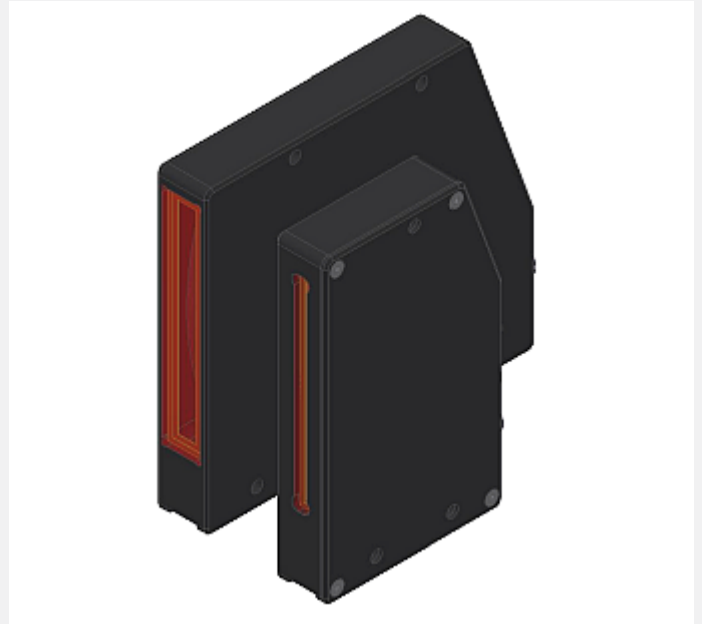


# L-LAS Series

## ▶ L-LAS-TB-75-T-AL L-LAS-TB-75-R-AL

- Line laser <math><0.39\text{ mW}</math>, wave length 670 nm, laser class 1
- Visible laser line, light curtain 75 mm
- Measuring range typ. 73 mm
- Resolution up to 8  $\mu\text{m}$  (depends on selected scan frequency)
- Working distance up to 2000 mm
- Integrated interference filter
- CCD line detector with 1180 pixel, 9440 subpixel
- RS232 user interface (USB or Ethernet converter optional)
- 2 digital inputs, 3 digital outputs (HIGH/LOW/GO)
- Analog output adjustable via software (0 ... +10V or 4 ... 20mA)
- Max. scan frequency selectable via software (1.5 kHz or 2.5 kHz)
- Multi-edge evaluation of the video signal
- Switching state indication via 4 two-color LEDs (2x red/grn, 2x yel/grn)



