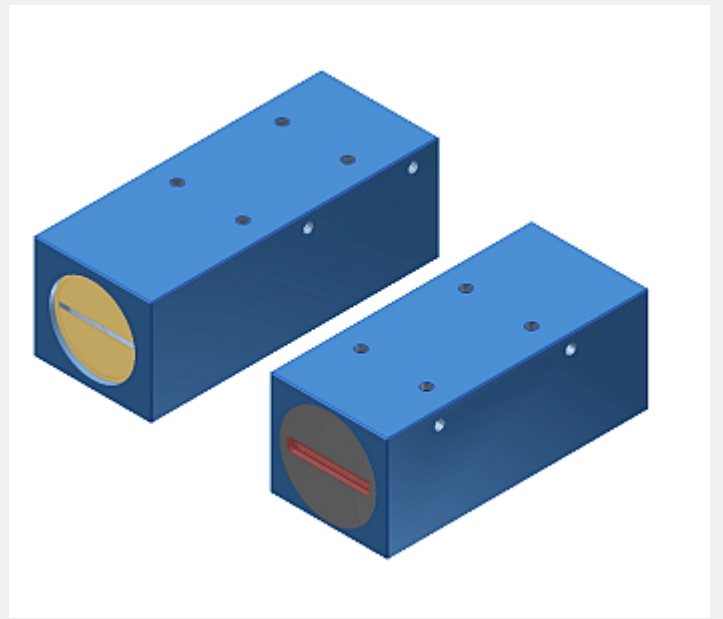


L-LAS Series

L-LAS-TB-12

- Line laser <math><0.4\text{ mW}</math>, wave length 670 nm, laser class 1
- Visible laser line, typ. 15 mm x 2 mm
- Measuring range typ. 12.8 mm
- Resolution typ. 7 μm
- Working distance up to 500 mm
- Integrated interference filter
- CCD line detector with 512 pixel (2048 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)



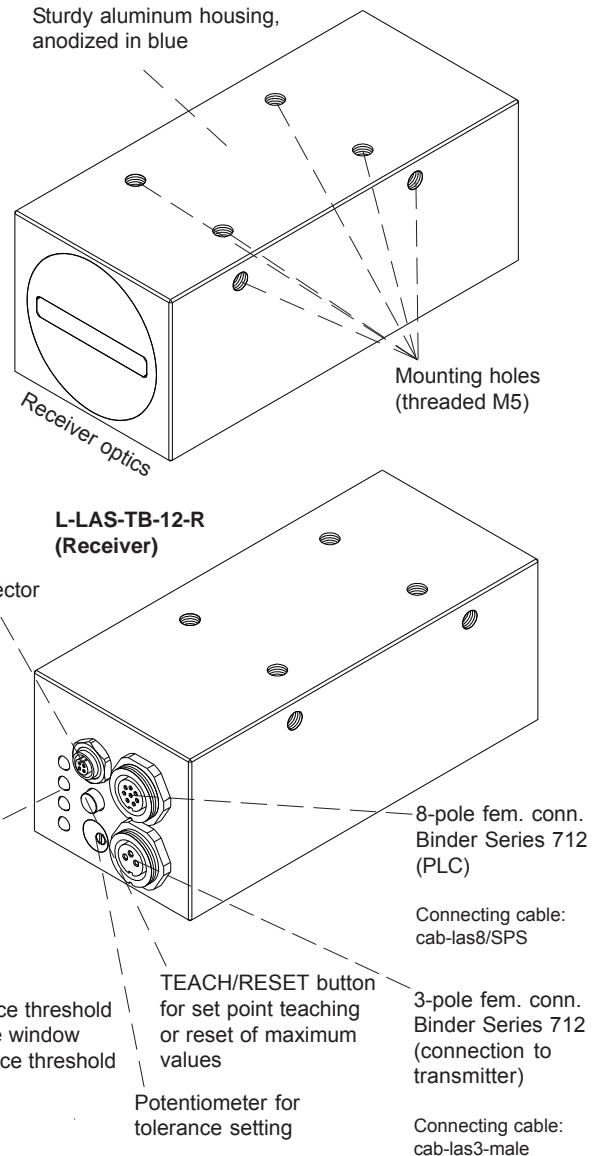
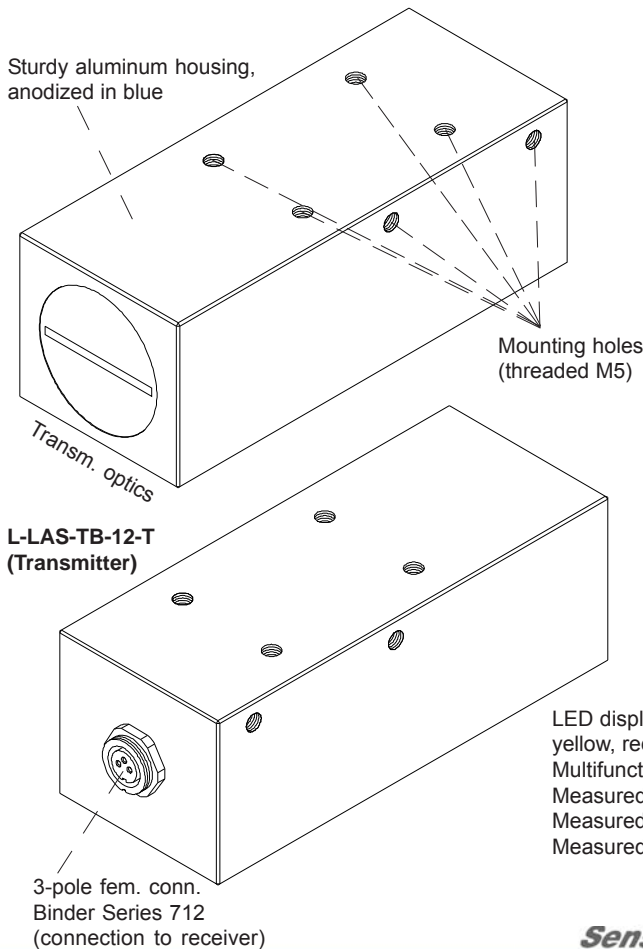
Design

