



# LUT9U-P120L

## LUT9

LUMINESCENCE SENSORS

**SICK**  
Sensor Intelligence.



### Ordering information

Type	Part no.
LUT9U-P120L	1046188

Other models and accessories → [www.sick.com/LUT9](http://www.sick.com/LUT9)

Illustration may differ



### Detailed technical data

#### Features

<b>Dimensions (W x H x D)</b>	30.4 mm x 53 mm x 80 mm
<b>Sensing distance</b>	20 mm <sup>1)</sup>
<b>Housing design</b>	Large
<b>Working range</b>	10 mm ... 40 mm
<b>Light source</b>	LED, UV <sup>2)</sup>
<b>Wave length</b>	375 nm
<b>Light emission</b>	Long side
<b>Light spot size</b>	3 mm x 9 mm
<b>Light spot direction</b>	Vertical
<b>Receiving filters</b>	≤ 420 nm <sup>3)</sup>
<b>Receiving range</b>	450 nm ... 750 nm
<b>Adjustment</b>	Teach-in button, IO-Link (optional)
<b>Output function</b>	Light switching <sup>4)</sup>

<sup>1)</sup> From leading edge of lens.

<sup>2)</sup> Average service life: 100,000 h at T<sub>J</sub> = +25 °C.

<sup>3)</sup> Filter blocks shorter wavelengths to suppress background luminescence.

<sup>4)</sup> L/D switching via teach-in or IO-Link.

## Mechanics/electronics

<b>Supply voltage</b>	10 V DC ... 30 V DC <sup>1)</sup>
<b>Ripple</b>	< 5 V <sub>pp</sub> <sup>2)</sup>
<b>Current consumption</b>	< 100 mA <sup>3)</sup>
<b>Switching frequency</b>	0.5 kHz, 2.5 kHz, 6.5 kHz <sup>4)</sup> adjustable
<b>Response time</b>	1 ms, 200 μs, 75 μs <sup>5)</sup>
<b>Switching output</b>	PNP
<b>Switching output (voltage)</b>	PNP: HIGH = U <sub>V</sub> ≤ 2 V / LOW approx. 0 V
<b>Switching mode</b>	Light switching
<b>Analog output</b>	0 mA ... 13 mA
<b>Output current I<sub>max.</sub></b>	100 mA
<b>Time delay</b>	Switch-off delay, 0 ms / 10 ms / 20 ms, adjustable (0 ms = default)
<b>Connection type</b>	Male connector M12, 4-pin
<b>Protection class</b>	II <sup>6)</sup>
<b>Circuit protection</b>	U <sub>V</sub> connections, reverse polarity protected Output Q short-circuit protected Interference pulse suppression
<b>Enclosure rating</b>	IP67
<b>Weight</b>	400 g
<b>Housing material</b>	Zinc diecast

<sup>1)</sup> Limit values when operated in short-circuit protected network: max. 8 A.

<sup>2)</sup> May not fall below or exceed U<sub>V</sub> tolerances.

<sup>3)</sup> Without load.

<sup>4)</sup> With light/dark ratio 1:1, without timer stage.

<sup>5)</sup> Signal transit time with resistive load.

<sup>6)</sup> Reference voltage DC 50 V.

## Communication interface

<b>IO-Link</b>	✓, IO-Link V1.0
VendorID	26
DeviceID HEX	80000F
DeviceID DEC	8388623
<b>Cycle time</b>	2.3 ms
<b>Process data structure</b>	Bit 0 = switching signal Q <sub>L1</sub> Bit 1 ... 5 = empty Bit 6 ... 15 = Analog Measurement Value

## Ambient data

<b>Ambient operating temperature</b>	-10 °C ... +55 °C
<b>Ambient temperature, storage</b>	-25 °C ... +75 °C
<b>Shock load</b>	According to IEC 60068

