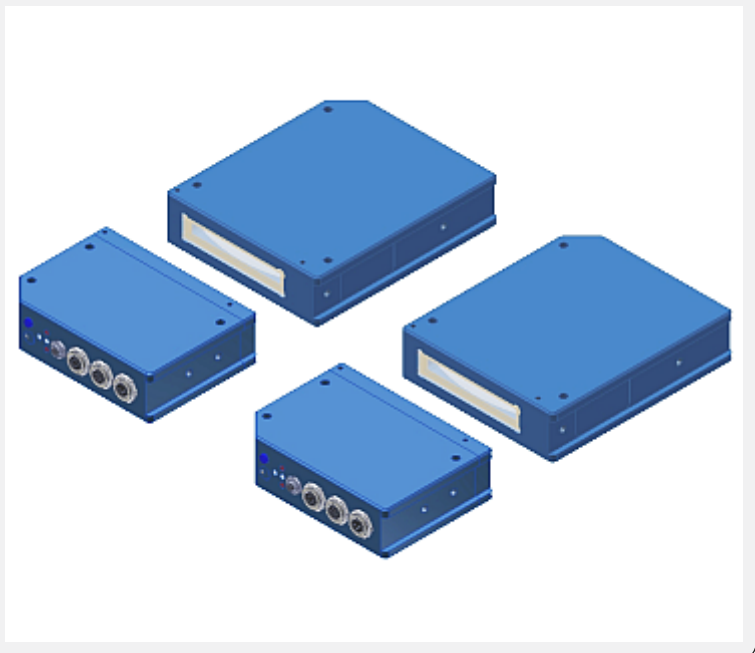


L-LAS Series

► L-LAS-TB-50-...-MA /-SL (Master/Slave)

- Line laser 670 nm, < 0.39 mW, class 1 laser product
- Visible red laser line, typ. 50 mm light curtain
- Measuring range Master + Slave each typ. 48 mm
- Resolution Master + Slave each typ. 8 µm
- Transmitter/receiver distance max. 2000 mm
- Integrated interference filter
- CCD line detector with 768 pixel (6144 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:

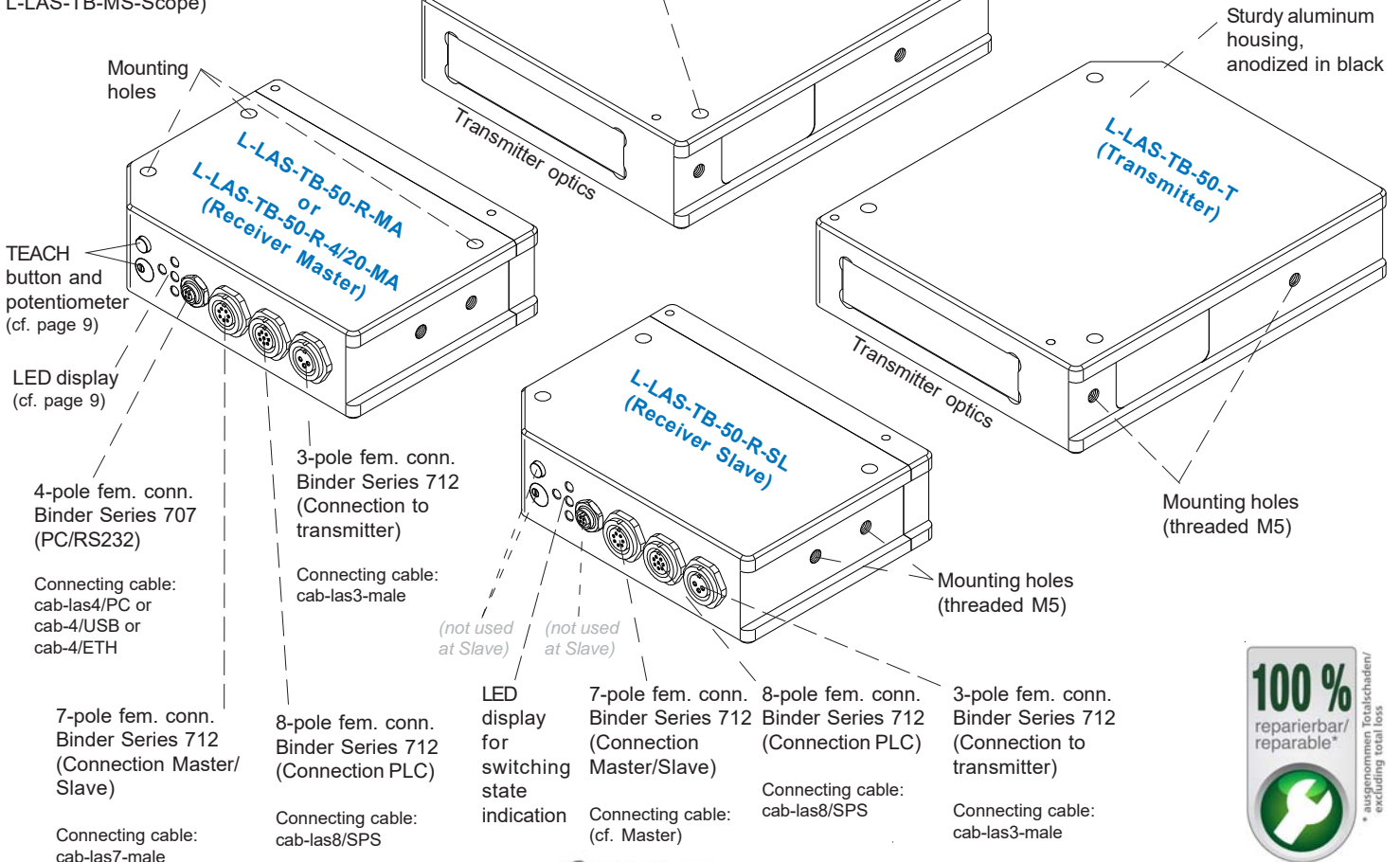
- L-LAS-TB-50-R-MA** (Master, 0...+10V)
- L-LAS-TB-50-R-4/20-MA** (Master, 4...20mA)
- L-LAS-TB-50-R-SL** (Slave)
- L-LAS-TB-50-T** (Transmitter)
(incl. Windows® PC software
L-LAS-TB-MS-Scope)

