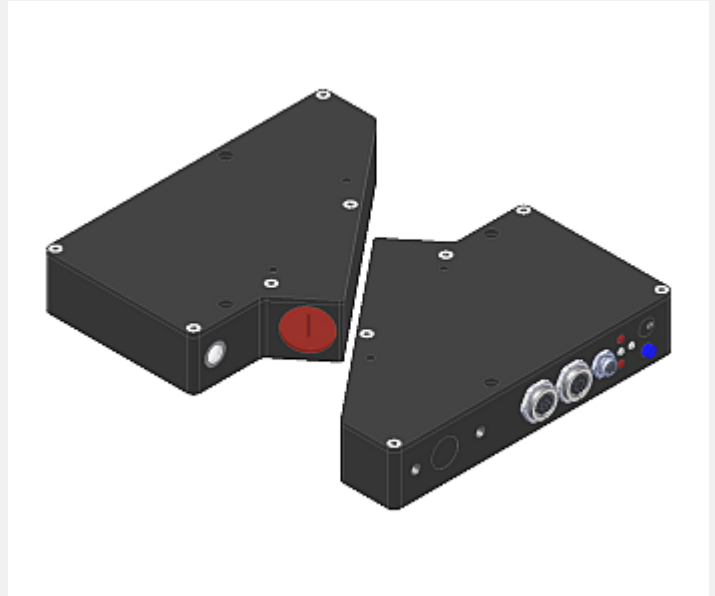


# Line sensors

## ▶ PTSI Master/Slave-System

- Line laser <1 mW, wave length 670 nm, laser class 2
- Visible red laser line, typ. 0.2 mm x 3 mm
- Measuring range Master, Slave: each typ. 4 mm
- Start of measuring range Master/Slave: each at typ. 35 mm
- Resolution Master, Slave: each typ. 1 µm
- Integrated interference filter and red light filter
- CCD line detector with 1024 pixel, 4096 pixel
- 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 (voltage 0...+10V, optional 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



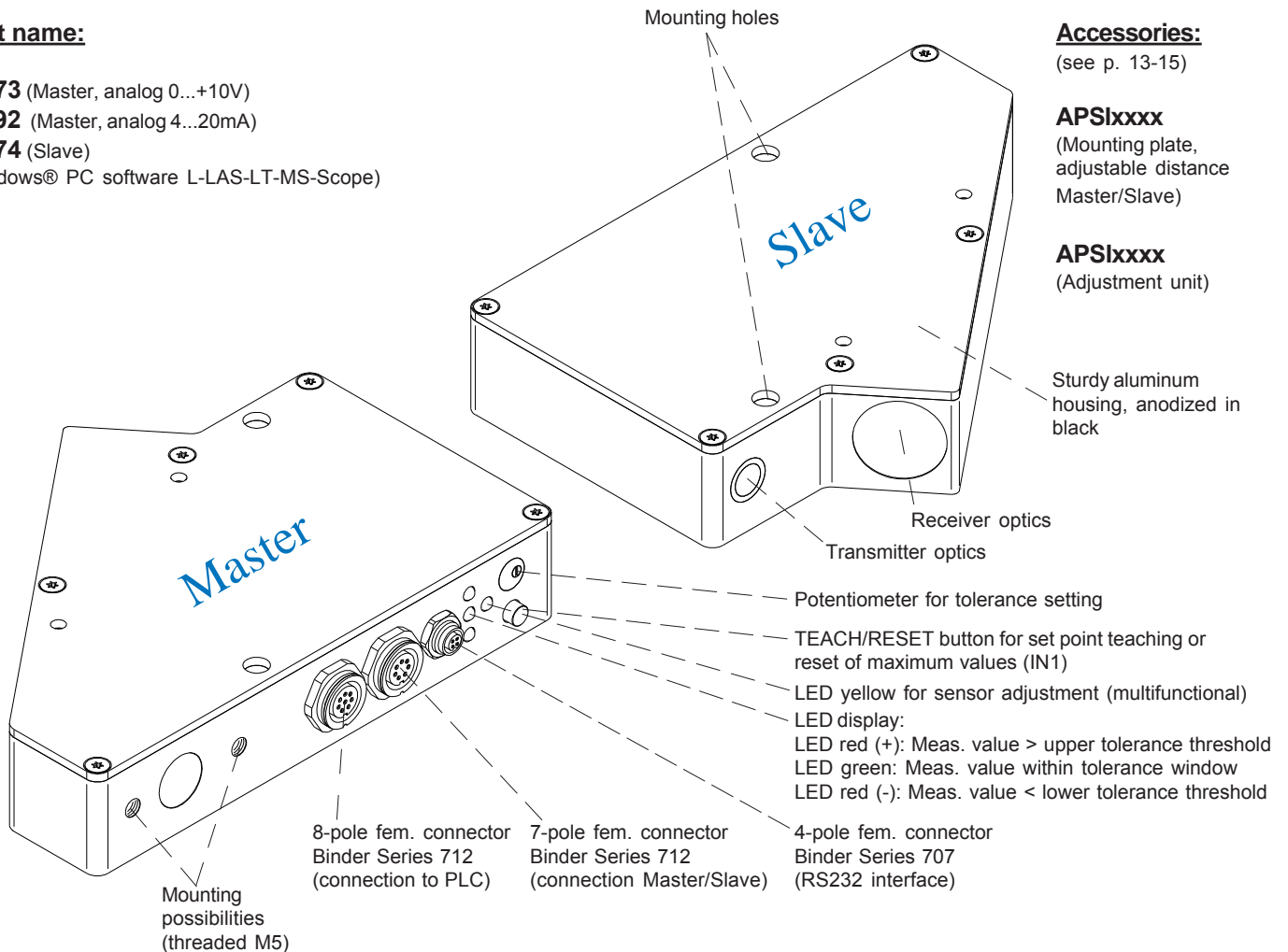
### Design

**Product name:**


- PTSI0273** (Master, analog 0...+10V)
- PTSI0292** (Master, analog 4...20mA)
- PTSI0274** (Slave)
- (incl. Windows® PC software L-LAS-LT-MS-Scope)

**Accessories:**

- (see p. 13-15)
- APSIxxxx**  
(Mounting plate, adjustable distance Master/Slave)
- APSIxxxx**  
(Adjustment unit)

