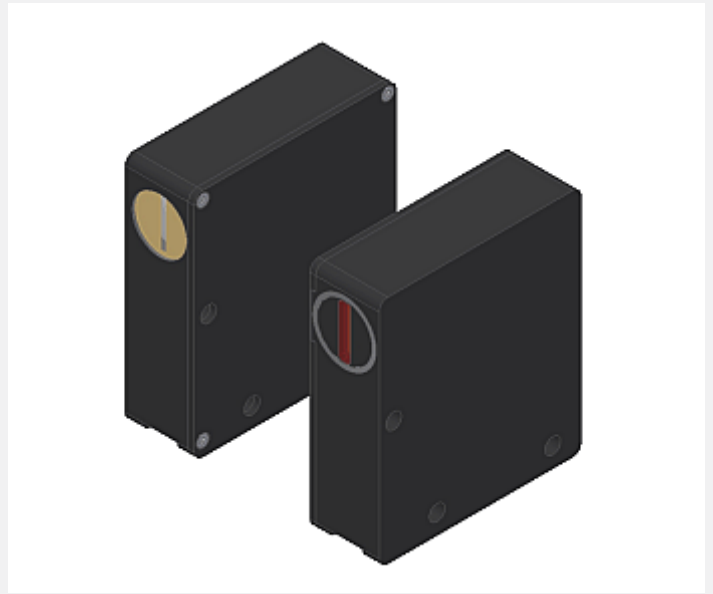


L-LAS Series

▶ L-LAS-TB-16x1-T-CL L-LAS-TB-16x1-R-CL (-R-4/20-CL)

- Line laser <0.4 mW, wave length 670 nm, laser class 1
- Visible laser line, typ. 16 mm x 1 mm
- Measuring range typ. 16 mm
- Resolution typ. 8 µm
- Working distance up to 2000 mm
- Integrated interference filter
- CCD line detector with 256 pixel, 2048 subpixel (8-fold)
- RS232 interface (USB or Ethernet converter is available)
- 2 digital inputs, 2 digital outputs
- 1 analog output (0 ... +10V),
with type 4/20: 2 analog outputs (0 ... +10V and 4 ... 20mA)
- Max. scan frequency selectable via software (2.5 kHz or 5 kHz)
- Switching state indication via 4 LEDs (1x grn, 2x red, 1x yel)



Design

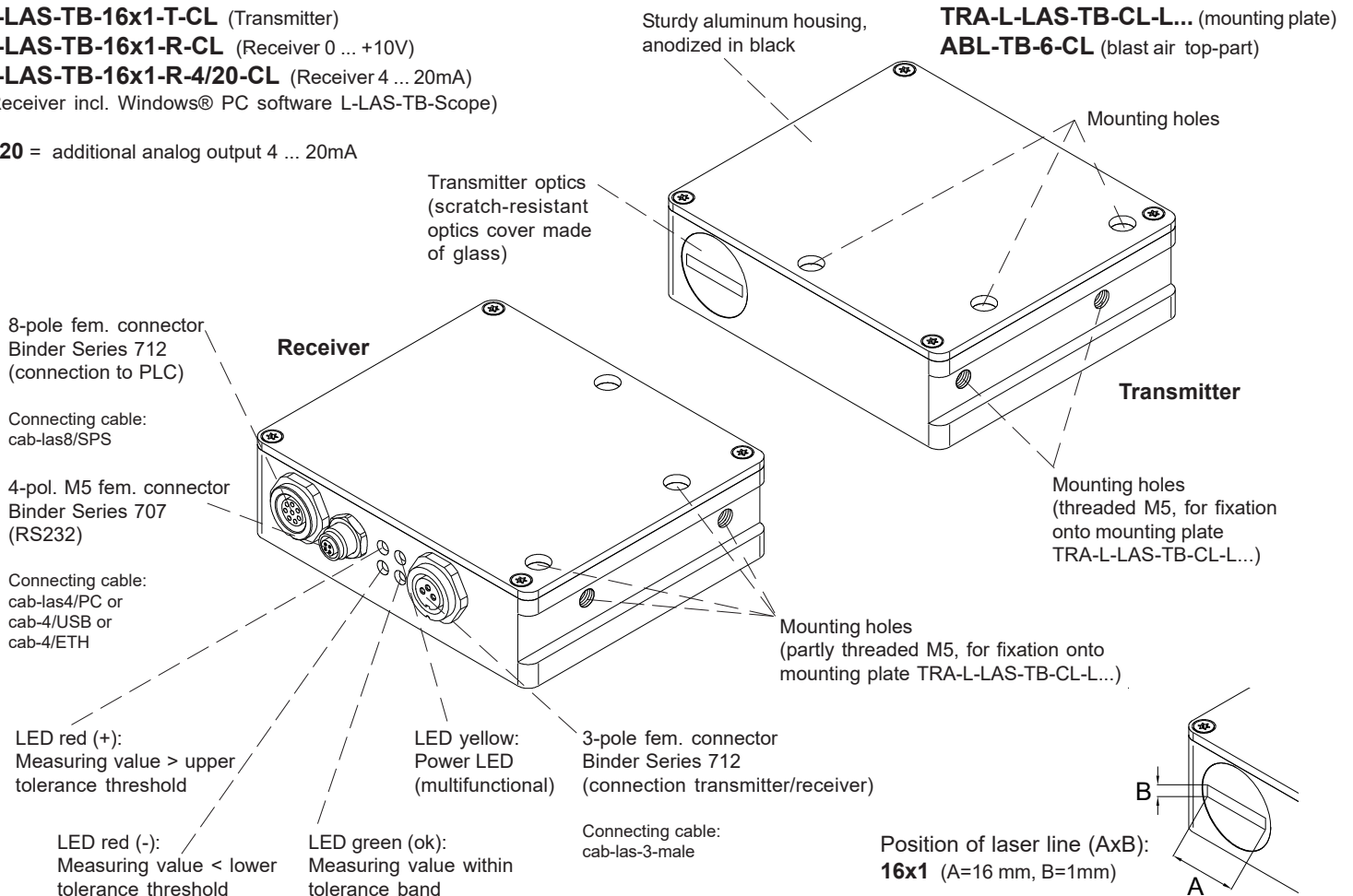
Product name:

