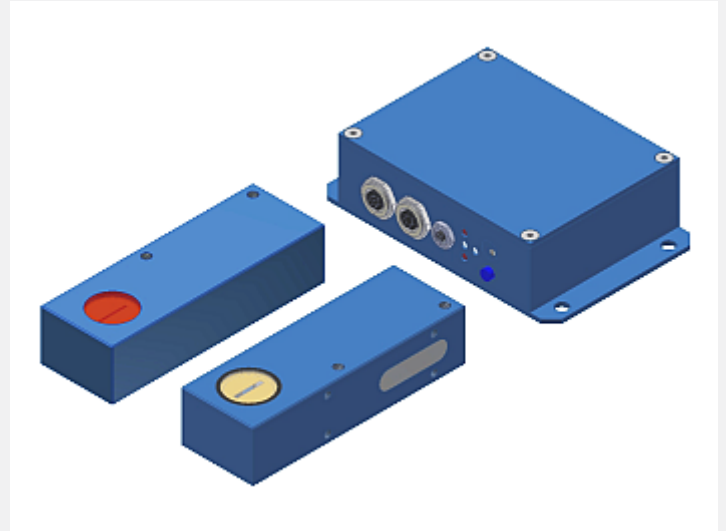


L-LAS Series

► L-LAS-TB-12-CON1 L-LAS-TB/90-(12)-T, /-R

- Line laser <0.4 mW, 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
- 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 (optionally 4 ... 20mA)
- Switching state indication via 4 LEDs (1x grn, 2x red, 1x yel)



Design

Product name:

L-LAS-TB-12-CON1 (control unit, 0 ... +10V)
L-LAS-TB-12-CON1-4/20 (control unit, 4... 20mA)
 (incl. Windows® PC software L-LAS-TB-Scope)

L-LAS-TB/90-(AxB)*-T (transmitter)
L-LAS-TB/90-(AxB)*-R (receiver)

***AxB** (Position of the laser line):
12x1 (A=12mm, B=1mm)
1x12 (A=1mm, B=12mm)

L-LAS-TB-12-CON1
 (electronic control unit)

Sturdy aluminum housing, anodized in blue

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

Connecting cable: cab-las8/SPS

7-pole fem. connector Binder Series 712 (not necessary for single system)

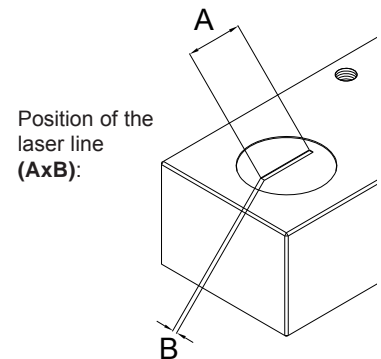
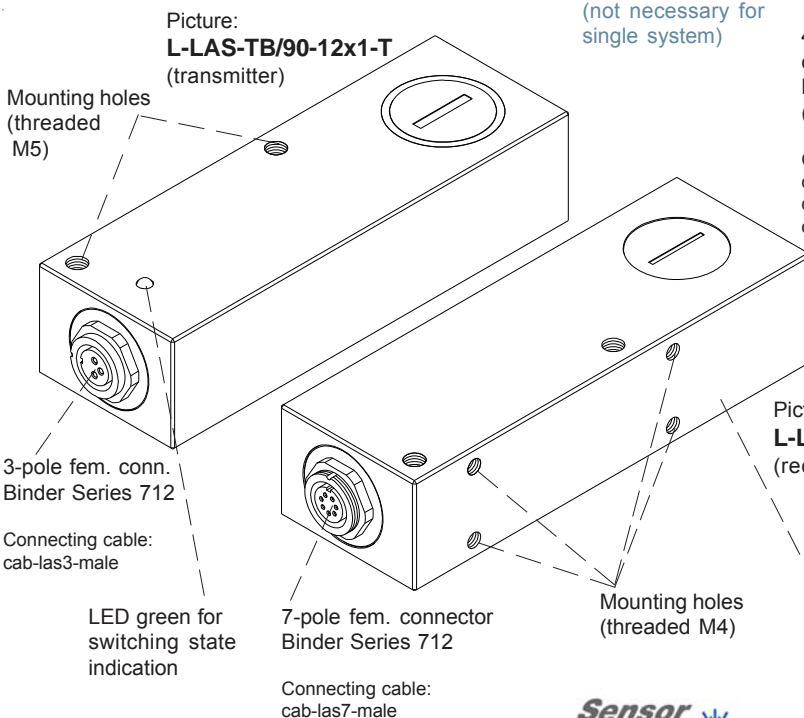
4-pole fem. connector Binder Series 707 (RS232 interface)

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

LED display (cf. page 9)

