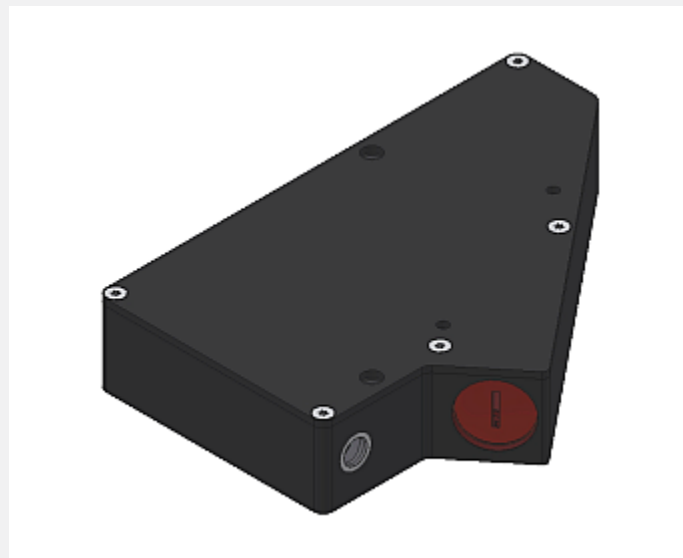


# L-LAS Series

## ▶ L-LAS-LT-37

- Line laser <1 mW, wave length 670 nm, laser class 2
- Visible red laser line, typ. 0.2 mm x 3 mm
- Measuring range typ. 4 mm
- Start of measuring range at typ. 35 mm
- Resolution typ. 1  $\mu$ m
- Interference filter and red light filter integrated
- CCD line detector with 1024 pixel, 4096 subpixel
- External teach button and potentiometer for tolerance setting
- RS232 interface (USB or Ethernet adaptor available)
- Windows® user interface
- 2 digital inputs, 3 digital outputs
- 1 analog output (either voltage 0 ... +10V or current 4 ... 20mA)
- Scan frequency max. 200 Hz
- Switching state indication via 4 LEDs (1x grn, 2x red, 1x yel)
- Optics cover made of scratch-resistant glass

