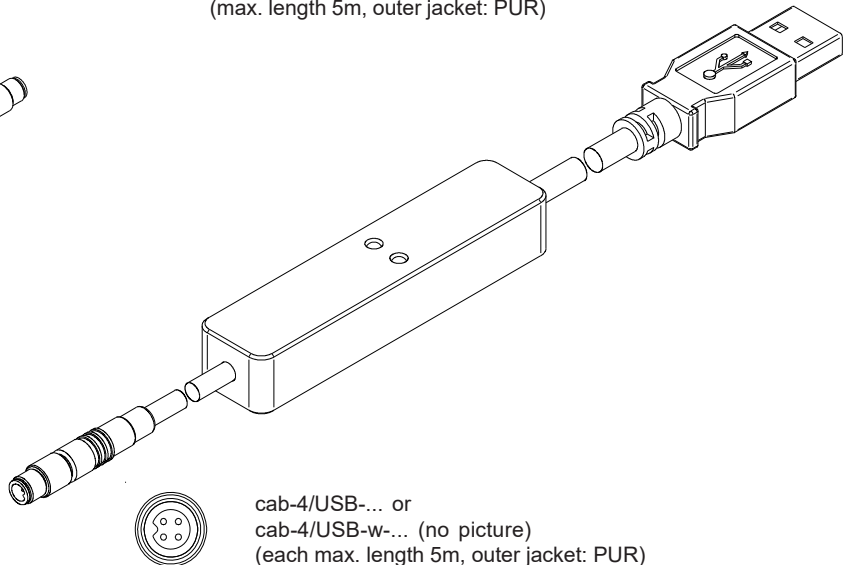
Optional: External CAT5 cable, e.g.
 cab-eth/M12D-RJ45-flx-(length)



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)



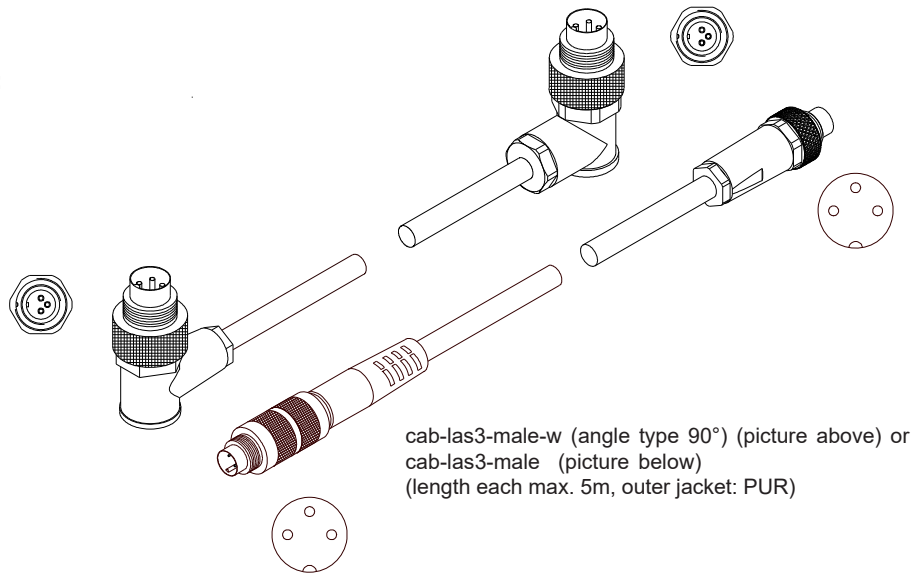
Connector Assignment

Connection L-LAS-TB-...-T-CL with
L-LAS-TB-...-R-CL (or L-LAS-TB-...-R-4/20-CL) :
3-pole female connector Binder Series 712

Pin: Assignment:

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

Connecting cable:
cab-las3-male-(length) or
cab-las3-male-w-(length) (angle type 90°)
(standard length 2m)