Product name:

- L-LAS-TB-12-T** (Transmitter)
- L-LAS-TB-12-R** (Receiver)
- L-LAS-TB-12-R-4/20** (Receiver 4...20mA)
- (incl. Windows® PC software L-LAS-TB-Scope)

Accessories: (cf. page 9)

- ABL-TB-12-T**
- ABL-TB-12-R**
- (Blast air tops)





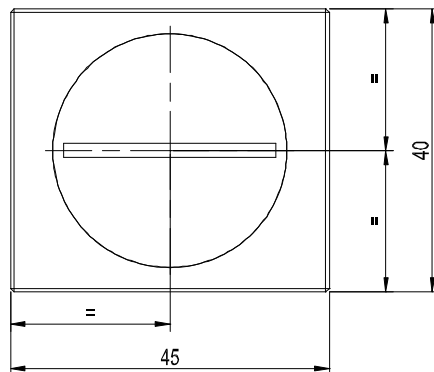
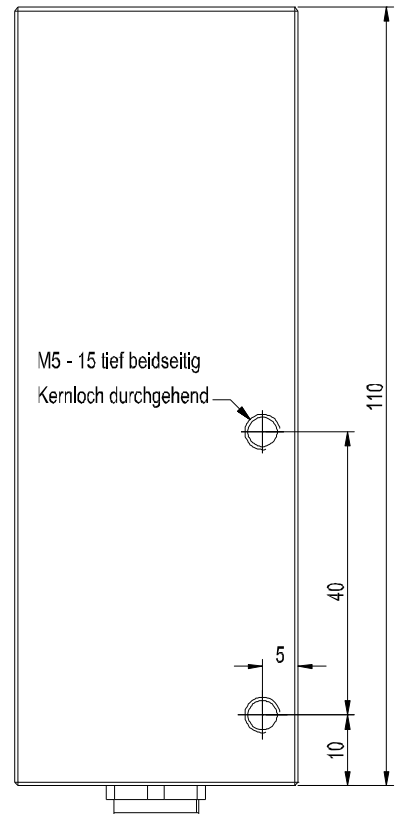
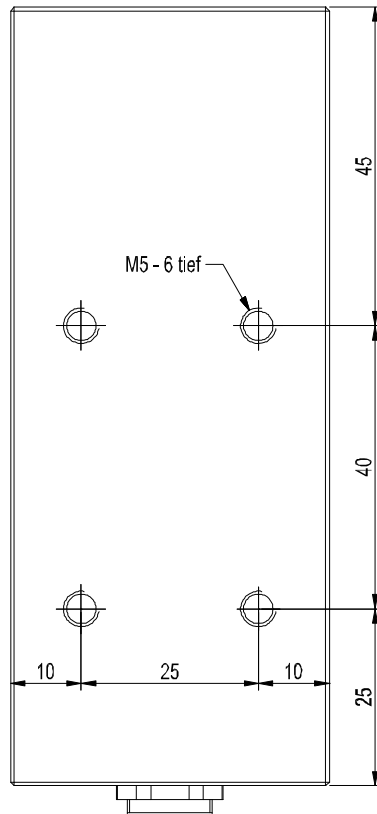
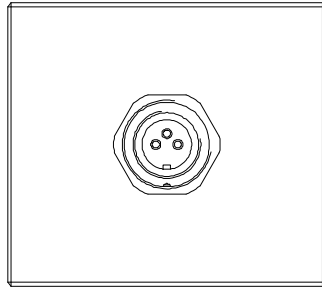
Technical Data