Potentiometer for tolerance setting
 TEACH button for norm value teaching

Mounting holes





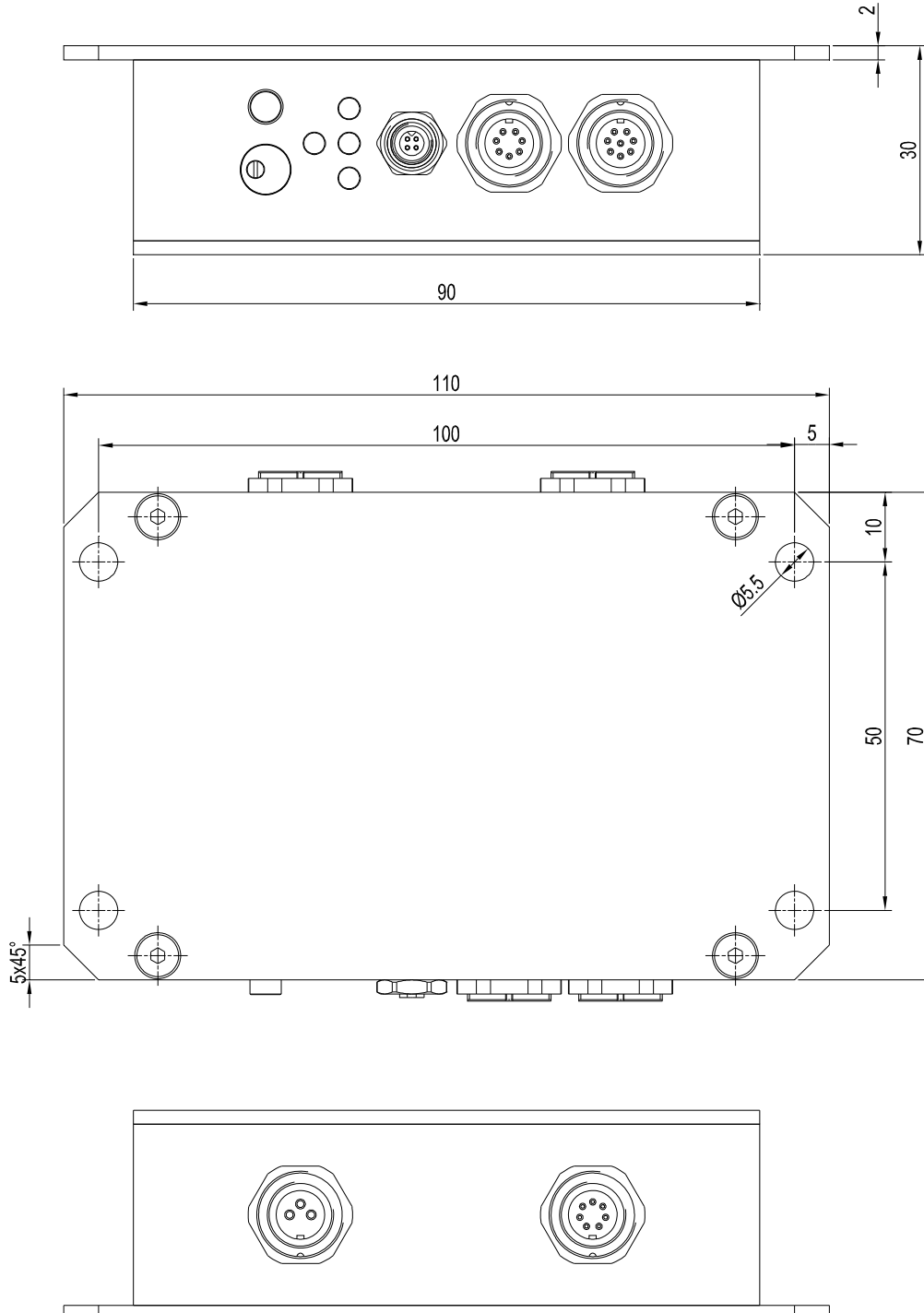
Technical Data

| Model | L-LAS-TB-12-CON1 L-LAS-TB/90-(12)-T, L-LAS-TB/90-(12)-R | L-LAS-TB-12-CON1-4/20 L-LAS-TB/90-(12)-T, L-LAS-TB/90-(12)-R |
|--|--|---|
| 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. | |
| Working distance | up to 500 mm | |
| Measuring range | typ. 12,8 mm | |
| Resolution | typ. 7 µm | |
| Reproducibility | typ. ± 7 µm | |
| Linearity | typ. 0,1% of full scale | |
| 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 | Adjustable by means of potentiometer TOL or 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 (without connectors) | Electronic control unit L-LAS-TB-12-CON1: LxWxH approx. 110 mm x 70 mm x 28 mm Transmitter or receiver frontend L-LAS-TB/90-(12)-T/-R: LxWxH approx. 100 mm x 34 mm x 24 mm | |
| Type of connectors: Electronic control unit L-LAS-TB-12-CON1 | 8-pole female connector type Binder 712 (PLC/Power), 4-pole female connector type Binder 707 (PC/RS232 or PC/USB) 7-pole female connector type Binder 712 (MA/SL connection, not used with single system) | |
| Type of connector: Transmitter | Transmitter frontend L-LAS-TB/90-(12)-T: 3-pole female connector Binder 712 | |
| Type of connector: Receiver | Receiver frontend L-LAS-TB/90-(12)-R: 7-pole female connector Binder 712 | |
| Connecting cables | Connection L-LAS-TB-12-CON1 to PC: cab-las4/PC or cab-4/USB or cab-4/ETH Connection L-LAS-TB-12-CON1 to PLC: cab-las8/SPS or cab-las8/SPS-w Connection L-LAS-TB/90-(12)-T to L-LAS-TB-12-CON1: cab-las3-male Connection L-LAS-TB/90-(12)-R to L-LAS-TB-12-CON1: cab-las7-male | |
| Teach button | Teach button at the housing for set point value teaching | |
| LED display | LED red (-) : Measured value < lower tolerance threshold LED green : Measured value within tolerance window LED red (+) : Measured value > upper tolerance threshold LED yellow: for sensor adjustment (multifunctional LED) | |
| EMC test acc. to | DIN EN 60947-5-2 | |
| Scan frequency | max. 200 Hz | |
| Max. switching current | 100 mA, short-circuit-proof | |
| Interface | RS232, parameterisable under Windows® | |
| Output polarity | Bright-/dark-switching, adjustable under Windows® | |



