

# L-LAS Series

## ► L-LAS-TB-75-...-MA /-SL (Master/Slave)

- Line laser 670 nm, < 0.4 mW, class 1 laser product
- Visible red laser line, typ. 75 mm light curtain
- Measuring range Master + Slave each typ. 72 mm
- Resolution Master + Slave each typ. 16 µm
- Transmitter/receiver distance max. 2000 mm
- Integrated interference filter
- CCD line detector with 1180 pixel (4520 subpixel)
- External teach button and potentiometer for tolerance setting
- RS232 interface (USB or Ethernet adapter is available)
- Windows® user interface
- 2 digital inputs, 3 digital outputs
- 1 analog output 0...+10V (optional: current output 4...20mA)
- Switching state indication via 4 LEDs (1x grn, 2x red, 1x yel)



## Design

### Product name:

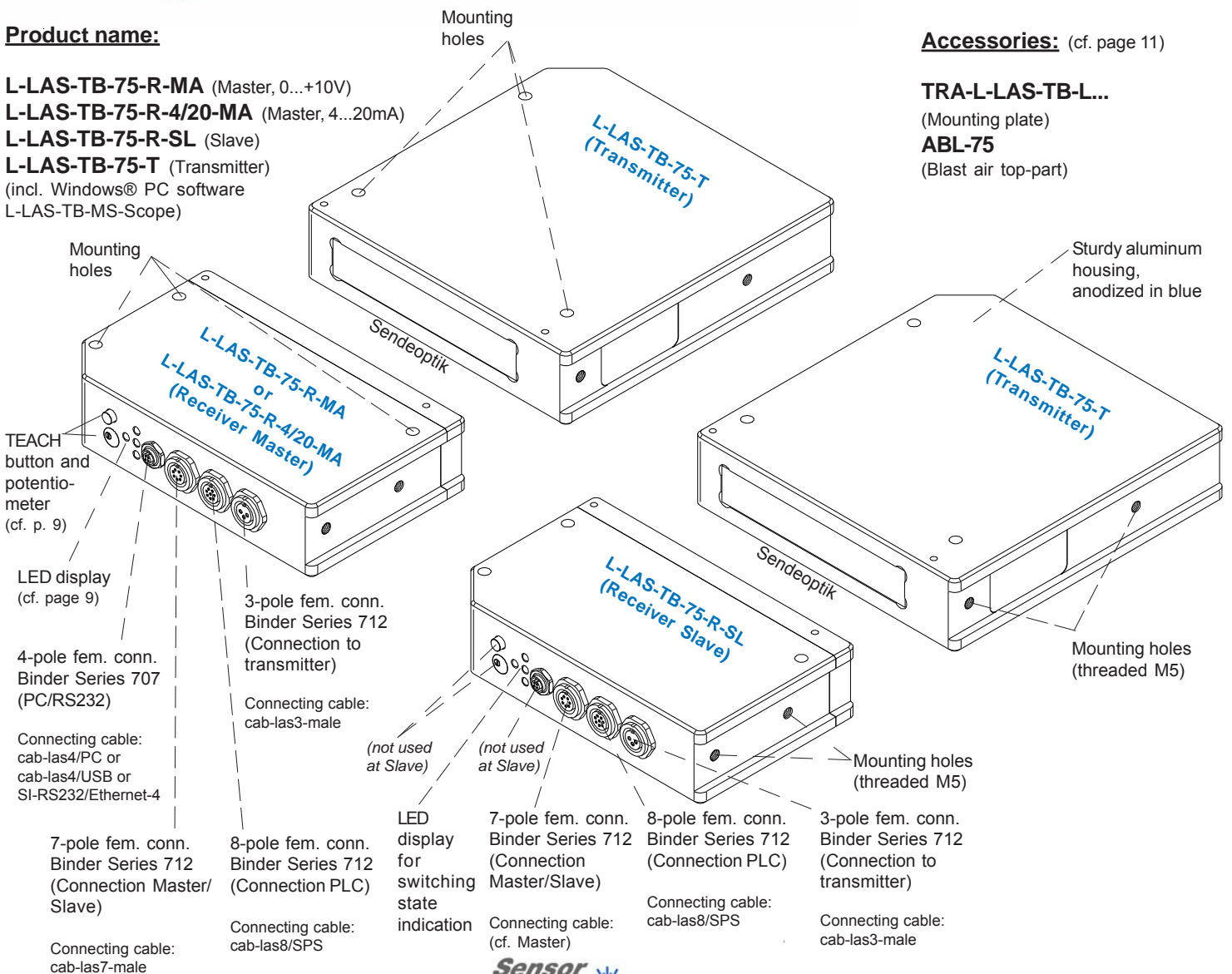
- L-LAS-TB-75-R-MA** (Master, 0...+10V)
- L-LAS-TB-75-R-4/20-MA** (Master, 4...20mA)
- L-LAS-TB-75-R-SL** (Slave)
- L-LAS-TB-75-T** (Transmitter)
- (incl. Windows® PC software)
- L-LAS-TB-MS-Scope)

### Accessories:

 (cf. page 11)

#### TRA-L-LAS-TB-L...

- (Mounting plate)
- ABL-75**
- (Blast air top-part)





