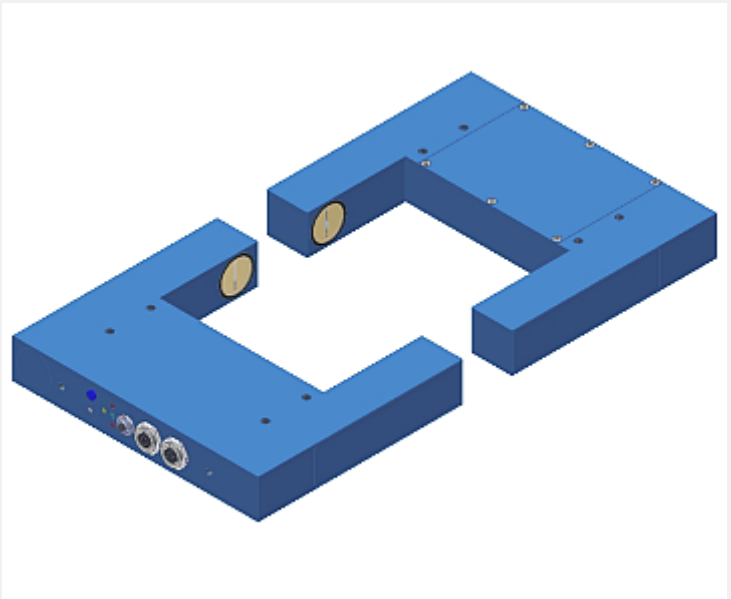


L-LAS Series

▶ L-LAS-TB-F-(16)-100/60-MA /-SL (Master/Slave)

- Line laser 670 nm, < 0.4 mW, class 1 laser product
- Visible red laser line, typ. 16 mm x 1 mm
- Meas. range Master + Slave each typ. 16 mm (i.e. 2x 16 mm)
- Resolution Master + Slave each typ. 16 µm (i.e. 2x 16 µm)
- Transmitter/receiver distance 100 mm
- Integrated interference filter
- CCD line detector with 256 pixel, 2048 subpixel
- External teach button and potentiometer for tolerance setting
- RS232 interface (USB or Ethernet adapter is available)
- 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)