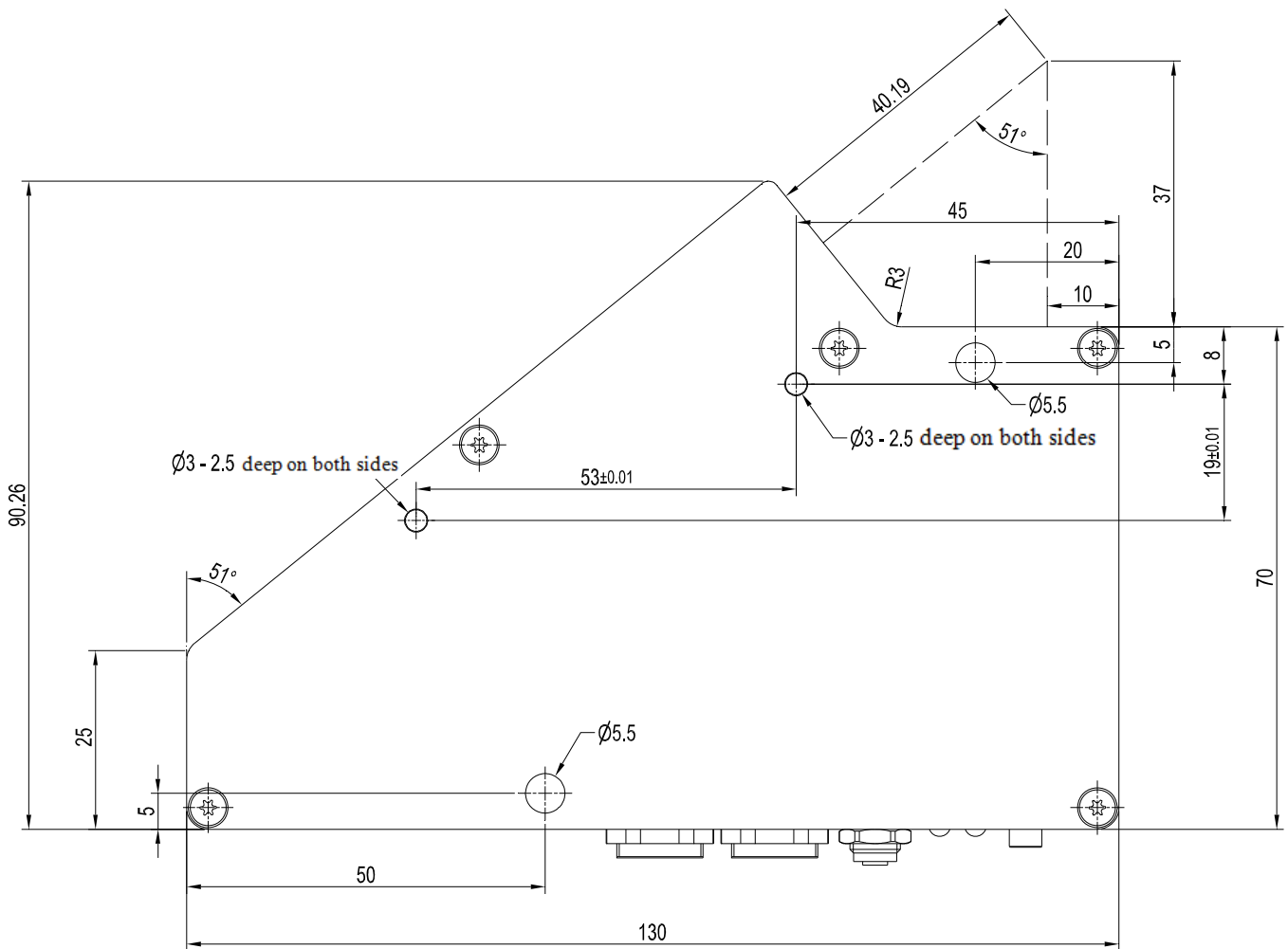
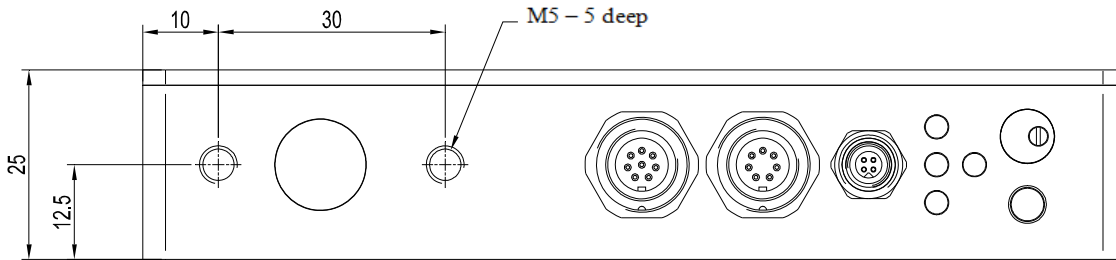


<b>Technical Data</b>
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Model	PTSI0273 PTSI0274 (Slave)	PTSI0292 PTSI0274 (Slave)
Light source	Semi-conductor laser, 670 nm, DC operation, 1 mW max. opt. power, laser class 2 acc. to DIN EN 60825-1. The use of these laser transmitters therefore requires no additional protective measures.	
Measuring range	MA and SL: each typ. 4 mm	
Start of measuring range	MA and SL: each typ. 35 mm (measured from housing edge, cf. picture beam path)	
End of measuring range	MA and SL: each typ. 39 mm (measured from housing edge, cf. picture beam path)	
Resolution	MA and SL: each typ. 1 µm (i.e. 2x 1 µm)	
Reproducibility	MA and SL: each typ. ± 1 µm (i.e. 2x ± 1 µm)	
Linearity	MA and SL: each 0.15% FSR (full scale range) (i.e. 2x 0.15%)	
Laser line geometry	typ. 0.2 mm x 3 mm	
Optical filter	Interference filter, red light filter	
Analog output (1x)	voltage output (0 ... +10V)	current output (4 ... 20mA)
Digital outputs (3x) (OUT0, OUT1, OUT2)	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: External trigger, IN1: Teach/Reset (double function) input voltage +Ub/0V, with protective circuit	
Voltage supply	+24VDC (± 10%)	
Sensitivity setting	adjustable 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	
Temperature ranges	operating temperature range: -10°C ... +50°C, storage temperature range: -20°C ... +85°C	
Housing material	aluminium, anodized in black	
Housing dimensions	each Master and Slave: LxWxH approx. 130 mm x 90.26 mm x 25 mm (without flange connectors)	
Type of connector	Master: 8-pole circular fem. connector type Binder 712 (PLC/Power) 4-pole circular fem. connector type Binder 707 (PC/RS232) 7-pole circular fem. connector type Binder 712 (connection Master/Slave) Slave: 8-pole circular fem. connector type Binder 712 (Power) 7-pole circular fem. connector type Binder 712 (connection Master/Slave)	
Connecting cables	connection to PC (Master): VK207U44 (USB) oder VK207F44 (Sub-D) connection to PLC (each Master and Slave): VK207B45 connection cable Master with Slave: VKSI0124	
Teach/Reset button	for set point teaching or for reset of maximum values via input IN1	
LED display	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)	
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®	
Output polarity	bright-/dark-switching, can be switched under Windows®	

**Dimensions**

PTSI0273 (Master, Analog 0...+10V)  
 PTSI0292 (Master, Analog 4...20mA)  
 PTSI0274 (Slave)