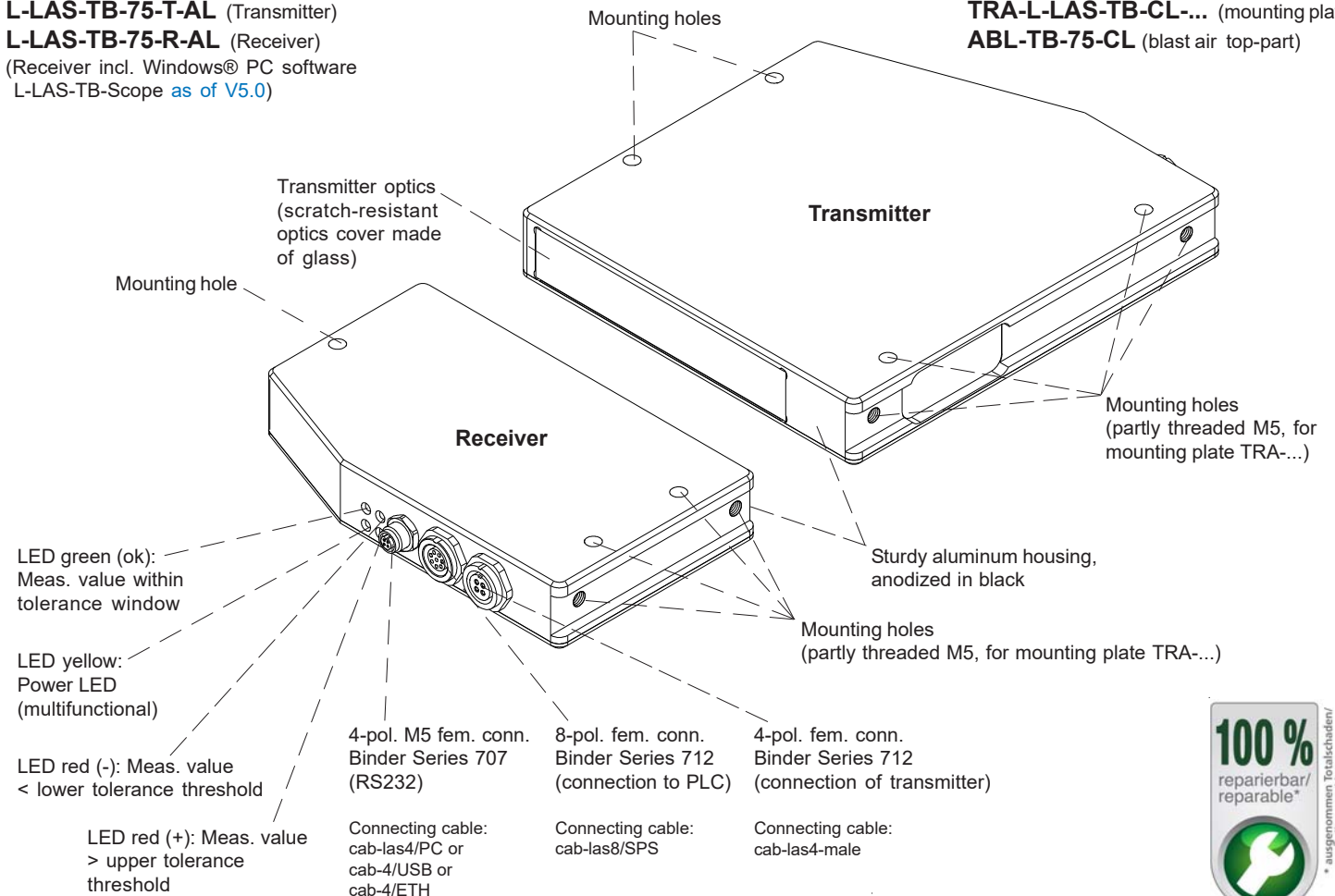
### Design

**Product name:**

**L-LAS-TB-75-T-AL** (Transmitter)  
**L-LAS-TB-75-R-AL** (Receiver)  
 (Receiver incl. Windows® PC software  
 L-LAS-TB-Scope as of V5.0)