| Model | L-LAS-TB-12-T L-LAS-TB-12-R | L-LAS-TB-12-T L-LAS-TB-12-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. 12.8 mm | |
| Resolution | typ. 7 µm | |
| Reproducibility | typ. ± 7 µm | |
| Linearity | typ. 0,1% FSR (full scale range) | |
| Optical filter | Interference filter | |
| Analog output (ANA) | Voltage output: 0 ... +10V | Current output: 4 ... 20mA |
| Digital outputs (OUT0, OUT1, OUT2) | 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 (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 | Aluminium, anodized in blue | |
| Housing dimensions | Transmitter: LxWxH approx. 110 mm x 40 mm x 45 mm (without connector) Receiver: LxWxH approx. 100 mm x 40 mm x 45 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/RESET button | For set point teaching or for reset of maximum values | |
| 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. 400 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-12-T
(Transmitter)

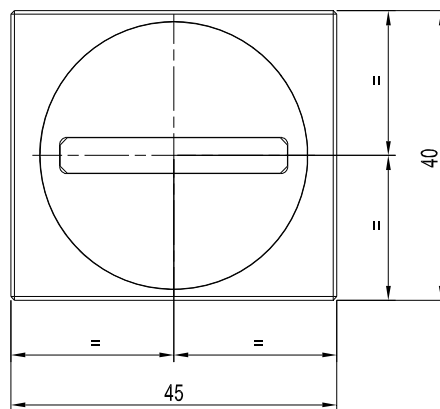
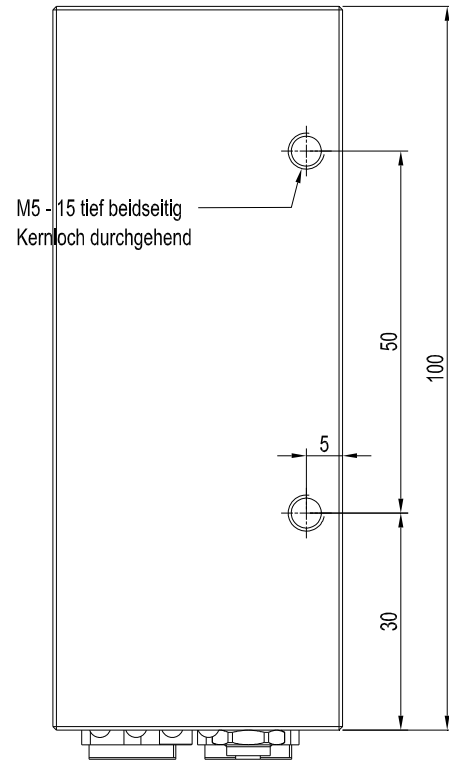
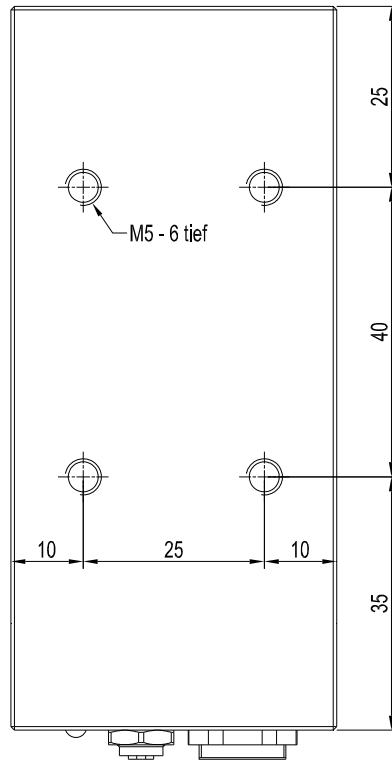
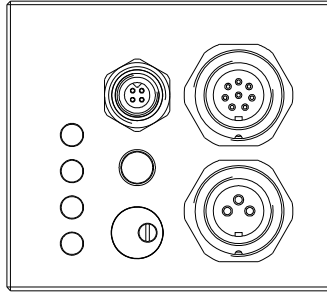