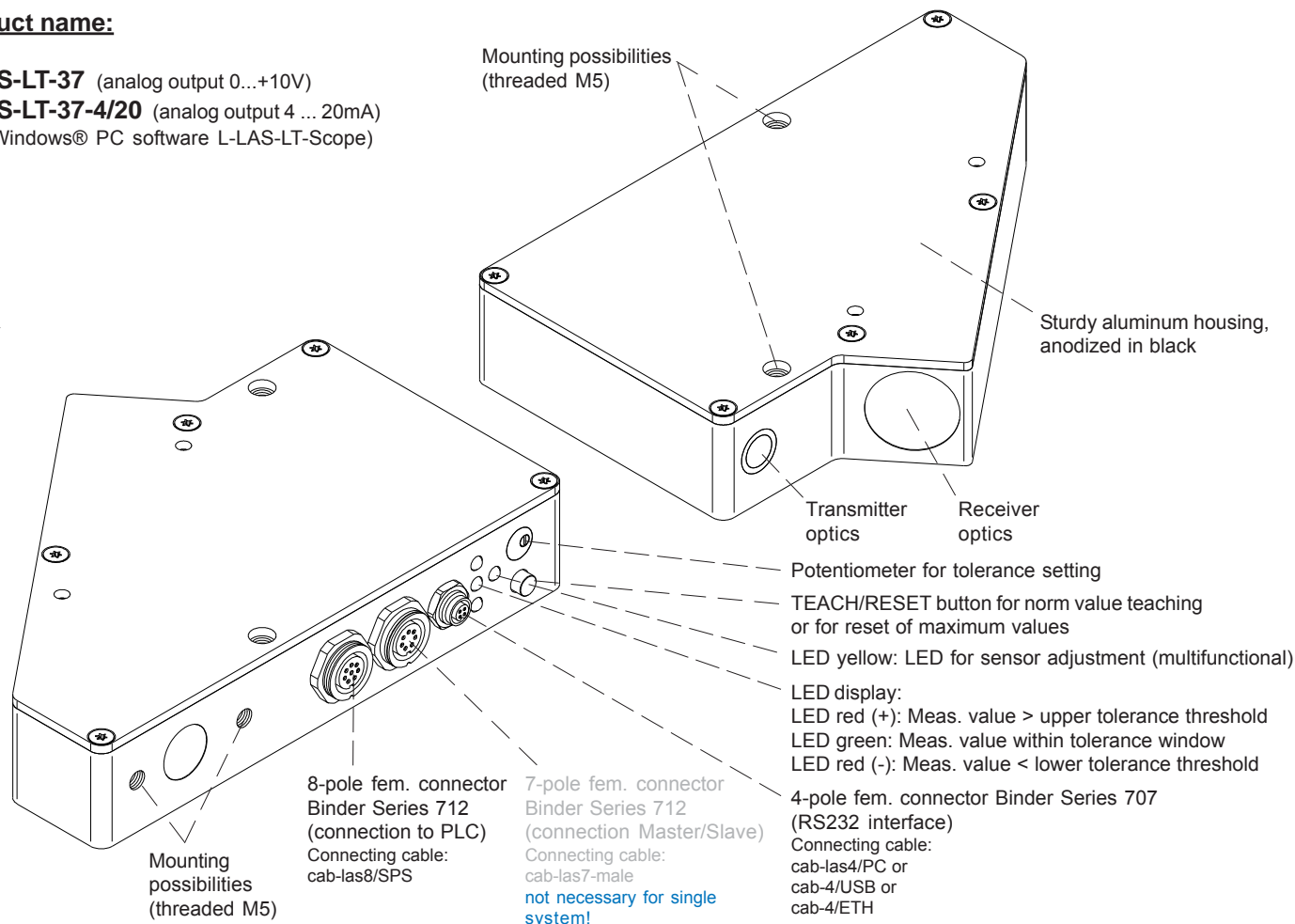


## Design

### Product name:

**L-LAS-LT-37** (analog output 0...+10V)

**L-LAS-LT-37-4/20** (analog output 4 ... 