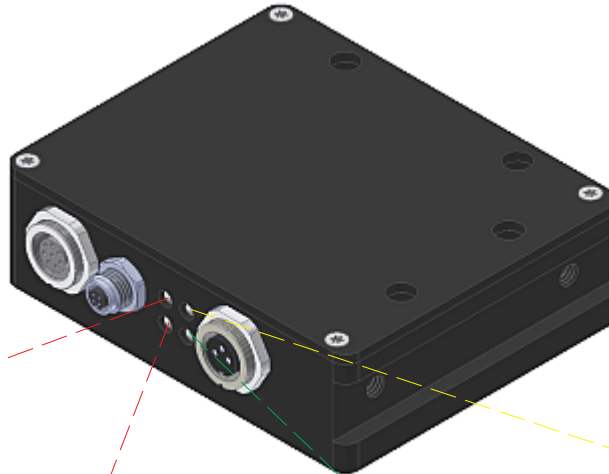
cab-las3-male-w (angle type 90°) (picture above) or
cab-las3-male (picture below)
(length each max. 5m, outer jacket: PUR)

LED Display

L-LAS-TB-6-R-CL:
(Receiver)

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 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



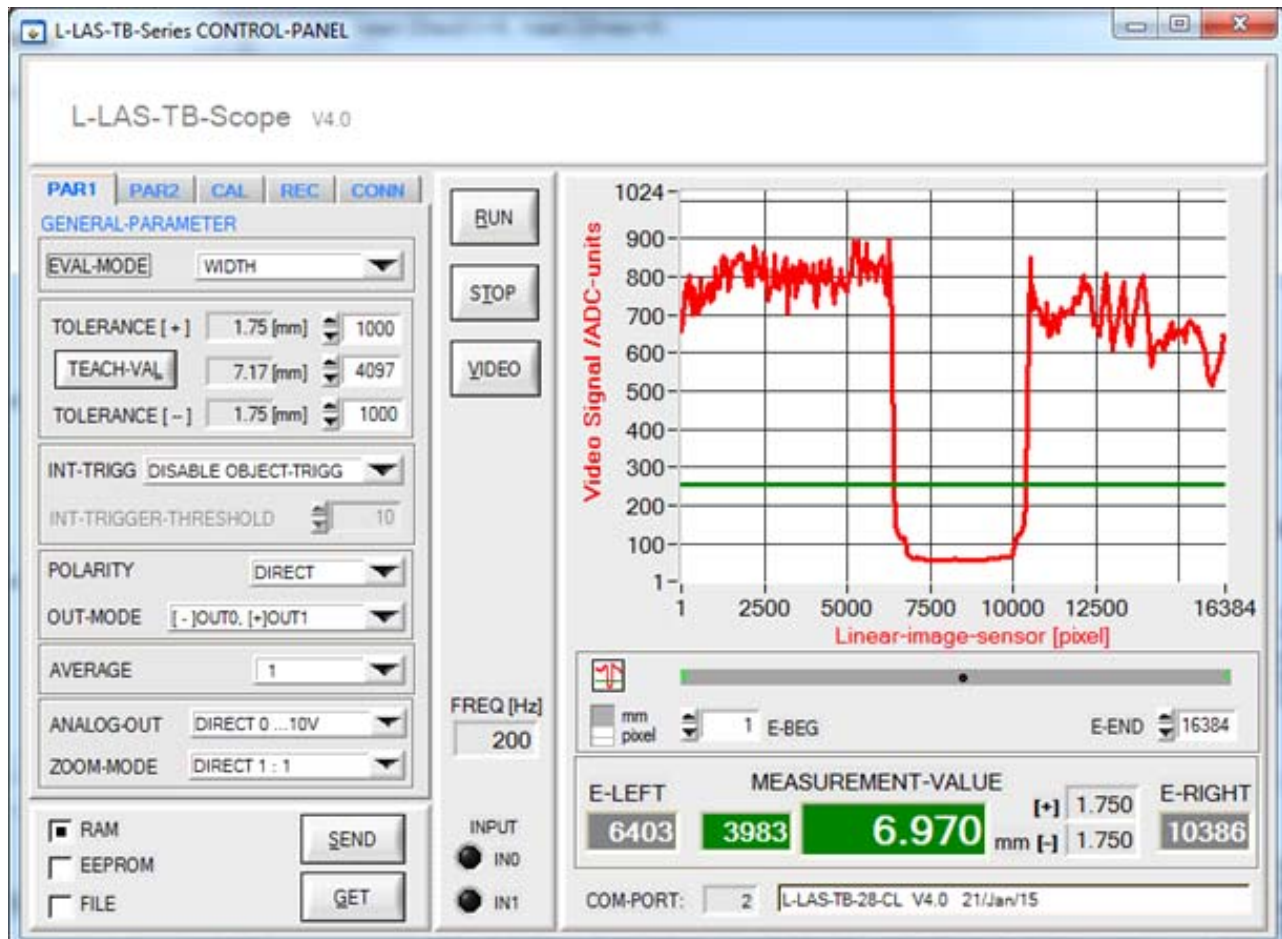
Parameterization
Windows® user interface:

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

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 cab-4/USB or cab-4/ETH).