Accessories:

 (cf. page 11)

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

- (Mounting plate)
- ABL-50**
(Blast air top-part)



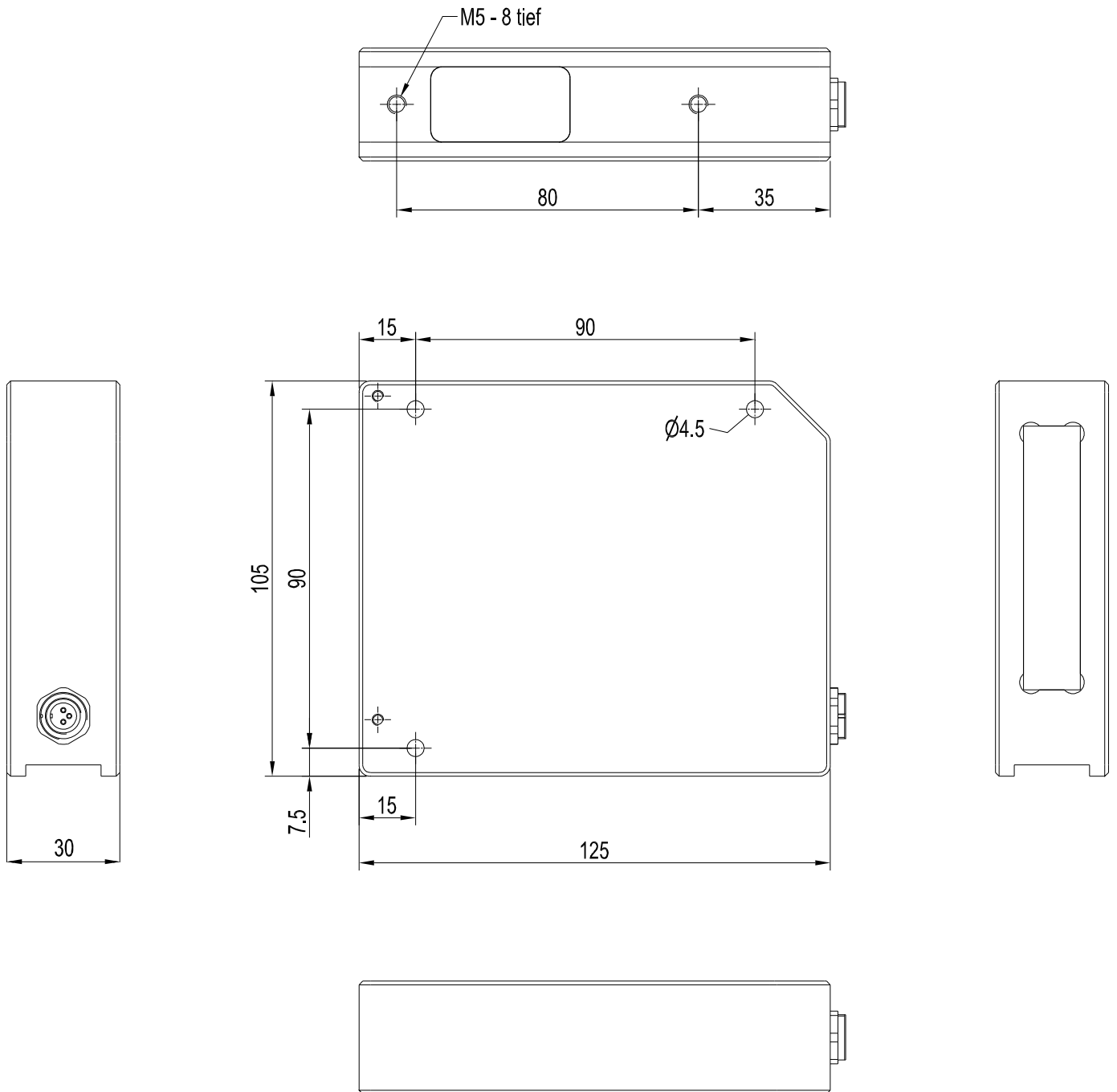


Technical Data

Model	L-LAS-TB-50-R-MA, L-LAS-TB-50-R-SL, L-LAS-TB-50-T	L-LAS-TB-50-R-4/20-MA, L-LAS-TB-50-R-SL, L-LAS-TB-50-T
Laser	Semi-conductor laser, 670 nm, DC operation, 0.39 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. 48 mm	
Resolution	MA and SL: each typ. 8 µm	
Reproducibility	MA and SL: each typ. ± 8 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.)/nnp dark-switching (nnp n.o.) or pnp dark-switching (pnp n.o.)/nnp bright-switching (nnp 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 black	
Housing dimensions	Transmitter: LxWxH approx. 125 mm x 105 mm x 30 mm (without flange connectors) Receiver Master or Slave: LxWxH approx. 75 mm x 105 mm x 30 mm (without flange connectors)	
Connectors: Receiver Master or Receiver Slave	8-pole fem. connector type Binder 712 (PLC/Power) 4-pole M5 fem. connector type Binder 707 (PC/RS232) 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-4/USB or cab-4/ETH-500 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	max. 1 kHz	
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-50-T
(Transmitter)

