# **L-LAS** Series

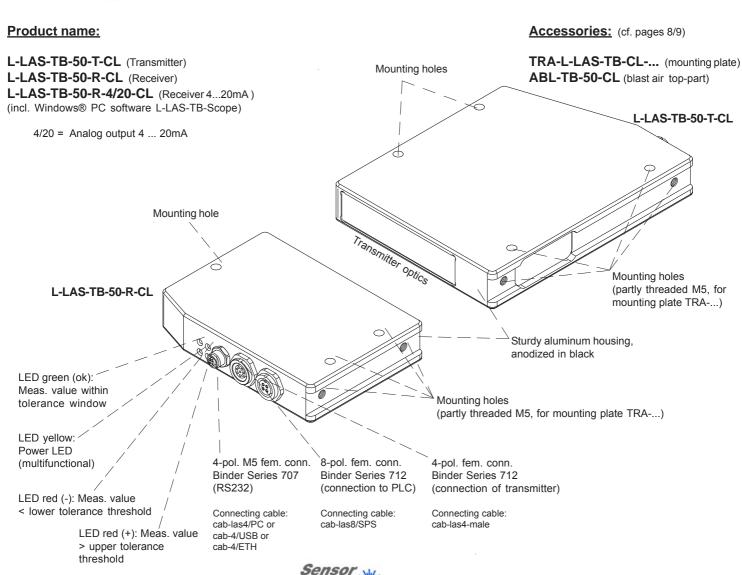
#### L-LAS-TB-50-CL

- Line laser <0.4 mW, wave length 670 nm, laser class 1
- Visible laser line, light curtain 50 mm
- Measuring range typ. 48 mm
- Resolution typ. 8 μm
- Working distance up to 2000 mm
- Integrated interference filter
- CCD line detector with 768 pixel, 6144 subpixel (8-fold)
- RS232 and Windows® user interface
- 2 digital inputs, 2 digital outputs
- Analog output 0 ...+10V, in case of -4/20 additionally 4 ... 20mA
- Switching state indication via 4 LEDs (2x red/grn, 2x yel/grn)
- Sturdy aluminum housing, for use in industry
- Scratch-resistant optics cover made of glass





#### Design



Instruments





# **Technical Data**

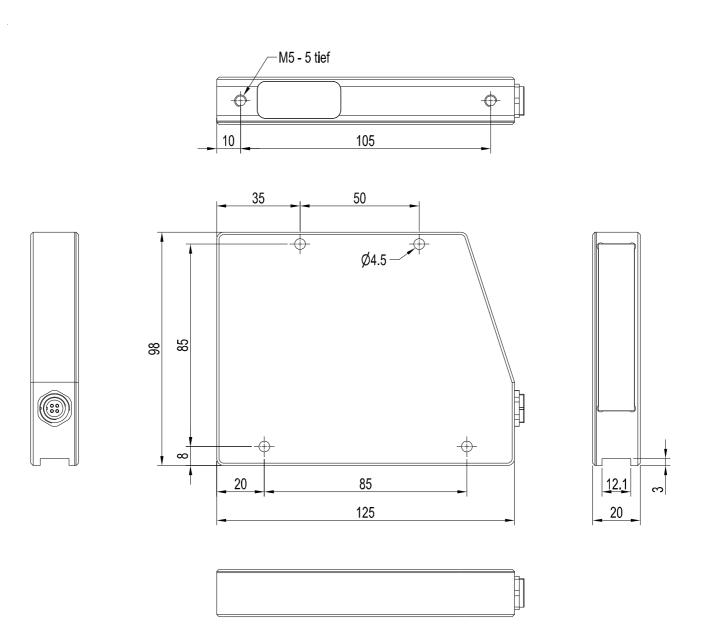
Model	L-LAS-TB-50-T-CL L-LAS-TB-50-R-CL	L-LAS-TB-50-T-CL L-LAS-TB-50-R-4/20-CL		
Laser	Semiconductor laser, 670 nm, DC operation, < 0.4 mW max. opt. power, laser class 1 acc. to DIN EN 60825-1. The use of these laser sensors therefore requires no additional protective measures.			
Working distance	distance transmitter/receiver: up to 2000 mm			
Measuring range	typ. 48 mm			
Resolution	typ. 8 µm			
Reproducibility	typ. ± 8 μm			
Linearity	typ. 0,15% FSR (full scale range)			
Optical filter	Interference filter			
Analog output (1x or 2x)	1x voltage output (0 +10V)	1x current output (4 20mA) 1x voltage output (0 +10V)		
Digital outputs (2x) (OUT0, OUT1)	OUT0: (-) Measuring value < lower tolerance threshold OUT1: (+) Measuring value > upper tolerance threshold pnp bright-switching/npn dark-switching or pnp dark-switching/npn bright-switching, adjustable under Windows®, 100 mA, short-circuit proof			
Digital inputs (2x) (IN0, IN1)	IN0: Extern 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	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. 125 mm x 98 mm x 20 mm (without flange connectors) receiver: LxWxH approx. 70 mm x 98 mm x 20 mm (without flange connectors)			
Connectors receiver	8-pole circular female connector type Binder 712 (PLC/Power) 4-pole M5 circular female connector type Binder 707 (RS232/PC) 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 LED green (ok): measuring value within tolerance window LED red (-): measuring value < lower tolerance threshold LED yellow: multifunctional			
EMC test acc. to	DIN EN 60947-5-2 <b>( €</b>			
Scan frequency	Normal Speed Modus (high resolution): max. 1 kHz Double Speed Modus (half resolution): max. 2 kHz 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 Connection to PLC: cab-las8/SPS or cab-las8/SPS-w Connecting cable transmitter/receiver: cab-las4-male			
Output polarity	bright/dark switching, can	be switched under Windows®		