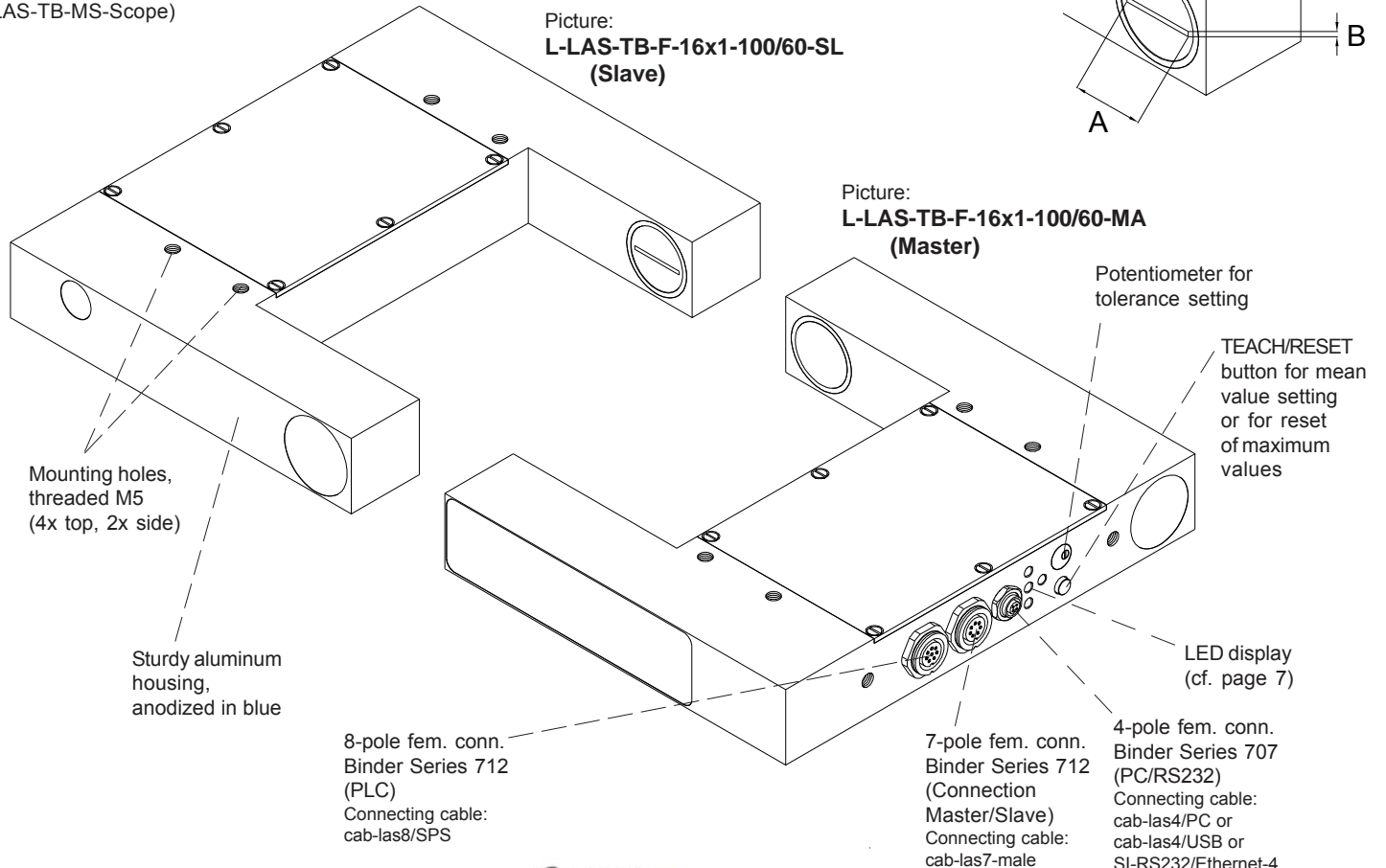
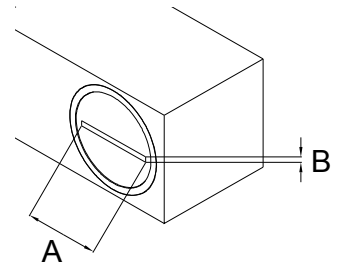


Design

Product name:

- L-LAS-TB-F-(AxB)*-100/60-MA** (Master, 0...+10V)
 - L-LAS-TB-F-(AxB)*-100/60-4/20-MA** (Master, 4...20mA)
 - L-LAS-TB-F-(AxB)*-100/60-SL** (Slave)
- (incl. Windows® PC software
L-LAS-TB-MS-Scope)

- *AxB (Alignment of laser line):
16x1 (A=16mm, B=1mm)
1x16 (A=1mm, B=16mm)