20mA)  
 (incl. Windows® PC software L-LAS-LT-Scope)



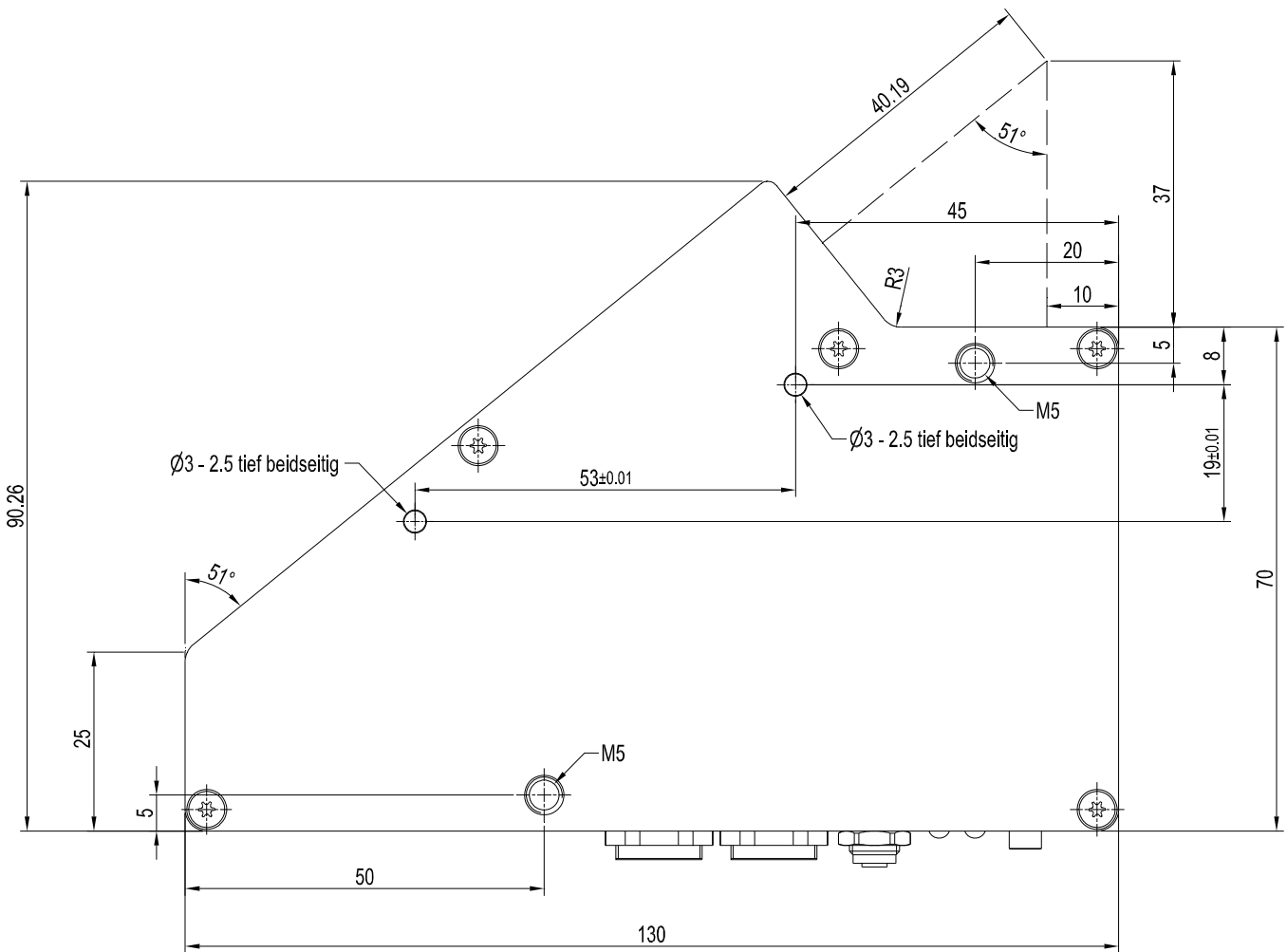
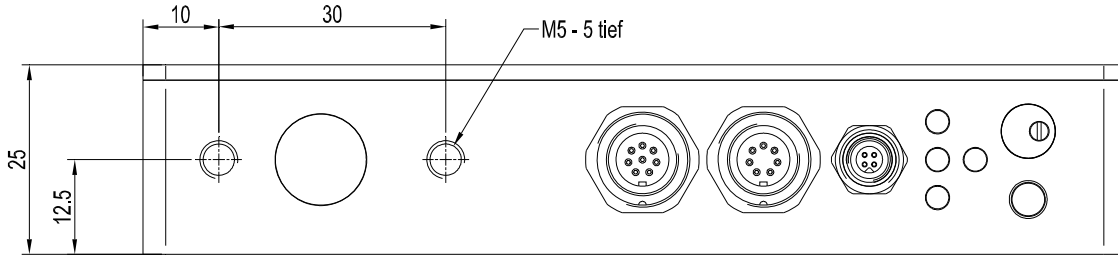