- L-LAS-TB-16x1-T-CL** (Transmitter)
- L-LAS-TB-16x1-R-CL** (Receiver 0 ... +10V)
- L-LAS-TB-16x1-R-4/20-CL** (Receiver 4 ... 20mA)
(Receiver incl. Windows® PC software L-LAS-TB-Scope)

4/20 = additional analog output 4 ... 20mA

Accessories: (cf. pages 8/9)

- TRA-L-LAS-TB-CL-L...** (mounting plate)
- ABL-TB-6-CL** (blast air top-part)



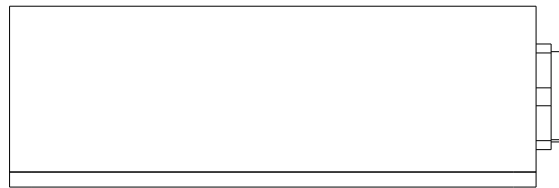
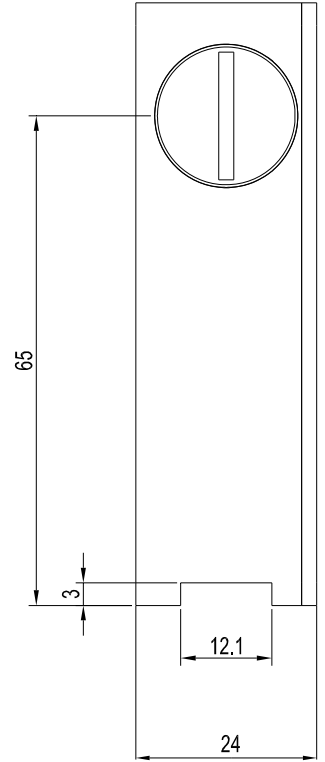
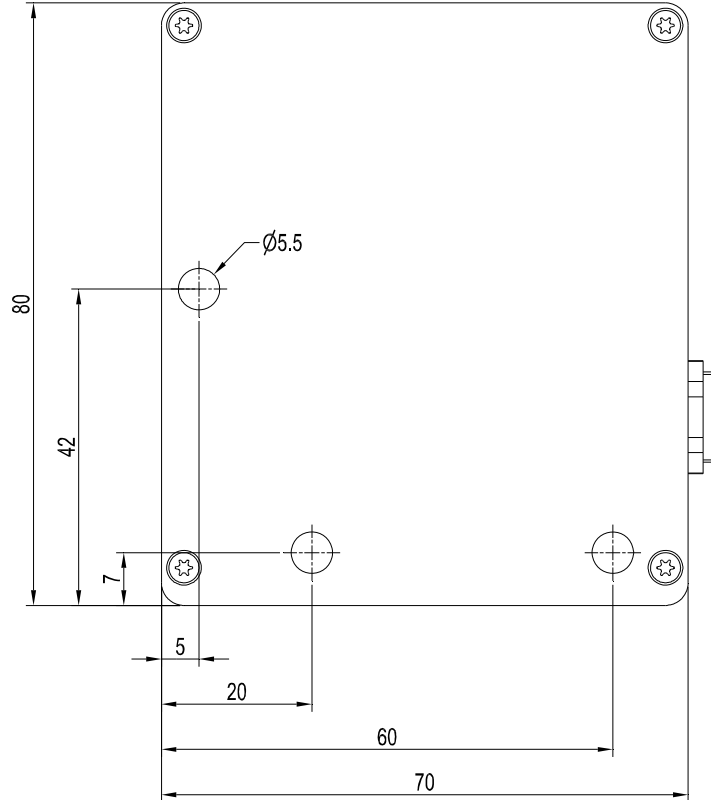
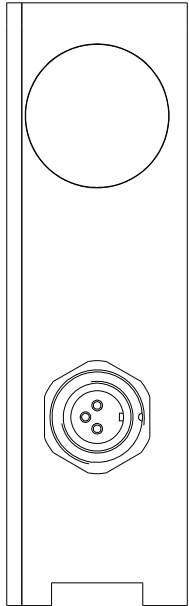
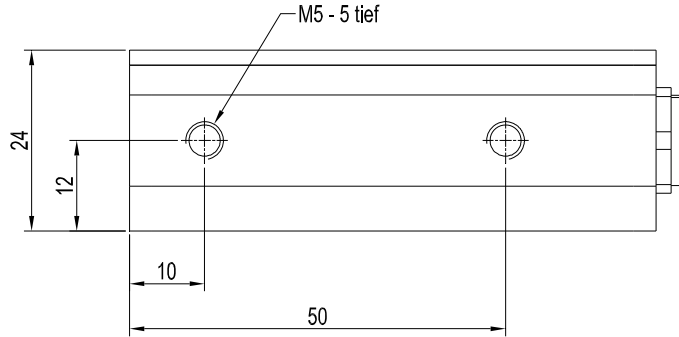