Dimensions

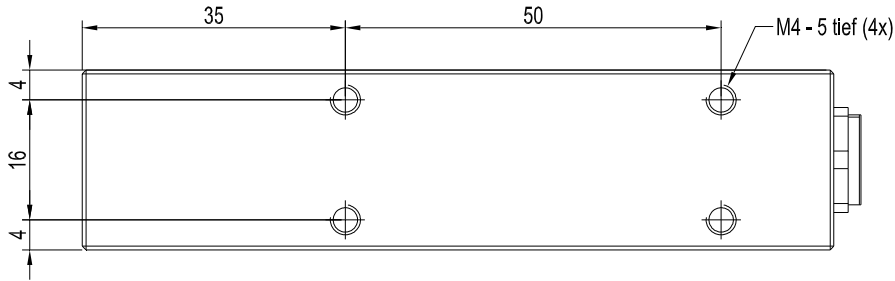
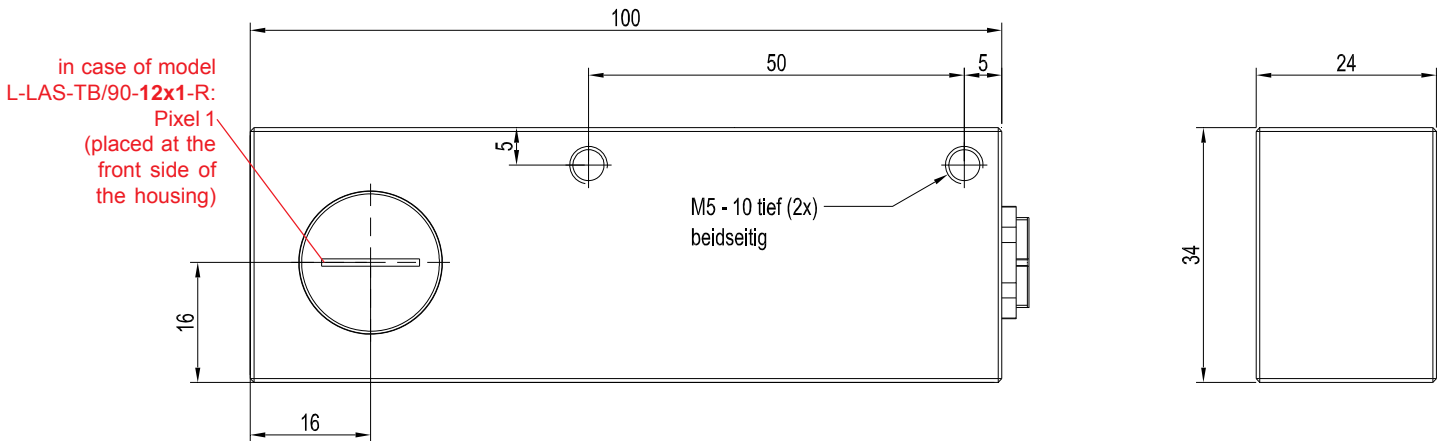
L-LAS-TB-12-CON1:



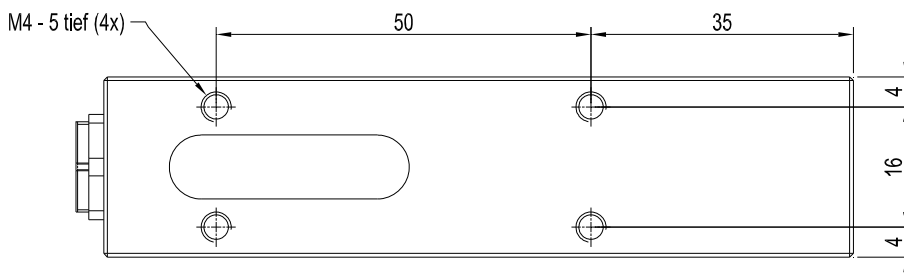
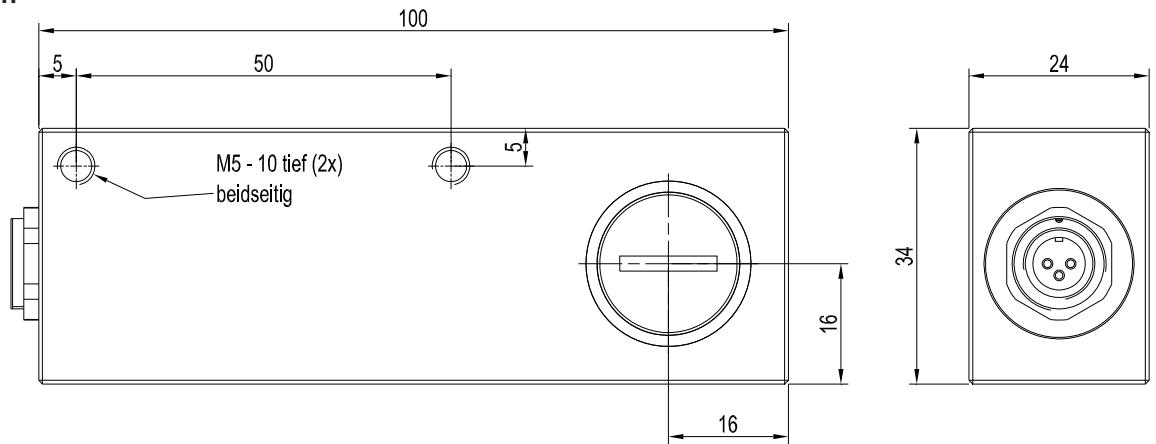
All dimensions in mm