**Technical Data**

| Model                                      | L-LAS-LT-37   | L-LAS-LT-37-4/20            |
|--|---|-----------------------------|
| Light source                               | Semiconductor laser, 670 nm, DC operation, 1 mW max. opt. power, laser class 2 acc. to DIN EN 60825-1.<br>The use of these laser sensors therefore requires no additional protective measures.  |                             |
| Measuring range                            | typ. 4 mm   |                             |
| Start of measuring range                   | typ. 35 mm (measured from housing edge, cf. picture beam path)  |                             |
| End of measuring range                     | typ. 39 mm (measured from housing edge, cf. picture beam path)  |                             |
| Resolution / reproducibility               | typ. 1 µm / typ. ± 1 µm   |                             |
| Linearity                                  | 0.15% FSR (full scale range)  |                             |
| Laser line geometry                        | typ. 0.2 mm x 3 mm  |                             |
| Optical filters                            | Interference filter, red light filter   |                             |
| Analog output (1x)                         | Voltage output (0 ... +10V)   | Current output (4 ... 20mA) |
| Digital outputs (3x)<br>(OUT0, OUT1, OUT2) | pnp bright-switching/npn dark-switching or pnp npn dark-switching/npn bright-switching,<br>adjustable under Windows®, 100 mA, short-circuit proof   |                             |
| Digital inputs (2x)<br>(IN0, IN1)          | IN0: External trigger, IN1: Teach/Reset (double function)<br>Input voltage +Ub/0V, with protective circuit  |                             |
| Voltage supply                             | +24VDC (± 10%)  |                             |
| Sensitivity setting                        | via potentiometer TOL or under Windows® via PC  |                             |
| Laser power correction                     | adjustable under Windows® via PC  |                             |
| Current consumption                        | typ. 200 mA   |                             |
| Enclosure rating                           | Electronics: IP54, optics: IP67   |                             |
| Temperature stability                      | 0.01% of measuring range/°C   |                             |
| Operating temperature range                | -10°C ... +50°C   |                             |
| Storage temperature range                  | -20°C ... +85°C   |                             |
| Housing material                           | Aluminum, anodized in black   |                             |
| Housing dimensions                         | LxWxH approx. 130 mm x 90.26 mm x 25 mm (without connector flanges)   |                             |
| Connector type                             | 8-pole fem. connector type Binder 712 (PLC/Power)<br>4-pole fem. connector type Binder 707 (PC/RS232)<br>7-pole circular fem. connector type Binder 712 (not necessary for single system)   |                             |
| Connecting cables                          | to PLC: cab-las8/SPS or cab-las8/SPS-w<br>to PC/RS232 interface: cab-las4/PC or cab-las4/PC-w<br>to PC/USB interface: cab-4/USB or cab-4/USB-w<br>to PC/Ethernet interface: cab-4/ETH   |                             |
| Potentiometer                              | for tolerance window setting  |                             |
| Teach/reset button                         | for norm value teaching or for reset of maximum values via input IN1  |                             |
| LED display                                | LED red (+) : Measuring value > upper tolerance threshold<br>LED green : Measuring value within tolerance window<br>LED red (-) : Measuring value < lower tolerance threshold<br>LED yellow : LED for sensor adjustment (multifunctional) |                             |
| EMC test acc. to                           | DIN EN 60947-5-2  |                             |
| Scan frequency                             | max. 200 Hz   |                             |
| Max. switching current                     | 100 mA, short-circuit proof   |                             |
| Interface                                  | RS232, parameterisable under Windows® via PC  |                             |
| Output polarity                            | Bright/dark-switching, can be set under Windows® via PC   |                             |