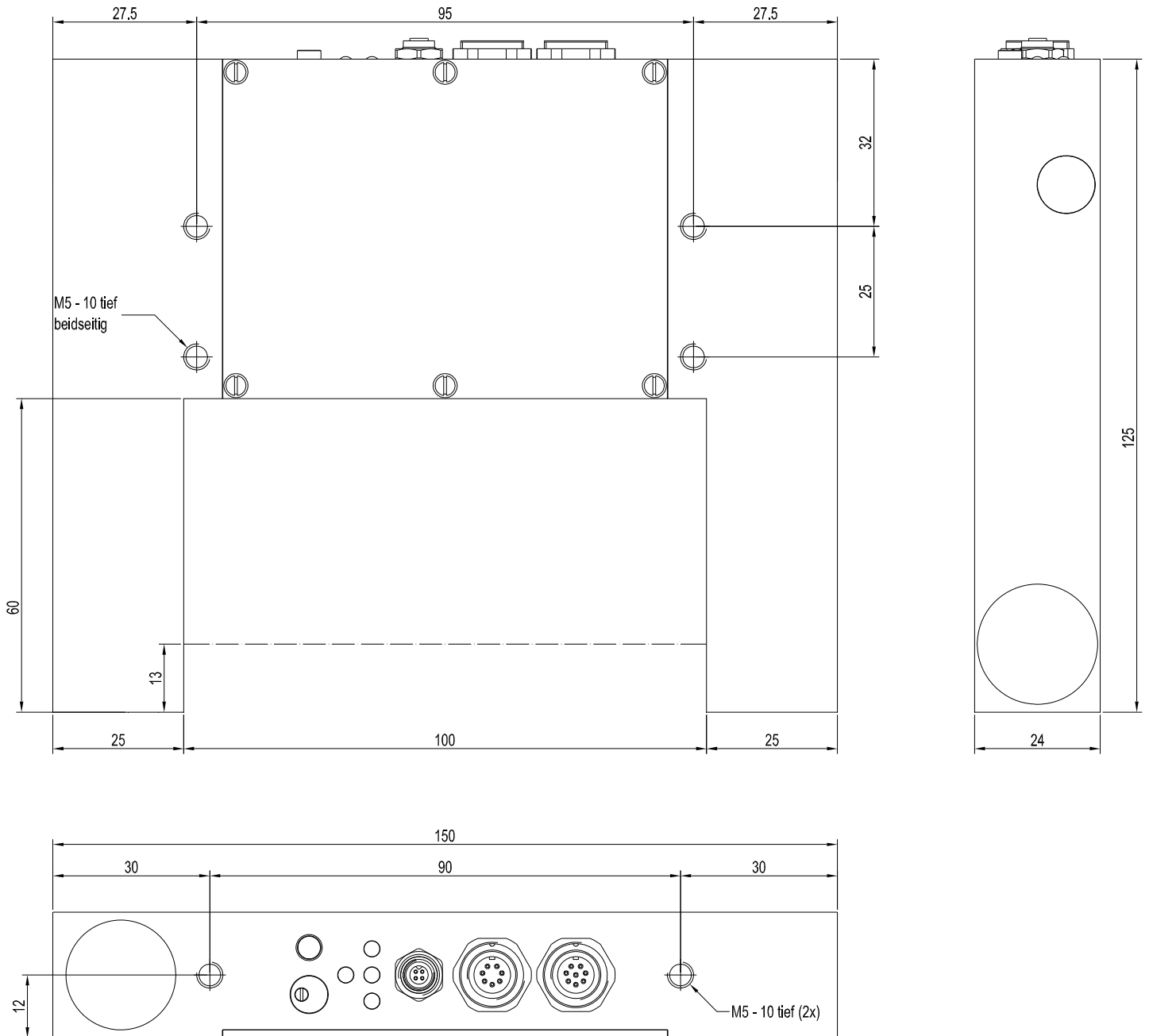


Technical Data

| Type | L-LAS-TB-F-(16)-100/60-MA L-LAS-TB-F-(16)-100/60-SL | L-LAS-TB-F-(16)-100/60-4/20-MA L-LAS-TB-F-(16)-100/60-SL |
|------------------------------------|---|---|
| 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 | 100 mm (= fork width) | |
| Measuring range | MA and SL: each typ. 16 mm (i.e. 2x 16 mm) | |
| Resolution | MA and SL: each typ. 16 µm (i.e. 2x 16 µm) | |
| Reproducibility | MA and SL: each typ. ± 16 µm (i.e. 2x ± 16 µm) | |
| Linearity | typ. 0.1% 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. 300 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 | MA and SL: each LxWxH approx. 125 mm x 150 mm x 24 mm (without flange connectors) | |
| Connectors | L-LAS-TB-F-(16)-100/60-MA: 8-pole fem. connector type Binder 712 (PLC/Power) 4-pole fem. connector type Binder 707 (PC/RS232) 7-pole fem. connector type Binder 712 (connection Master/Slave) L-LAS-TB-F-(16)-100/60-SL: 7-pole fem. connector type Binder 712 (connection Master/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 Master/Slave: cab-las7-male | |
| Teach/Reset button | for mean value setting or 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. 1.5 kHz | |
| Max. switching current | 100 mA, short-circuit proof | |
| Interface | RS232, parameterisable under Windows® | |
| Output polarity | Bright-/dark-switching, can be switched under Windows® | |