**Dimensions** 

L-LAS-TB-50-T-CL (Transmitter)



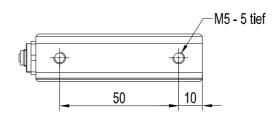
All dimensions in mm

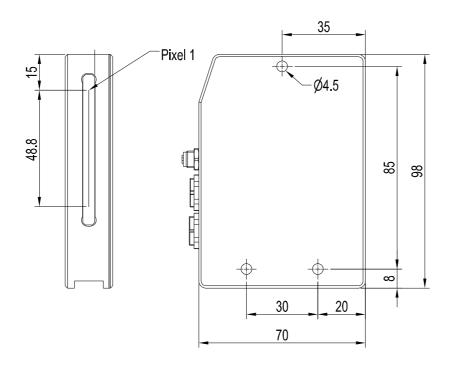


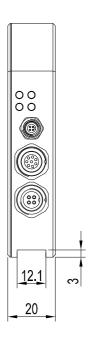


**Dimensions** 

L-LAS-TB-50-R-CL or L-LAS-TB-50-R-4/20-CL (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	GND (0V)
		or with type -4/20:
		ANA (current 4 20mA)
8	red	ANA (voltage 0 +10V)

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:

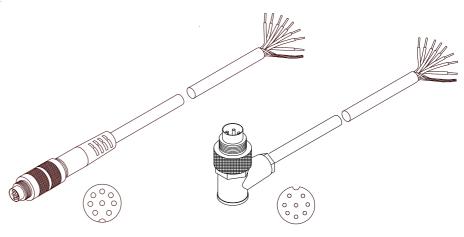
Adapter (incl. software "SensorFinder"): cab-4/ETH-500 (standard length 0.5m)



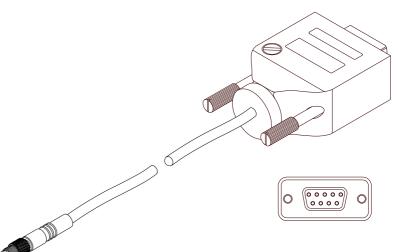
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cab-4/ETH-500 (length 0.5m, outer jacket: PUR) 4-pole M12 fem. conn. (D-coded) for connection of an external CAT5 cable, e.g. cab-eth/M12D-RJ45-flx-(length)

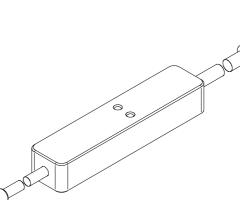
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cab-las8/SPS-... (max. length 25m, outer jacket: PUR) cab-las8/SPS-w-... (max. length 25m, outer jacket: PUR)



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)





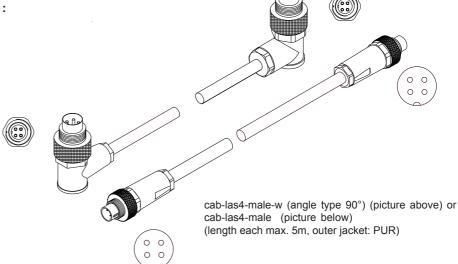
# **Connector Assignment**

Connection L-LAS-TB-...-T-CL with L-LAS-TB-...-R-CL (or L-LAS-TB-...-R-4/20-CL): 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)





## **LED Display**

# L-LAS-TB-50-R-CL: (Receiver) LED display: Power LED yellow: LED red (+): Power LED Measuring value (multifunctional) > upper tolerance threshold (OUT1) LED red (-): LED green (ok): Measuring value Measuring value within < lower tolerance threshold tolerance window (OUT0)