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

**TRA-L-LAS-TB-CL-...** (mounting plate)  
**ABL-TB-75-CL** (blast air top-part)





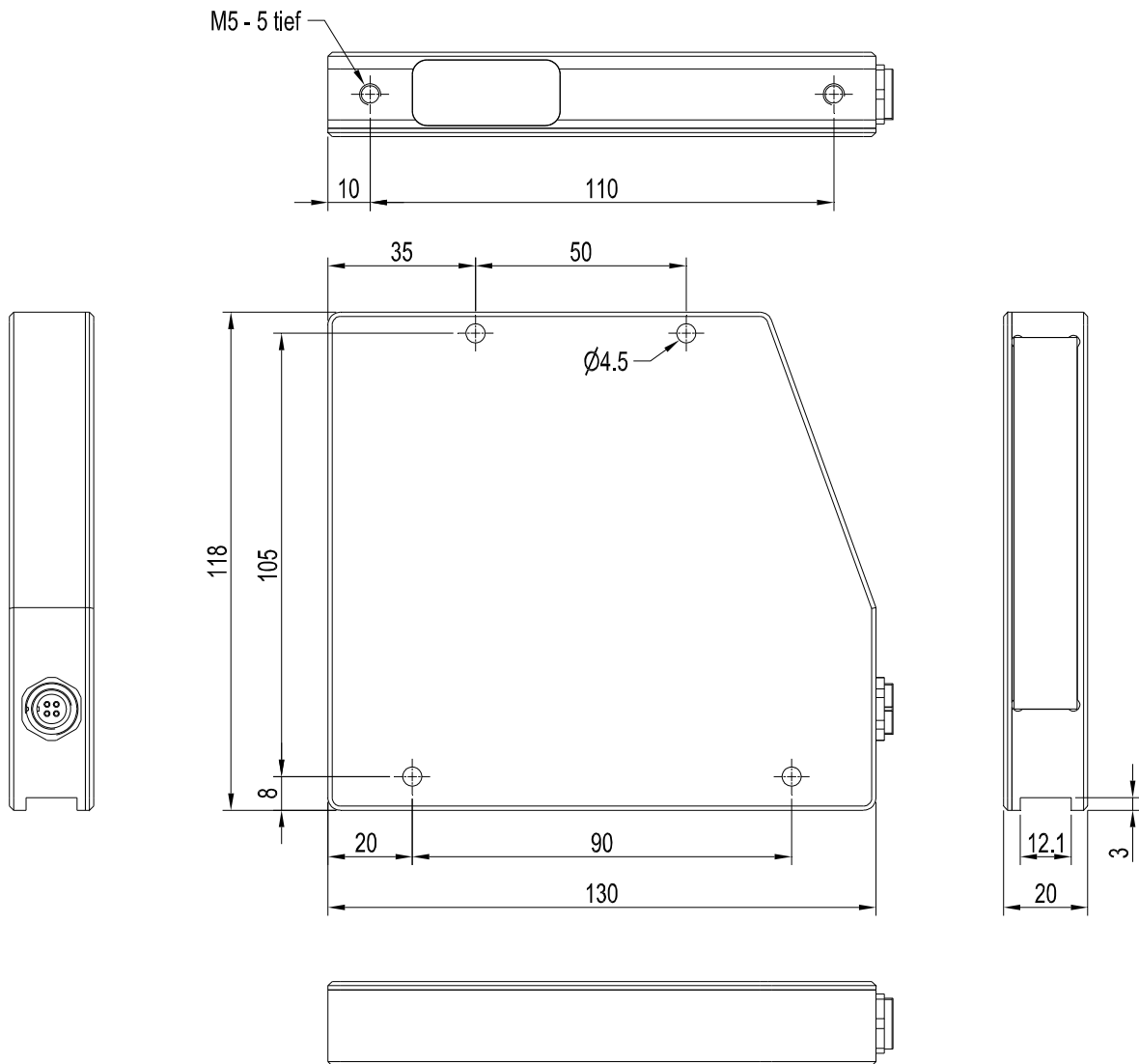
**Technical Data**

| Type                                       | L-LAS-TB-75-T-AL<br>L-LAS-TB-75-R-AL  |
|--|---|
| Laser                                      | Semiconductor laser, 670 nm, DC operation, < 0.39 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                           | distance transmitter/receiver: up to 2000 mm  |
| Measuring range                            | typ. 73 mm  |
| Resolution                                 | typ. 8 µm (Normal Speed mode), typ. 16 µm (Fast Speed mode)   |
| Reproducibility                            | typ. ± 8 µm (Normal Speed mode), typ. ± 16 µm (Fast Speed mode)   |
| Linearity                                  | typ. 0.15% FSR (full scale range)   |
| Optical filter                             | Interference filter   |
| Analog output (1x)                         | voltage output 0 ... +10V or current output 4 ... 20mA<br>(adjustable under Windows® via PC)  |
| Digital outputs (3x)<br>(OUT0, OUT1, OUT2) | OUT0: (-) Measuring value < lower tolerance threshold<br>OUT1: (+) Measuring value > upper tolerance threshold<br>OUT2: (ok) Measuring value within tolerance window<br>pnp bright-switching/npn dark-switching or pnp dark-switching/npn bright-switching,<br>adjustable under Windows®, 100 mA, short-circuit proof |
| Digital inputs (2x)<br>(IN0, IN1)          | IN0: Extern trigger, IN1: Teach/Reset (double function)<br>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                           | aluminum, anodized in black   |
| Housing dimensions                         | transmitter: LxWxH approx. 130 mm x 118 mm x 20 mm (without flange connectors)<br>receiver: LxWxH approx. 70 mm x 118 mm x 20 mm (without flange connectors)  |
| Connectors receiver                        | 8-pole circular female connector type Binder 712 (PLC/Power)<br>4-pole M5 circular female connector type Binder 707 (RS232/PC)<br>4-pole circular female connector type Binder 712 (connection to transmitter)  |
| Connector transmitter                      | 4-pole circular female connector type Binder 712 (connection to receiver)   |
| LED display                                | LED red (+): measuring value > upper tolerance threshold<br>LED green (ok): measuring value within tolerance window<br>LED red (-): measuring value < lower tolerance threshold<br>LED yellow: multifunctional  |
| EMC test acc. to                           | DIN EN 60947-5-2  |
| Scan frequency                             | Normal Speed mode (high resolution = 8 µm): max. 1.5 kHz<br>Fast Speed mode (half resolution = 16 µm): max. 2.5 kHz<br>can be switched 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<br>Connection to PLC: cab-las8/SPS or cab-las8/SPS-w<br>Connecting cable transmitter/receiver: cab-las4-male  |
| Output polarity                            | bright/dark switching, can be switched under Windows®   |