When parameterisation is finished, the PC can be disconnected again.



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.



Mounting

Mounting plate for L-LAS-TB-6-T-CL and L-LAS-TB-6-R-CL (respectively L-LAS-TB-6-R-4/20-CL):

(please order separately)

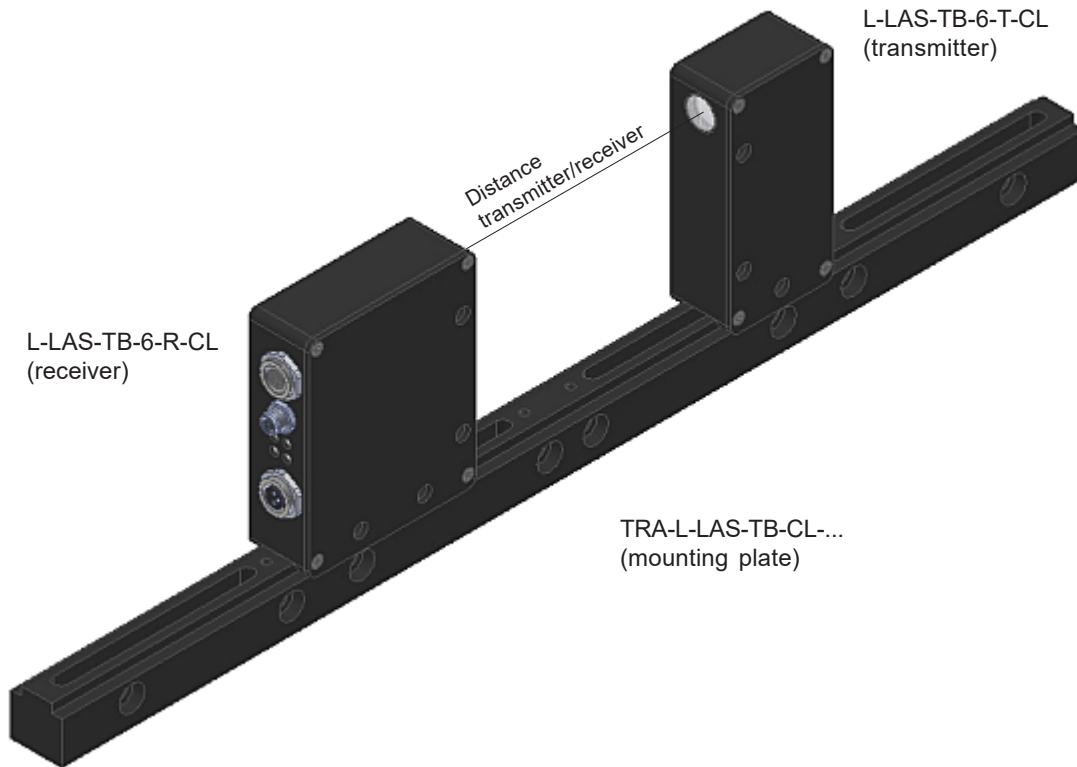
TRA-L-LAS-TB-CL-L200 (total length 200 mm, max. transmitter/receiver distance cf. chart below)

TRA-L-LAS-TB-CL-L400 (total length 400 mm, max. transmitter/receiver distance cf. chart below)

TRA-L-LAS-TB-CL-L600 (total length 600 mm, max. transmitter/receiver distance cf. chart below)

TRA-L-LAS-TB-CL-L800 (total length 800 mm, max. transmitter/receiver distance cf. chart below)

(Aluminium housing, anodized in black, also available in other lengths)