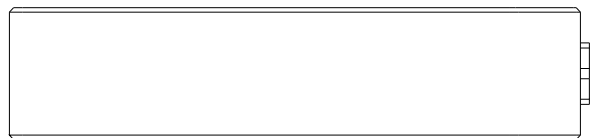
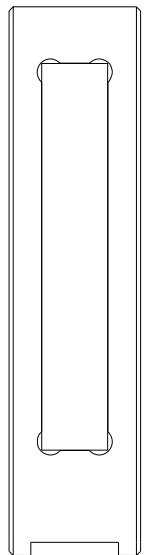
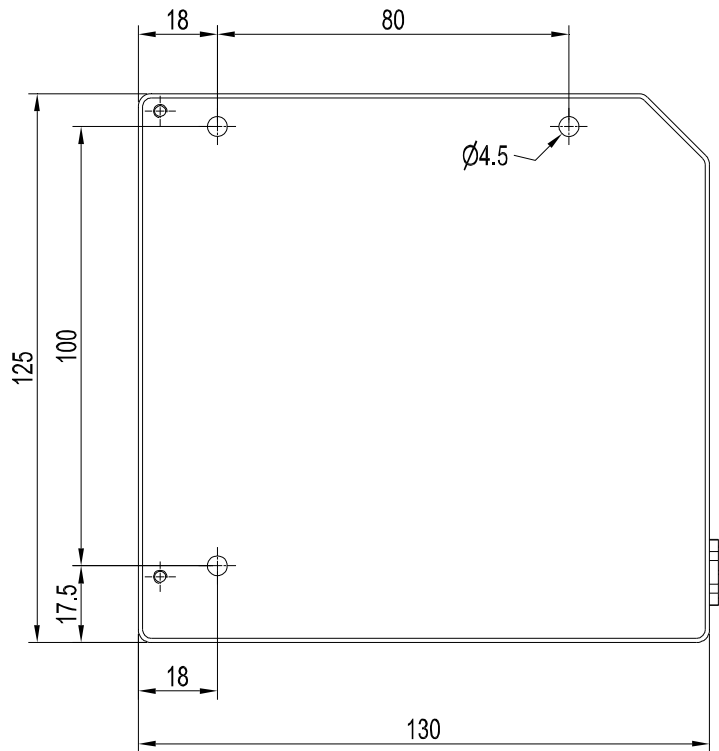
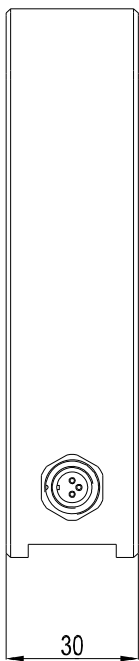
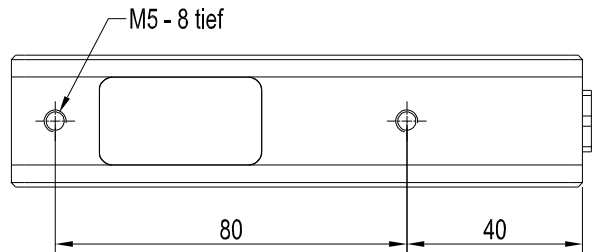
**Technische Daten**

Model	L-LAS-TB-75-R-MA, L-LAS-TB-75-R-SL, L-LAS-TB-75-T	L-LAS-TB-75-R-4/20-MA, L-LAS-TB-75-R-SL, L-LAS-TB-75-T
Laser	Semi-conductor laser, 670 nm, DC operation, 0.4 mW max. opt. power, class 1 laser product acc. to DIN EN 60825-1. The use of these laser transmitters therefore requires no additional protective measures.	
Transmitter/receiver distance	up to 2000 mm	
Measuring range	MA and SL: each typ. 72 mm	
Resolution	MA and SL: each typ. 16 µm	
Reproducibility	MA and SL: each typ. ± 16 µm	
Linearity	typ. 0.15% of full scale range (FSR)	
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.)/npn dark-switching (npn n.o.) or pnp dark-switching (pnp n.o.)/npn bright-switching (npn n.c.), 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	by means of potentiometer TOL or under Windows® via PC	
Laser power adjustment	adjustable under Windows® at 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. 130 mm x 125 mm x 30 mm (without flange connectors) Receiver Master or Slave: LxWxH approx. 75 mm x 125 mm x 30 mm (without flange connectors)	
Connectors: Receiver (Master or Slave)	8-pole fem. connector type Binder 712 (PLC/Power) 4-pole M5 fem. connector type Binder 707 (RS232/PC) 3-pole fem. connector type Binder 712 (connection to transmitter) 7-pole fem. connector type Binder 712 (connection Master/Slave)	
Connector: Transmitter	3-pole fem. connector type Binder 712 (connection to Receiver Master or Slave)	
Connecting cables	Connection to PC: cab-las4/PC or cab-las4/PC-w or cab-las4/USB or SI-RS232/Ethernet-4 Connection to PLC: cab-las8/SPS or cab-las8/SPS-w Connection Receiver Master / Receiver Slave: cab-las7-male Connection Receiver Master / Transmitter: cab-las3-male Connection Receiver Slave / Transmitter: cab-las3-male	
Teach/reset button	for mean value setting and for reset of maximum values	
LED indication	LED red (+) : Measuring value > upper tolerance threshold LED green : Measuring value within tolerance window LED red (-) : Measuring value < lower tolerance threshold LED yellow: for sensor adjustment (multifunctional LED)	
EMC test acc. to	DIN EN 60947-5-2	
Scan frequency	in analog/digital operation: max. 500 Hz	
Max. switching current	100 mA, short-circuit proof	
Interface	RS232, parameterisable under Windows®	
Output polarity	Bright/dark-switching, can be switched under Windows®	