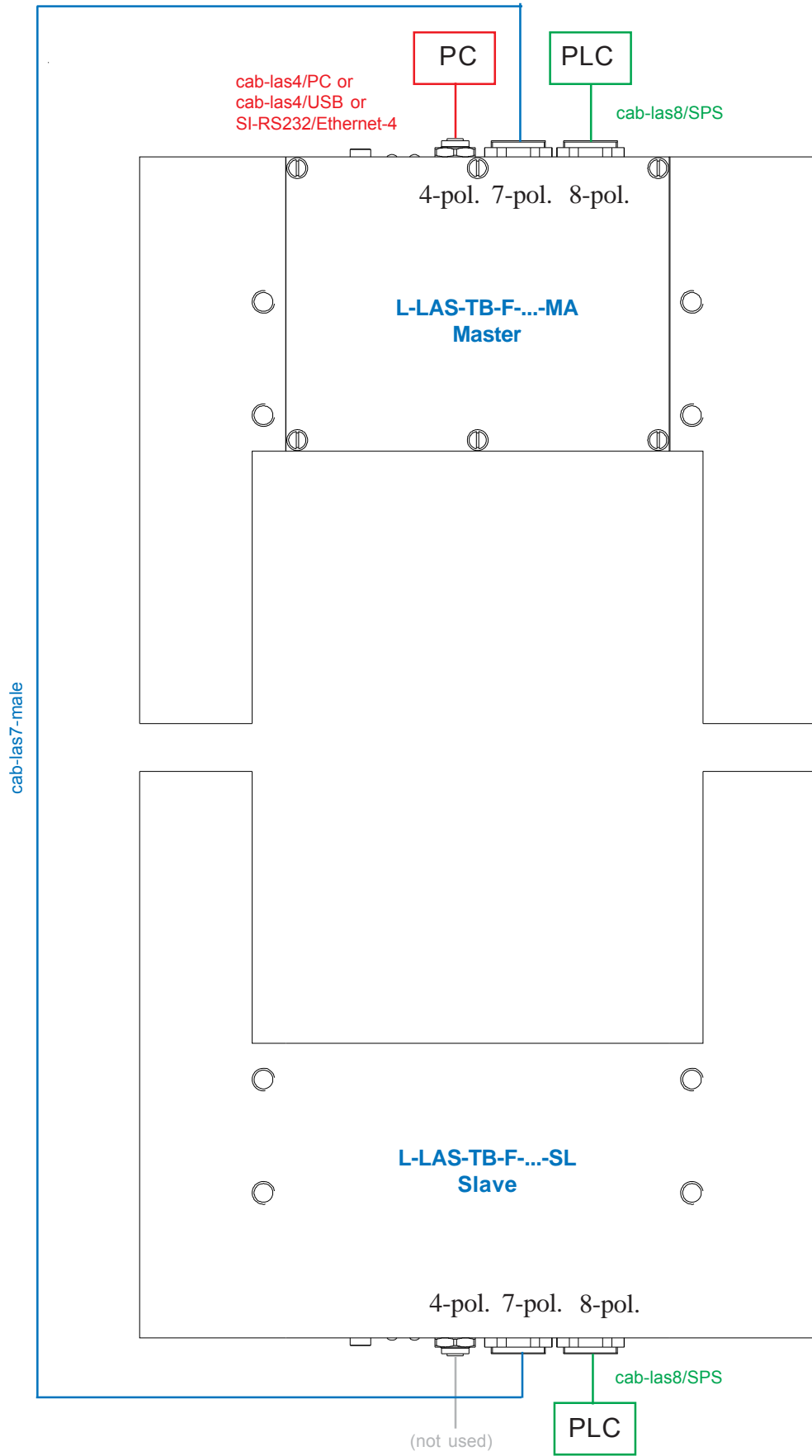
Dimensions

- L-LAS-TB-F-16x1-100/60-MA
- L-LAS-TB-F-16x1-100/60-SL
- L-LAS-TB-F-1x16-100/60-MA
- L-LAS-TB-F-1x16-100/60-SL
- L-LAS-TB-F-16x1-100/60-4/20-MA
- L-LAS-TB-F-1x16-100/60-4/20-MA