Technical Data

Typ	L-LAS-TB-16x1-T-CL L-LAS-TB-16x1-R-CL	L-LAS-TB-16x1-T-CL L-LAS-TB-16x1-R-4/20-CL
Laser	Halbleiterlaser, 670 nm, DC-Betrieb, <0,4 mW max. opt. Leistung, Laserklasse 1 gemäß DIN EN 60825-1. Für den Einsatz dieses Lasersensors sind daher keine zusätzlichen Schutzmaßnahmen erforderlich.	
Arbeitsabstand	Sender/Empfängerabstand: bis zu 2000 mm	
Messbereich	typ. 16 mm	
Auflösung	typ. 8 µm	
Reproduzierbarkeit	typ. ± 8 µm	
Linearität	typ. 0,2 % vom Skalenendwert (FSR)	
Optisches Filter	Interferenzfilter	
Analogausgang (1x bzw. 2x)	1x Spannungsausgang 0 ... +10V	1x Stromausgang 4 ... 20mA 1x Spannungsausgang 0 ... +10V
Digitalausgänge (2x) (OUT0, OUT1)	OUT0: (-) Messwert < untere Toleranzgrenze OUT1: (+) Messwert > obere Toleranzgrenze pnp-hellschaltend/npn-dunkelschaltend oder pnp-dunkelschaltend/npn-hellschaltend, einstellbar unter Windows®, 100 mA, kurzschlussfest	
Digitaleingänge (2x) (IN0, IN1)	IN0: Externer Trigger, IN1: Teach/Reset (Doppelfunktion) Eingangsspannung +Ub/0V, mit Schutzbeschaltung	
Spannungsversorgung	+24VDC (± 10%)	
Empfindlichkeitseinstellung	unter Windows® auf PC	
Laserleistungsnachregelung	einstellbar unter Windows® auf PC	
Stromverbrauch	typ. 200 mA	
Schutzart	Elektronik: IP54, Optik: IP67	
Betriebstemperaturbereich	-10°C ... +50°C	
Lagertemperaturbereich	-20°C ... +85°C	
Gehäusematerial	Aluminium, schwarz eloxiert	
Gehäuseabmessungen	Sender: LxBxH ca. 80 mm x 70 mm x 24 mm (ohne Flanschbuchsen) Empfänger: LxBxH ca. 80 mm x 70 mm x 24 mm (ohne Flanschbuchsen)	
Stecker Empfänger	8-pol. Rundbuchse Typ Binder 712 (SPS/Power) 4-pol. M5 Rundbuchse Typ Binder 707 (RS232/PC) 3-pol. Rundbuchse Typ Binder 712 (Verbindung zum Sender)	
Stecker Sender	3-pol. Rundbuchse Typ Binder 712 (Verbindung zum Empfänger)	
LED-Anzeigen	LED rot (+) : Messwert > obere Toleranzgrenze LED grün : Messwert im Toleranzband LED rot (-) : Messwert < untere Toleranzgrenze LED gelb : Multifunktions-LED	
EMV-Prüfung nach	DIN EN 60947-5-2	
Scan-Frequenz	Normal Speed Modus (high resolution): max. 2,5 kHz Double Speed Modus (half resolution): max. 5 kHz umschaltbar unter Windows®	
Max. Schaltstrom	100 mA, kurzschlussfest	
Schnittstelle	RS232, parametrisierbar unter Windows®	
Anschlusskabel	Anschluss an PC: cab-las4/PC oder cab-4/USB oder cab-4/ETH Anschluss an SPS: cab-las8/SPS oder cab-las8/SPS-w Verbindungskabel Sender/Empfänger: cab-las3-male	
Ausgangspolarität	Hell-/Dunkelschaltung, umschaltbar unter Windows®	