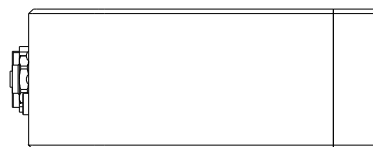
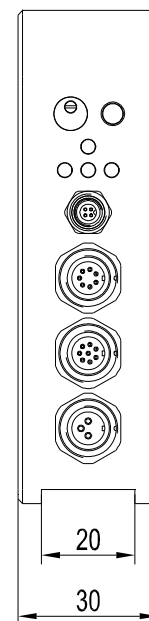
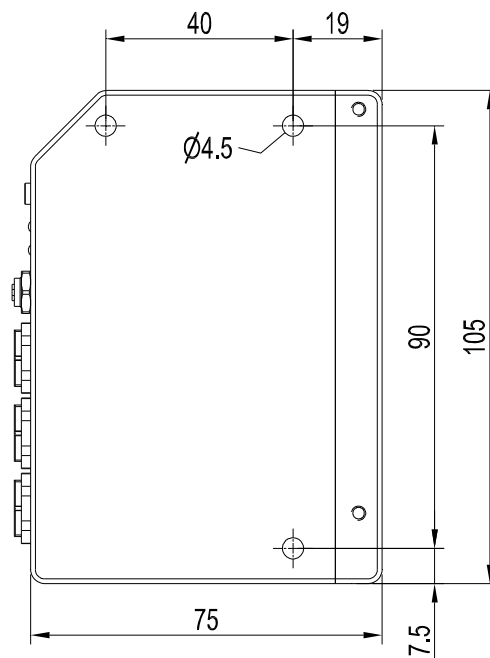
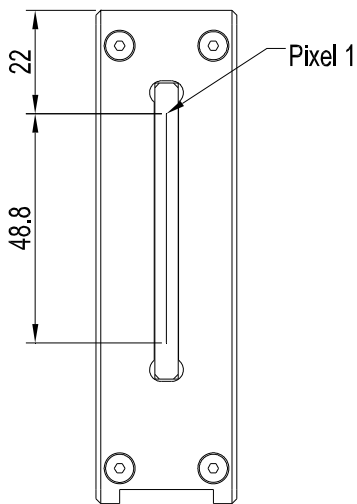
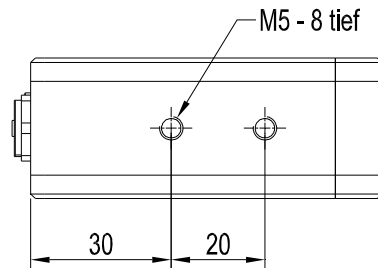