All dimensions in mm

Connecting Diagram

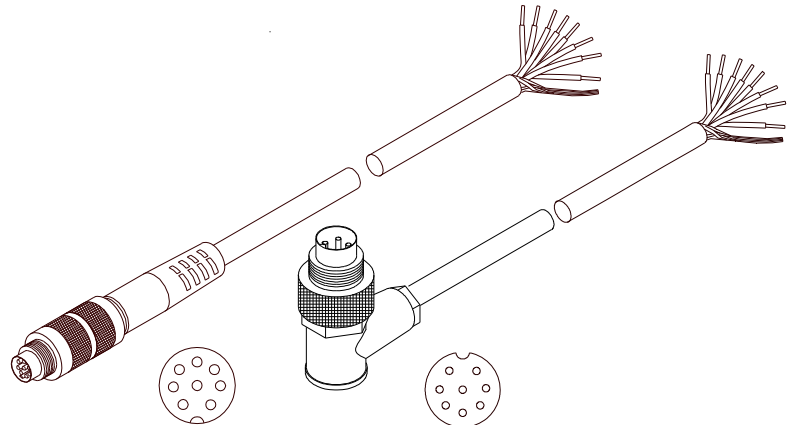




Connector Assignment

**Connection Master and Slave 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 | OUT2 (OK) |
| 8 | red | ANA (0 ... +10V) |
| in case of version -4/20: | | |
| ANA (4 ... 20mA) | | |



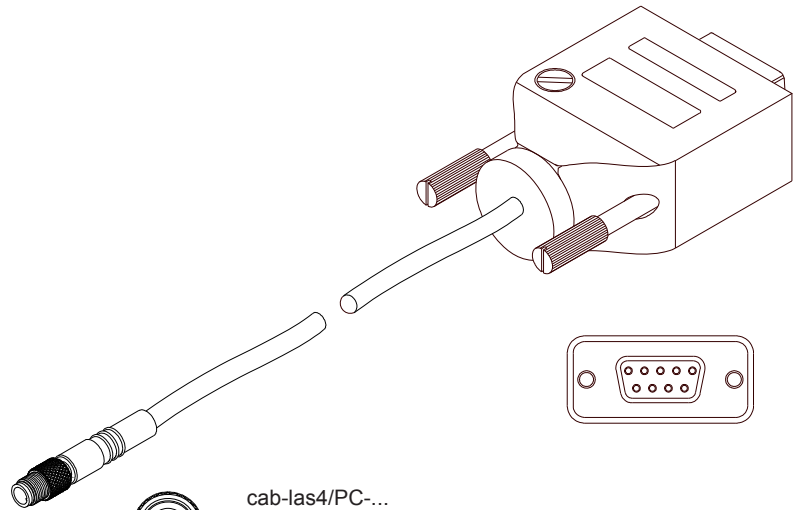
Connecting cable:
 cab-las8/SPS-(length)
 cab-las8/SPS-w-(length) (angle type, 90°)
 (standard length 2m)

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

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

**Connection Master to PC:
4-pole fem. connector Binder Series 707**

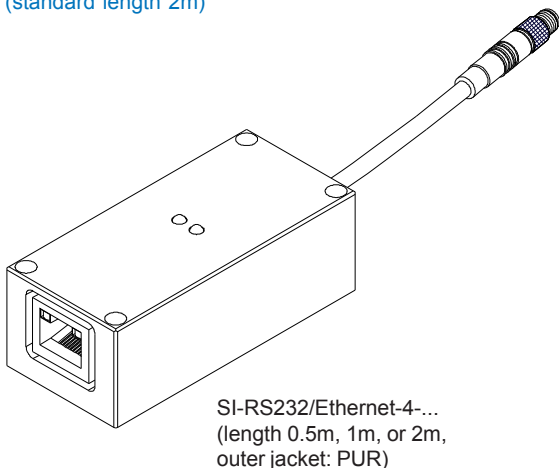
| Pin: | Assignment: |
|------|-------------------|
| 1 | +24VDC (+Ub, OUT) |
| 2 | GND (0V) |
| 3 | RxD |
| 4 | TxD |