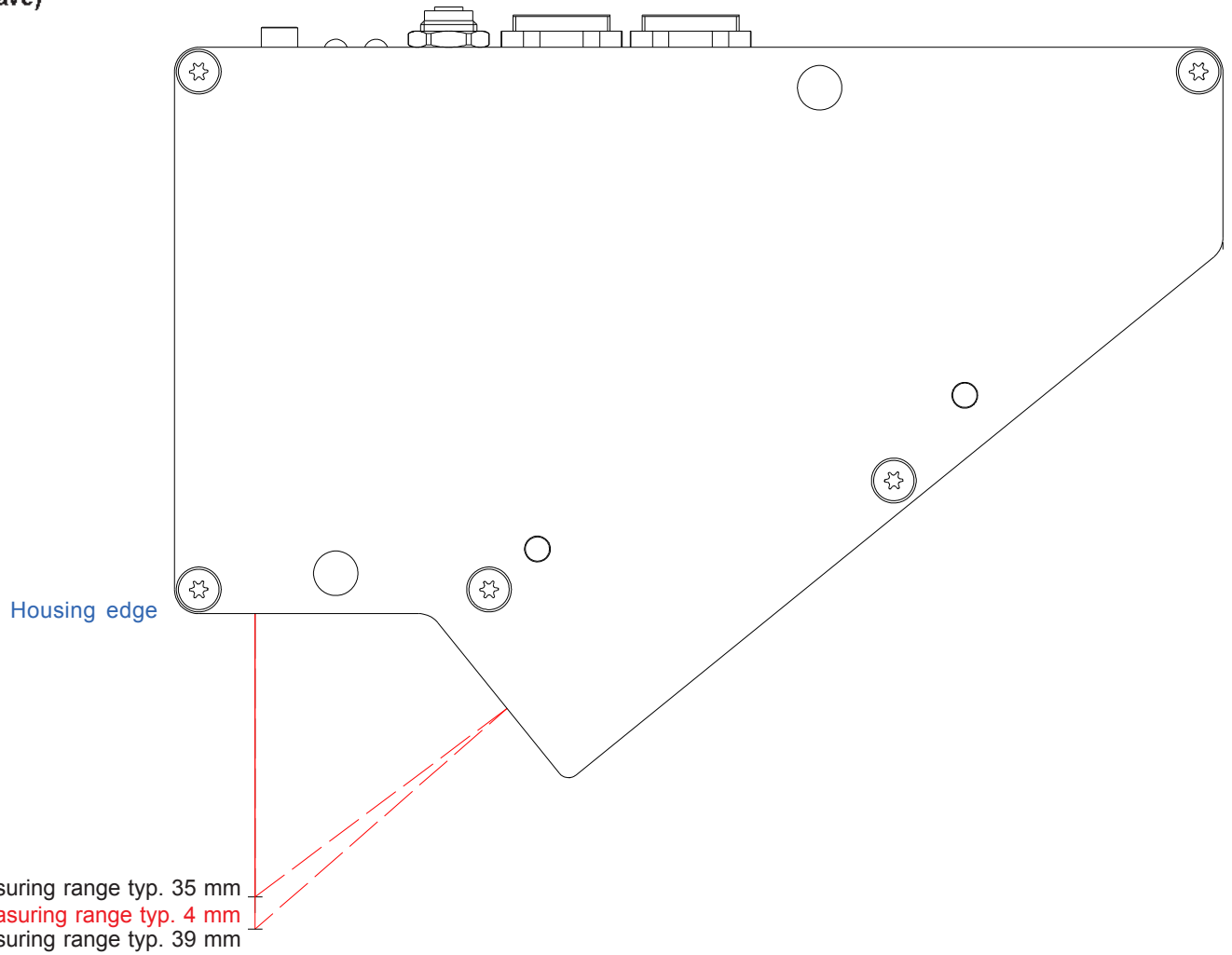


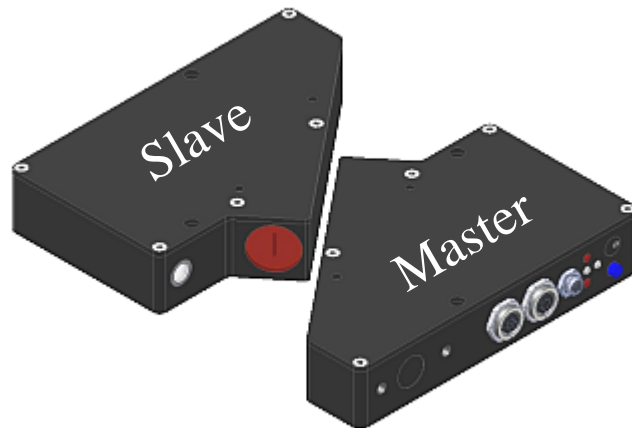
All dimensions in mm



**Beam Path**

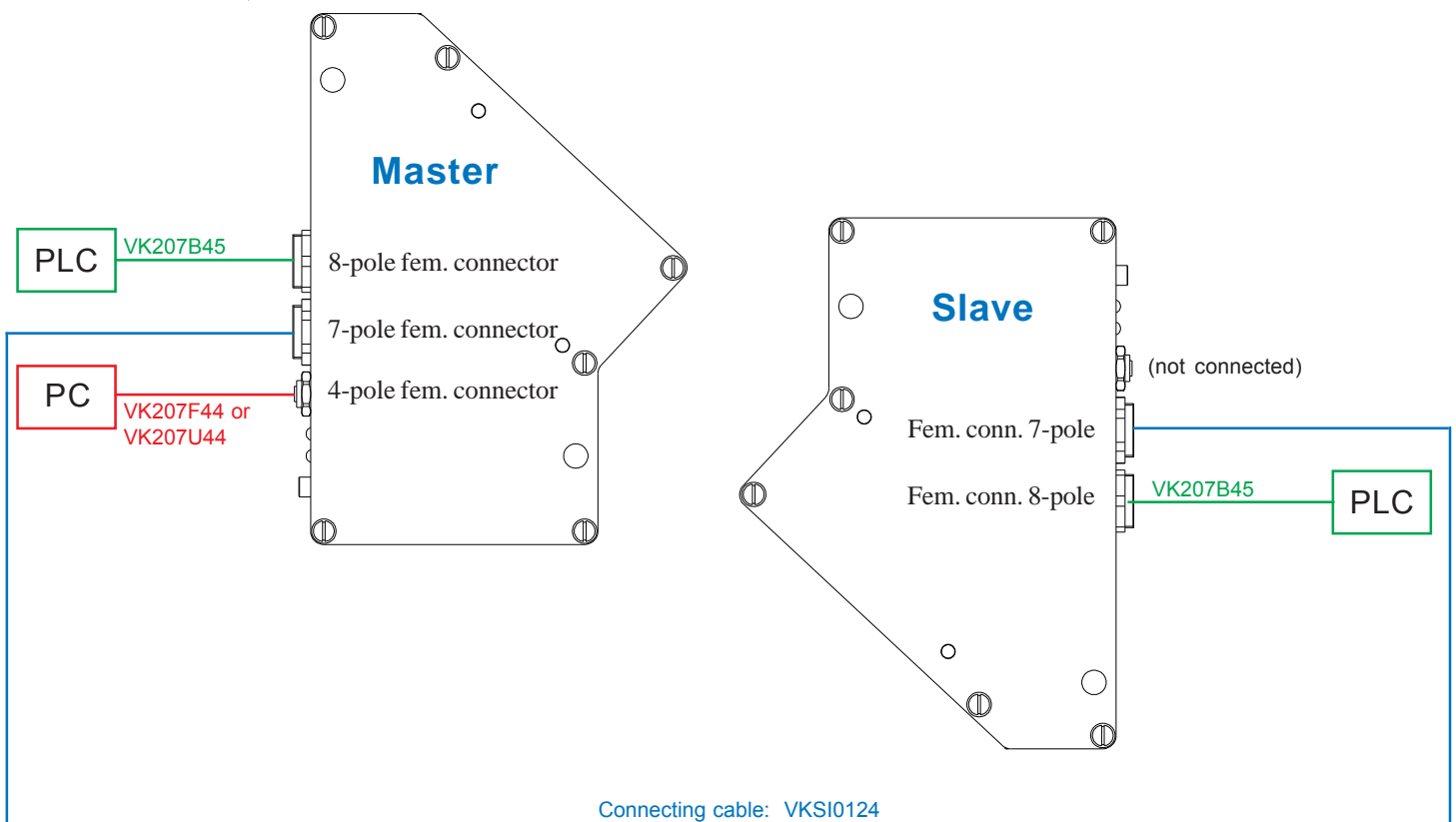
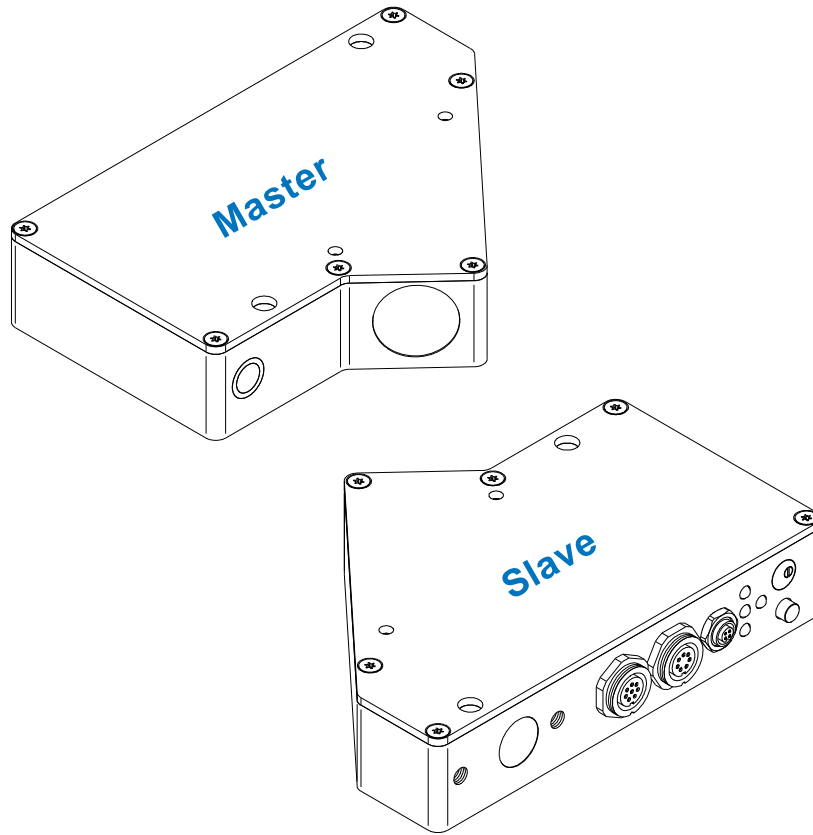
PTSI0273 (Master, Analog 0...+10V)  
 PTSI0292 (Master, Analog 4...20mA)  
 PTSI0274 (Slave)



**System Components****Components of a complete Master/Slave system:****Standard version with analog voltage output 0...+10V:****1x PTSI0273** (Master, incl. Windows® software L-LAS-LT-MS-Scope)**1x PTSI0274** (Slave)**1x VKSI0124** (Connecting cable, connection of Master to Slave)**2x VK207B45** (Connecting cable to PLC, necessary for each Master and Slave)**1x VK207F44** (Connecting cable to PC via RS232 interface, necessary for Master only)alternative: **1x VK207U44** (Connecting cable to PC via USB interface, necessary for Master only)**Standard version with analog current output 4...20mA:****1x PTSI0292** (Master, incl. Windows® software L-LAS-LT-MS-Scope)**1x PTSI0274** (Slave)**1x VKSI0124** (Connecting cable, connection of Master to Slave)**2x VK207B45** (Connecting cable to PLC, necessary for each Master and Slave)**1x VK207F44** (Connecting cable to PC via RS232 interface, necessary for Master only)alternative: **1x VK207U44** (Connecting cable to PC via USB interface, necessary for Master only)

**Connection Scheme**

Connection scheme