All dimensions in mm



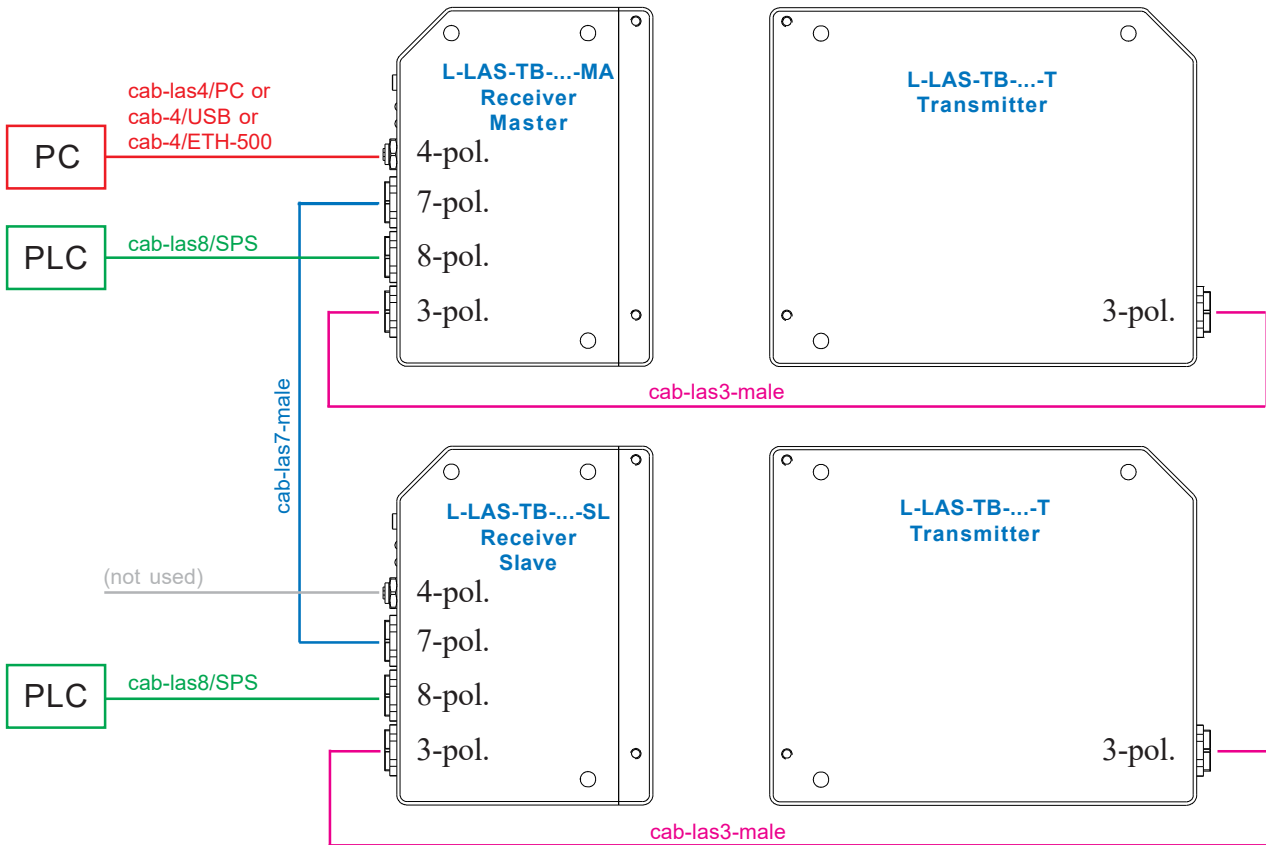
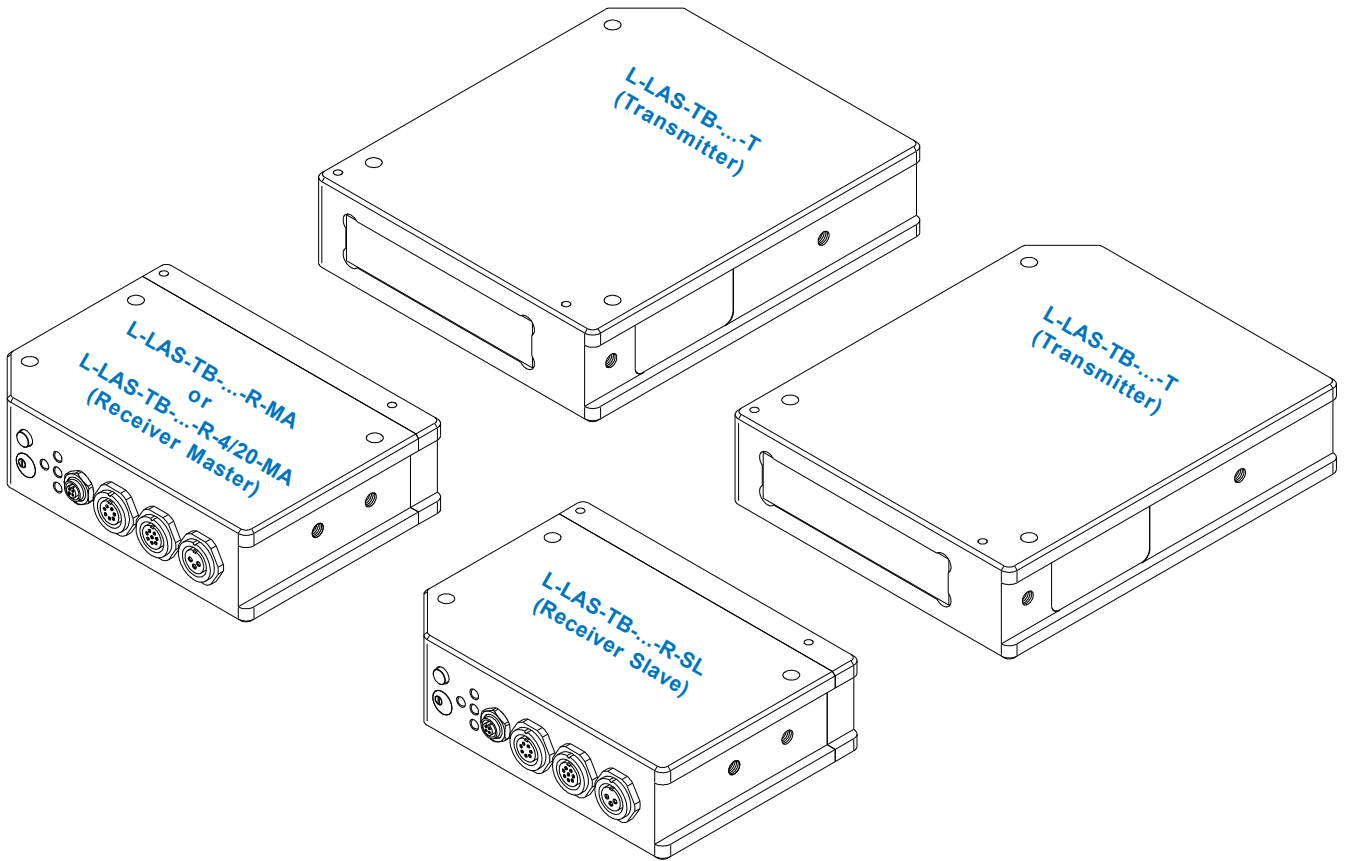
Dimensions

L-LAS-TB-50-R-MA (L-LAS-TB-50-R-4/20-MA)
 L-LAS-TB-50-R-SL
 (Receiver Master or Receiver Slave)



All dimensions in mm

Connection Scheme



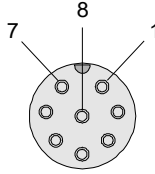


Connector Assignment

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)

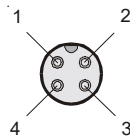
Connection L-LAS-TB-...-R-SL to PLC: 8-pole fem. connector Binder Series 712

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-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 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)