All dimensions in mm



Dimensions

L-LAS-TB-12-R or
L-LAS-TB-12-R-4/20
(Receiver)



All dimensions in mm



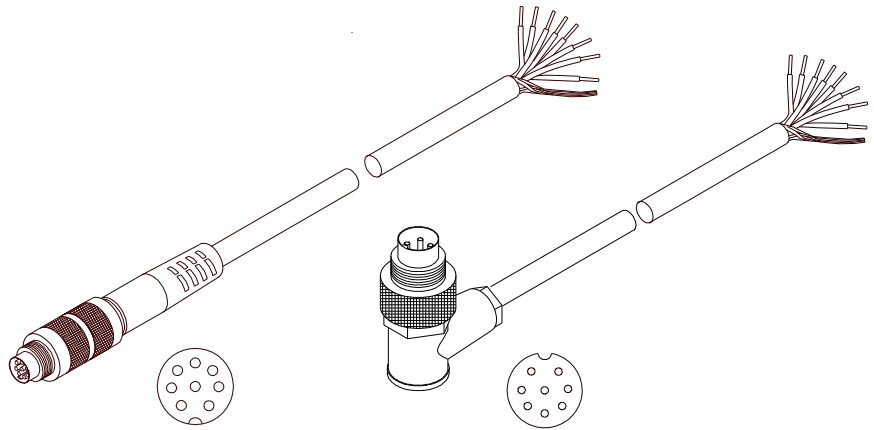
Connector Assignment

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) |
| in case of version -4/20: | | |
| ANA (4 ... 20mA) | | |



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)

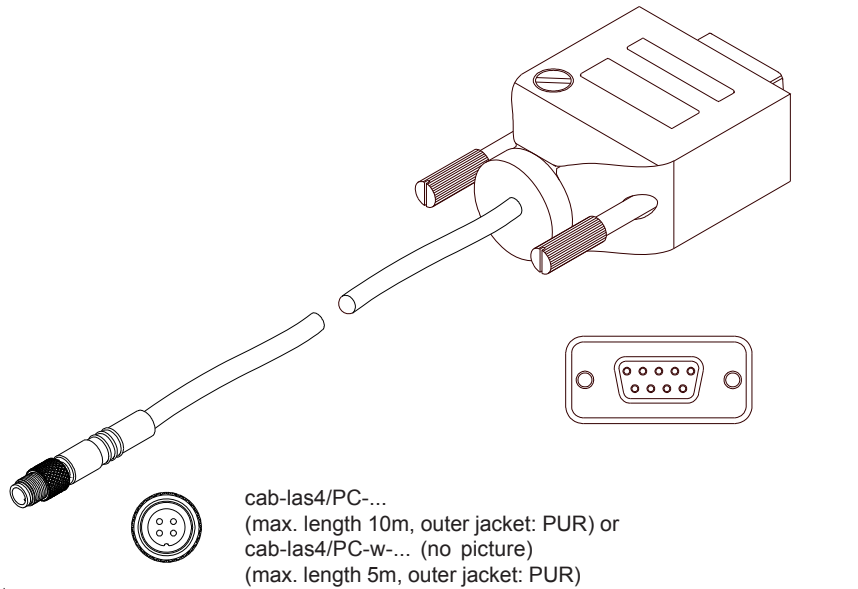
alternative:

Connection to local network via Ethernet bus:

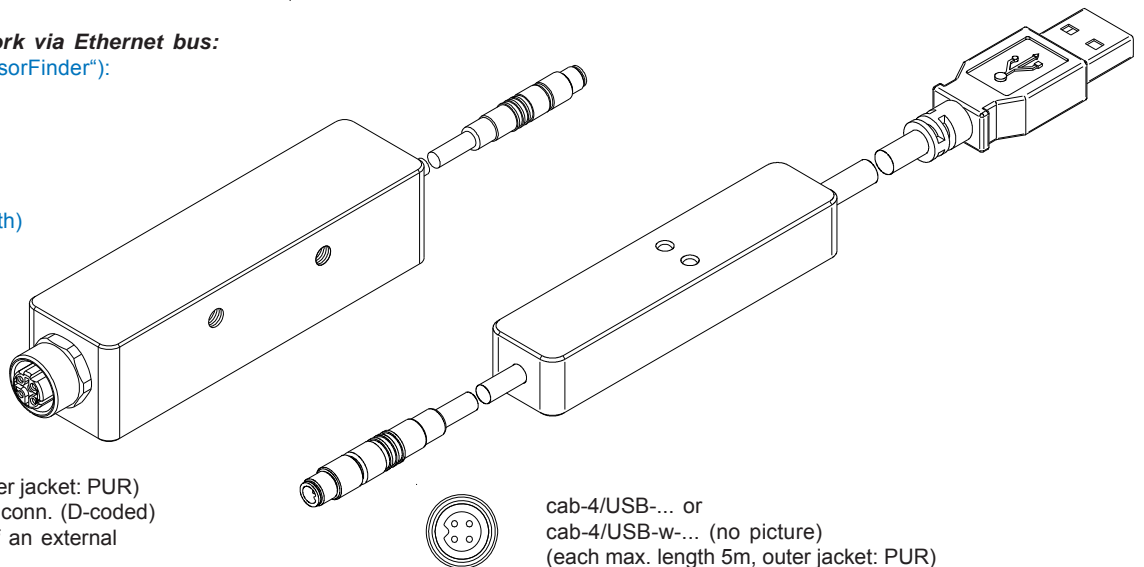
Adapter (incl. software „SensorFinder“):
cab-4/ETH-500
(standard length 0.5m)

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

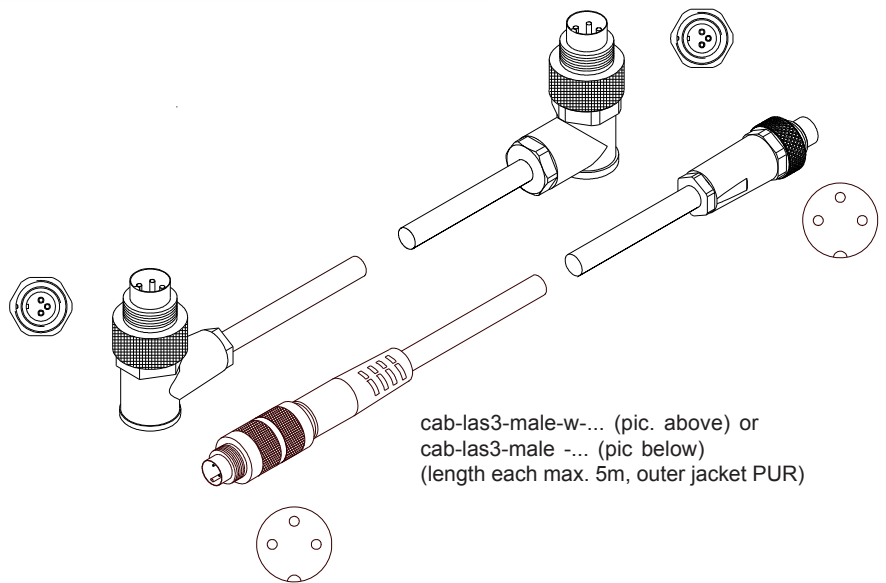
Connection L-LAS-TB-...-T to L-LAS-TB-...-R (or L-LAS-TB-...-R-4/20) 3-pol. fem. connector Binder series 712

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)

