Top Speed Plus Pinpoint Accuracy.

Distance Measurement with the Compact Laser Triangulation Sensors L-LAS-LT-SL.

Distance Measuring and Positioning

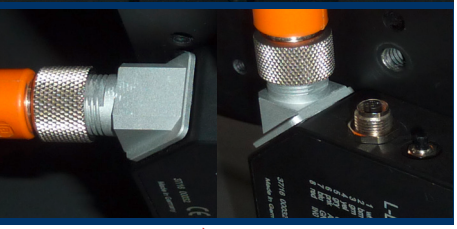
L-LAS-LT-SL-P / L-LAS-LT-SL-L Series

Laser Triangulation Sensors

Sensor Instruments

Let's make sensors more individual

L-LAS-LT-SL-P series / L-LAS-LT-SL-L series
Laser triangulation sensors with laser spot or laser line



Distance measurement in a range from 21 mm up to 1000 mm
The laser triangulation sensors of the L-LAS-LT-SL series are available in various variants with different reference distances (from 32.5 mm up to 600 mm) and in two types per variant: Either as type L-LAS-LT-SL-P with visible red laser spot (typ. Ø 0.3 mm) or as type L-LAS-LT-SL-L with visible red laser line (typ. 0.3 mm x 3 mm). Depending on the chosen variant the sensors have a measuring range from 21 mm up to 1000 mm.

Extremely high dynamic range
The L-LAS-LT-SL series features an extremely high dynamic range both with respect to different surfaces (dull/glossy or rough/polished) and to the existing distance range. Due to automatic laser power correction and variable exposure time, color and gloss differences have no effect on the measurement result.

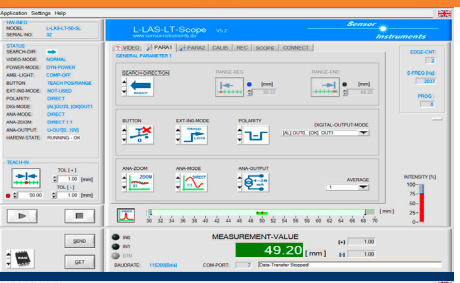
Pushbutton for easy operation
The integrated pushbutton can be used to define the measuring range and to set a tolerance band for the current distance value (depending on the settings in the Windows® software).

Rotatable connector
A 90° rotatable 8-pole connector with M12 thread ensures optimal sensor flexibility.

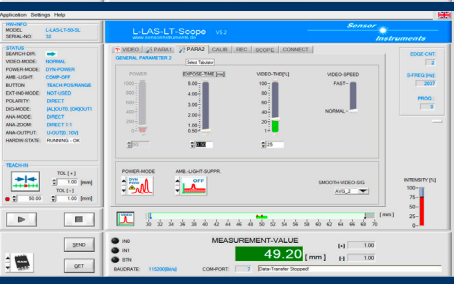
EtherCAT® EtherNet/IP™ IO-Link PROFINET

Digital serial data transfer through integrated 4-pole M5 female connector or 8-pole M12 connector
The integrated 4-pole M5 female connector can be used to establish a RS232 connection. With various adapters connection also can be established through Ethernet, EtherCAT®, PROFINET® and EtherNET/IP™. Optionally, IO-Link is available by means of the 8-pole M12 connector.

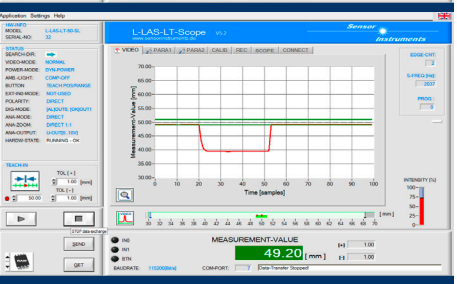
Windows® PC software L-LAS-LT-Scope



Parameter setting with L-LAS-LT-Scope Windows® software
The Windows® user interface allows highly flexible parameterisation of the laser sensor. Parameters such as external teaching, scan direction, measuring range, output polarity of digital signals, analog output (4mA … 20mA or 0V … +10V, analog zoom mode, MAX-MIN/MAX/MIN mode) and others can be easily set with the software.



Optimal adaptation of sensor-specific parameters to the surface to be tested
Depending on the respective surface to be tested (dull, glossy, highly absorbing, high-contrast) both the laser power and the exposure time are dynamically adapted by the L-LAS-LT-Scope Windows® software. A variable video threshold also can be used for adaptation to the respective surface to be tested.



Numeric and graphic display of measurement values under Windows®
The L-LAS-LT-Scope Windows® software provides a numeric and graphic display of the distance measurement values. The specified tolerance band also is displayed, and the numeric measurement value display field changes its color from green to red when the value leaves the tolerance band. In addition to the measurement value display the software also provides information about the number of detected edges and about the current scan frequency.

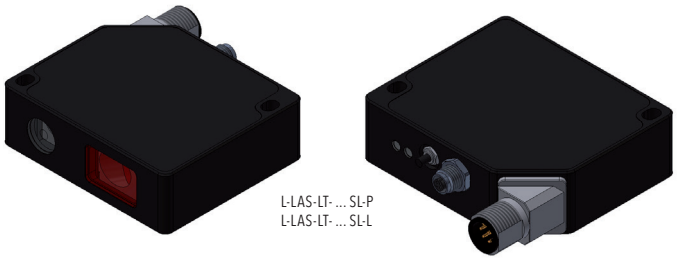
L-LAS-LT-…-SL-P / L-LAS-LT-…-SL-L

Laser triangulation sensors with visible laser spot (-P) or visible laser line (-L)