Dimensions

L-LAS-TB/90-12x1-R:



L-LAS-TB/90-12x1-T:



All dimensions in mm



Connector Assignment

Connection L-LAS-TB-12-CON1 to PLC:
8-pole fem. connector Binder Series 712

| Pin: | (Color of wire): | 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)

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

Connection L-LAS-TB-12-CON1 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)

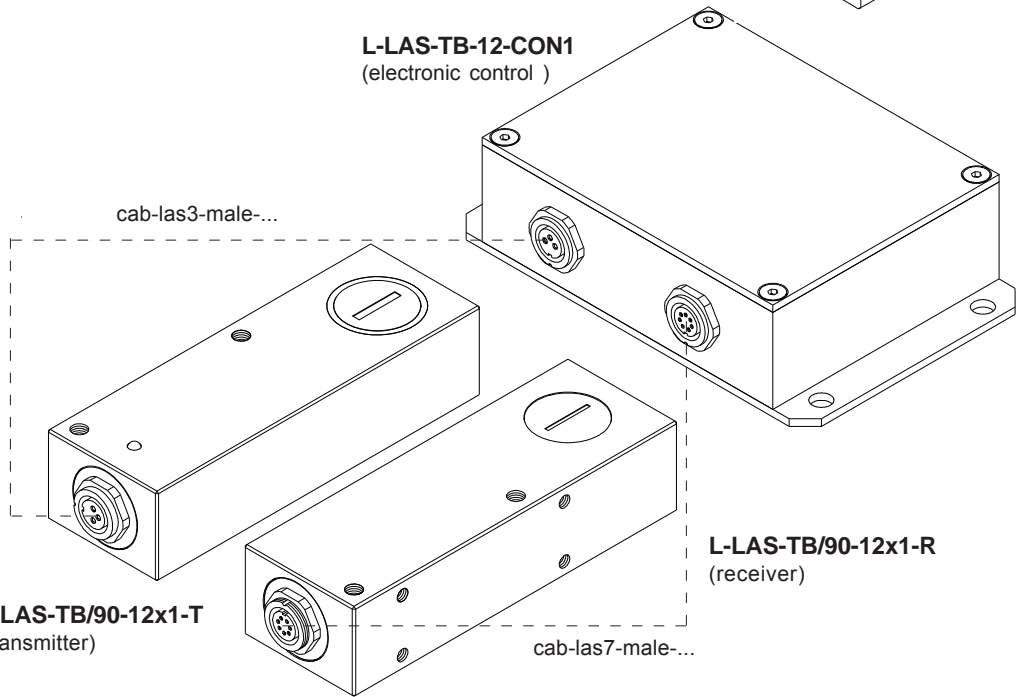
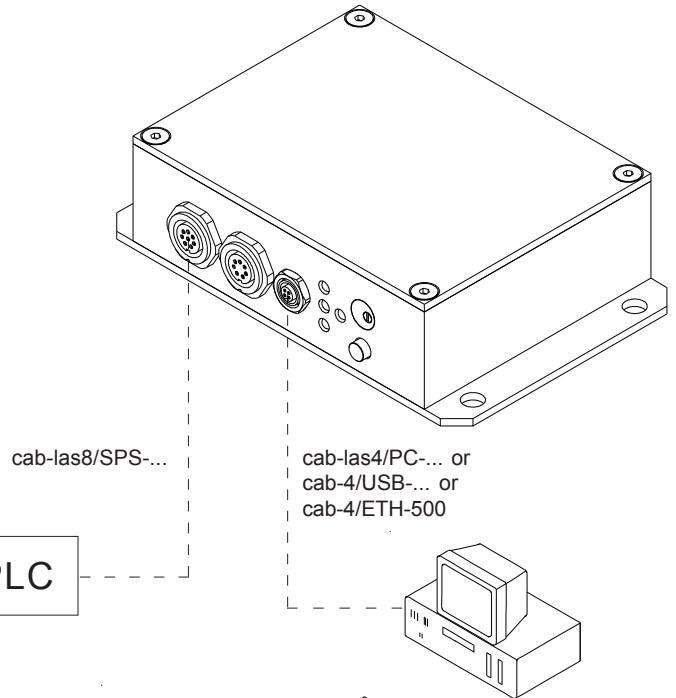
alternative:

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)



Connection transmitter L-LAS-TB/90-(12)-T to L-LAS-TB-12-CON1:
2x 3-pole fem. connectors Binder Series 712

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

Connecting cable:
cab-las3-male-(length)
(standard length 2m)

Connection receiver L-LAS-TB/90-(12)-R to L-LAS-TB-12-CON1:
2x 7-pole fem. connectors Binder Series 712

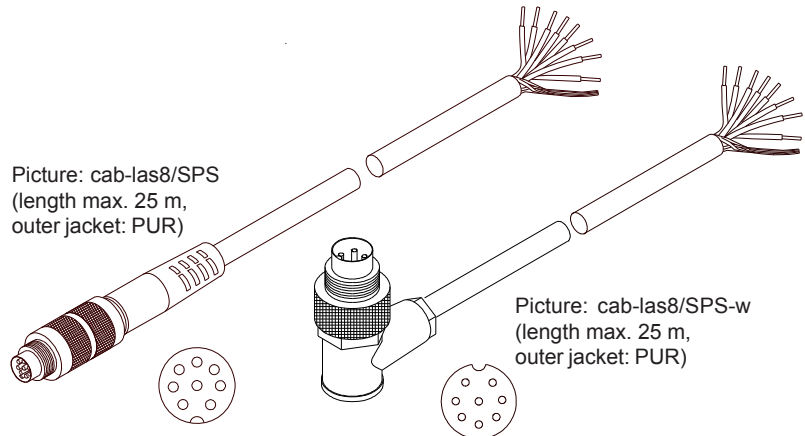
| Pin: | Assignment: |
|------|-------------|
| 1 | GND (0V) |
| 2 | +6.9VDC |
| 3 | START |
| 4 | CLOCK |
| 5 | GAIN |
| 6 | GND (0V) |
| 7 | VIDEO |

Connecting cable:
cab-las7-male-(length)
(standard length 2m)



Connecting Cables

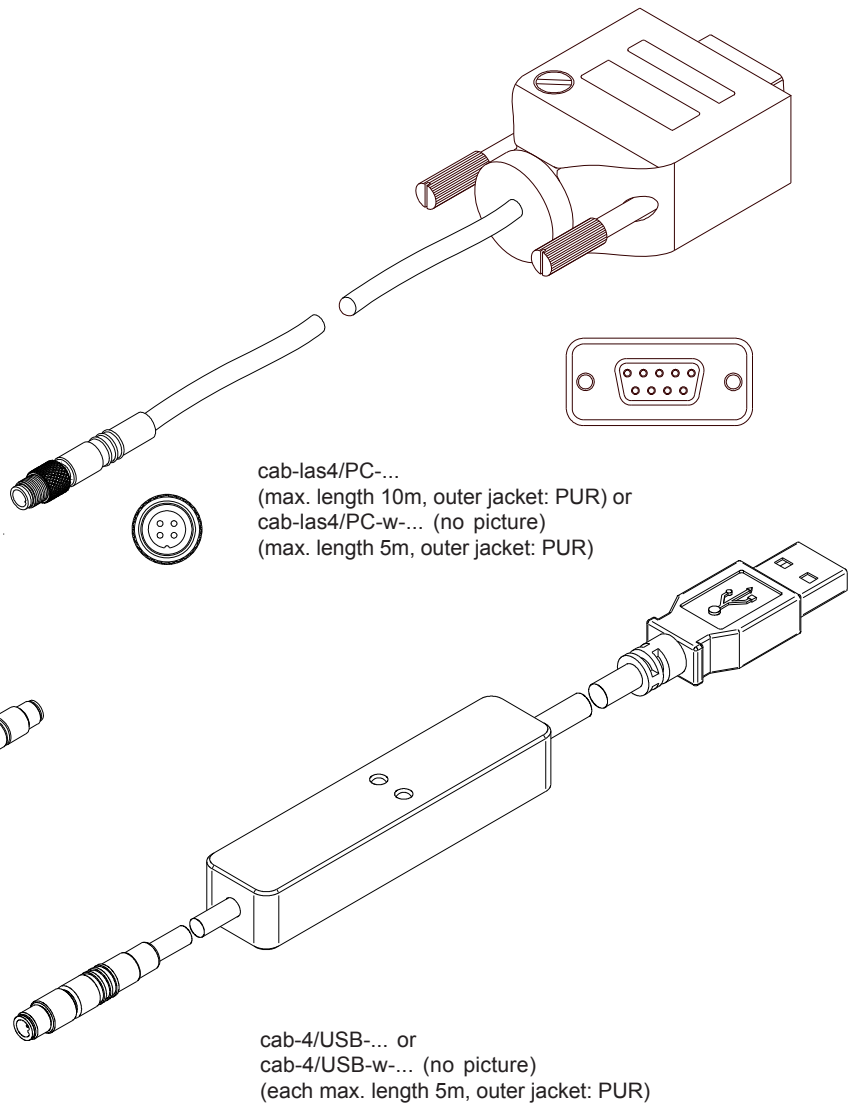
Connection L-LAS-TB-12-CON1 to PLC:
cab-las8/SPS oder
cab-las8/SPS-w (angle type 90°)