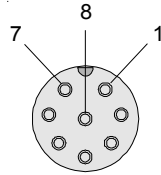


## Connector Assignment

### Connector assignment of Master

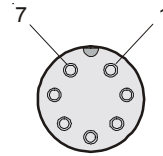
#### Connection to PLC/Power: 8-pole fem. connector Binder Series 712

Pin:	Color:	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 (voltage 0 ... +10V) (optional: current 4 ... 20mA)



#### Connection Master/Slave (SPI): 7-pole fem. connector Binder Series 712

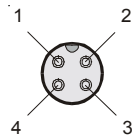
Pin:	Assignment:
1	GND (0V)
2	+3.3VDC
3	SS
4	MISO
5	MOSI
6	SCLK
7	+3.3VDC



### Connection to PC:

#### 4-pole fem. connector Binder Series 707

Pin:	Assignment:
1	+24VDC (+Ub, OUT)
2	GND (0V)
3	Rx0
4	Tx0

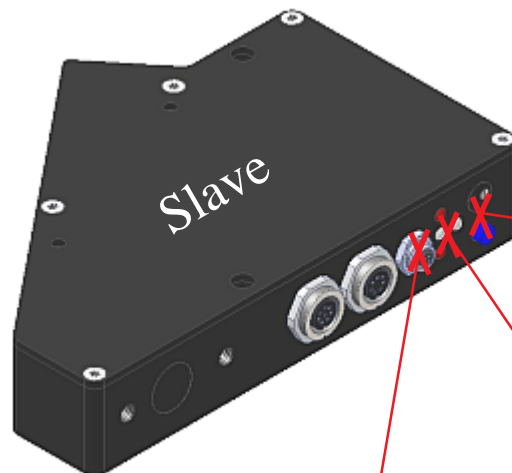
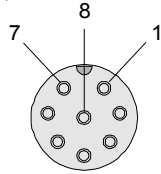


## Connector Assignment

### Connector assignment of Slave

#### Connection to Power: 8-pole fem. connector Binder Series 712

Pin:	Color:	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



Potentiometer and teach button at the Slave are inactive.

LED display at the Slave is inactive.