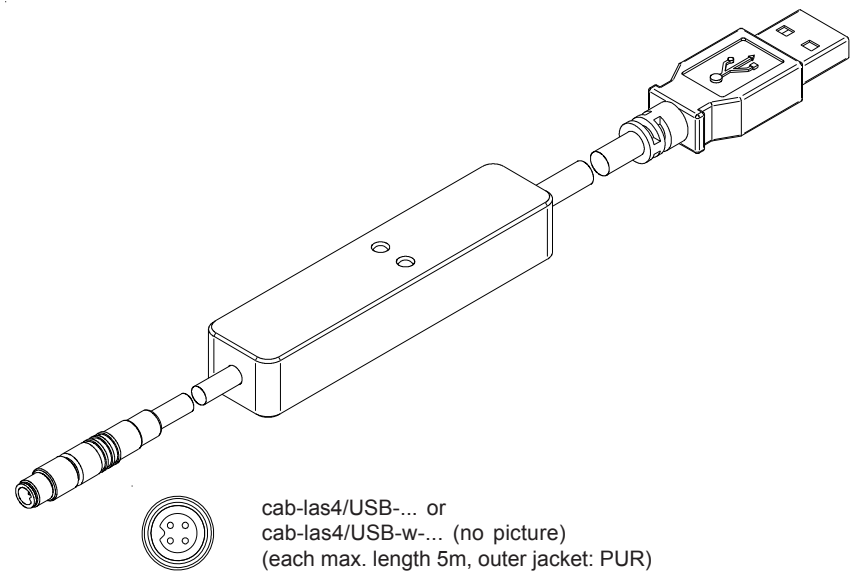
Connection via RS232 interface at the PC:
 Connecting cable:
 cab-las4/PC-(length)
 cab-las4/PC-w-(length) (angle type 90°)
 (standard length 2m)

alternative:
Connection via USB interface at the PC:
 Connecting cable (incl. driver software):
 cab-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)



SI-RS232/Ethernet-4-...
 (length 0.5m, 1m, or 2m,
 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-las4/USB-... or
 cab-las4/USB-w-... (no picture)
 (each max. length 5m, outer jacket: PUR)



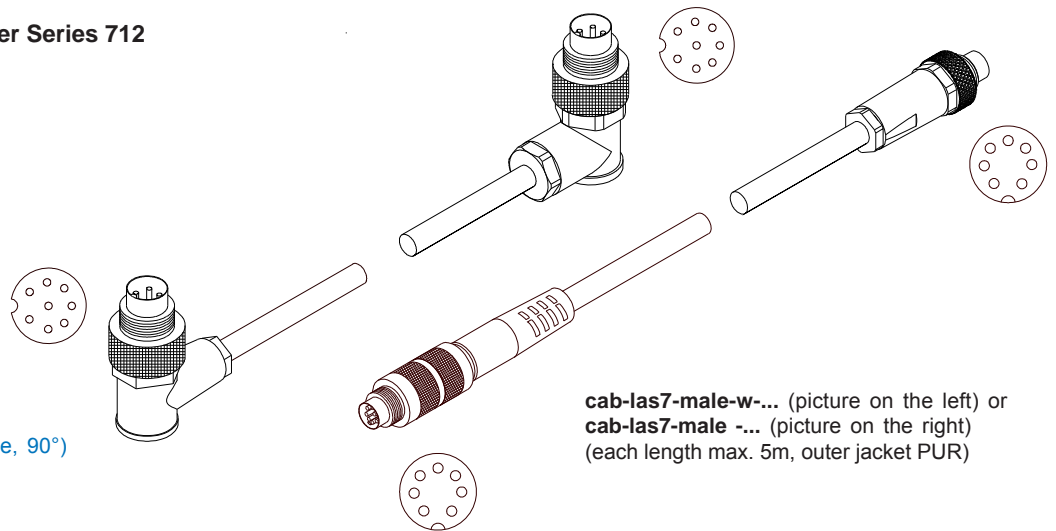
Connector Assignment

Connection Master and Slave: 2x 7-pole fem. connector Binder Series 712

Pin: Assignment:

| | |
|---|-----------|
| 1 | 0V (GND) |
| 2 | +5VDC |
| 3 | START |
| 4 | CLOCK |
| 5 | PWM LED |
| 6 | I-CONTROL |
| 7 | VIDEO |