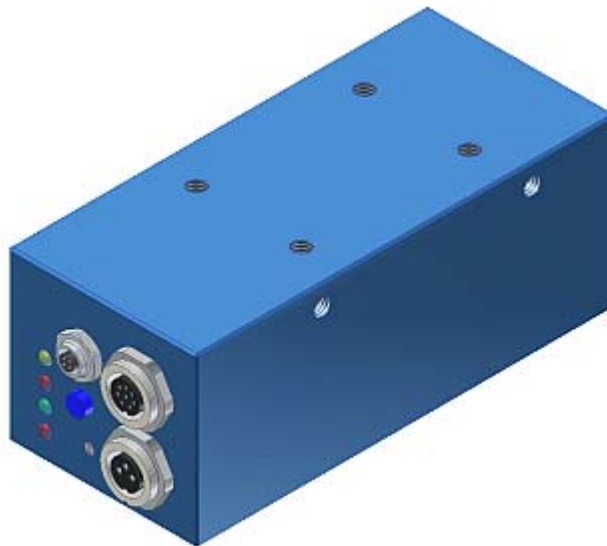
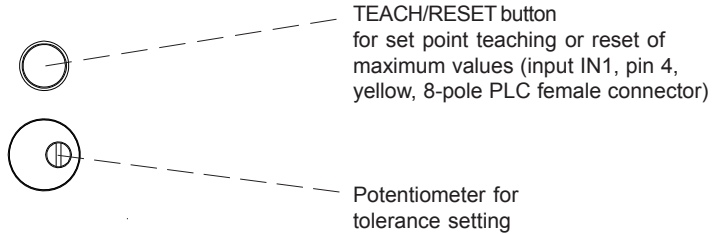


cab-las3-male-w-... (pic. above) or
cab-las3-male-... (pic below)
(length each max. 5m, outer jacket PUR)



LED Display

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



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“.