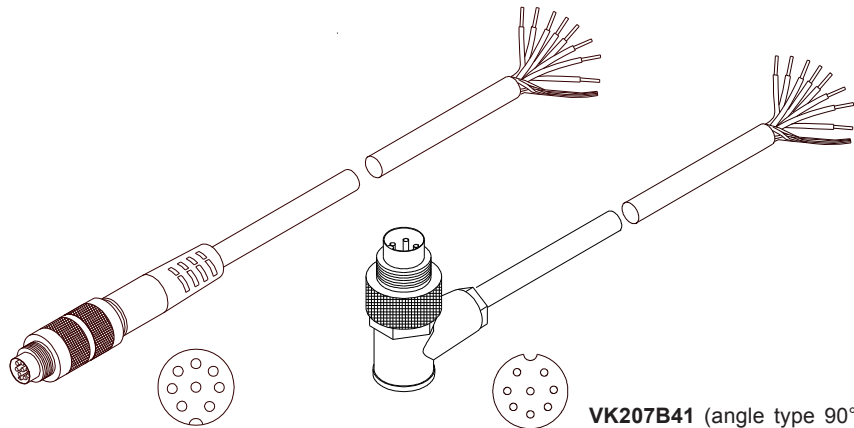
**Attention:**  
4-pole connector at the Slave is inactive. Please use the RS232/USB interface at the Master!

**Connecting Cables**

**Connection Master to PLC and connection Slave to PLC:**

Available connecting cables:

e.g. **VK207B45**  
(standard length: 2m)



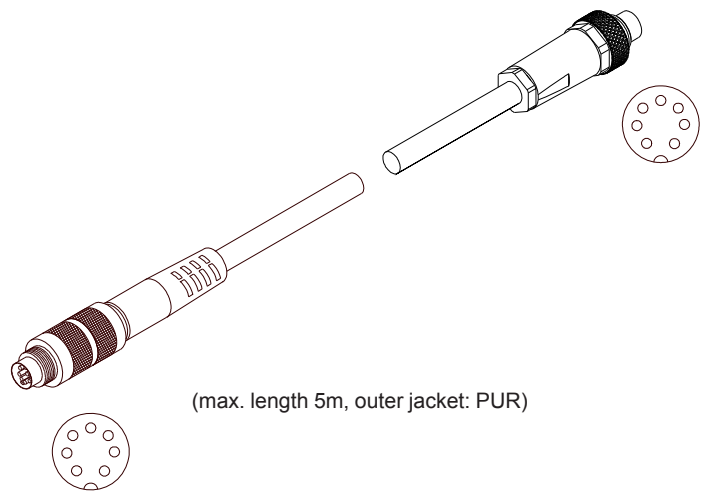
(max. length 25m, outer jacket: PUR)

**VK207B41** (angle type 90°)  
(max. length 25m, outer jacket: PUR)

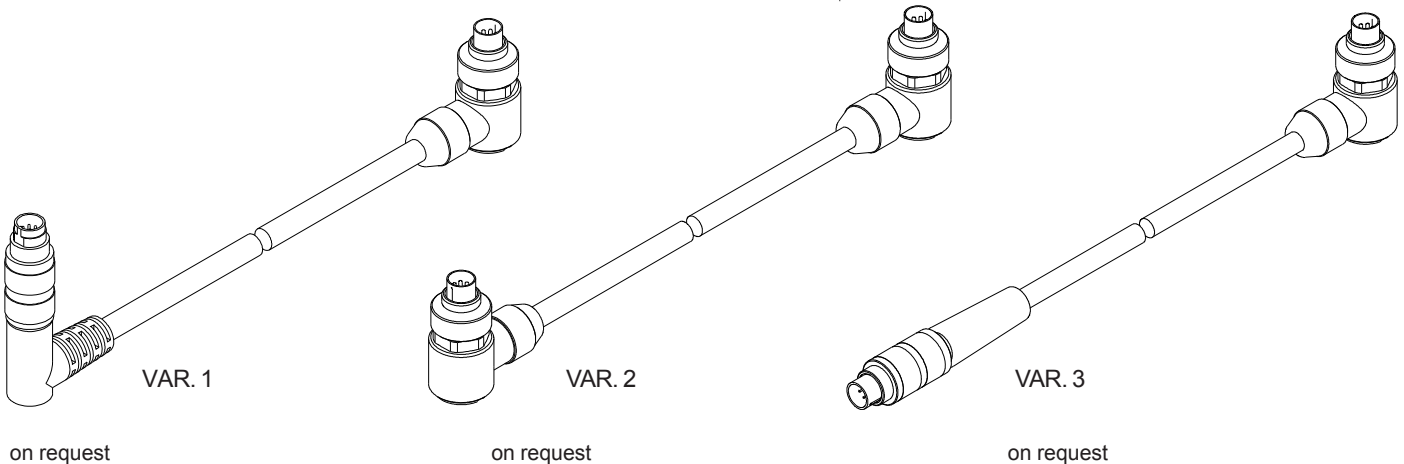
**Connection Master to Slave:**

Available connecting cable:

**VKSI0124** (standard length: 1m)



(max. length 5m, outer jacket: PUR)