Dimensions

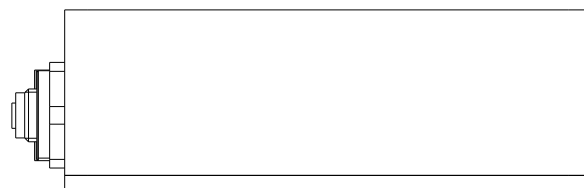
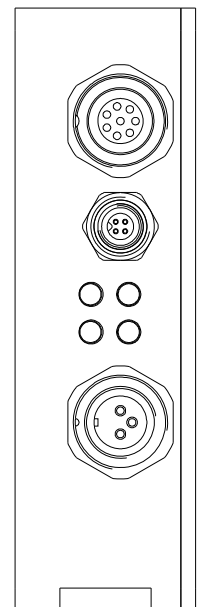
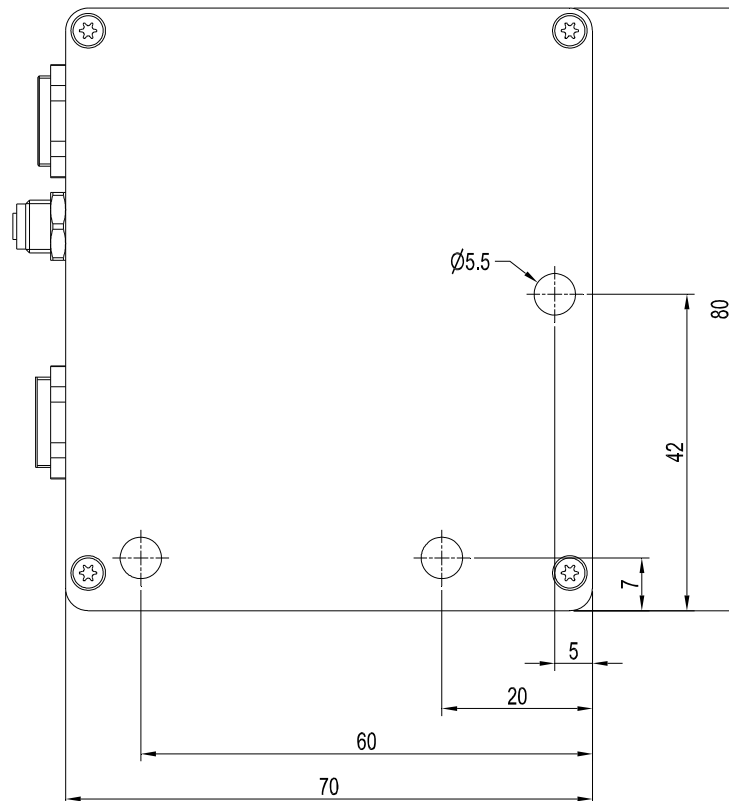
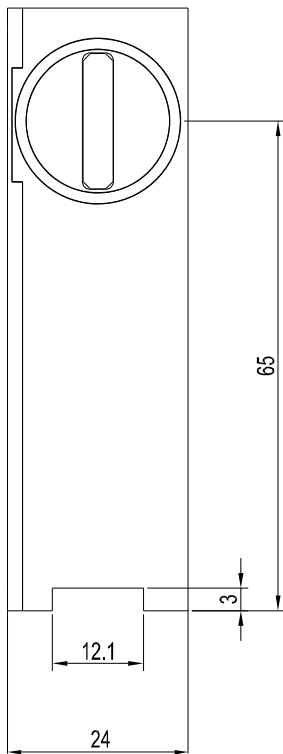
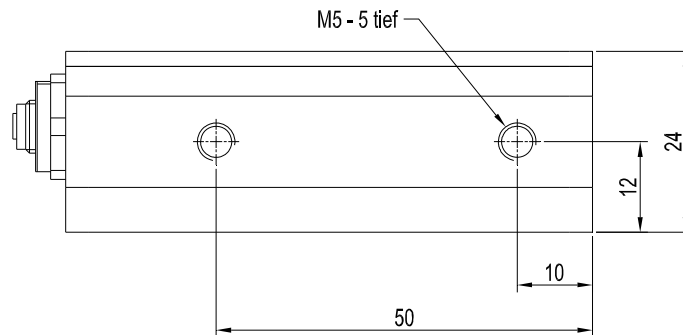
L-LAS-TB-16x1-T-CL
(Transmitter)