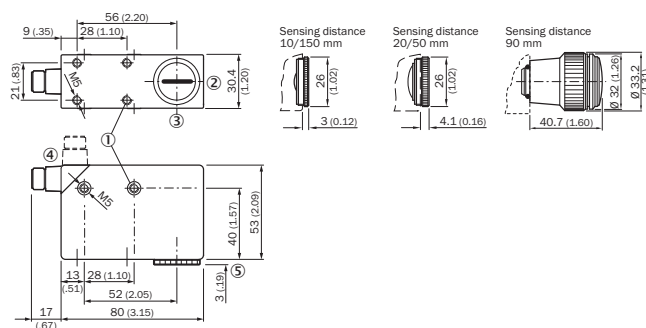
## Classifications

<b>ECLASS 5.0</b>	27270908
<b>ECLASS 5.1.4</b>	27270908

<b>ECLASS 6.0</b>	27270908
<b>ECLASS 6.2</b>	27270908
<b>ECLASS 7.0</b>	27270908
<b>ECLASS 8.0</b>	27270908
<b>ECLASS 8.1</b>	27270908
<b>ECLASS 9.0</b>	27270908
<b>ECLASS 10.0</b>	27270908
<b>ECLASS 11.0</b>	27270908
<b>ECLASS 12.0</b>	27270908
<b>ETIM 5.0</b>	EC001822
<b>ETIM 6.0</b>	EC001822
<b>ETIM 7.0</b>	EC001822
<b>ETIM 8.0</b>	EC001822
<b>UNSPSC 16.0901</b>	39121528

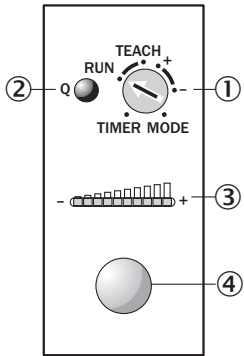
**Dimensional drawing** (Dimensions in mm (inch))

LUT9x-x1xxx, light Emission: Long side



- ① M5 threaded mounting hole, 5.5 mm deep
- ② Lens (light transmission), can be replaced by blind screw
- ③ Center of optical axis
- ④ Connector M12 (rotatable up to 90°)
- ⑤ See dimensional drawings of lenses
- ⑥ Blind screw can be replaced by lens

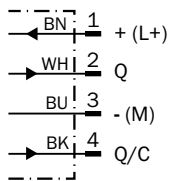
## Adjustments



- ① Rotary selection switch
- ② Function signal indicator (yellow), switching output
- ③ Bar graph (green), power-on left-hand LED
- ④ Teach-in button

## Connection diagram

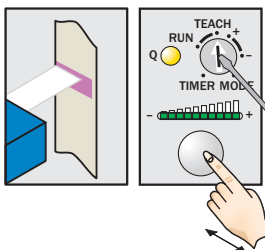
Cd-309



## Concept of operation

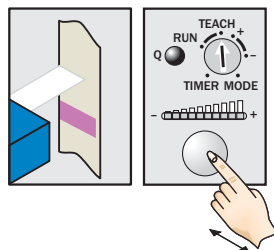
Teach-in static

### 1. Position mark



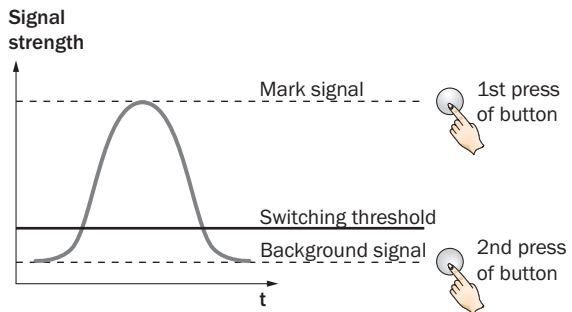
Turn rotary switch to "TEACH" position and press and hold teach-in button > 1 s. Yellow LED flashes slowly.

### 2. Position background



Press and hold teach-in button again > 1 s. Yellow LED goes out.