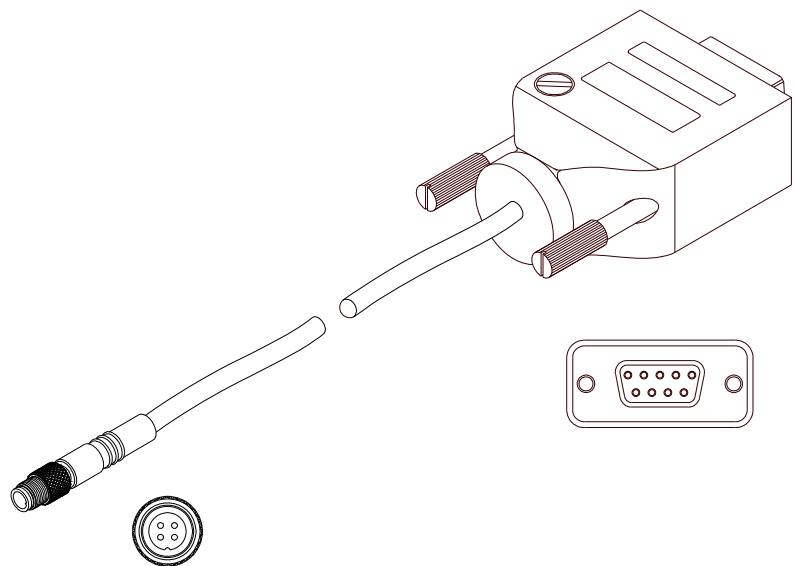
on request

on request

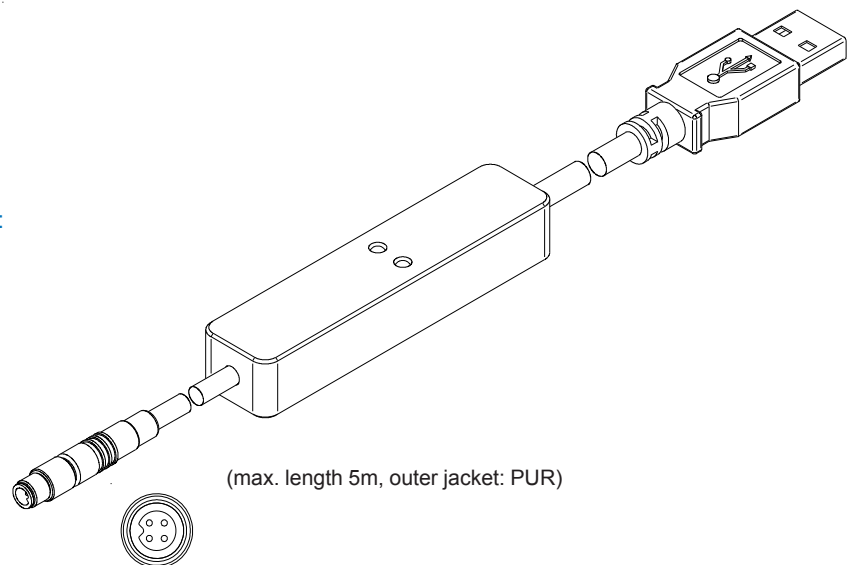
on request

**Connecting Cables****Connection Master to PC: via RS232 interface**

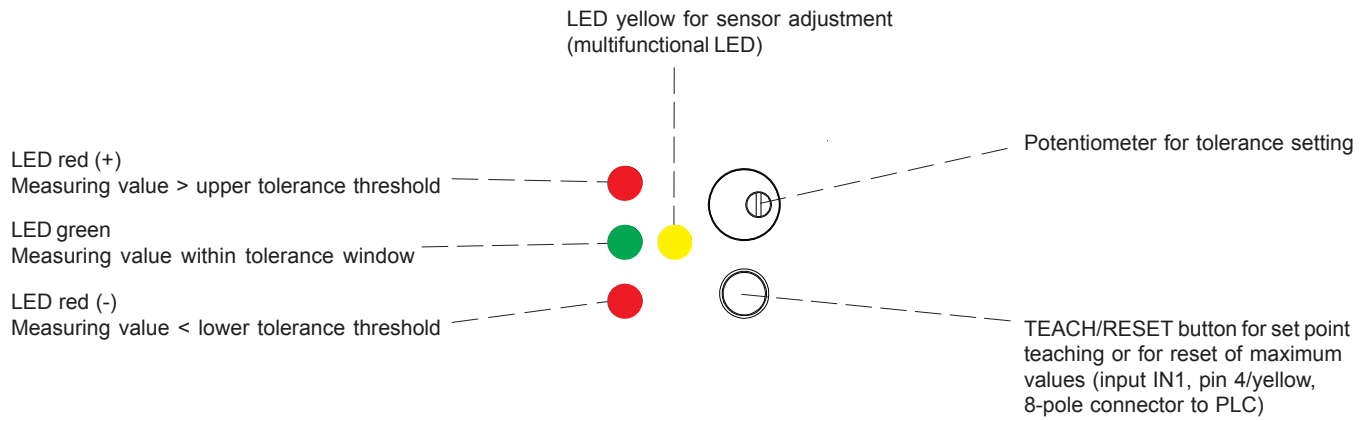
Available connecting cable:

**VK207F44**  
(standard length: 2m)**Alternative:**  
**Connection Master to PC:**  
**via USB interface**

Available connecting cable (incl. driver software):

**VK207U44**  
(standard length: 2m)

**LED Display**



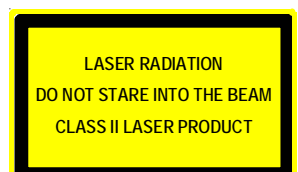
LED display is active only at the Master:



**Laser Warning**

The laser line sensors 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 are supplied with a laser warning label.

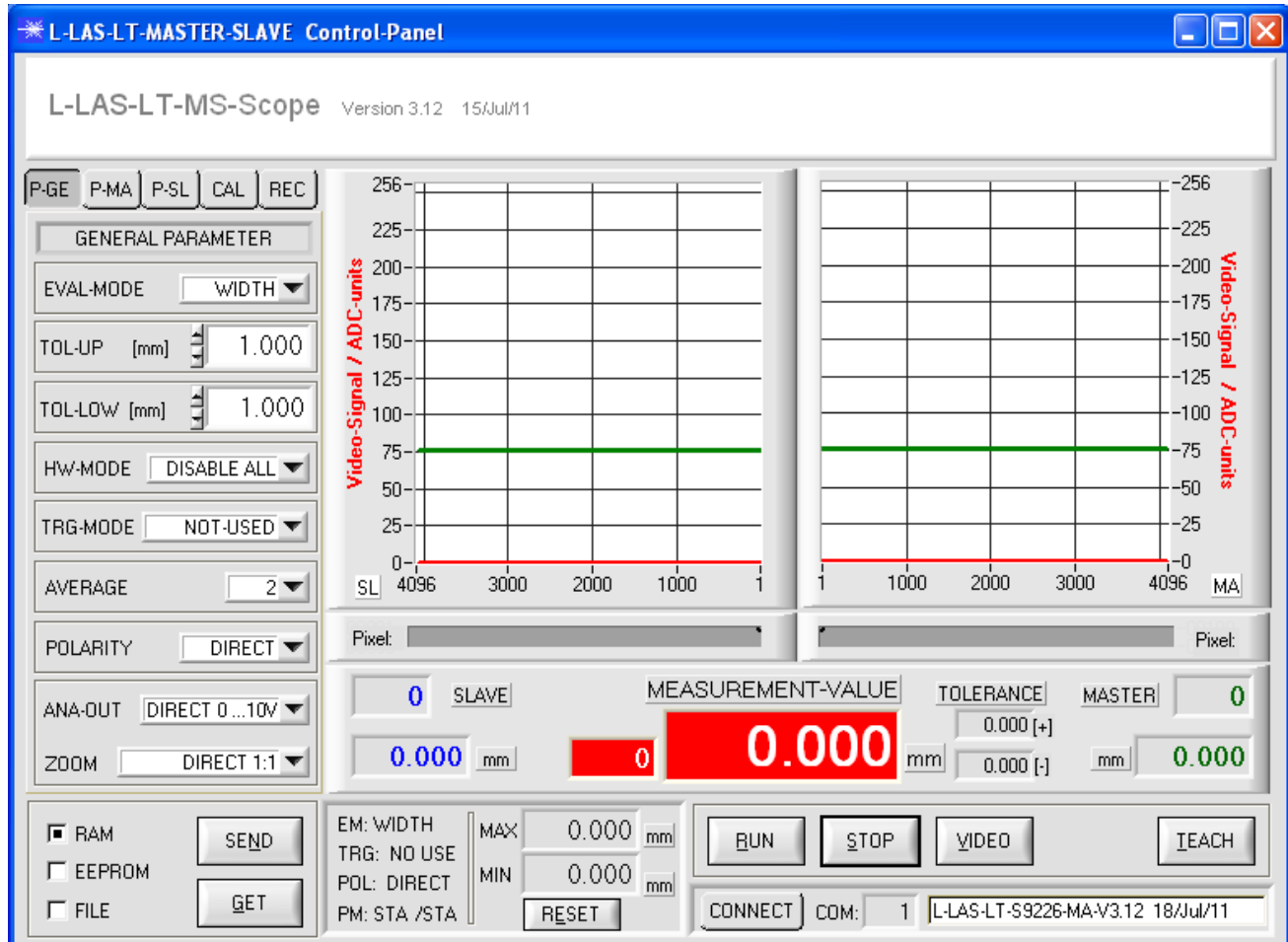


## Parameterization

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

The sensor of the master/slave system can be easily parameterised with the Windows® user interface. For this purpose the master is connected to the PC with the serial interface cable. When parameterization is finished, the PC can be disconnected again.