All dimensions in mm

Dimensions

L-LAS-TB-16x1-R-CL or
L-LAS-TB-16x1-R-4/20-CL
(Receiver)



All dimensions in mm



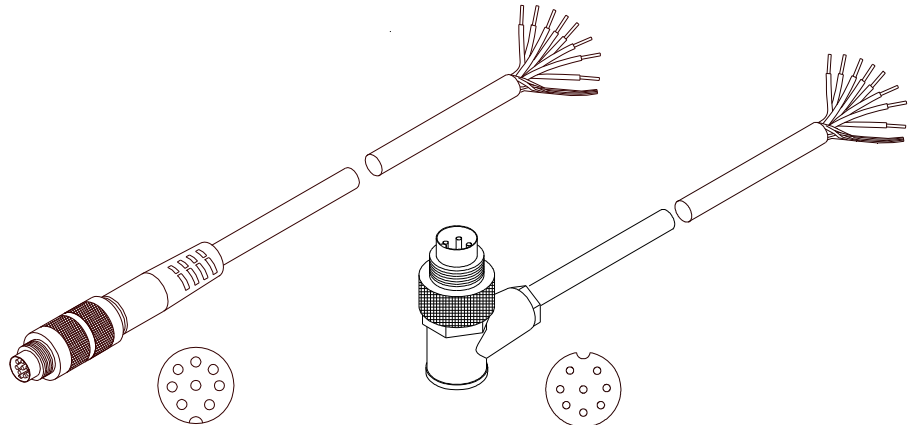
Connector Assignment

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)
8	red	ANA (current 4 ... 20mA) ANA (voltage 0 ... +10V)

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 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:

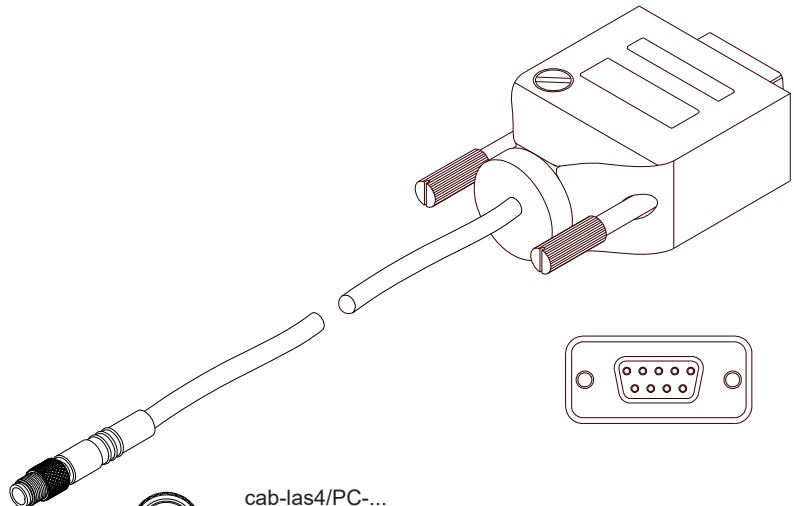
USB converter (incl. driver software):
 cab-4/USB-(length)
 cab-4/USB-w-(length) (angle type 90°)
 (standard length 2m)

alternative:

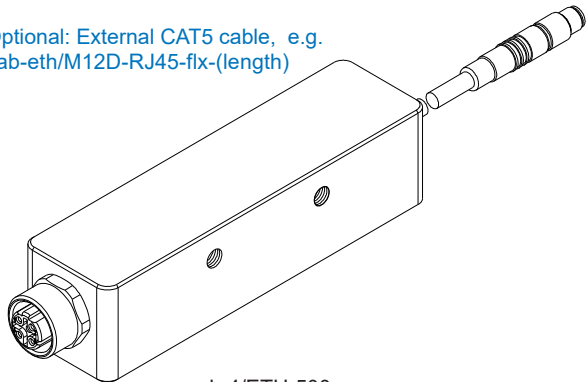
Connection to local network via Ethernet bus:

Ethernet converter (incl. software „SensorFinder“):
 cab-4/ETH-500
 (standard length 0.5m)