Dimensions

**L-LAS-TB-75-T-AL**  
(Transmitter)

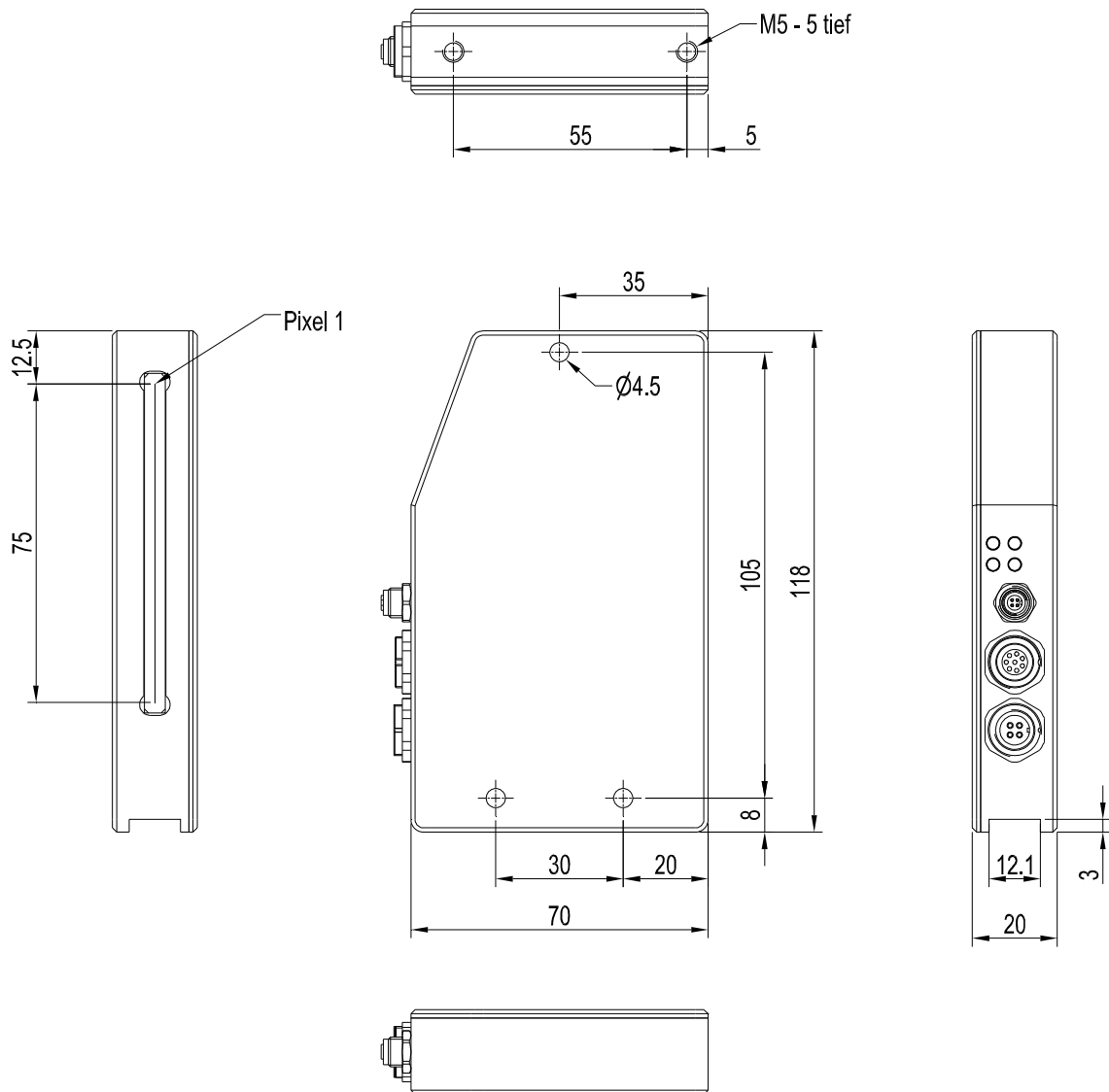


All dimensions in mm



Dimensions

**L-LAS-TB-75-R-AL**  
(Receiver)



All dimensions in mm

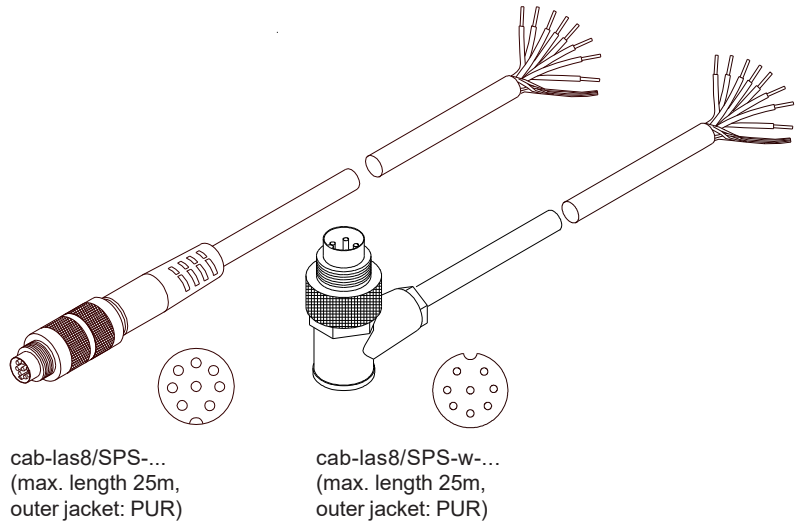


**Connector Assignment**

**Connection L-LAS-TB-...-R-AL (Receiver) 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 or black | OUT1 (+)                                   |
| 7    | blue          | OUT2 (ok)                                  |
| 8    | red           | ANA (voltage 0...+10V or current 4...20mA) |

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 L-LAS-TB-...-R-AL (Receiver) 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:**

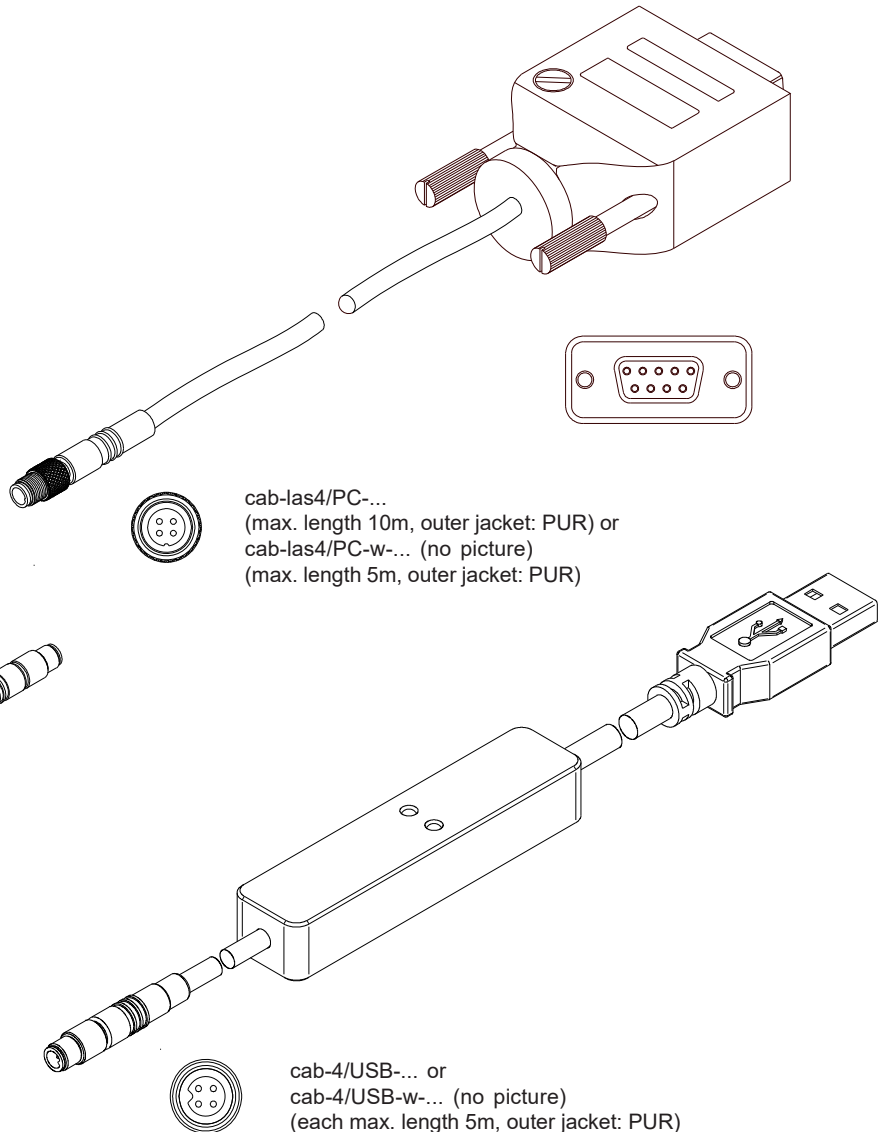
USB converter (incl. driver software):  
cab-4/USB-(length)  
cab-4/USB-w-(length) (angle type 90°)  
(standard length 2m)