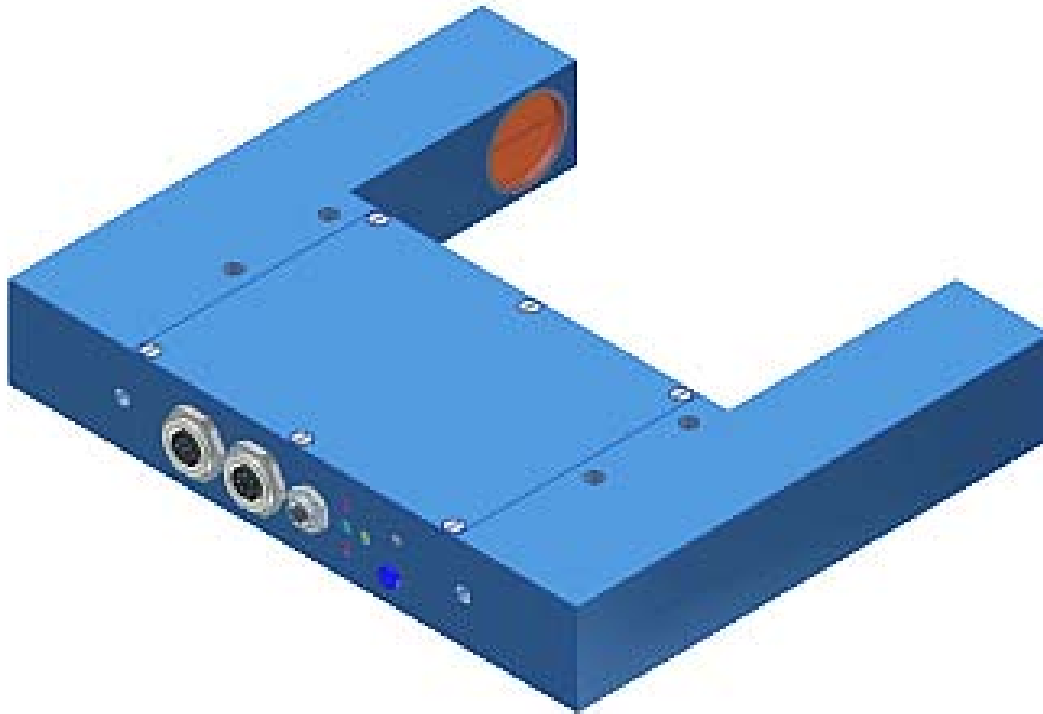
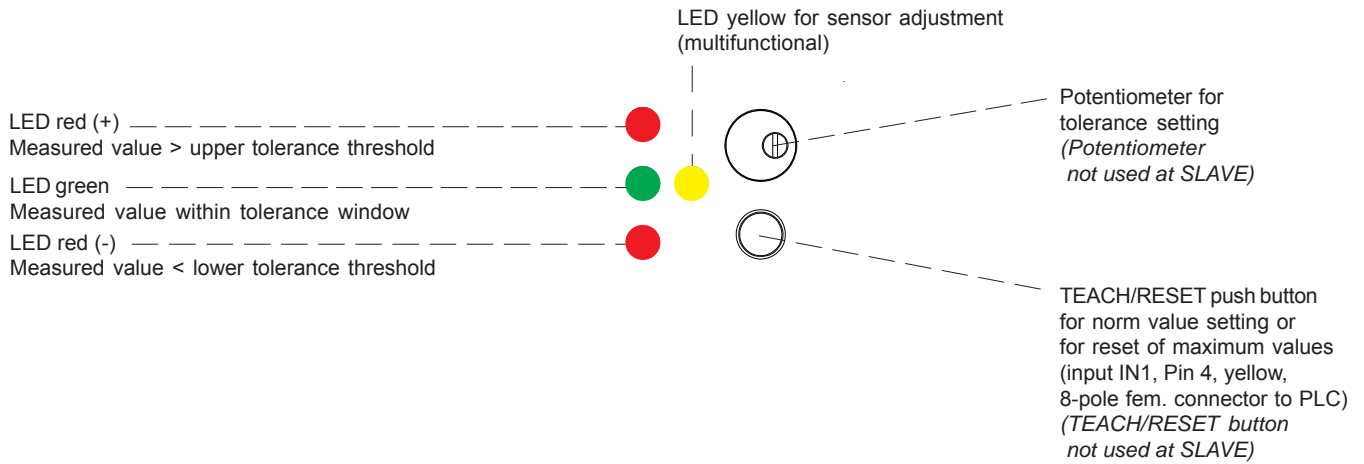
Connecting cable:
 cab-las7-male-(length)
 cab-las7-male-w-(length) (angle type, 90°)
 (standard length: 2m)



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



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.