### Sensitivity setting

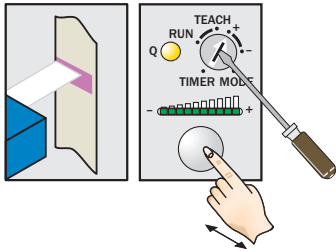


### Note

The bar graph display shows detection reliability. The more LEDs that illuminate, the better the teach-in.

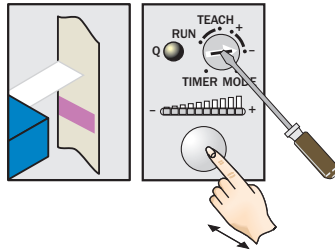
Button +/-

**1. Position mark**



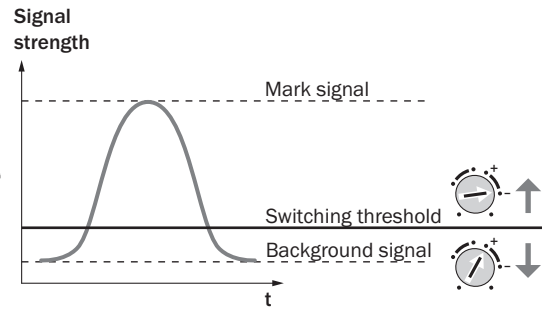
Turn rotary switch to “+” position and press and hold teach-in button until yellow light goes out (more green LEDs illuminate on the bar display).

**2. Position background**



If yellow LED illuminates, turn rotary switch to “-” position and press and hold teach-in button until yellow light just goes out (green LEDs go out on the bar display).

**Sensitivity setting**



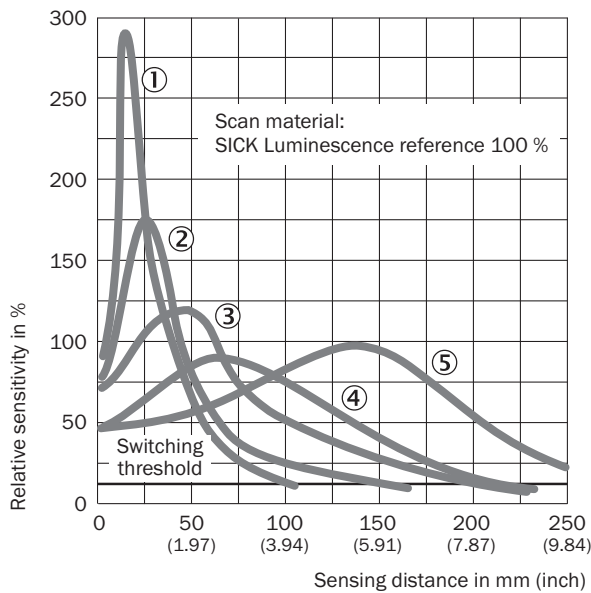
**Note for all settings**

Once configuration is complete, turn the rotary switch to the “RUN” position. The bar display then shows the luminescence intensity (regardless of switching threshold setting).

Adjustments are intended for luminescence background suppression.

**Sensing distance**

Sensing distance

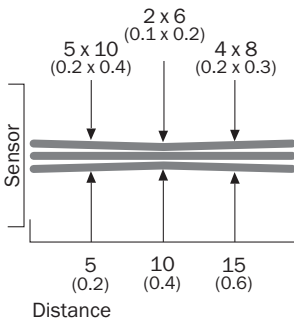


- ① Sensing distance 10 mm
- ② Sensing distance 20 mm
- ③ Sensing distance 50 mm
- ④ Sensing distance 90 mm
- ⑤ Sensing distance 150 mm