Dimensions

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

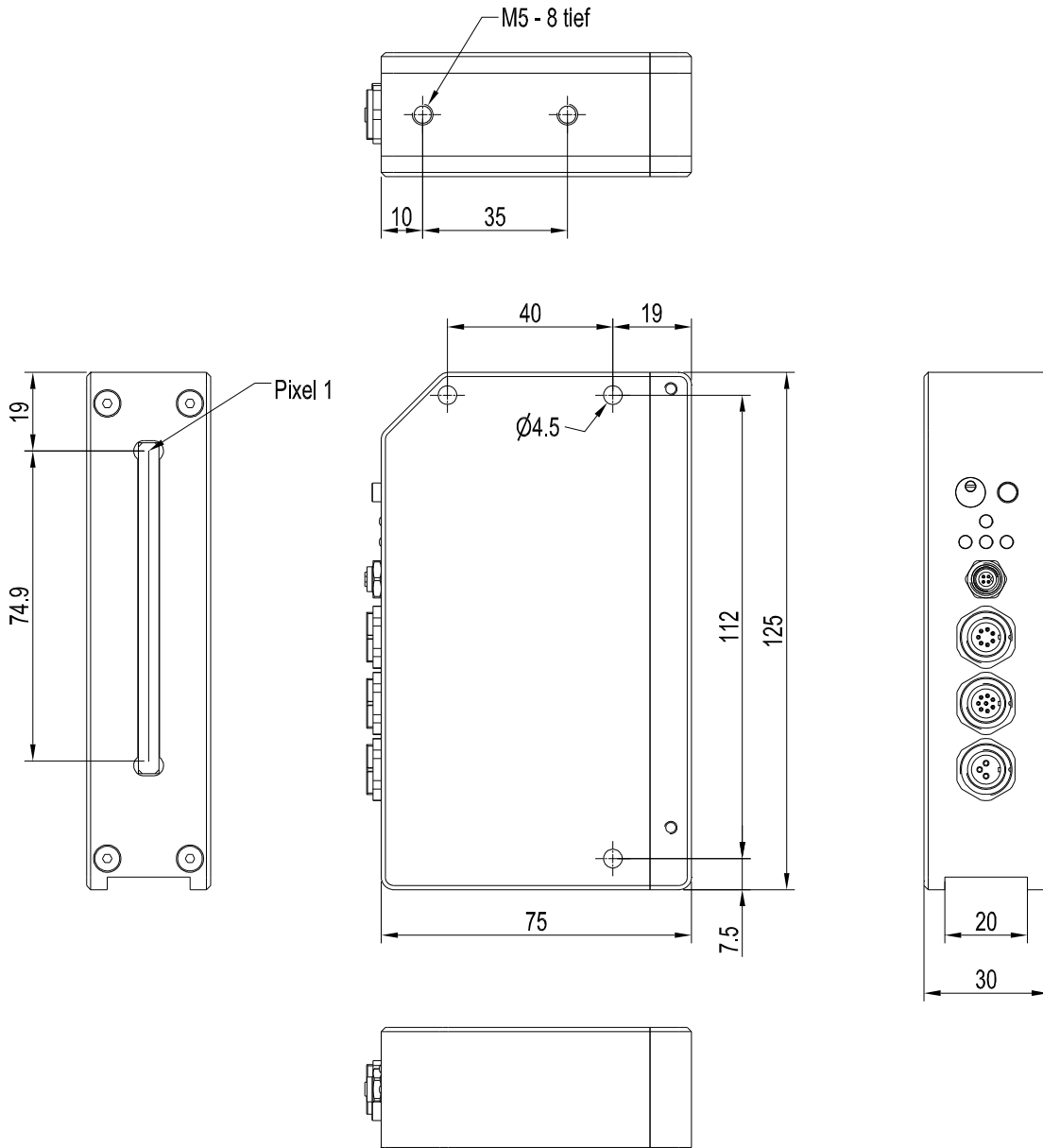


All dimensions in mm



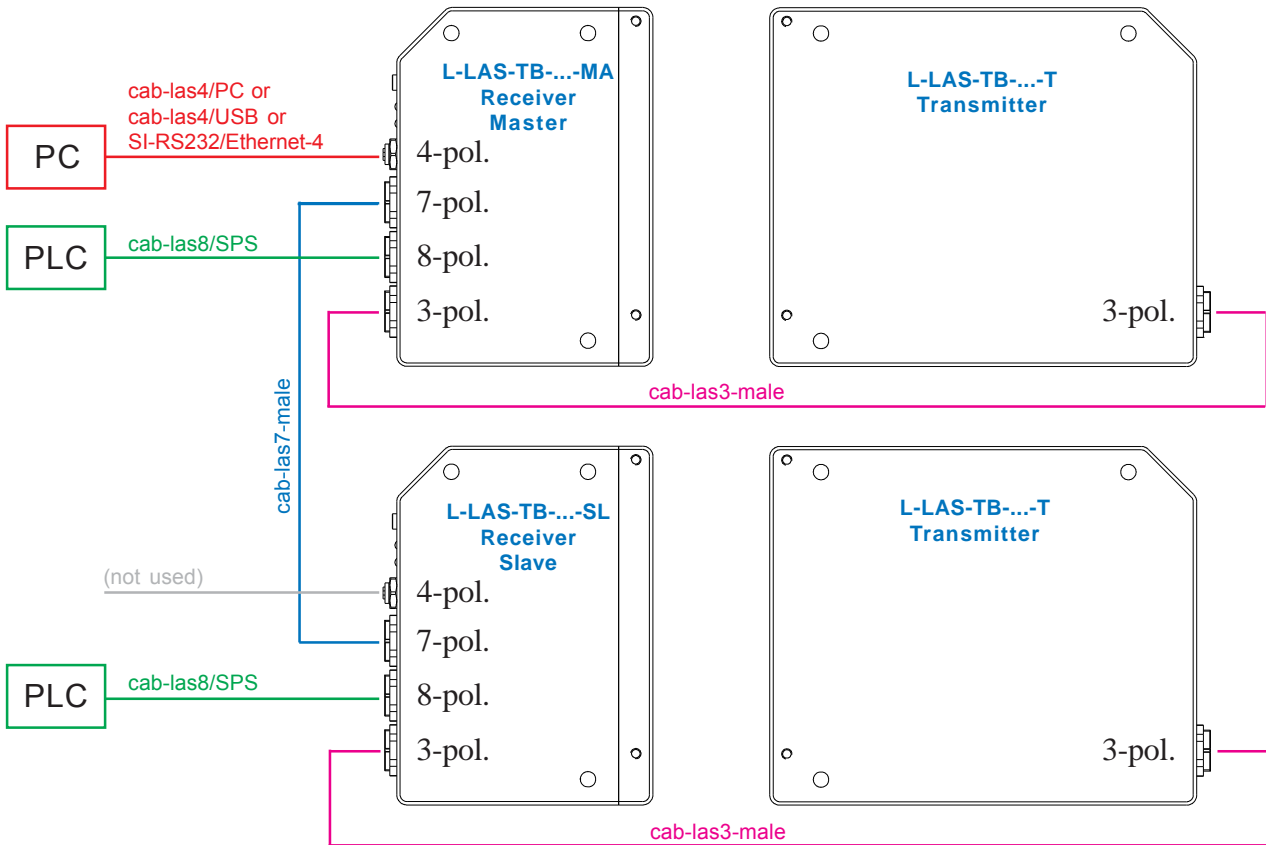
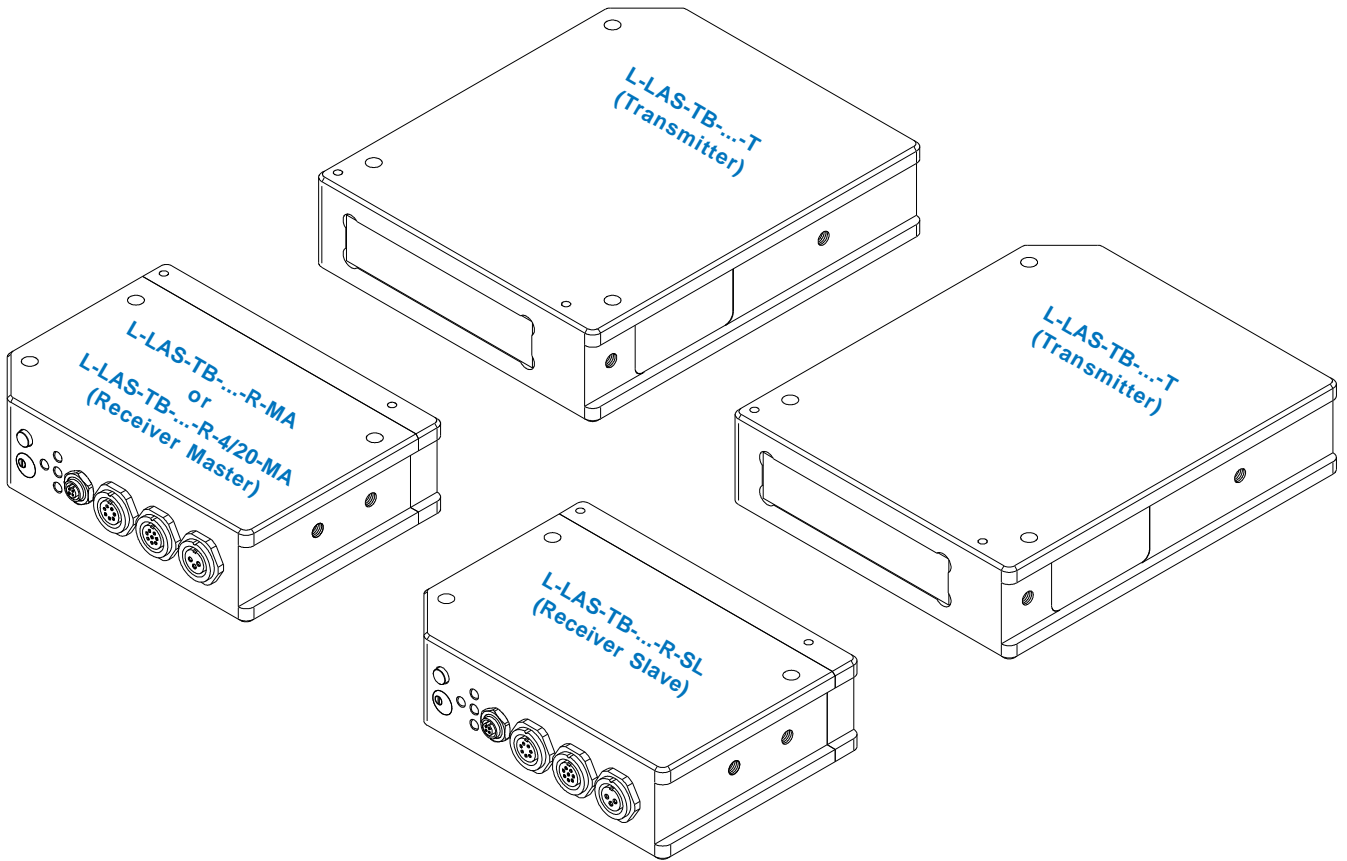
Dimensions

L-LAS-TB-75-R-MA (L-LAS-TB-75-R-4/20-MA)  
 L-LAS-TB-75-R-SL  
 (Receiver Master or Receiver Slave)



All dimensions in mm

Connection Scheme



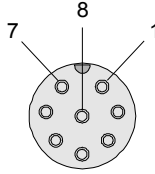


## Connector Assignment

### Connection L-LAS-TB-...-R-MA (or L-LAS-TB-R-4/20-MA) to PLC: 8-pole fem. connector Binder Series 712

Pin:	(Color of wire:)	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	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)

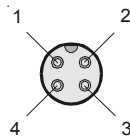
### Connection L-LAS-TB-...-R-SL to PLC: 8-pole fem. connector Binder Series 712

Pin:	(Color or wire:)	Assignment:
1	white	GND (0V)
2	brown	+24VDC ( $\pm 10\%$ )
3	green	(not used)
4	yellow	(not used)
5	grey	(not used)
6	pink	(not used)
7	blue	(not used)
8	red	(not used)

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

### Connection L-LAS-TB-...-R-MA (or L-LAS-TB-R-4/20-MA) to PC: 4-pole female connector Binder Series 707

Pin:	Assignment:
1	+24VDC (+Ub, OUT)
2	GND (0V)
3	Rx0
4	Tx0



#### 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-las4/USB-(length)  
cab-las4/USB-w-(length) (angle type 90°)  
(standard length 2m)

