LUT9U-P120L

LUT9

LUMINESCENCE SENSORS

SICK
Sensor Intelligence.

LUT9U-P120L | LUT9
LUMINESCENCE SENSORS

Ordering information

Type	Part no.
LUT9U-P120L	1046188

Other models and accessories ➜ www.sick.com/LUT9

Detailed technical data

Features

Dimensions (W x H x D)	30.4 mm x 53 mm x 80 mm
Sensing distance	20 mm [1]
Housing design (light emission)	Rectangular
Working range	10 mm ... 40 mm
Light source	LED, Ultraviolet light [2]
Wave length	375 nm
Light emission	Long side
Light spot size	3 mm x 9 mm
Light spot direction	Vertical
Receiving filters	KV 418 (standard)
Receiving range	450 nm ... 750 nm
Adjustment	Teach-in button IO-Link (optional)
Output function	Light switching [3]

[1] From front edge of lens.

[2] Average service life: 100,000 h at T_U = +25 °C.

[3] L/D switching via teach-in or IO-Link.

Mechanics/electronics

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

[1] Limit values when operated in short-circuit protected network: max. 8 A.

[2] May not exceed or fall below U_V tolerances.

[3] Without load.

[4] With light/dark ratio 1:1, without timer stage.

[5] Signal transit time with resistive load.

[6] Reference voltage DC 50 V.

Communication interface

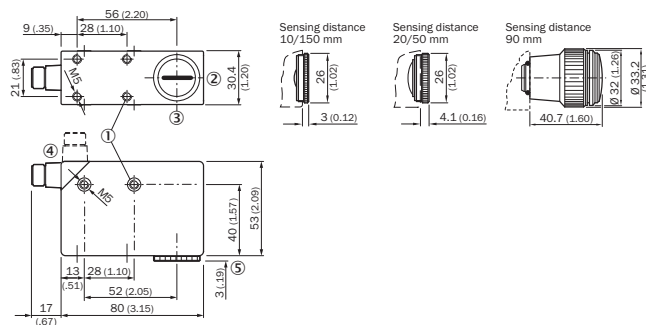|	
Communication interface	IO-Link
Cycle time	2.3 ms
Process data length	16 Bit
Process data structure	Bit 0 = switching signal Q_{L1} Bit 1 ... 5 = empty Bit 6 ... 15 = Analog Measurment Value
VendorID	26
DeviceID HEX	80000F
DeviceID DEC	8388623

Ambient data

Ambient operating temperature	–10 °C ... +55 °C
Ambient storage temperature	–25 °C ... +75 °C
Shock load	According to IEC 60068

Classifications

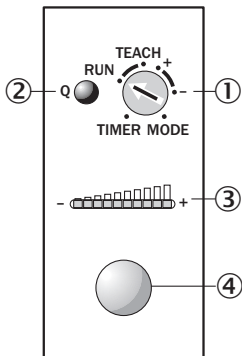|	
ECI@ss 5.0	27270908
ECI@ss 5.1.4	27270908
ECI@ss 6.0	27270908
ECI@ss 6.2	27270908
ECI@ss 7.0	27270908
ECI@ss 8.0	27270908
ECI@ss 8.1	27270908
ECI@ss 9.0	27270908
ECI@ss 10.0	27270908
ECI@ss 11.0	27270908
ETIM 5.0	EC001822
ETIM 6.0	EC001822
ETIM 7.0	EC001822
UNSPSC 16.0901	39121528

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

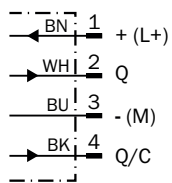## Adjustments

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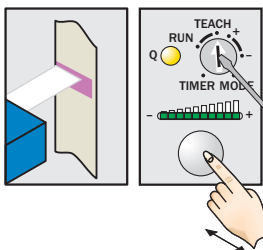④ Teach-in button

Connection diagram

Cd-309

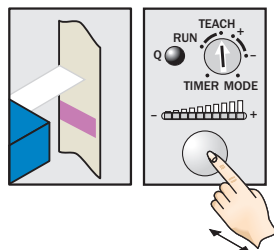|		
BN	1	+ (L+)
WH	2	Q
BU	3	- (M)
BK	4	Q/C