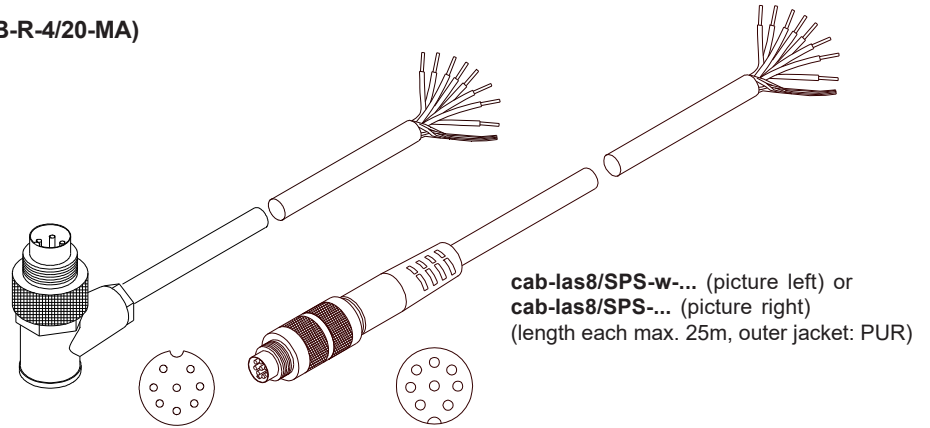
Connecting cable:
cab-las3-male-(length)
cab-las3-male-w-(length)
(standard length 2m)



Connecting Cables

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

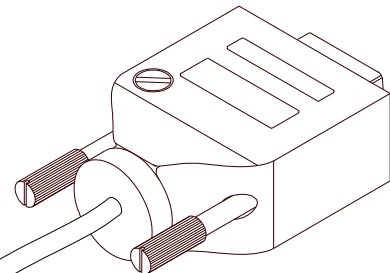
Connecting cable:
 cab-las8/SPS-(length) or
 cab-las8/SPS-w-(length) (angle type 90°)
 (standard length: 2m)



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

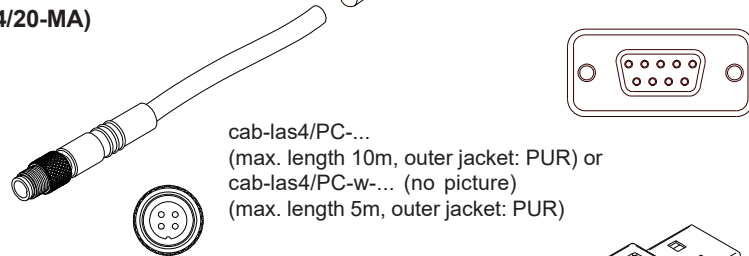
Connection L-LAS-TB-...-R-MA (or L-LAS-TB-R-4/20-MA) via RS232 interface at the PC:

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



alternative:
 Connection L-LAS-TB-R-MA (or L-LAS-TB-R-4/20-MA) 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)

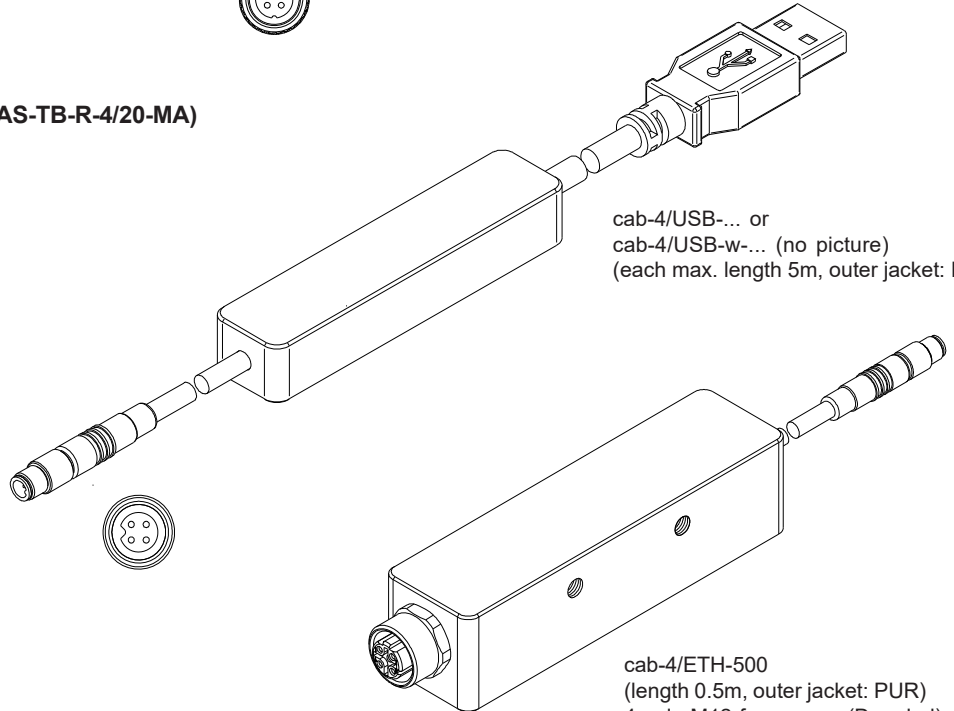


cab-las4/PC-...
 (max. length 10m, outer jacket: PUR) or
cab-las4/PC-w-... (no picture)
 (max. length 5m, outer jacket: PUR)

alternative:
 Connection L-LAS-TB-R-MA (or L-LAS-TB-R-4/20-MA) 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-4/USB-... or
cab-4/USB-w-... (no picture)
 (each max. length 5m, outer jacket: PUR)