#### alternative:

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

Adapter (based on Lantronix XPortModul):  
SI-RS232/Ethernet-4-(length)  
(standard length 2m)

### Connection L-LAS-TB-...-R-MA (or L-LAS-TB-R-4/20-MA) and L-LAS-TB-...-R-SL (SPI data transfer): 2x 7-pole fem. connectors Binder Series 712

Pin:	Assignment MASTER:	Pin:	Assignment SLAVE:
1	GND (0V)	1	GND (0V)
2	+3.3VDC (OUT)	2	+3.3VDC (IN)
3	SS\ (Slave Select)	3	SS\ (Slave Select)
4	MISO (Master In Slave Out)	4	MISO (Master In Slave Out)
5	MOSI (Master Out Slave In)	5	MOSI (Master Out Slave In)
6	CLK	6	CLK
7	+3.3VDC (IN)	7	+3.3VDC (OUT)

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

### Connection L-LAS-TB-...-R-MA and L-LAS-TB-...-T and Connection L-LAS-TB-...-R-SL and L-LAS-TB-...-T: 2x 3-pole fem. connectors Binder Series 712

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

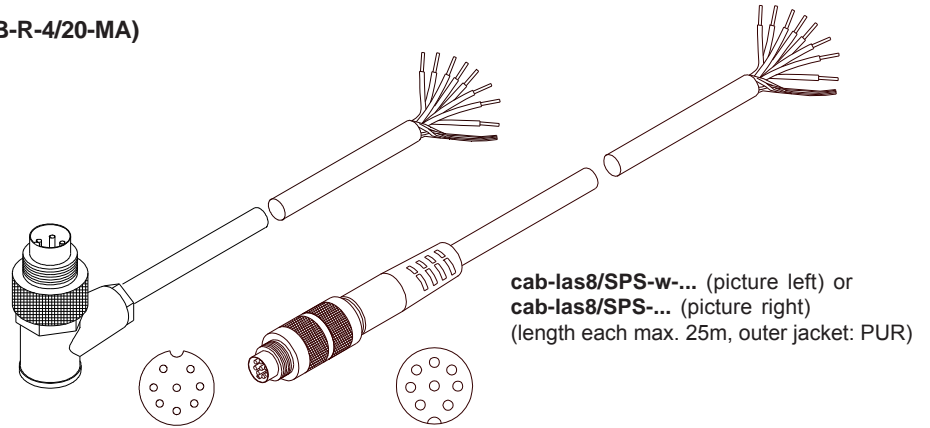
Connecting cable:  
cab-las3-male-(length)  
cab-las3-male-w-(length)  
(standard length 2m)



Connecting Cables

Connection L-LAS-TB-...-R-MA (or L-LAS-TB-R-4/20-MA)  
to PLC:

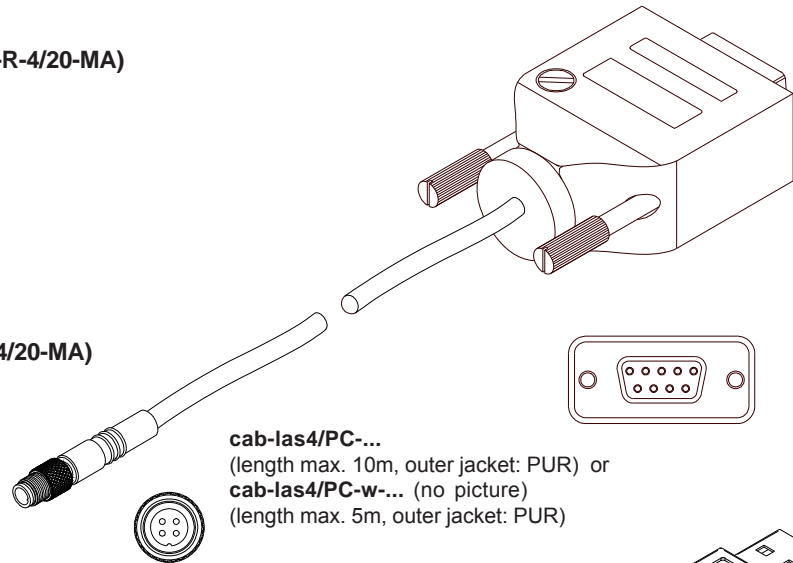
Connecting cable:  
cab-las8/SPS-(length) or  
cab-las8/SPS-w-(length) (angle type 90°)  
(standard length: 2m)



**cab-las8/SPS-w-...** (picture left) or  
**cab-las8/SPS-...** (picture right)  
(length each max. 25m, outer jacket: PUR)

Connection L-LAS-TB-...-R-MA (or L-LAS-TB-R-4/20-MA)  
to PC via RS232 interface:

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

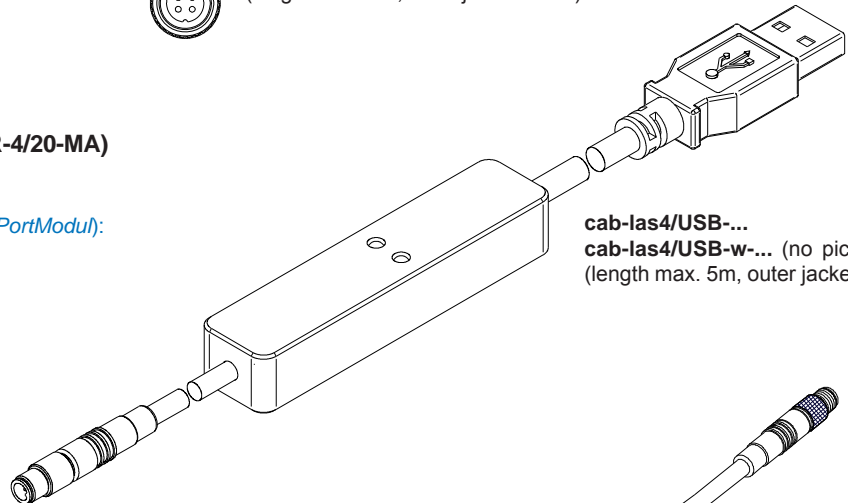


**cab-las4/PC-...**  
(length max. 10m, outer jacket: PUR) or  
**cab-las4/PC-w-...** (no picture)  
(length max. 5m, outer jacket: PUR)