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



**Laser Warning** 

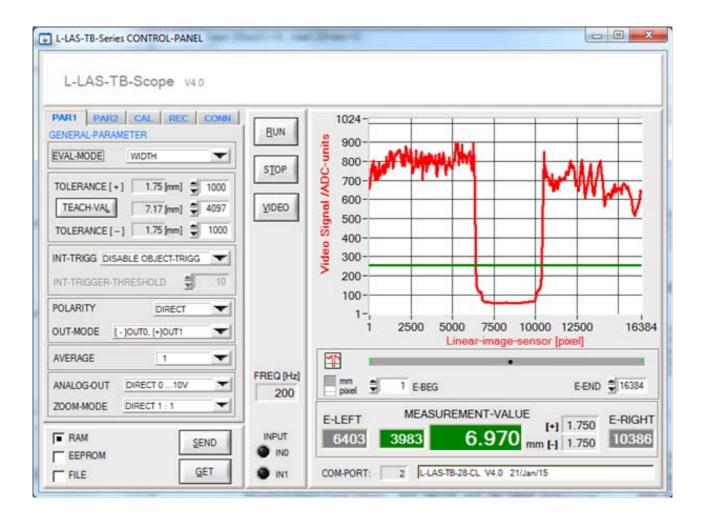


#### **Parameterization**

#### 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. 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.



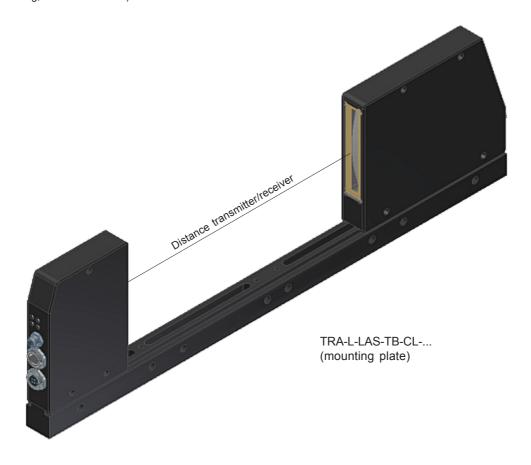


Accessories

# Mounting plate for L-LAS-TB-50-T-CL and L-LAS-TB-50-R-CL (respectively L-LAS-TB-50-R-4/20-CL):

(please order separately)

TRA-L-LAS-TB-CL-400 (total length 400 mm, max. transmitter/receiver distance cf. chart below)
TRA-L-LAS-TB-CL-600 (total length 600 mm, max. transmitter/receiver distance cf. chart below)
TRA-L-LAS-TB-CL-800 (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-400	TRA-L-LAS-TB-CL-600	TRA-L-LAS-TB-CL-800
L-LAS-TB-28-T-CL	max. distance T/R:	max. distance T/R:	max. distance T/R:
L-LAS-TB-28-R-CL	222 mm	422 mm	622 mm
L-LAS-TB-50-T-CL	max. distance T/R:	max. distance T/R:	max. distance T/R:
L-LAS-TB-50-R-CL	205 mm	405 mm	605 mm
L-LAS-TB-75-T-CL	max. distance T/R:	max. distance T/R:	max. distance T/R:
L-LAS-TB-75-R-CL	200 mm	400 mm	600 mm
L-LAS-TB-100-T-CL	max. distance T/R:	max. distance T/R:	max. distance T/R:
L-LAS-TB-100-R-CL	160 mm	360 mm	560 mm



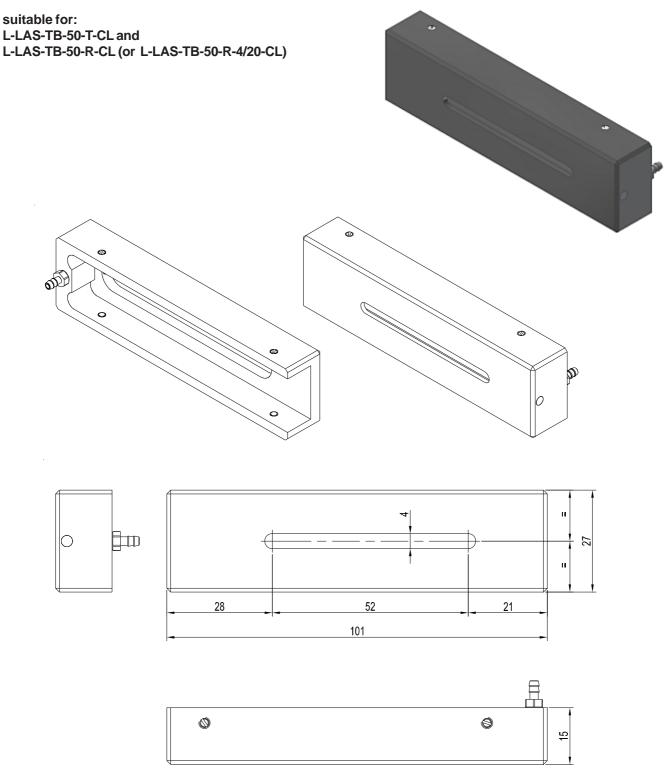


**Accessories** 

## Blast air top part:

#### ABL-TB-50-CL

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



All dimensions in  $\operatorname{mm}$ 