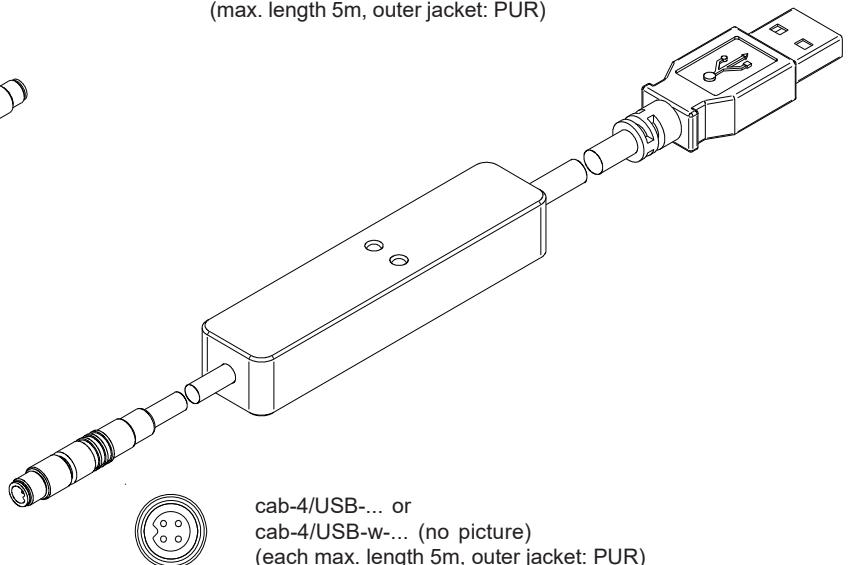
Optional: External CAT5 cable, e.g.
 cab-eth/M12D-RJ45-flx-(length)



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)



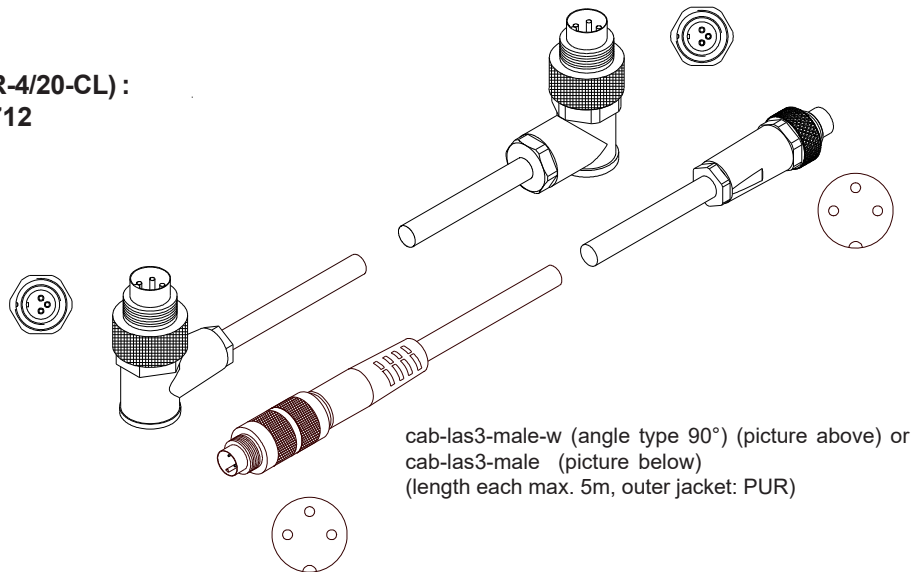
Connector Assignment

Connection L-LAS-TB-16x1-T-CL with L-LAS-TB-16x1-R-CL (or L-LAS-TB-16x1-R-4/20-CL) : 3-pole female connector Binder Series 712

Pin: Assignment:

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

Connecting cable:
 cab-las3-male-(length) or
 cab-las3-male-w-(length) (angle type 90°)
 (standard length 2m)



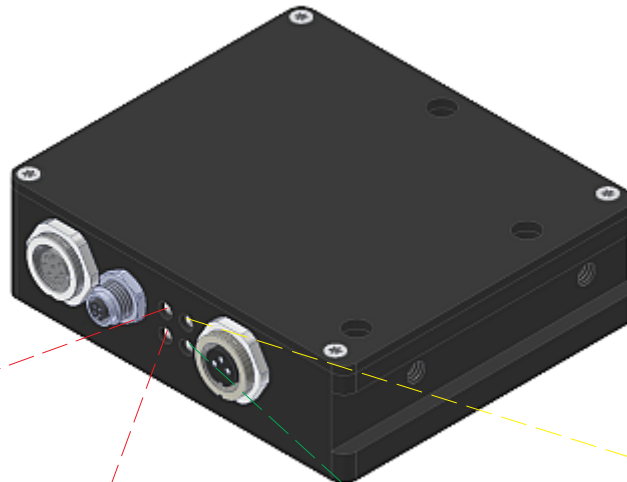
cab-las3-male-w (angle type 90°) (picture above) or cab-las3-male (picture below) (length each max. 5m, outer jacket: PUR)

LED Display

L-LAS-TB-16x1-R-CL: (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

LED yellow: ●
 Power LED (multifunctional)

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“.