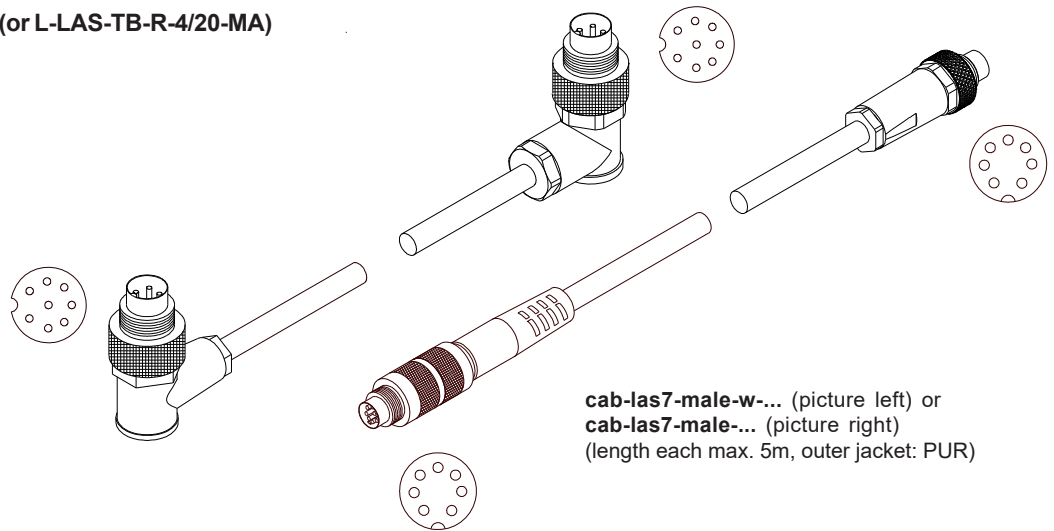
cab-4/ETH-500
 (length 0.5m, outer jacket: PUR)
 4-pole M12 fem. conn. (D-coded)
 for connection of an external
 CAT5 cable, e.g.
 cab-eth/M12D-RJ45-flx-(length)



Connecting Cables

Connection L-LAS-TB-...-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)



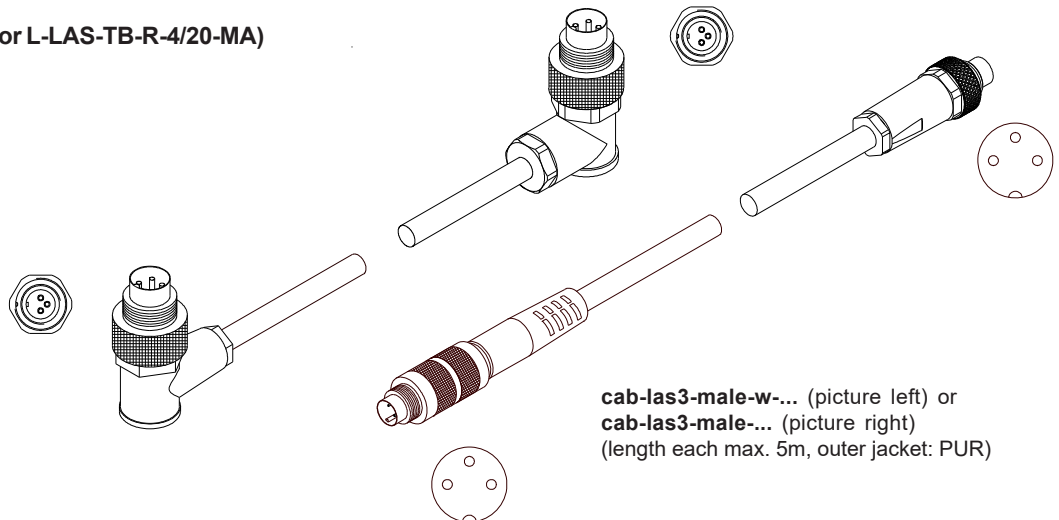
cab-las7-male-w-... (picture left) or
cab-las7-male-... (picture right)
(length each max. 5m, outer jacket: PUR)

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

and

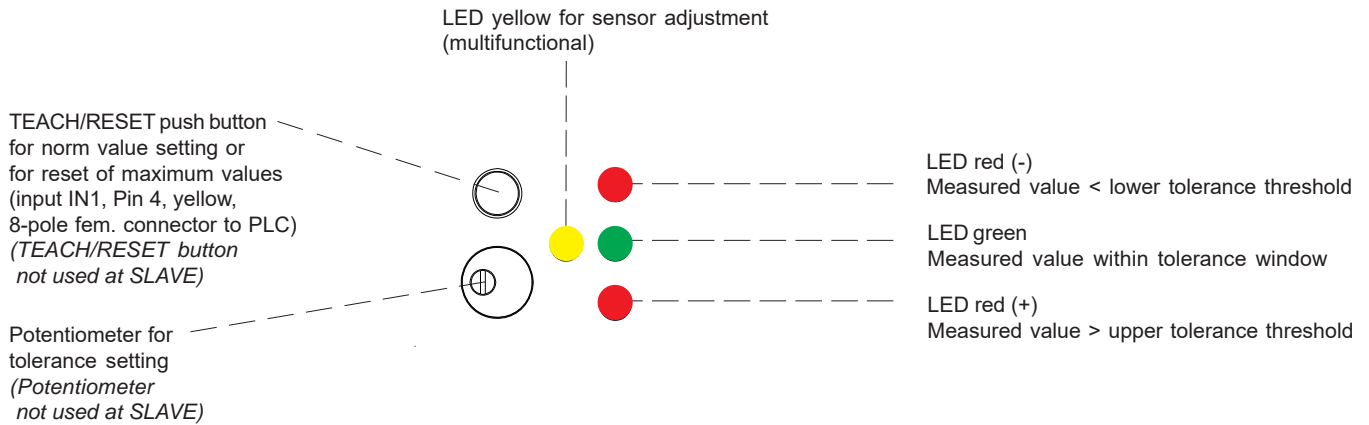
Connection L-LAS-TB-...-R-SL
to L-LAS-TB-...-T:

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



cab-las3-male-w-... (picture left) or
cab-las3-male-... (picture right)
(length each max. 5m, outer jacket: PUR)

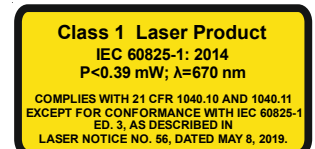
LED Display



Laser Information

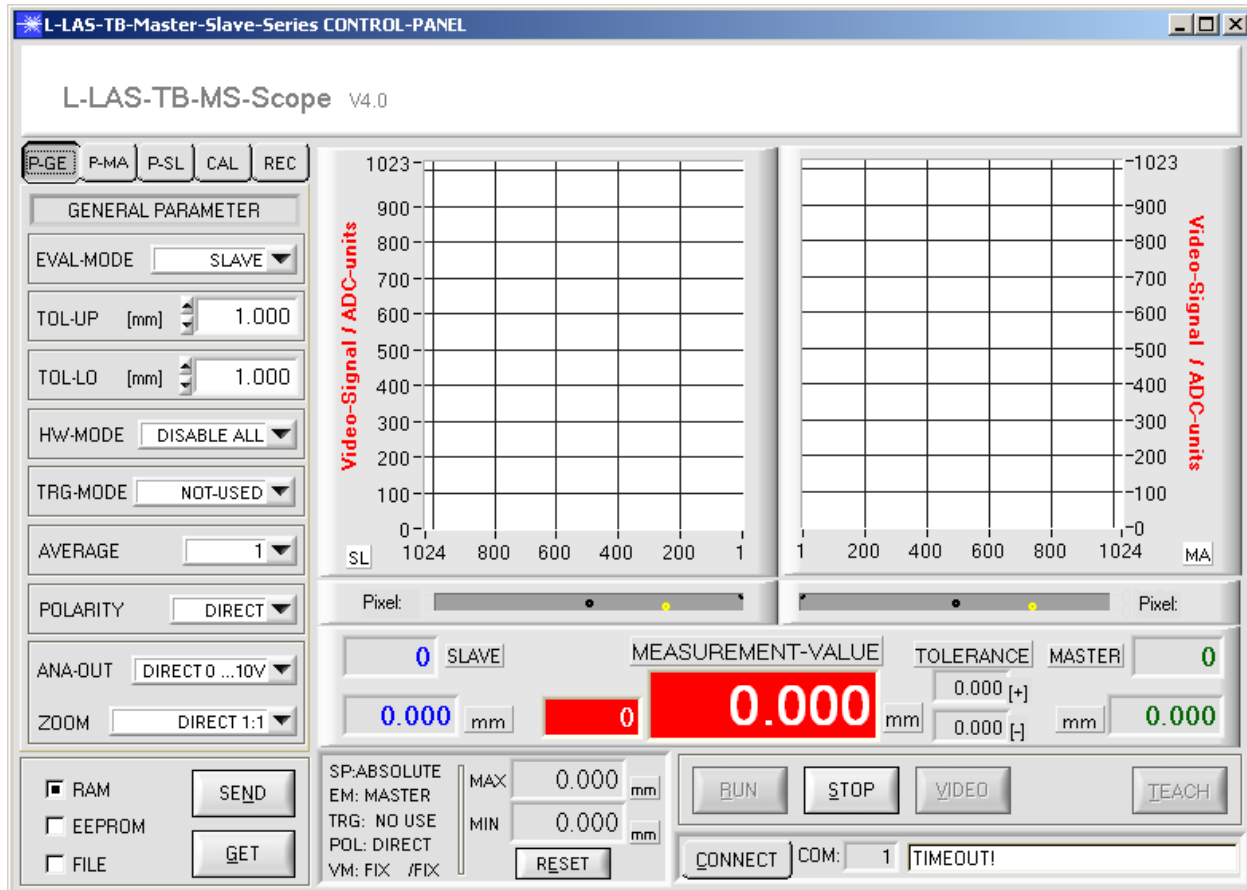
The laser transmitters of L-LAS-TB series comply with laser class 1 according to EN 60825-1. Under reasonably foreseeable conditions a class 1 laser is safe. The reasonably foreseeable conditions are kept during specified normal operation. The use of these laser transmitters therefore requires no additional protective measures.