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

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

Connection L-LAS-TB-12-CON1 to PC:
cab-las4/PC oder
cab-las4/PC-w (angle type 90°) or
cab-4/USB or
cab-4/USB-w (angle type 90°) or
cab-4/ETH-500



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

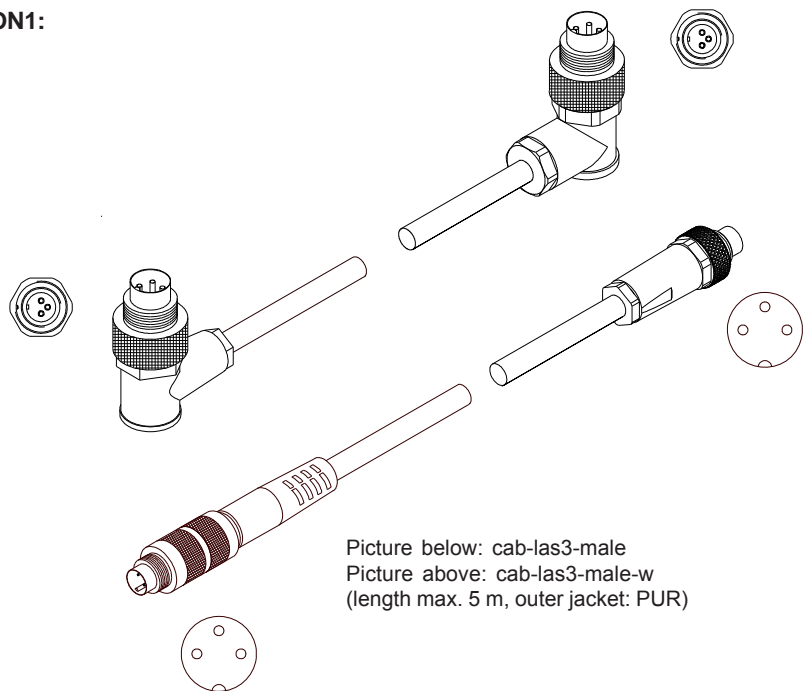
cab-4/USB-... or
 cab-4/USB-w-... (no picture)
 (each max. length 5m, outer jacket: PUR)

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)



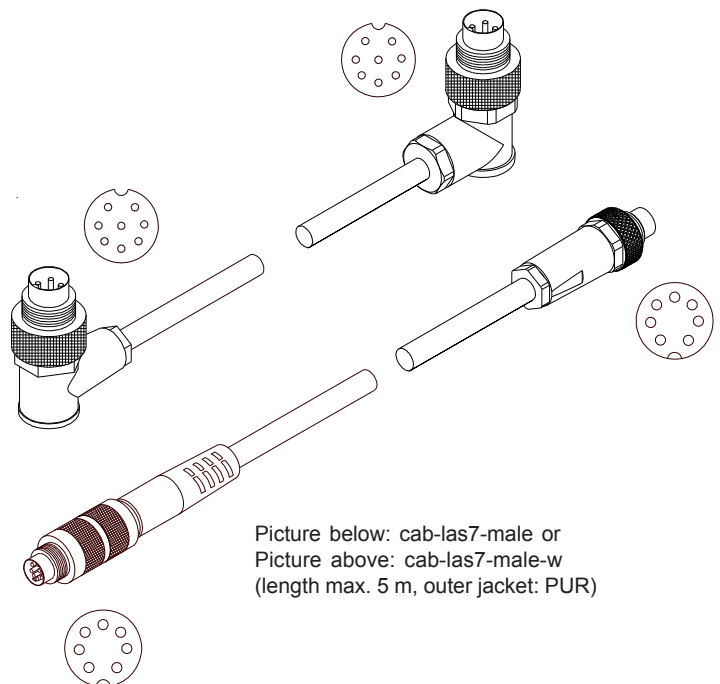
Connecting Cables

Connection L-LAS-TB/90-(12)-T to L-LAS-TB-12-CON1:
cab-las3-male or
cab-las3-male-w (angle type 90°)



Picture below: cab-las3-male
 Picture above: cab-las3-male-w
 (length max. 5 m, outer jacket: PUR)