Max. distance T/R in case of use of mounting plate:	TRA-L-LAS-TB-CL-L200	TRA-L-LAS-TB-CL-L400	TRA-L-LAS-TB-CL-L600	TRA-L-LAS-TB-CL-L800
L-LAS-TB-6-T-CL L-LAS-TB-6-R-CL	max. distance T/R: 95 mm	max. distance T/R: 295 mm	max. distance T/R: 495 mm	max. distance T/R: 695 mm
L-LAS-TB-(16)-T-CL L-LAS-TB-(16)-R-CL	max. distance T/R: 60 mm	max. distance T/R: 260 mm	max. distance T/R: 460 mm	max. distance T/R: 660 mm
L-LAS-TB-28-T-CL L-LAS-TB-28-R-CL	----	max. distance T/R: 222 mm	max. distance T/R: 422 mm	max. distance T/R: 622 mm
L-LAS-TB-50-T-CL L-LAS-TB-50-R-CL	----	max. distance T/R: 205 mm	max. distance T/R: 405 mm	max. distance T/R: 605 mm
L-LAS-TB-75-T-CL L-LAS-TB-75-R-CL	----	max. distance T/R: 200 mm	max. distance T/R: 400 mm	max. distance T/R: 600 mm
L-LAS-TB-100-T-CL L-LAS-TB-100-R-CL	----	max. distance T/R: 160 mm	max. distance T/R: 360 mm	max. distance T/R: 560 mm



Accessories

Blast air top part:

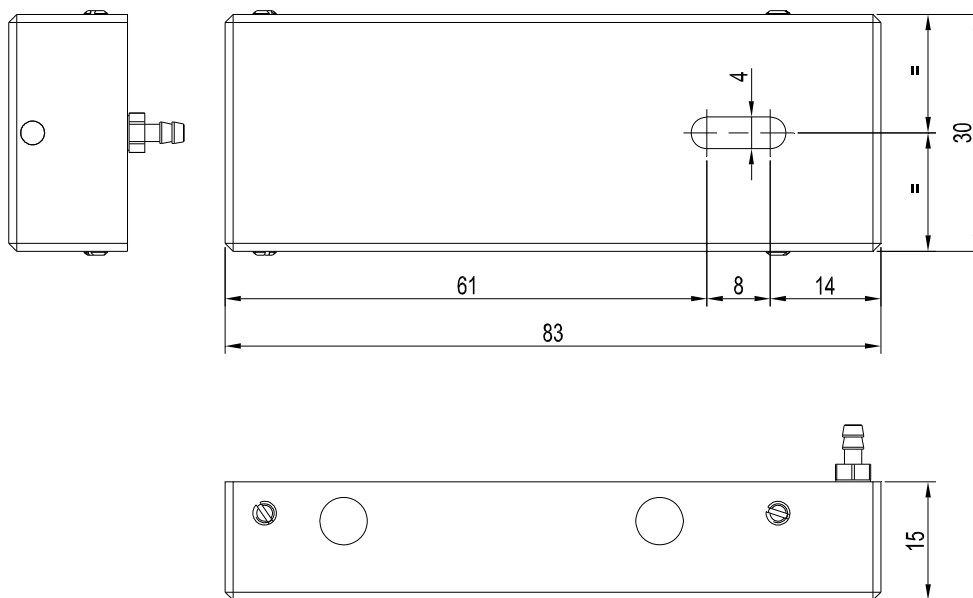
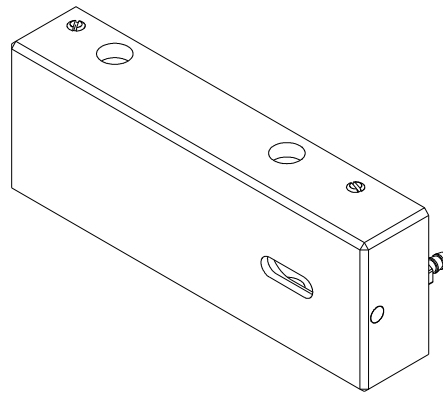
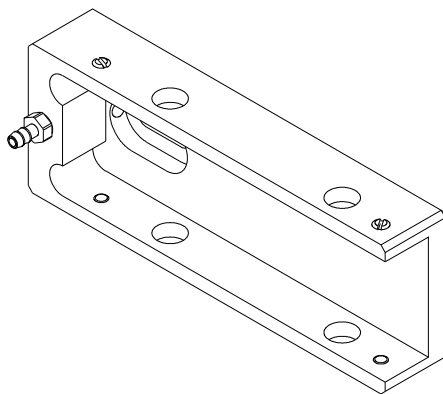
ABL-TB-6-CL

(Plastic housing, black, please order separately for each transmitter and receiver)

suitable for:

L-LAS-TB-6-T-CL and

L-LAS-TB-6-R-CL (or L-LAS-TB-6-R-4/20-CL)



All dimensions in mm