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




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-4/USB or with the Ethernet adapter cab-4/ETH-500). 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-50-R-MA or L-LAS-TB-50-R-4/20-MA) + Transmitter (L-LAS-TB-50-T)
Slave (L-LAS-TB-50-R-SL) + Transmitter (L-LAS-TB-50-T)

(please order mounting plates separately)

TRA-L-LAS-TB-L100 (Total length traverse 400 mm, distance transmitter/receiver max. 100 mm)

TRA-L-LAS-TB-L200 (Total length traverse 500 mm, distance transmitter/receiver max. 200 mm)

TRA-L-LAS-TB-L300 (Total length traverse 600 mm, distance transmitter/receiver max. 300 mm)

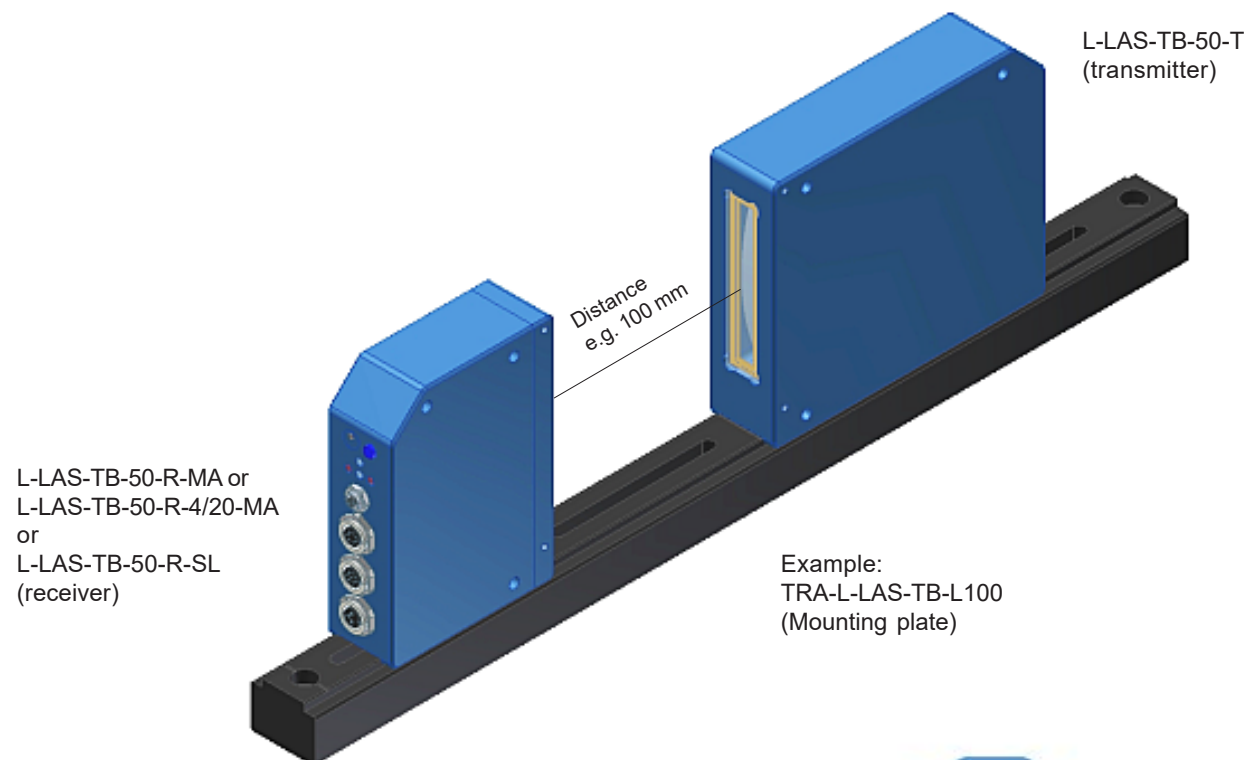
TRA-L-LAS-TB-L400 (Total length traverse 700 mm, distance transmitter/receiver max. 400 mm)

TRA-L-LAS-TB-L500 (Total length traverse 800 mm, distance transmitter/receiver max. 500 mm)

TRA-L-LAS-TB-L1000 (Total length traverse 1300 mm, distance transmitter/receiver max. 1000 mm)

TRA-L-LAS-TB-L1500 (Total length traverse 1800 mm, distance transmitter/receiver max. 1500 mm)

(Aluminium housing, anodized in black)

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

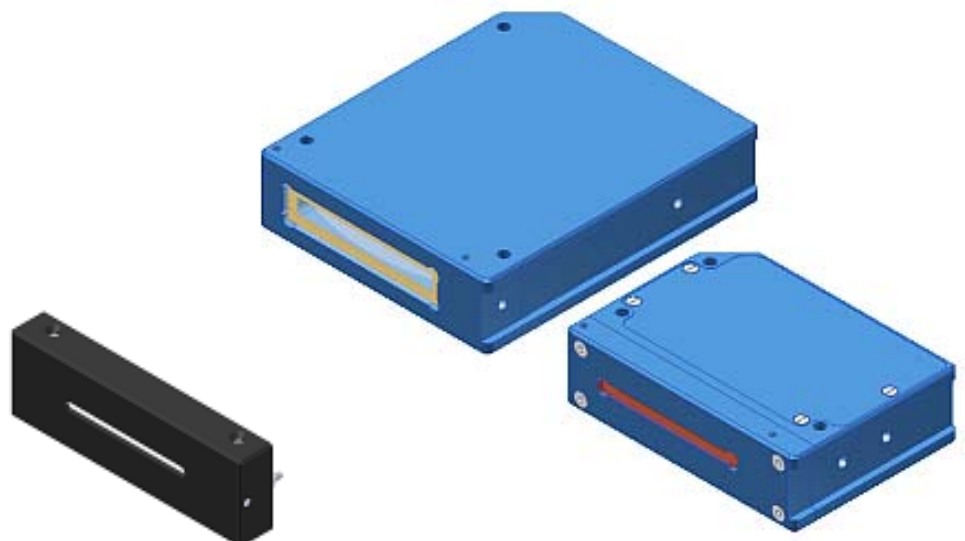
L-LAS-TB-50-R-MA

L-LAS-TB-50-R-4/20-MA

L-LAS-TB-50-R-SL

L-LAS-TB-50-T

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

**Product name:**

ABL-50

(plastic housing, black)