Dimensions

L-LAS-LT-37  
L-LAS-LT-37-4/20

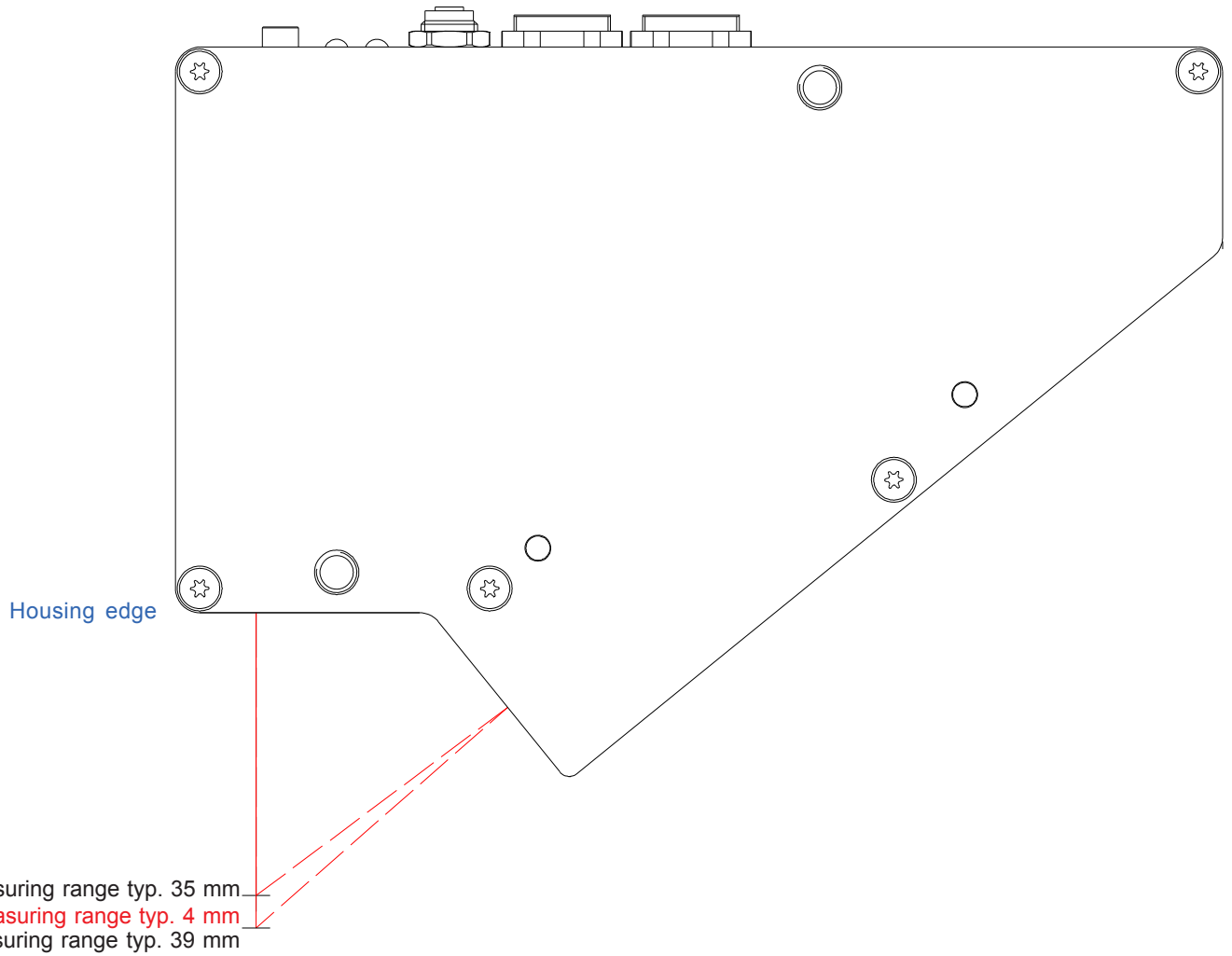


All dimensions in mm



Beam Path

L-LAS-LT-37  
L-LAS-LT-37-4/20

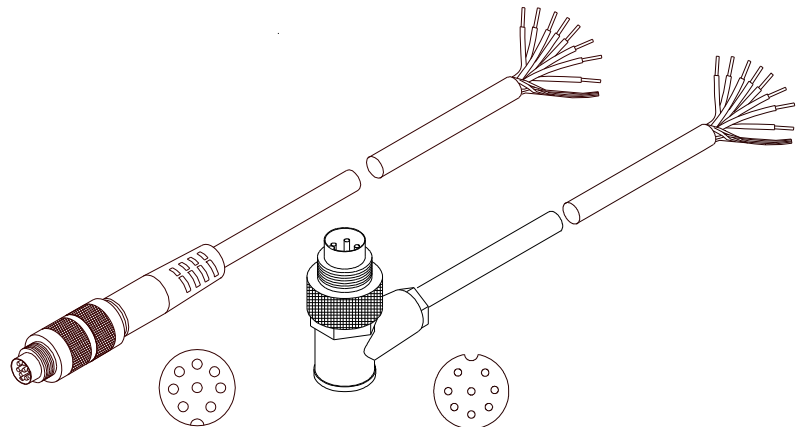




**Connector Assignment**

**Connection to PLC:  
8-pole fem. connector Binder Series 712**

| Pin: | Color: | Assignment:  |
|------|--------|--|
| 1    | white  | GND (0V)   |
| 2    | brown  | +24VDC (±10%)  |
| 3    | green  | N0 (EXT TRIGGER)   |
| 4    | yellow | N1 (TEACH / RESET)   |
| 5    | grey   | OUT0 (-)   |
| 6    | pink   | OUT1 (+)   |
| 7    | blue   | OUT2 (OK)  |
| 8    | red    | ANA (voltage 0 ... +10V)<br>optional with type 4/20:<br>ANA (current 4 ... 20mA) |