**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)



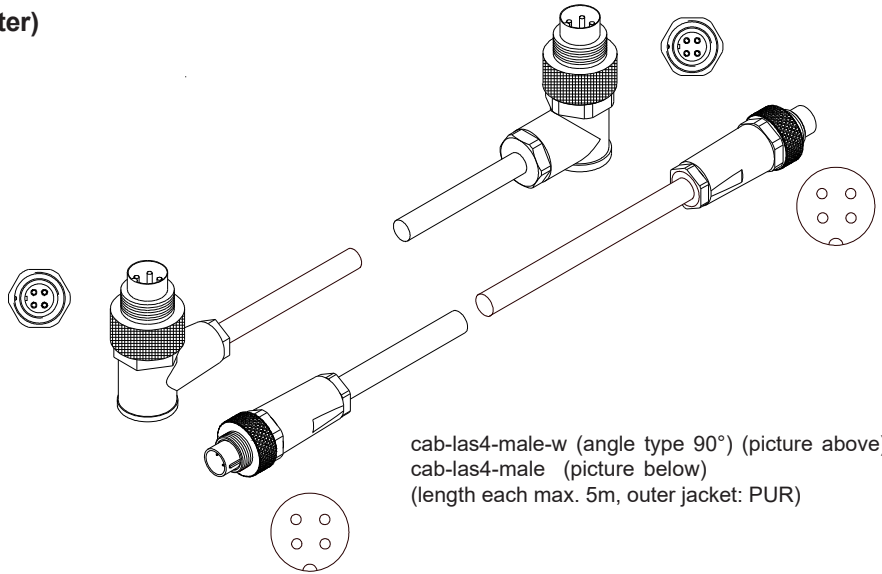
Connector Assignment

Connection L-LAS-TB-...-T-AL (Transmitter)  
with L-LAS-TB-...-R-AL (Receiver)  
4-pole female connector Binder Series 712

Pin: Assignment:

- 1 +5VDC
- 2 0V (GND)
- 3 I-CONTROL (0V ... +5V)
- 4 not connected

Connecting cable:  
cab-las4-male-(length)  
cab-las4-male-w-(length) (angle type 90°)  
(standard length 2m)



cab-las4-male-w (angle type 90°) (picture above) or  
cab-las4-male (picture below)  
(length each max. 5m, outer jacket: PUR)

LED Display

L-LAS-TB-75-R-AL  
(Receiver)

LED display:

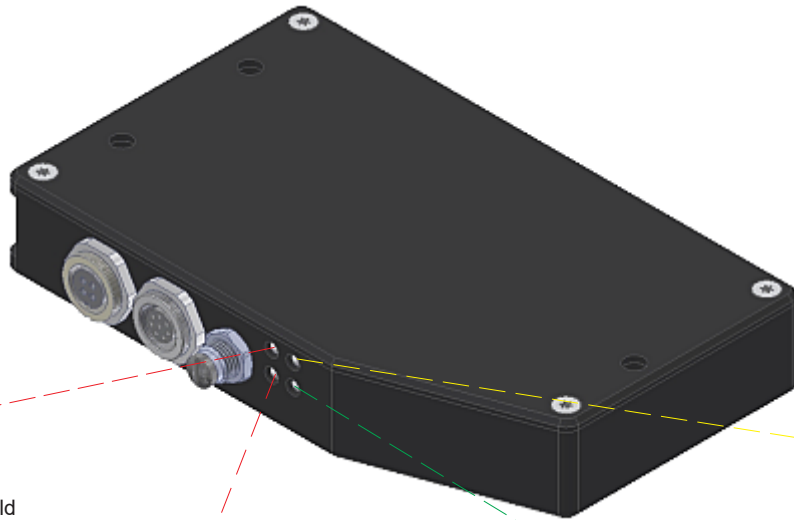
- (+) ● Power
- (-) ● (ok)

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

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

LED green (ok): ●  
Measuring value within  
tolerance window  
(OUT2)

LED yellow: ●  
Power LED  
(multifunctional)



Laser Information

The laser transmitters 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 transmitters of L-LAS-TB series series are supplied with an information label „CLASS 1 Laser Product“.