Parameterization
Windows® user interface:

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

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 cab-4/USB or cab-4/ETH).

When parameterisation is finished, the PC can be disconnected again.



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 for L-LAS-TB-16x1-T-CL and L-LAS-TB-16x1-R-CL (respectively L-LAS-TB-16x1-R-4/20-CL):

(please order separately)

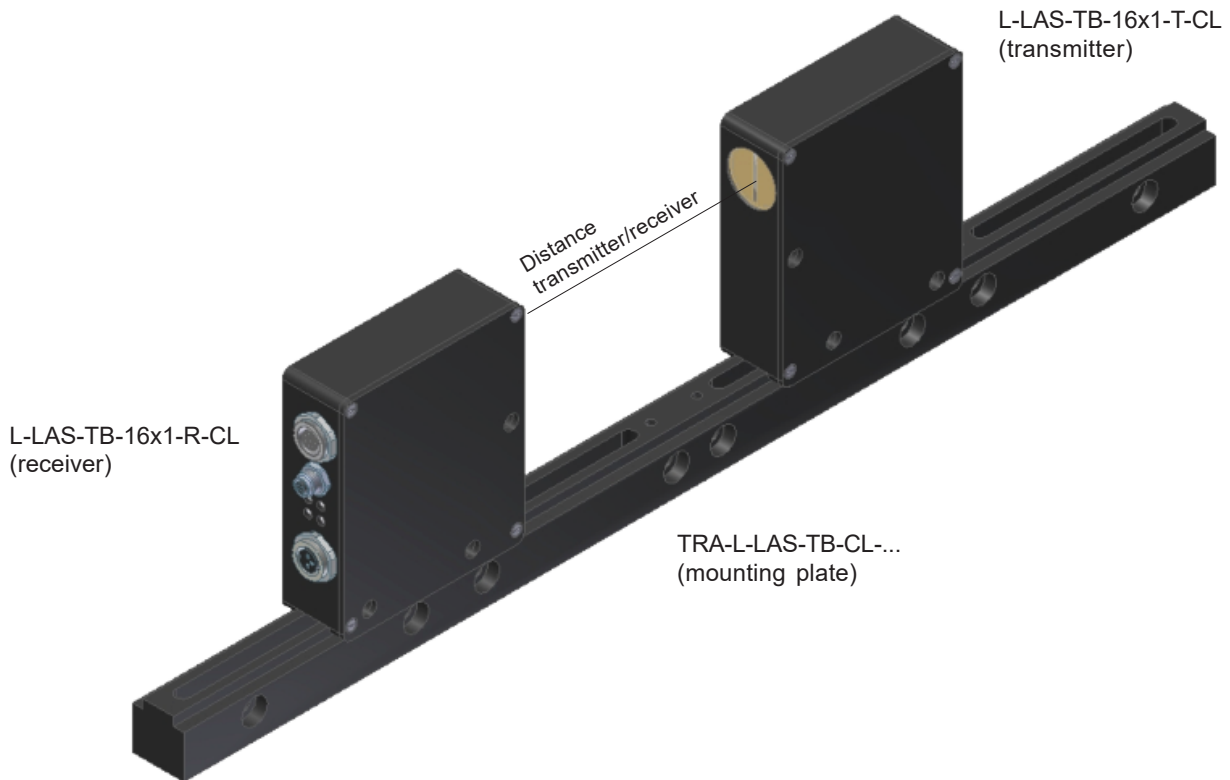
TRA-L-LAS-TB-CL-L200 (total length 200 mm, max. transmitter/receiver distance cf. chart below)

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, also available in other lengths)