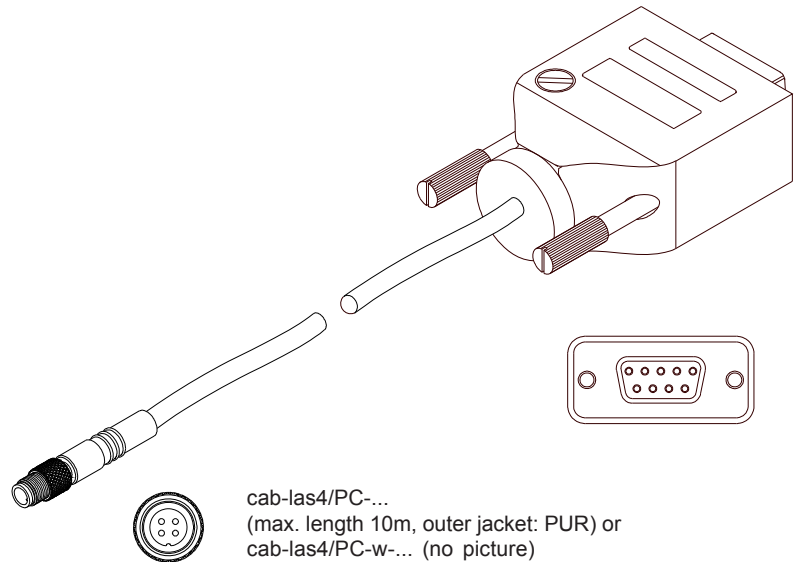
Connecting cable:  
cab-las8/SPS-(length)  
cab-las8/SPS-w-(length) (angle type, 90°)  
(standard length 2m)

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

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

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

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

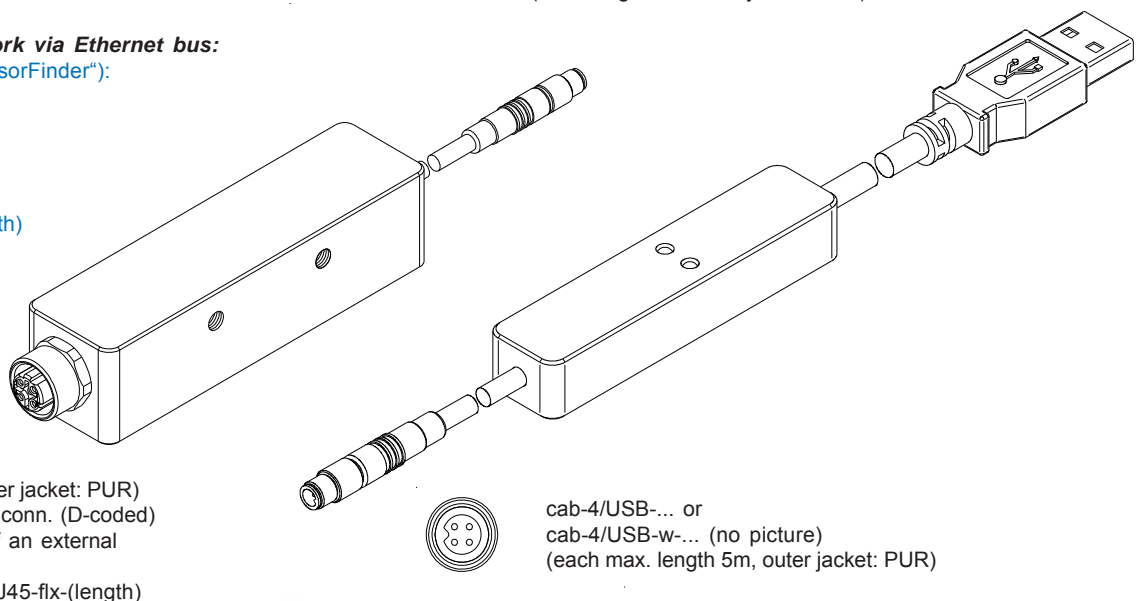


**Connection via RS232 interface at the PC:**  
Connecting cable:  
cab-las4/PC-(length)  
cab-las4/PC-w-(length) (angle type 90°)  
(standard length 2m)