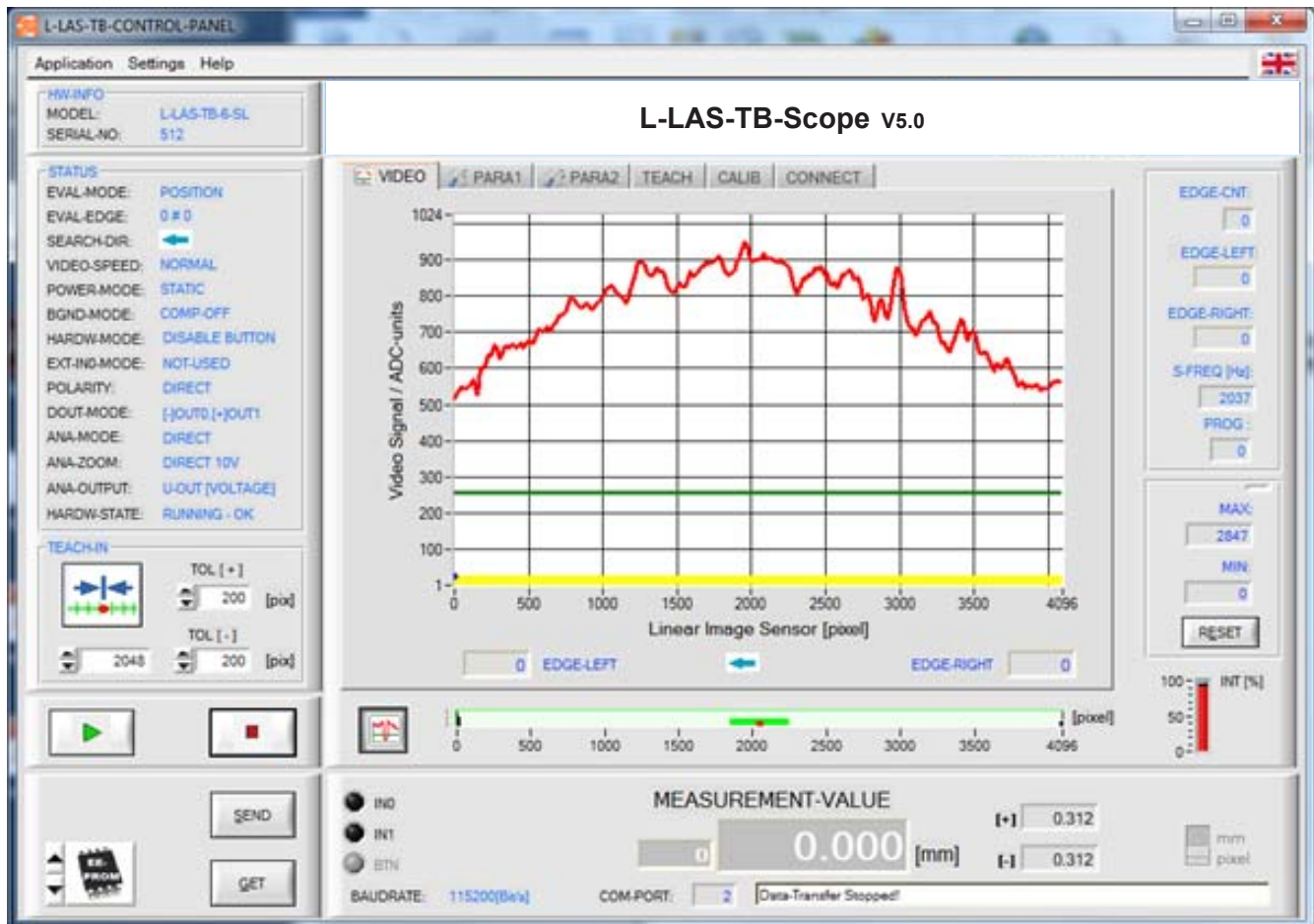
**Class 1 Laser Product**  
IEC 60825-1: 2014  
P<0.39 mW; λ=670 nm  
COMPLIES WITH 21 CFR 1040.10 AND 1040.11  
EXCEPT FOR CONFORMANCE WITH IEC 60825-1  
ED. 3, AS DESCRIBED IN  
LASER NOTICE NO. 56, DATED MAY 8, 2019.



**Parameterization**
**Windows® user interface:**

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

The L-LAS-TB-...-AL sensor can be easily parameterised with the Windows® user interface L-LAS-TB-Scope (as of V5.0). 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.

**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
- Selection of scan frequency

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-75-T-AL (Transmitter) and L-LAS-TB-75-R-AL (Receiver):**