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
L-LAS-TB-6-T-CL L-LAS-TB-6-R-CL	max. distance T/R: 95 mm	max. distance T/R: 295 mm	max. distance T/R: 495 mm	max. distance T/R: 695 mm
L-LAS-TB-16x1-T-CL L-LAS-TB-16x1-R-CL	max. distance T/R: 60 mm	max. distance T/R: 260 mm	max. distance T/R: 460 mm	max. distance T/R: 660 mm
L-LAS-TB-28-T-CL L-LAS-TB-28-R-CL	----	max. distance T/R: 222 mm	max. distance T/R: 422 mm	max. distance T/R: 622 mm
L-LAS-TB-50-T-CL L-LAS-TB-50-R-CL	----	max. distance T/R: 205 mm	max. distance T/R: 405 mm	max. distance T/R: 605 mm
L-LAS-TB-75-T-CL L-LAS-TB-75-R-CL	----	max. distance T/R: 200 mm	max. distance T/R: 400 mm	max. distance T/R: 600 mm
L-LAS-TB-100-T-CL L-LAS-TB-100-R-CL	----	max. distance T/R: 160 mm	max. distance T/R: 360 mm	max. distance T/R: 560 mm

Accessories

Blast air top part:

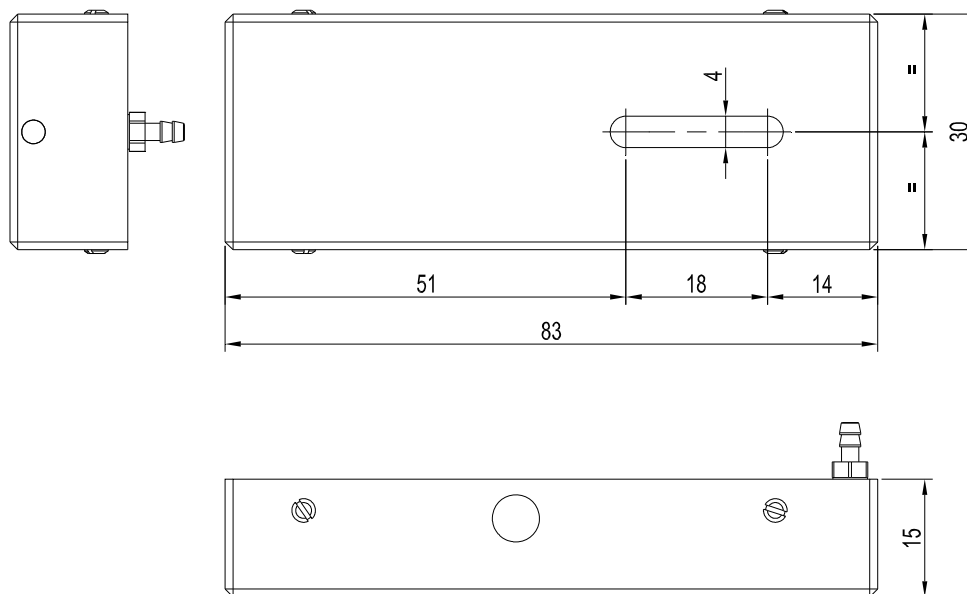
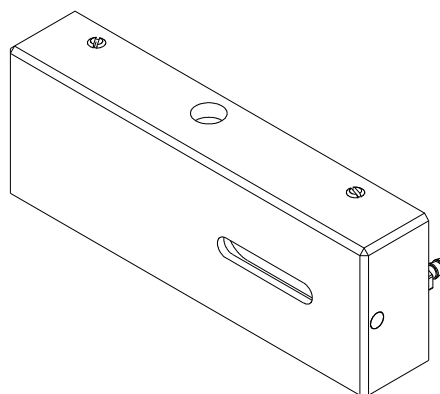
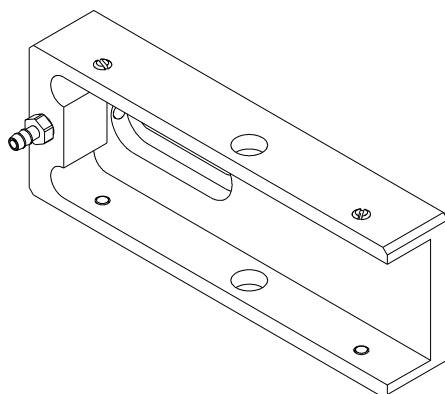
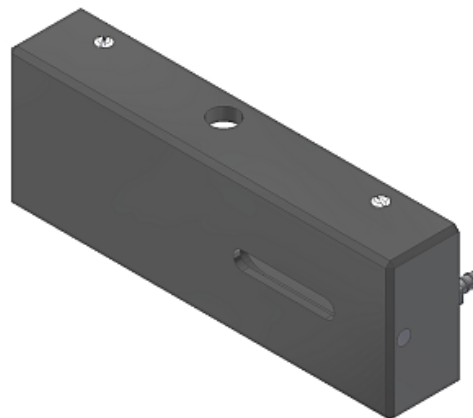
ABL-TB-16-CL

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

suitable for:

L-LAS-TB-16x1-T-CL and

L-LAS-TB-16x1-R-CL (or L-LAS-TB-16x1-R-4/20-CL)



All dimensions in mm