**alternative:**

Connection L-LAS-TB-R-MA (or L-LAS-TB-R-4/20-MA)  
to PC via USB-interface:

Connecting cable:  
cab-las4/USB-(length)  
cab-las4/USB-w-(length)  
(incl. driver software)  
(standard length: 2m)

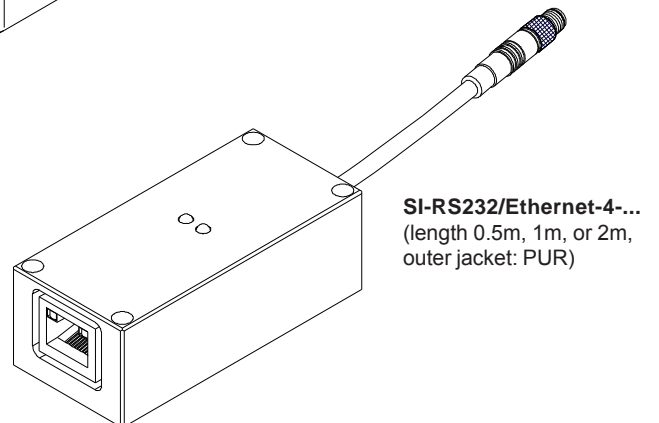


**cab-las4/USB-...**  
**cab-las4/USB-w-...** (no picture)  
(length max. 5m, outer jacket: PUR)

**alternative:**

Connection L-LAS-TB-R-MA (or L-LAS-TB-R-4/20-MA)  
to PC to local network via Ethernet bus:

Connecting cable/Adapter (based on Lantronix XPortModul):  
SI-RS232/Ethernet-4-(length)  
(standard length 2m)



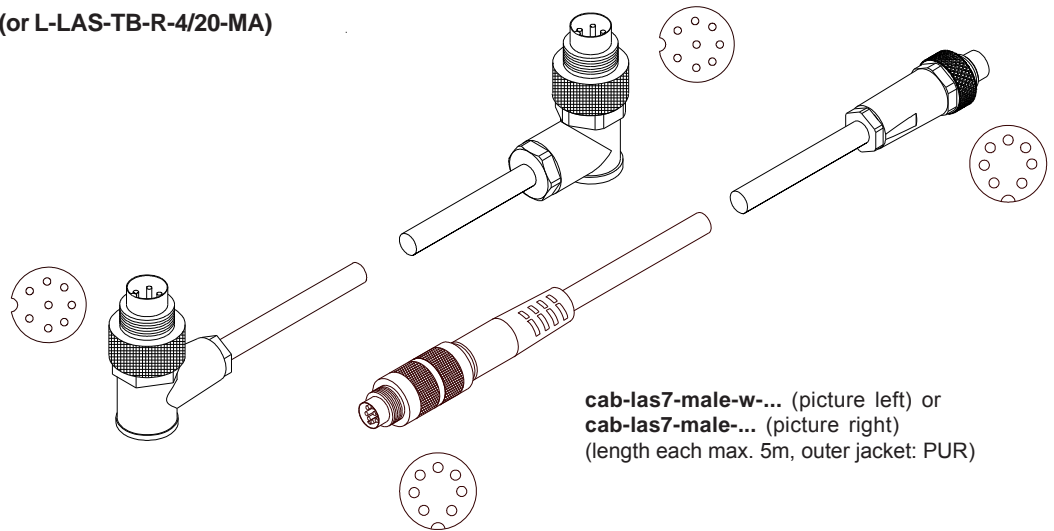
**SI-RS232/Ethernet-4-...**  
(length 0.5m, 1m, or 2m,  
outer jacket: PUR)



Connecting Cables

Connection L-LAS-TB-...-R-MA (or L-LAS-TB-R-4/20-MA)  
to L-LAS-TB-R-SL:

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

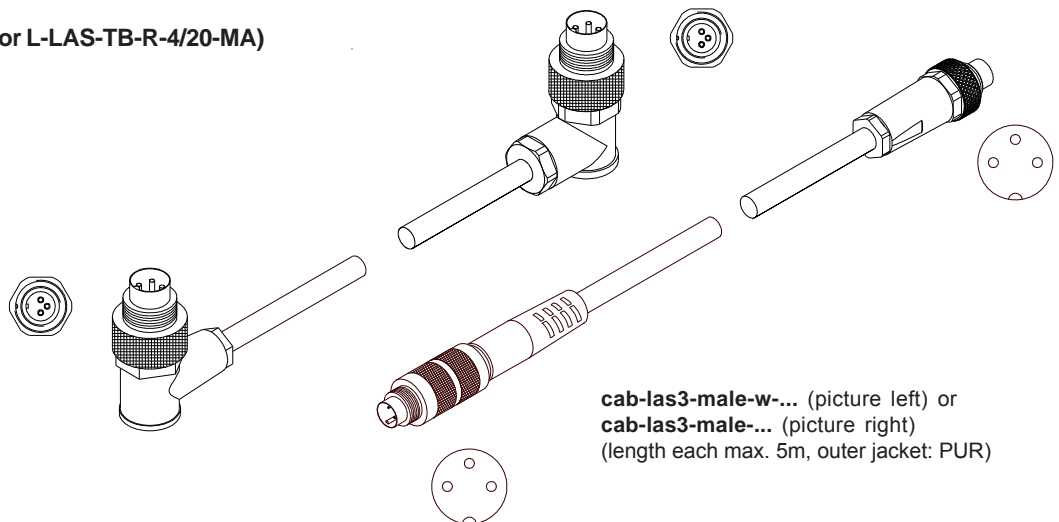


Connection L-LAS-TB-...-R-MA (or L-LAS-TB-R-4/20-MA)  
to L-LAS-TB-...-T

and

Connection L-LAS-TB-...-R-SL  
to L-LAS-TB-...-T:

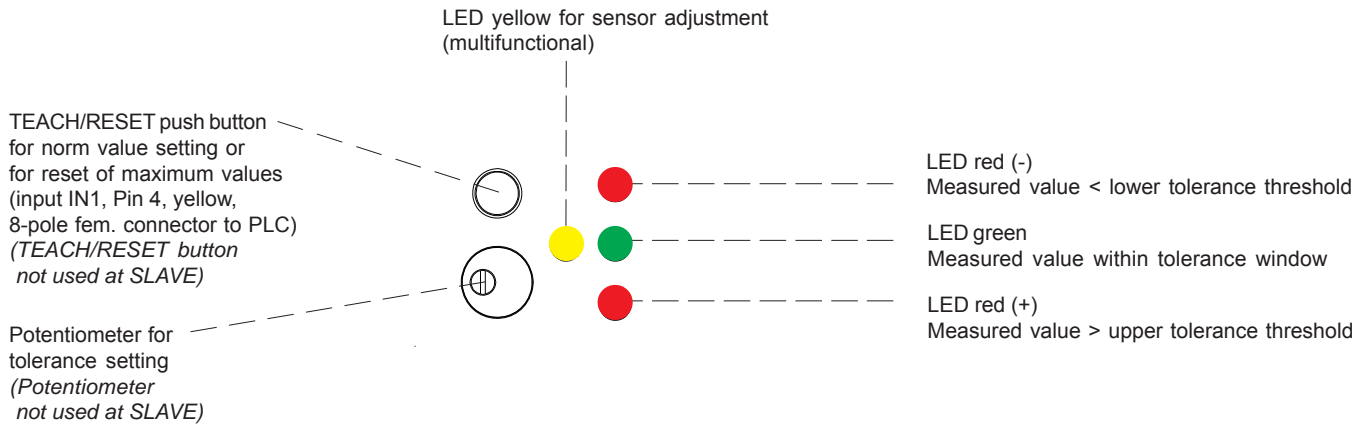
Connecting cable:  
cab-las3-male-(length)  
cab-las3-male-w-(length)  
(standard length 2m)







**LED Display**



**Laser Warning**

The laser transmitter of L-LAS-TB Series comply with laser class 1 according to EN 60825-1. The accessible laser radiation is harmless under reasonably foreseeable conditions. The reasonably foreseeable conditions are kept during correct 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 a laser warning label type „CLASS 1 LASER PRODUCT“.