#### Windows® user interface:



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

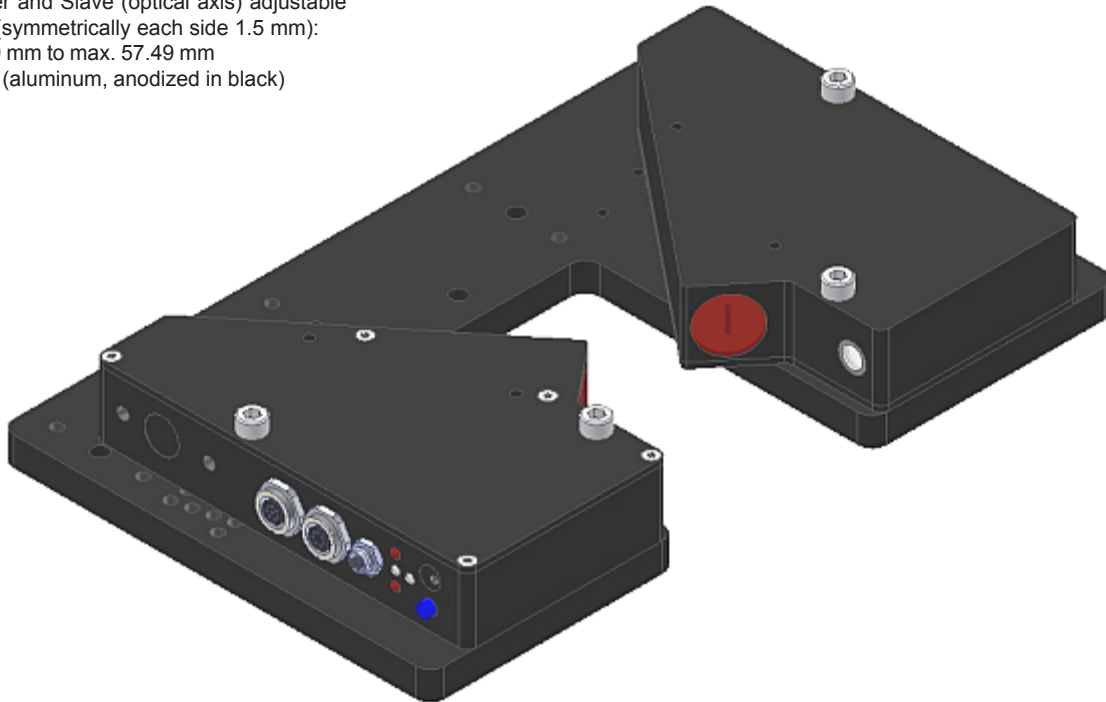
## Mounting

### Mounting plate APSixxxx

(please order separately)

### suitable for Master/Slave line sensor PTSI0273 / PTSI0274 / PTSI0292

- Distance Master and Slave (optical axis) adjustable in 3 mm steps (symmetrically each side 1.5 mm): from min. 33.49 mm to max. 57.49 mm
- Sturdy material (aluminum, anodized in black)

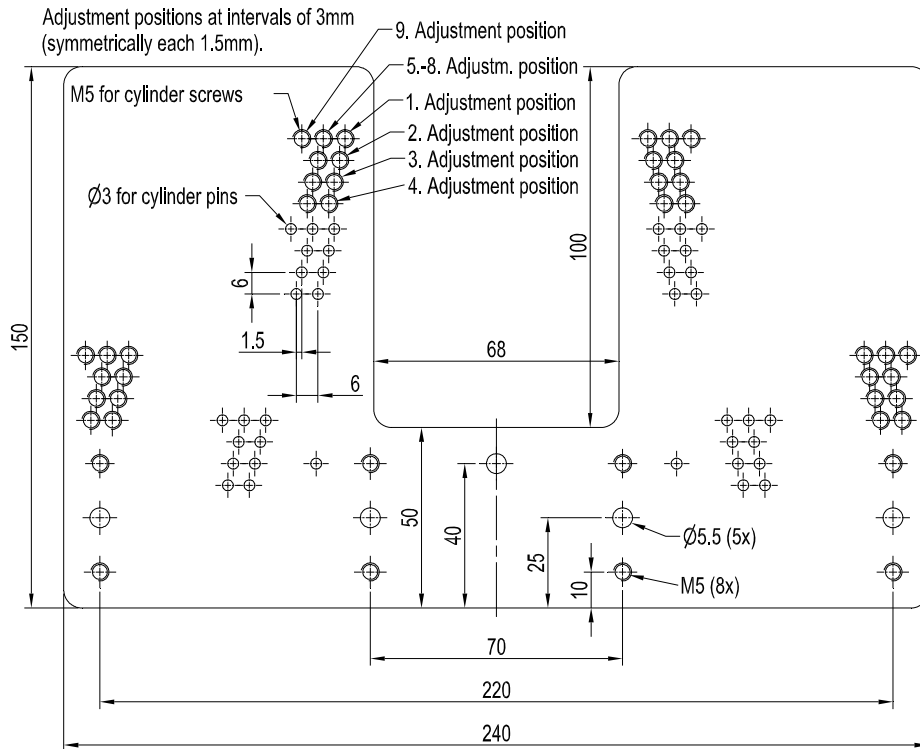
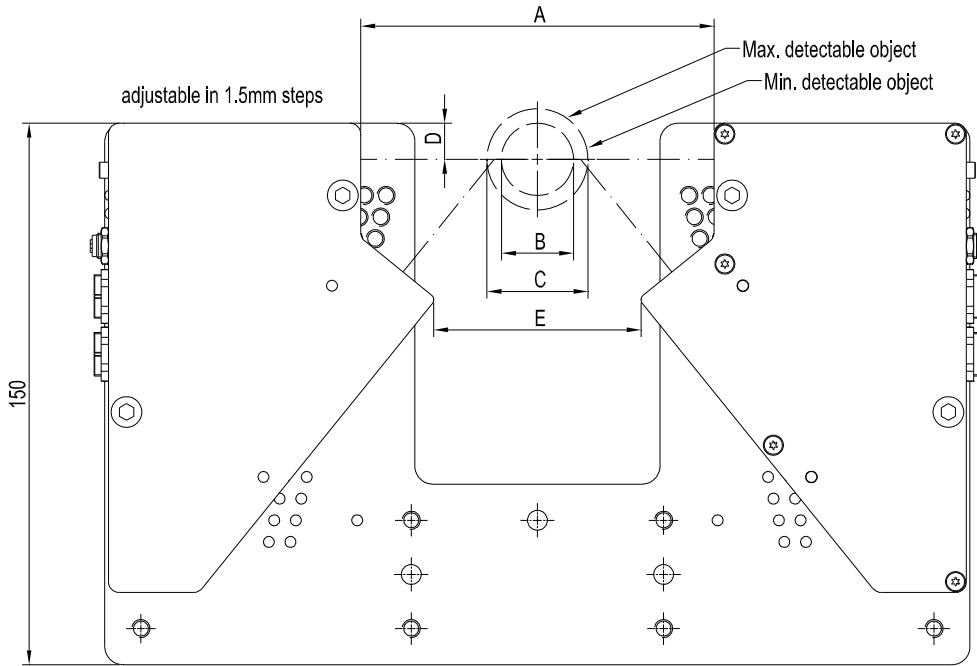
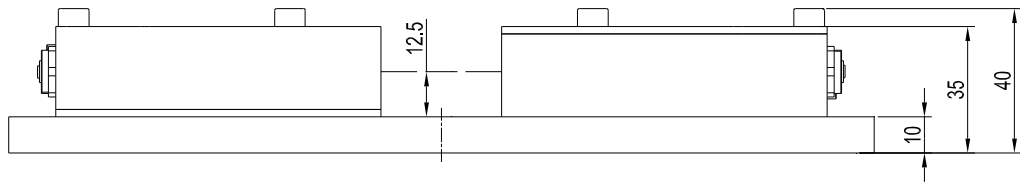