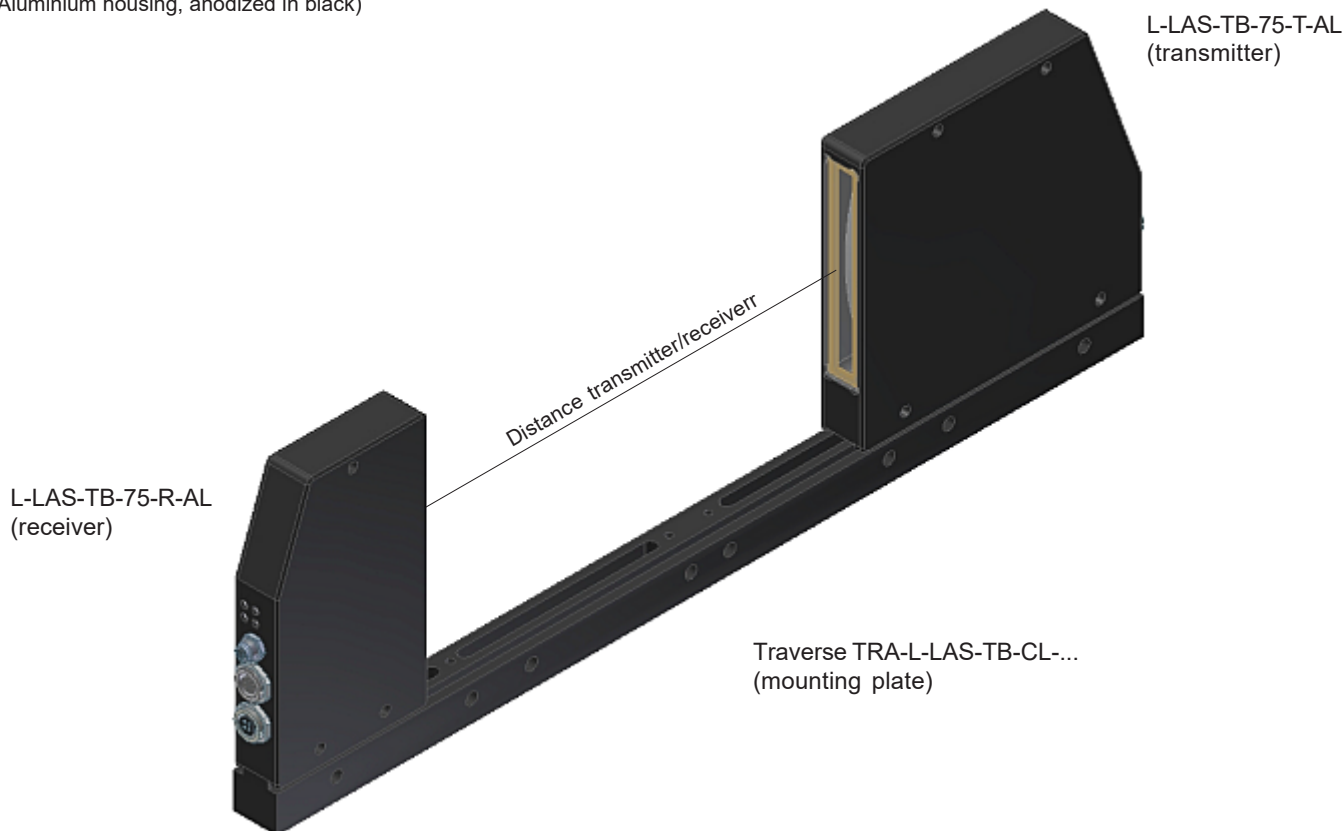
(please order separately)

**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)



| 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         |
|--|-----------------------------|------------------------------|------------------------------|------------------------------|
| <b>L-LAS-TB-6-T-AL</b><br><b>L-LAS-TB-6-R-AL</b>       | max. distance T/R:<br>95 mm | max. distance T/R:<br>295 mm | max. distance T/R:<br>495 mm | max. distance T/R:<br>695 mm |
| <b>L-LAS-TB-(16)-T-AL</b><br><b>L-LAS-TB-(16)-R-AL</b> | max. distance T/R:<br>60 mm | max. distance T/R:<br>260 mm | max. distance T/R:<br>460 mm | max. distance T/R:<br>660 mm |
| <b>L-LAS-TB-28-T-AL</b><br><b>L-LAS-TB-28-R-AL</b>     | ----                        | max. distance T/R:<br>222 mm | max. distance T/R:<br>422 mm | max. distance T/R:<br>622 mm |
| <b>L-LAS-TB-50-T-AL</b><br><b>L-LAS-TB-50-R-AL</b>     | ----                        | max. distance T/R:<br>205 mm | max. distance T/R:<br>405 mm | max. distance T/R:<br>605 mm |
| <b>L-LAS-TB-75-T-AL</b><br><b>L-LAS-TB-75-R-AL</b>     | ----                        | max. distance T/R:<br>200 mm | max. distance T/R:<br>400 mm | max. distance T/R:<br>600 mm |
| <b>L-LAS-TB-100-T-AL</b><br><b>L-LAS-TB-100-R-AL</b>   | ----                        | max. distance T/R:<br>160 mm | max. distance T/R:<br>360 mm | max. distance T/R:<br>560 mm |