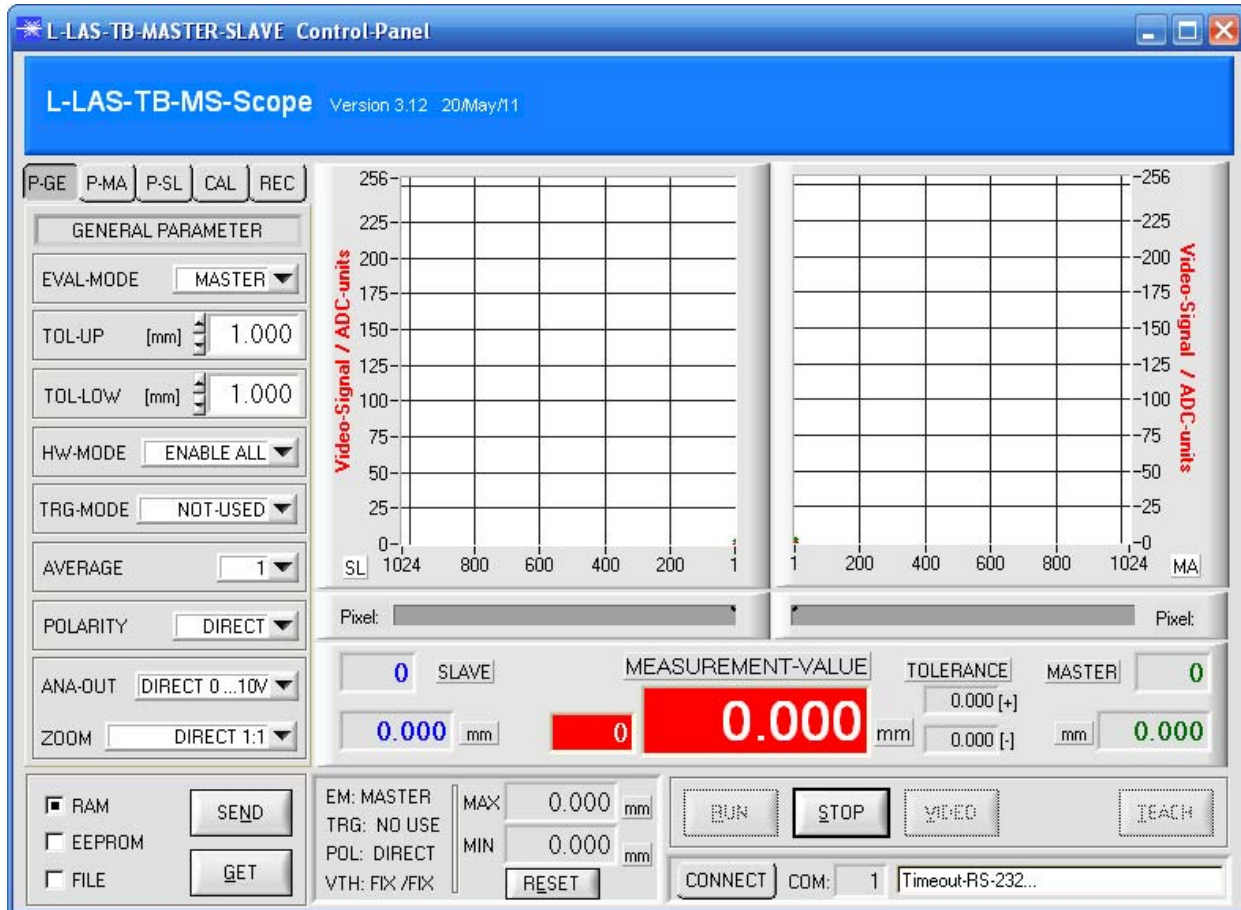
The laser line sensors of L-LAS-TB Series are supplied with a laser warning label type „CLASS 1 LASER PRODUCT“.





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