### Adjustment positions (cf. drawing on the next page): E = Distance Master/Slave (optical axis) in mm

Adjustment position	A	B	C	D	E
1.	74	0	4	10	33.49
2.	77	0	7	16	36.49
3.	80	0	10	22	39.49
4.	83	5	13	28	42.49
5.	86	8	16	10	45.49
6.	89	11	19	16	48.49
7.	92	14	22	22	51.49
8.	95	17	25	28	54.49
9.	98	20	28	10	57.49

**Mounting**

**Mounting plate  
APSixxxx**



(All dimensions in mm)

**Mounting**

**Adjustment unit (measuring table)**

**APSIxxxx**

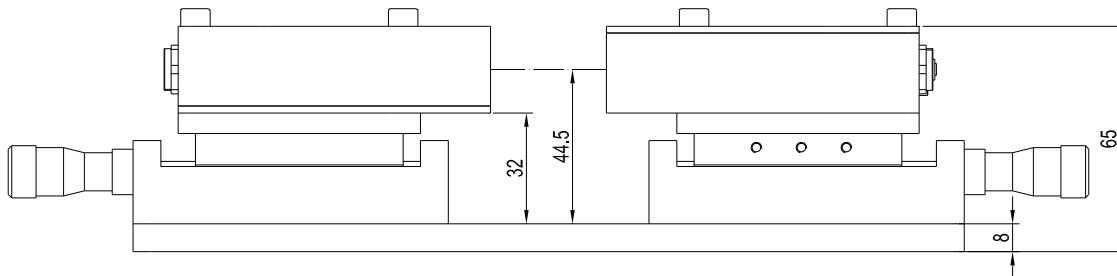
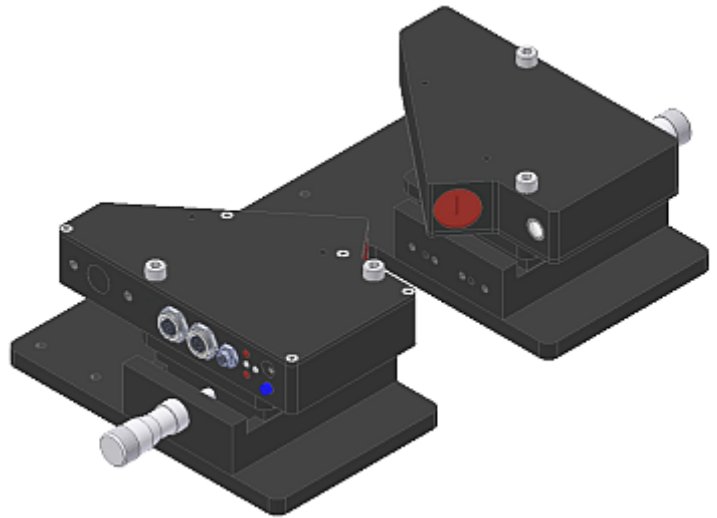
(please order separately)

for optimal adjustment (via micrometer screws)

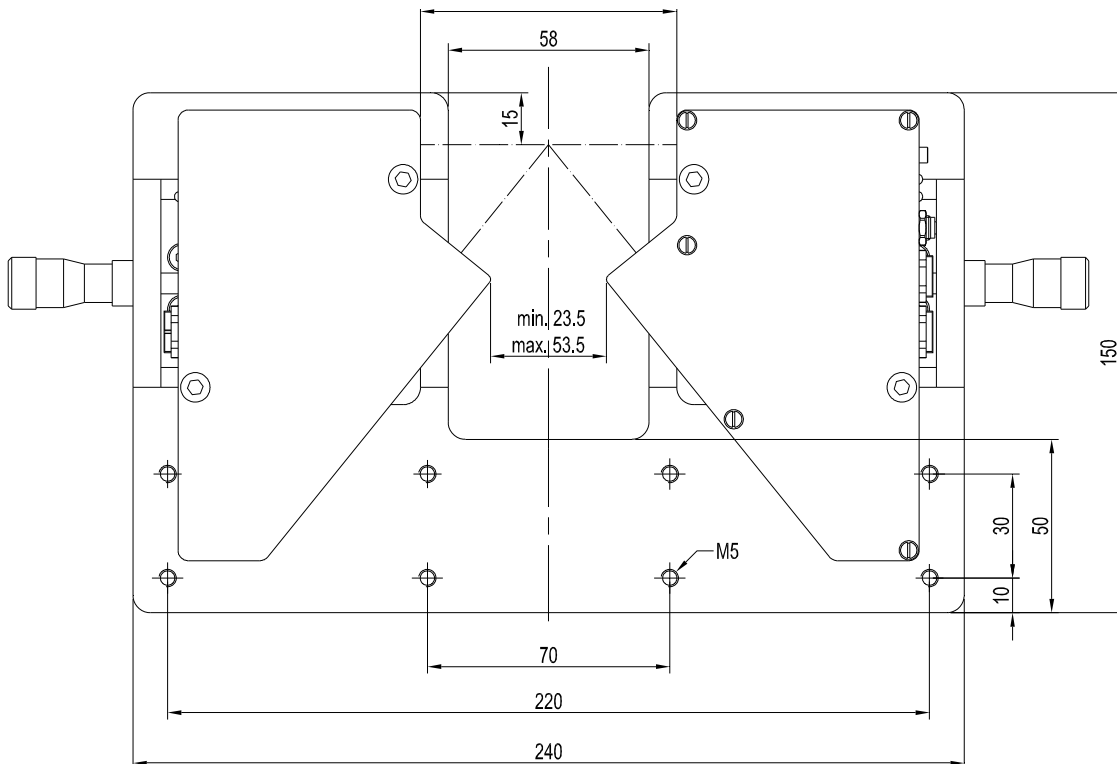
of a Master/Slave laser triangulation sensor

**PTSI0273 / PTSI0292(Master) und**

**PTSI0274 (Slave)**



distance adjustable from 64 to 94mm



All dimensions in mm