Concept of operation

Teach-in static
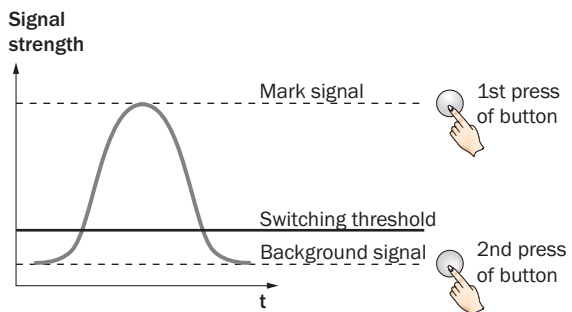
1. Position mark

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

Signal strength

Mark signal — 1st press of button

Switching threshold

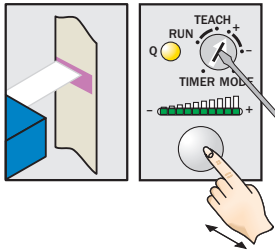Background signal — 2nd press of button

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Note

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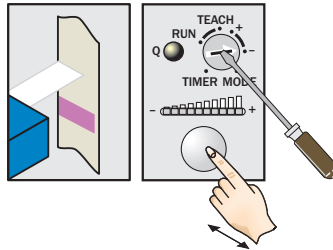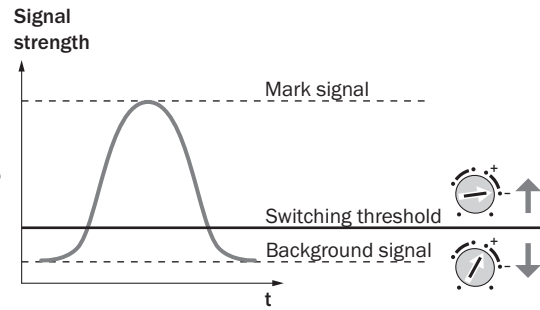
Button +/-

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

Signal strength

Mark signal

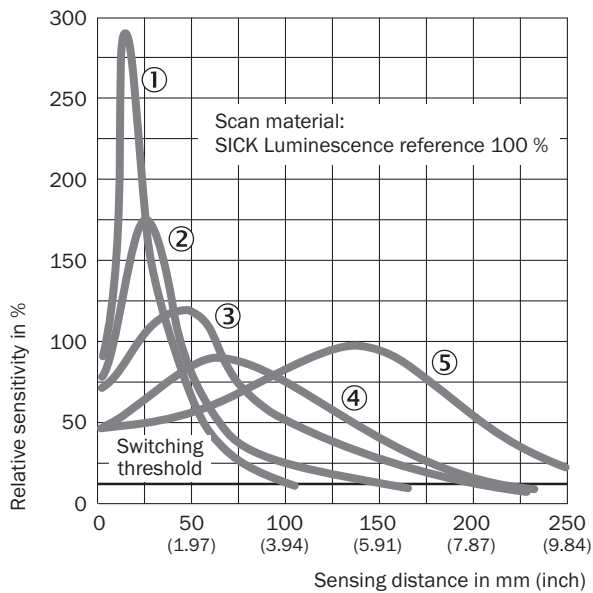Switching threshold

Background signal

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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 intendend for luminescence background suppression.
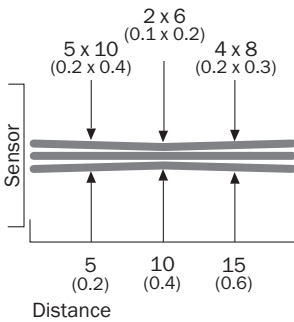
Sensing distance

Sensing distance

Relative sensitivity in %

Scan material:
SICK Luminescence reference 100 %

Switching threshold

Sensing distance in mm (inch)

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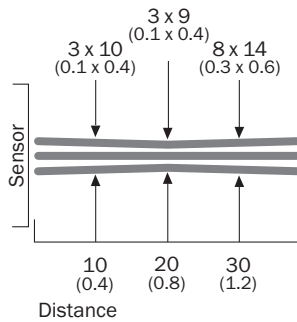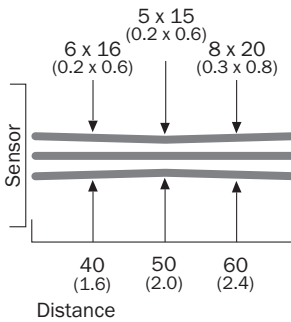⑤ Sensing distance 150 mm