**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)

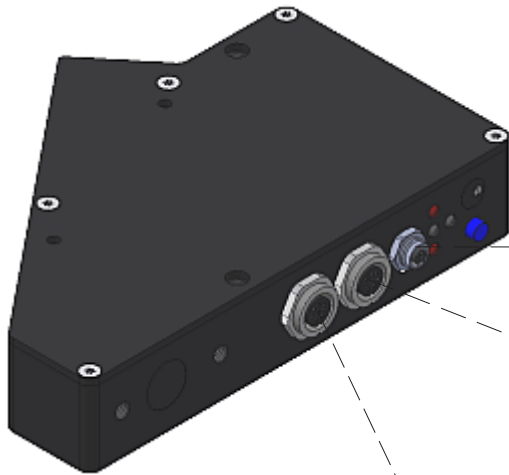
Optional:  
External CAT5 cable, e.g.  
cab-eth/M12D-RJ45-flx-(length)



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

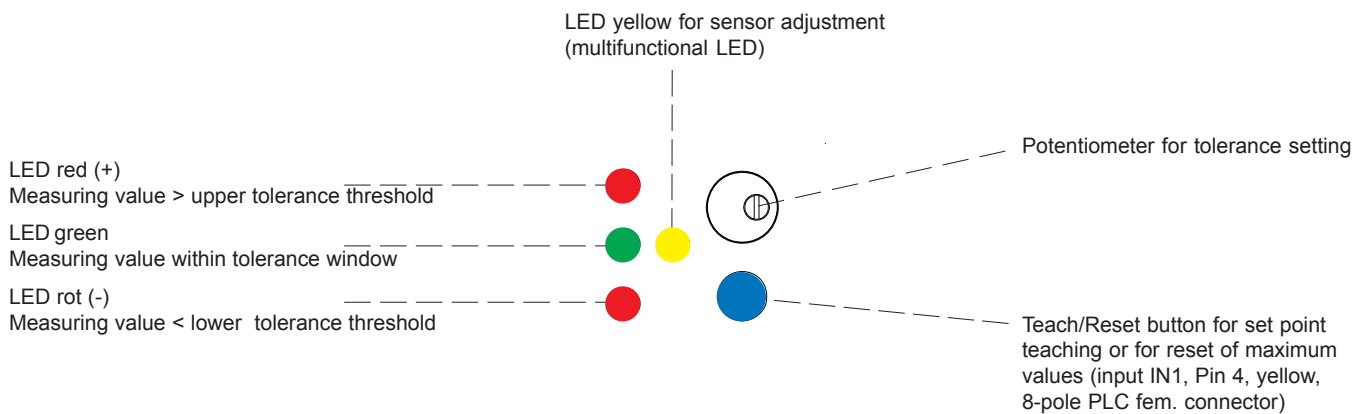


4-pole fem. connector Binder Series 707  
(connection to PC)

7-pole fem. connector Binder Series 712  
**not necessary for single system!**  
(only for connection of Master and Slave)

8-pole fem. connector Binder Series 712  
(connection to PLC)

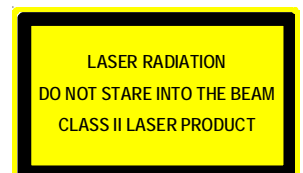
LED Display



Laser Warning

The laser line sensors of L-LAS-LT Series comply with laser class 2 according to EN 60825-1. The use of these laser transmitters therefore requires no additional protective measures.

The laser line sensors of L-LAS-LT Series are supplied with a laser warning label.