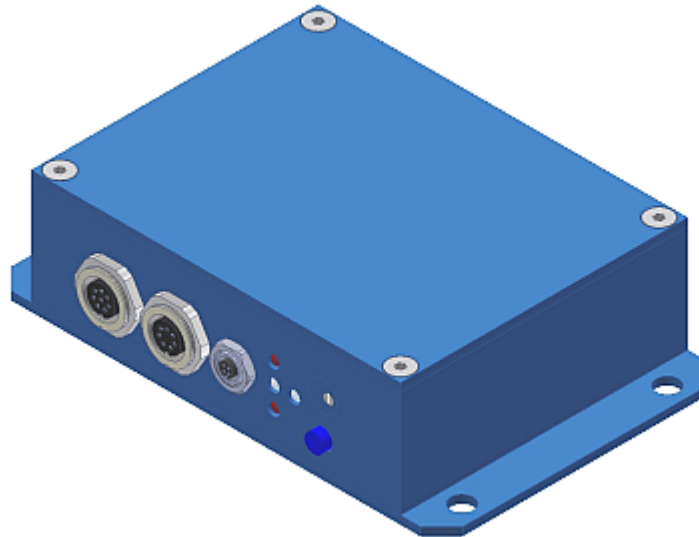
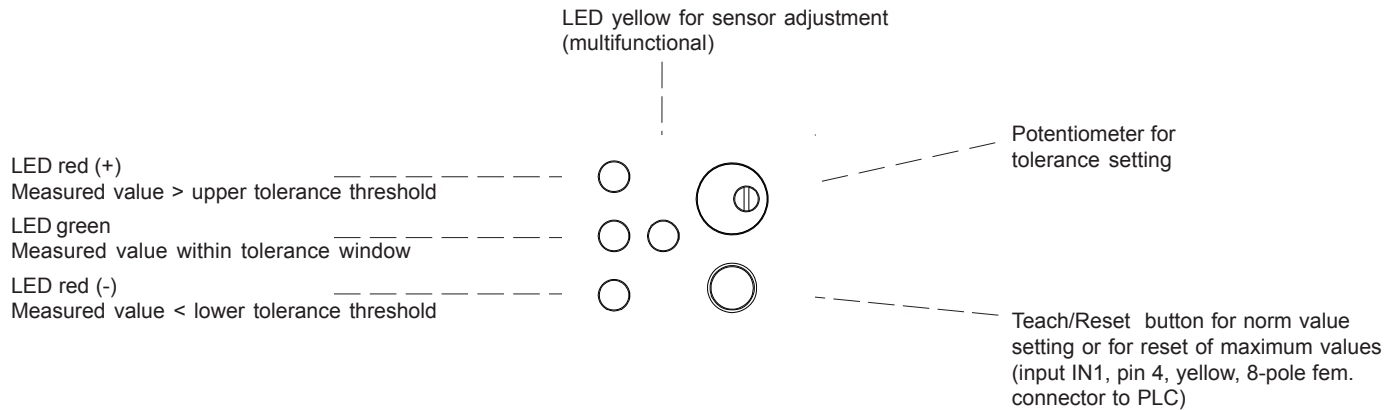
Connection L-LAS-TB/90-(12)-R to L-LAS-TB-12-CON1:
cab-las7-male or
cab-las7-male-w (angle type 90°)



Picture below: cab-las7-male or
 Picture above: cab-las7-male-w
 (length max. 5 m, outer jacket: PUR)



LED Display



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“.