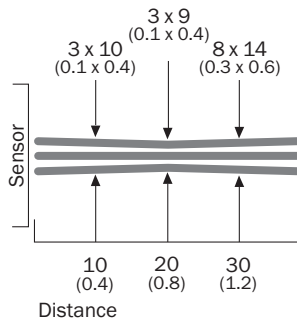
## Light spot size

Light spot size

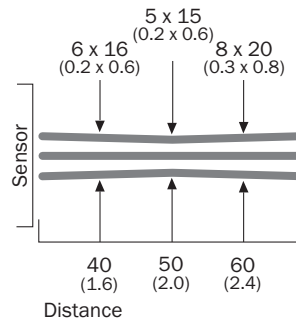
### Sensing distance 10 mm



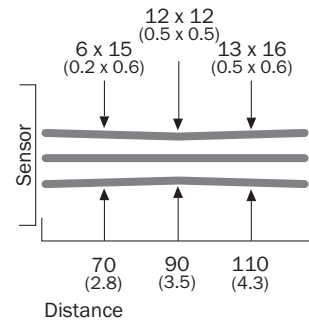
### Sensing distance 20 mm



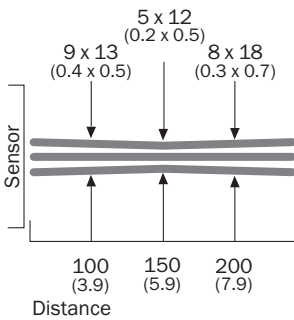
### Sensing distance 50 mm



### Sensing distance 90 mm



### Sensing distance 150 mm




All dimensions in mm (inch)

## Recommended accessories

Other models and accessories → [www.sick.com/LUT9](http://www.sick.com/LUT9)

	Brief description	Type	Part no.
<b>Lenses and accessories</b>			
	Lens, 90 mm scanning distance, M20 x 0.75	OBJ-026	1001326
	Lens, 10 mm sensing distance, M25 x 0.75	OBJ-LUT3-10	2016348
	Lens, 20 mm sensing distance, M25 x 0.75	OBJ-LUT3-20	2016349
	Lens, 50 mm sensing distance, M25 x 0.75	OBJ-LUT3-50	2016350
<b>Universal bar clamp systems</b>			
		BEF-KHS-G01	2022464
		BEF-KHS-K01	2022718

	Brief description	Type	Part no.
		BEF-KHS-KH1	2022726
		BEF-MS12G-A	4056054
		BEF-MS12G-B	4056055
		BEF-MS12L-A	4056052
		BEF-MS12L-B	4056053
Others			
		DOS-1204-G	6007302
		DOS-1204-W	6007303
		YF2A14-020VB3XLEAX	2096234
		YF2A14-050VB3XLEAX	2096235
		YF2A14-100VB3XLEAX	2096236
		YF2A14-150VB3XLEAX	2096237
		YG2A14-020VB3XLEAX	2095895
		YG2A14-050VB3XLEAX	2095897
		YG2A14-100VB3XLEAX	2095898
Sensor Integration Gateway			
		SIG200-0A0412200	1089794
		SIG200-0A0G12200	1102605



## Recommended services

Additional services → [www.sick.com/LUT9](http://www.sick.com/LUT9)

	Type	Part no.
Function Block Factory		
<ul style="list-style-type: none"> <li>• <b>Description:</b> The Function Block Factory is an engineering tool for creating device and environment-specific function blocks that enable IO-Link sensors to be integrated into programmable logic controllers. The Function Block Factory supports common programmable logic controllers (PLCs) of various manufacturers such as Siemens, Beckhoff, Rockwell Automation B&amp;R and more. More information on the FBF can be found <a href="https://fbf.cloud.sick.com" target="_blank">here</a>.</li> <li>• <b>Provision:</b> Customers can obtain access to the Function Block Factory and the license via <a href="https://fbf.cloud.sick.com" target="_blank">https://fbf.cloud.sick.com</a>.</li> </ul>	Function Block Factory	On request

## SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

## WORLDWIDE PRESENCE:

Contacts and other locations –[www.sick.com](http://www.sick.com)