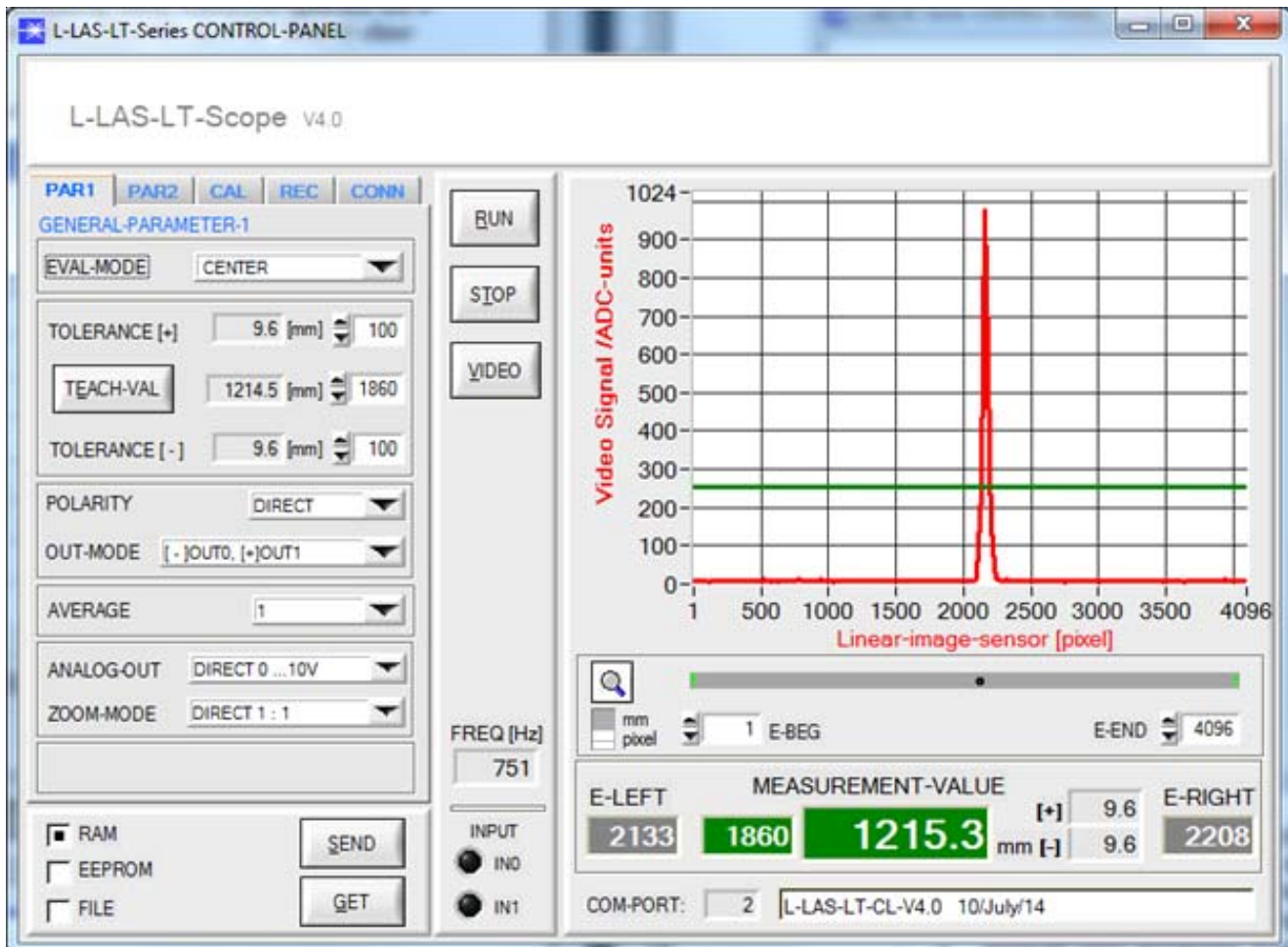
## Parameterization

### Windows® PC software L-LAS-LT-Scope:

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

The L-LAS-LT 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 USB cable cab-4/USB or with Ethernet adaptor cab-4/ETH). When parameterisation is finished, the PC can be disconnected again.

#### Windows® user interface:



With the help of the L-LAS-LT-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-LT-Scope software. For example, the raw data of the CCD line sensor can be displayed graphically and numerically.