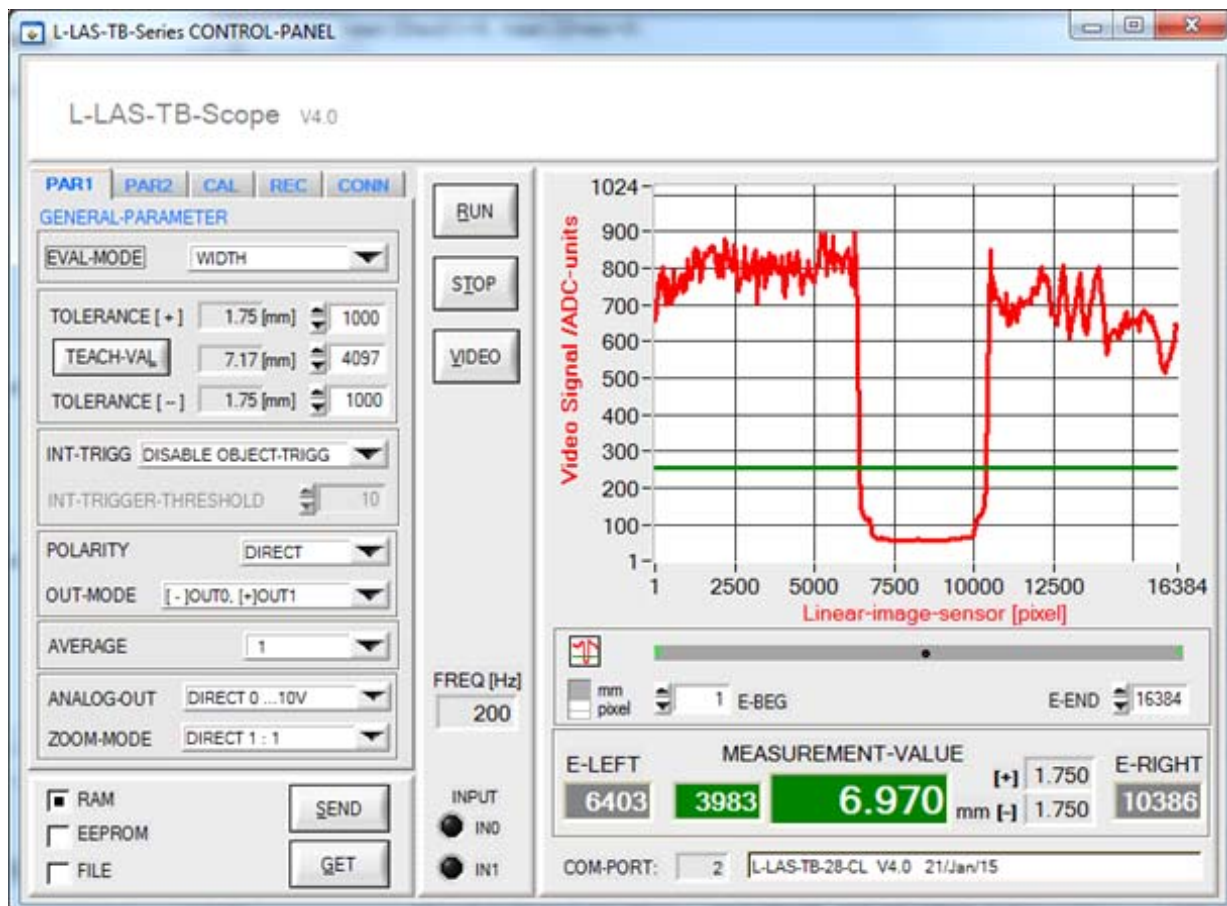
Parameterization

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.



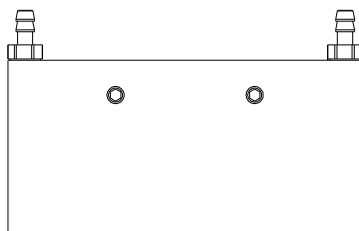
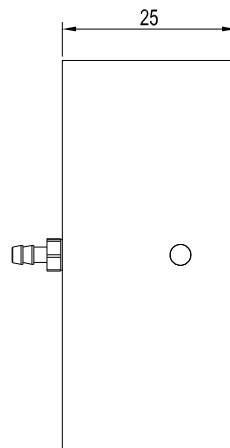
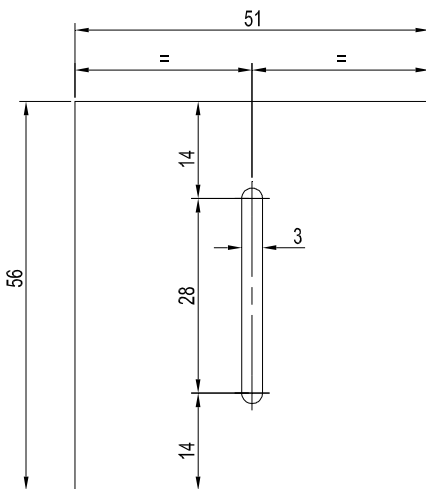
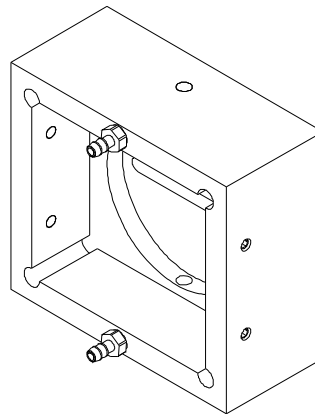
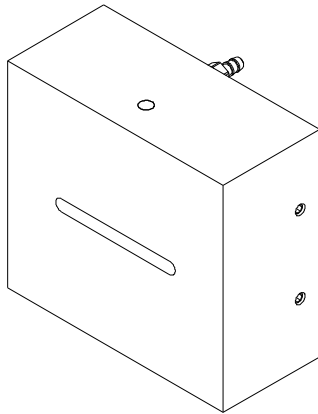
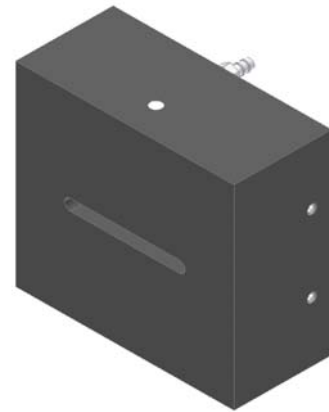
Accessories

Blast air tops for L-LAS-TB-12-T and L-LAS-TB-12-R:

(please order separately)

ABL-TB-12-T (for transmitter)

ABL-TB-12-R (for receiver)



All dimensions in mm