**CLASS 1 Laser Product**

DIN EN 60825-1: 2008-05

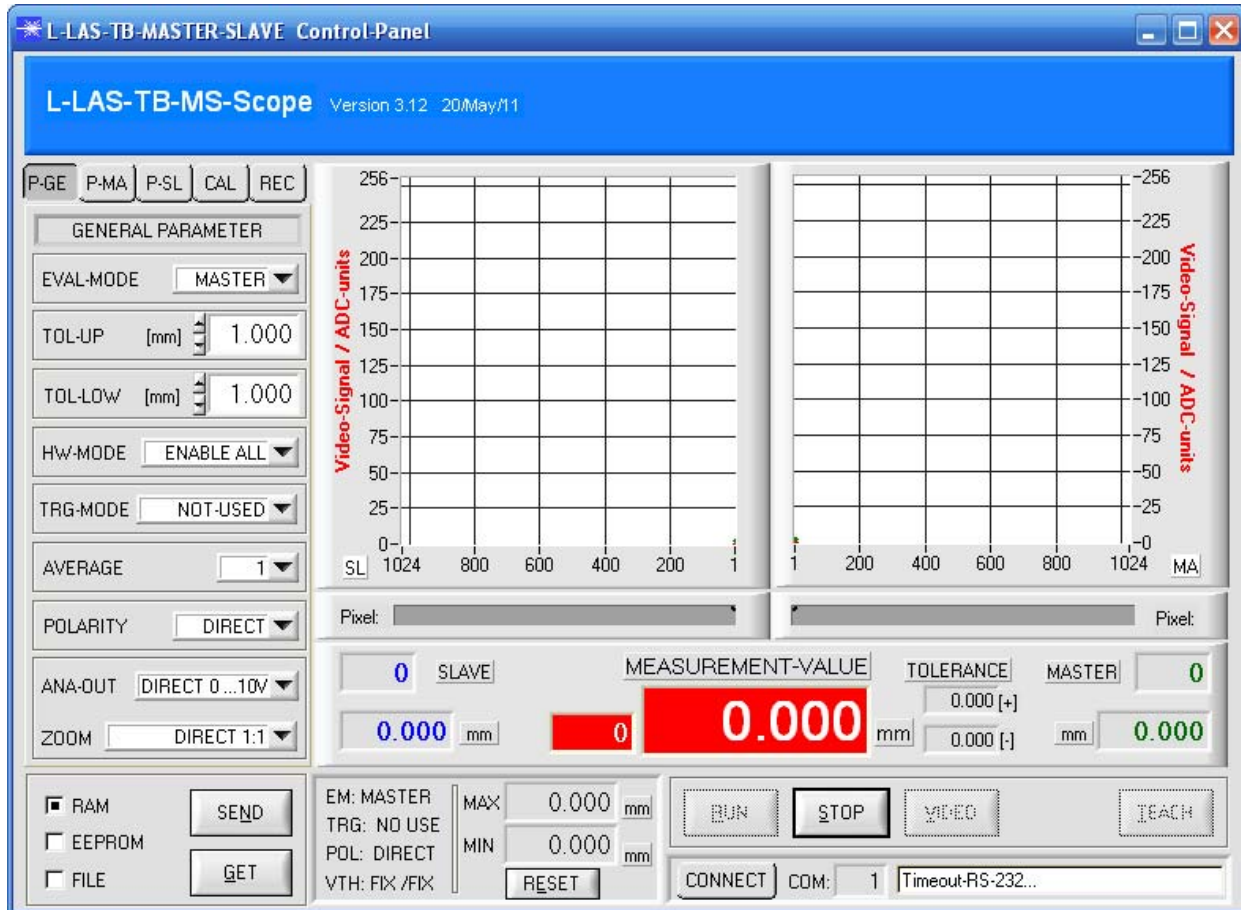


## Parameterization

### Windows® software L-LAS-TB-MS-Scope:

The L-LAS-TB-...-MS 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-las4/USB). When parameterisation is finished, the PC can be disconnected again.

#### Windows® user interface:



With the help of the L-LAS-TB-MS-Scope software the following settings can be made at the sensor:

- Visualization of the measuring data in numerical and graphic form
- Setting of laser power for the respective laser transmitter
- Polarity adjustment of digital outputs OUT0, OUT1, and OUT2
- Different evaluation modes to choose from
- Setting of norm value and tolerance band width
- Storage of parameters in the RAM, EEPROM store at the electronic control unit or to a configuration file at the hard disk of the PC



**Accessories**
**Mounting plate, suitable for**

**Master (L-LAS-TB-75-R-MA or L-LAS-TB-75-R-4/20-MA) + Transmitter (L-LAS-TB-75-T)**  
**Slave (L-LAS-TB-75-R-SL) + Transmitter (L-LAS-TB-75-T)**

(please order mounting plates separately)

**Product name:**

**TRA-L-LAS-TB-L100** (transmitter/receiver distance 100 mm)

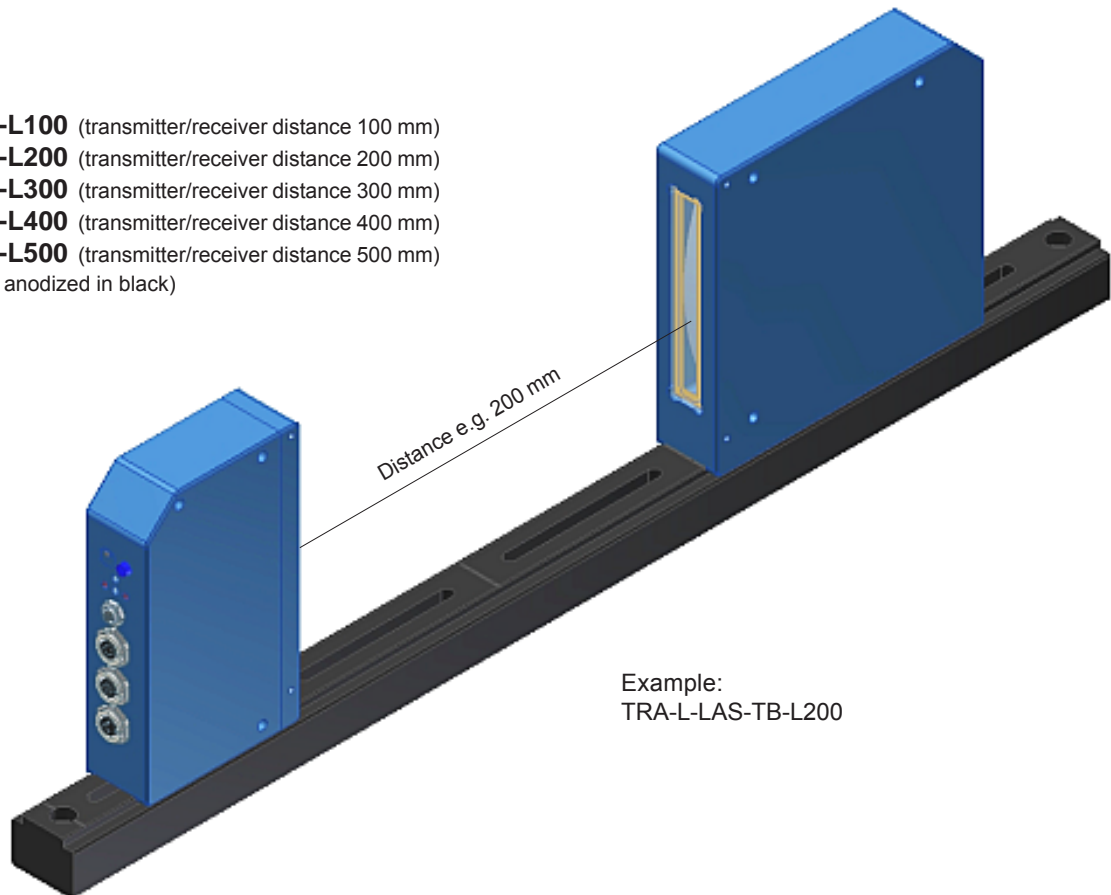
**TRA-L-LAS-TB-L200** (transmitter/receiver distance 200 mm)

**TRA-L-LAS-TB-L300** (transmitter/receiver distance 300 mm)

**TRA-L-LAS-TB-L400** (transmitter/receiver distance 400 mm)

**TRA-L-LAS-TB-L500** (transmitter/receiver distance 500 mm)

(aluminum housing, anodized in black)

**Blast air top-part, suitable for**

**L-LAS-TB-75-R-MA**

**L-LAS-TB-75-R-4/20-MA**

**L-LAS-TB-75-R-SL**

**L-LAS-TB-75-T**

(please order blast air top-parts separately  
for Master, Slave and Transmitters)

**Product name:**

**ABL-75**

(plastic housing, black)