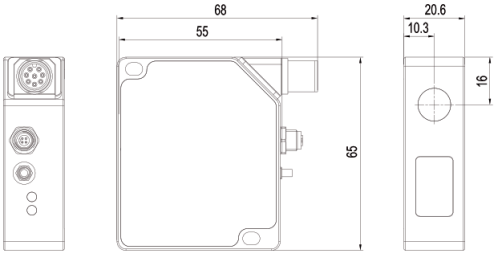
TYPE	LIGHT SOURCE	RECEIVER	LASER LINE GEOMETRY (TYP.)	REFERENCE DISTANCE	MEASURING RANGE (TYP.) (START ... END)	RESOLUTION (TYP.)	REPRODUCIBILITY (TYP.)	LINEARITY (TYP.)	MAX. MEASURING FREQUENCY	DIMENSIONS (APPROX.)	DIGITAL INPUTS/ OUTPUTS	ANALOG OUTPUTS	SOFTWARE, INTERFACE
L-LAS-LT-30-SL-P	Line laser, 670 nm, <1 mW, class 2 laser product	CMOS line detector with 512 pixels, 4096 subpixels	Laser point: ø 0.3 mm	32.5 mm	24 mm (21 ... 45 mm)	6 µm	±6 µm	±0,25% FSO	NORMAL mode: 2 kHz FAST mode: 3.3 kHz	65x55x20.6 mm (without connector)	2x digital input: IN0, IN1 (0/+24 V) 2x digital output: OUT0, OUT1 (0/+24 V), npn-/pnp-able	1x analog output current: I-OUT (4...20 mA) 1x analog output voltage: ANA (0...+10 V)	L-LAS-LT-Scope, RS232 (USB- and Ethernet adapter available)
L-LAS-LT-50-SL-P				50 mm	38 mm (32 ... 70 mm)	10 µm	±10 µm						
L-LAS-LT-80-SL-P				80 mm	78 mm (42 ... 120 mm)	20 µm	±20 µm						
L-LAS-LT-130-SL-P				125 mm	150 mm (50 ... 200 mm)	40 µm	±40 µm						
L-LAS-LT-180-SL-P				180 mm	240 mm (60 ... 300 mm)	60 µm	±60 µm						
L-LAS-LT-350-SL-P				350 mm	510 mm (90 ... 600 mm)	150 µm	±150 µm						
L-LAS-LT-600-SL-P				600 mm	850 mm (150 ... 1000 mm)	250 µm	±250 µm						
L-LAS-LT-30-SL-L			Laser line: 0.3 x 3 mm	32.5 mm	24 mm (21 ... 45 mm)	6 µm	±6 µm						
L-LAS-LT-50-SL-L				50 mm	38 mm (32 ... 70 mm)	10 µm	±10 µm						
L-LAS-LT-80-SL-L				80 mm	78 mm (42 ... 120 mm)	20 µm	±20 µm						
L-LAS-LT-130-SL-L				125 mm	150 mm (50 ... 200 mm)	40 µm	±40 µm						
L-LAS-LT-180-SL-L				180 mm	240 mm (60 ... 300 mm)	60 µm	±60 µm						
L-LAS-LT-350-SL-L				350 mm	510 mm (90 ... 600 mm)	150 µm	±150 µm						
L-LAS-LT-600-SL-L				600 mm	850 mm (150 ... 1000 mm)	250 µm	±250 µm						
GENERAL TECHNICAL DATA	**Voltage supply:** +24VDC (±10%). **Current consumption:** <200 mA. **Encl. rating:** IP54 (electronics), IP67 (optics). **Housing material:** Aluminum, anodized in black. **Connector type:** 8-pole conn. 713/763, 4-pole M5 fem. conn. 707. **LED display:** 2x tricolor LED (tolerance range monitoring), 1x green (multifunctional). **Max. switching current:** 100 mA, short circuit proof. **Operating temp. range:** -10°C…+50°C. **EMC test acc. to:** DIN EN 60947-5-2.												

Illustrations

Dimensions in mm

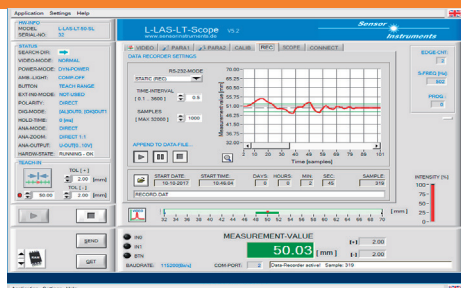


L-LAS-LT- ... SL-P
L-LAS-LT- ... SL-L



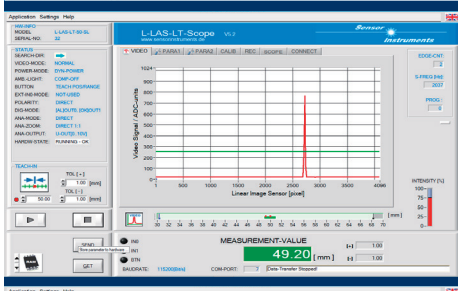
Data recording by means of integrated recorder function

This allows the data to be stored in a file. The data can then be accessed later with Word and Excel.



Graphical display of the laser position

In complex applications it may be necessary to have more detailed information about how the laser sensor perceives the respective surface to be measured, and the Windows® user interface with its laser-specific data (video scan of the laser spot on the detector line) also is highly useful for this purpose.



Oscilloscope on board

The L-LAS-LT-Scope Windows® software features a scope function that allows the recording of signals in real time. The current measurement value, the switching outputs, and the digital input signals are displayed simultaneously. Pretrigger, trigger level, and various trigger functions such as "single shot", "rising edge", "falling edge", "external trigger", and an adjustable time base (scan rate) are available here. The current cycle time (CYCLE-TIME) and the corresponding scan frequency (CYCLE-FREQ) of a measurement process also are displayed.

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