Accessories

**Blast air top part:**

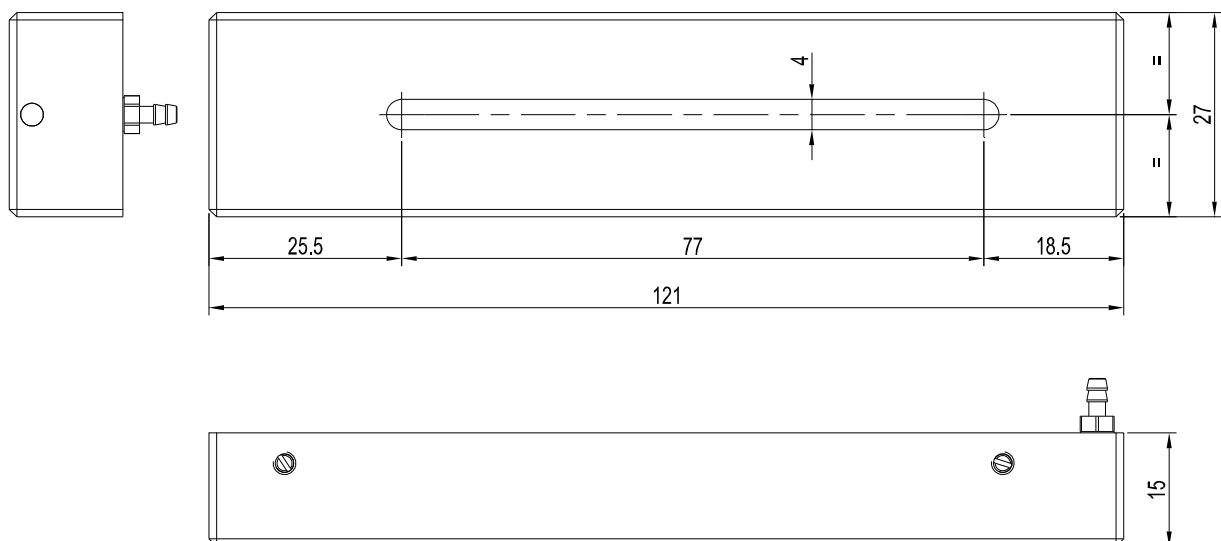
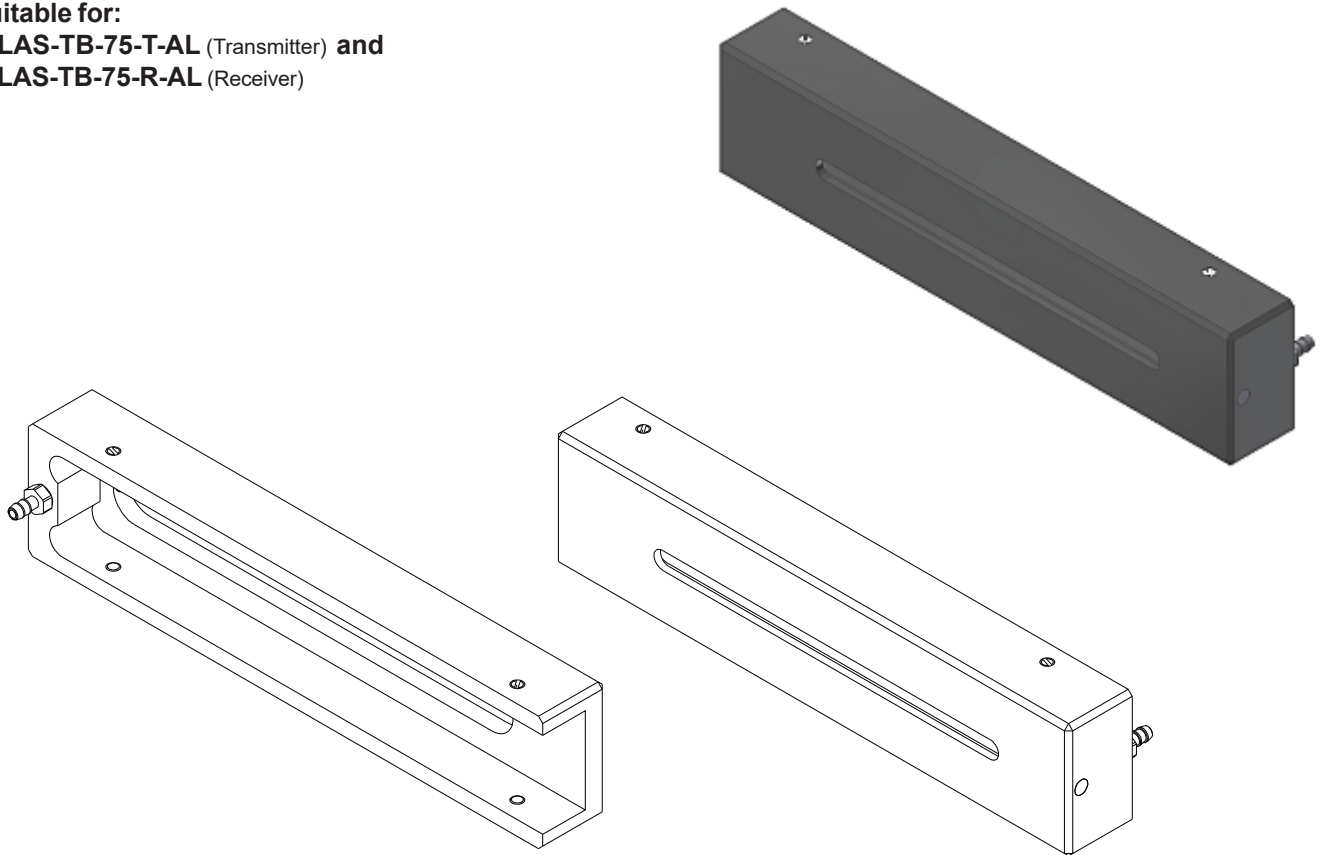
**ABL-TB-75-CL**

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

suitable for:

**L-LAS-TB-75-T-AL** (Transmitter) and

**L-LAS-TB-75-R-AL** (Receiver)



All dimensions in mm