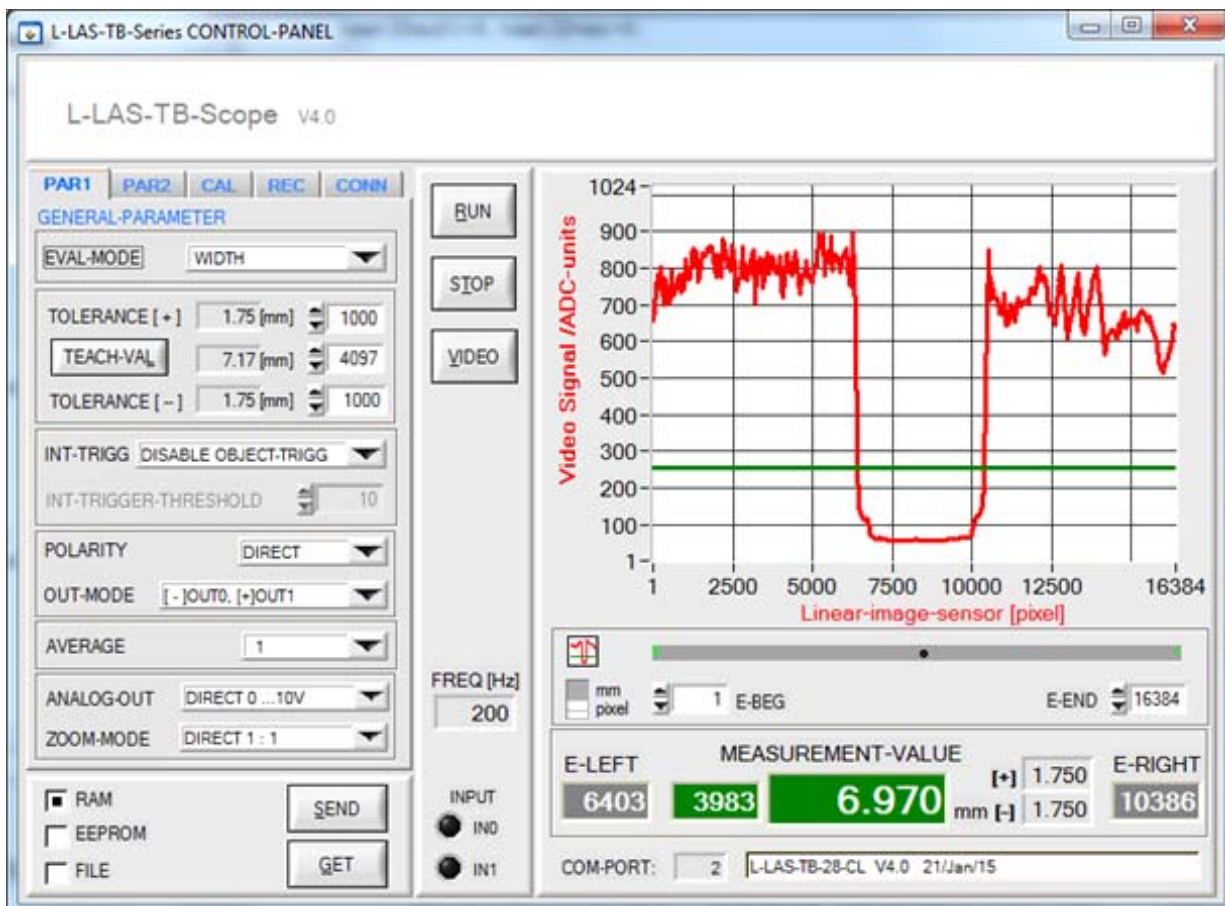
Parameterization

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

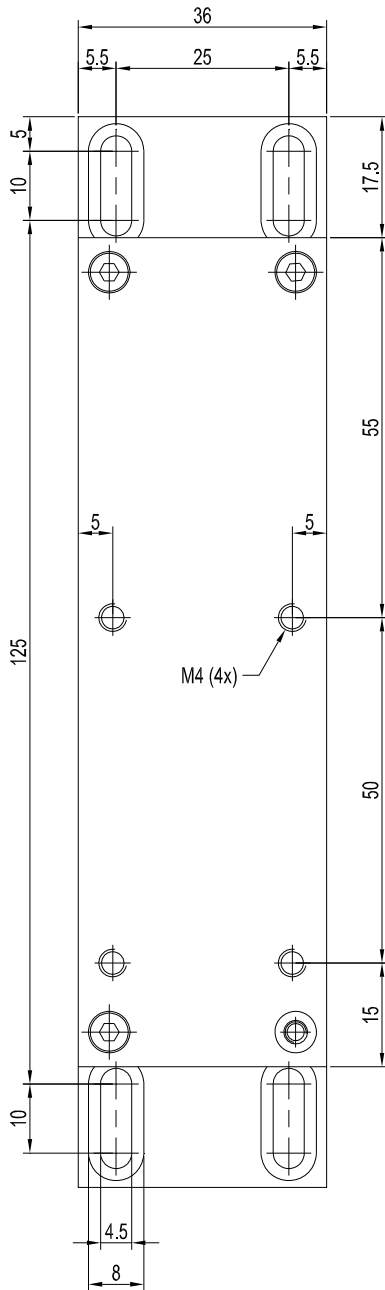
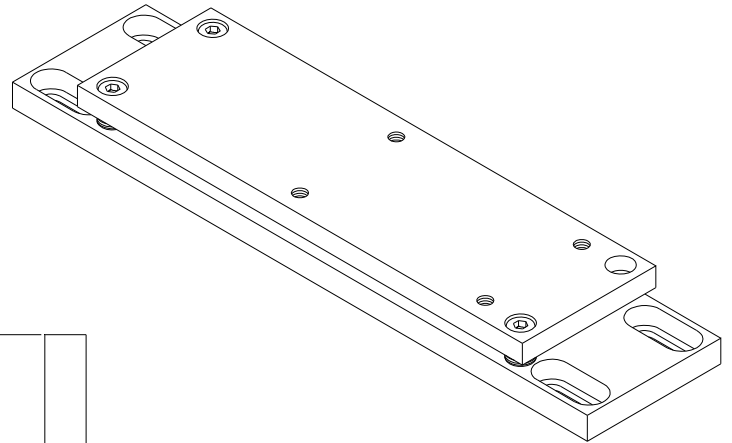
Furthermore, various numerical and graphical measured quantities can be visualized with the L-LAS-TB-Scope software. For example, the raw data of the CCD line sensor can be displayed graphically and numerically.

Mounting

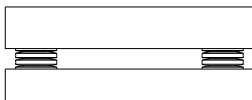
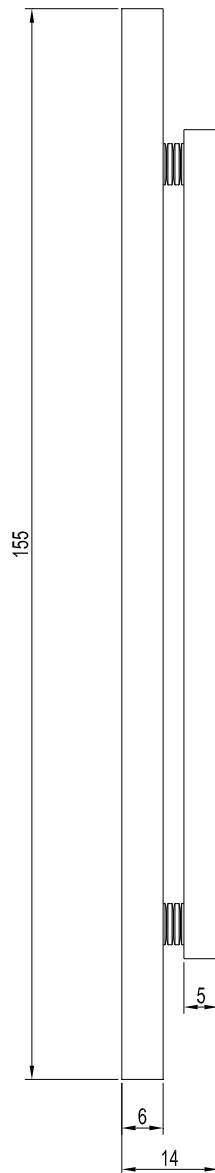
Mounting plate:

MOUNT-L-LAS-TB-90/12

suitable for L-LAS-TB/90-(12)-T and L-LAS-TB/90-(12)-R
(please order separately)



M4 (4x)



All dimensions in mm