Light spot size

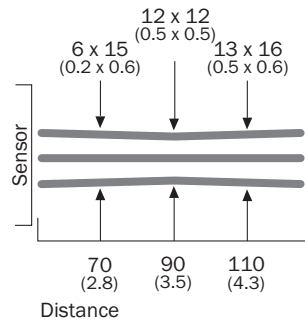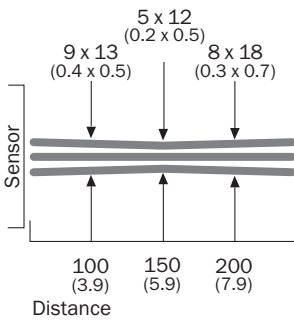Light spot size

Sensing distance 10 mm

2 x 6
(0.1 x 0.2)
5 x 10
(0.2 x 0.4)
4 x 8
(0.2 x 0.3)

Sensor

5
(0.2)
10
(0.4)
15
(0.6)
Distance

Sensing distance 20 mm

3 x 9
(0.1 x 0.4)
3 x 10
(0.1 x 0.4)
8 x 14
(0.3 x 0.6)

Sensor

10
(0.4)
20
(0.8)
30
(1.2)
Distance

Sensing distance 50 mm

5 x 15
(0.2 x 0.6)
6 x 16
(0.2 x 0.6)
8 x 20
(0.3 x 0.8)

Sensor

40
(1.6)
50
(2.0)
60
(2.4)
Distance

Sensing distance 90 mm

12 x 12
(0.5 x 0.5)
6 x 15
(0.2 x 0.6)
13 x 16
(0.5 x 0.6)

Sensor

70
(2.8)
90
(3.5)
110
(4.3)
Distance

Sensing distance 150 mm

5 x 12
(0.2 x 0.5)
9 x 13
(0.4 x 0.5)
8 x 18
(0.3 x 0.7)

Sensor

100
(3.9)
150
(5.9)
200
(7.9)
Distance

All dimensions in mm (inch)

Recommended accessories

Other models and accessories ➜ www.sick.com/LUT9

	Brief description	Type	Part no.
Universal bar clamp systems			
	Plate G for universal clamp bracket, steel, zinc coated, Universal clamp (2022726), mounting hardware	BEF-KHS-G01	2022464
	Plate K for universal clamp bracket, steel, zinc coated, Universal clamp (2022726), mounting hardware	BEF-KHS-K01	2022718
	Universal clamp bracket for rod mounting, steel, zinc coated, without mounting hardware	BEF-KHS-KH1	2022726
	Mounting bar, straight, 200 mm, steel, steel, zinc coated, without mounting hardware	BEF-MS12G-A	4056054
	Mounting bar, straight, 300 mm, steel, steel, zinc coated, without mounting hardware	BEF-MS12G-B	4056055

	Brief description	Type	Part no.
	Mounting bar, L-shaped, 150 mm x 150 mm, steel, steel, zinc coated, without mounting hardware	BEF-MS12L-A	4056052
	Mounting bar, L-shaped, 250 x 250 mm, steel, steel, zinc coated, without mounting hardware	BEF-MS12L-B	4056053
Plug connectors and cables			
	Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 2 m	YF2A14-020VB3XLEAX	2096234
	Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m	YF2A14-050VB3XLEAX	2096235
	Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 10 m	YF2A14-100VB3XLEAX	2096236
	Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 15 m	YF2A14-150VB3XLEAX	2096237
	Head A: female connector, M12, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 2 m	YG2A14-020VB3XLEAX	2095895
	Head A: female connector, M12, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m	YG2A14-050VB3XLEAX	2095897
	Head A: female connector, M12, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 10 m	YG2A14-100VB3XLEAX	2095898
	Head A: female connector, M12, 4-pin, straight Head B: - Cable: unshielded	DOS-1204-G	6007302
	Head A: female connector, M12, 4-pin, angled Head B: - Cable: unshielded	DOS-1204-W	6007303
Lenses and accessories			
		OBJ-026	1001326
		OBJ-LUT3-10	2016348
		OBJ-LUT3-20	2016349
		OBJ-LUT3-50	2016350
SIG200			
		SIG200-0A0412200	1089794
		SIG200-0A0G12200	1102605

Recommended services

Additional services ➔ www.sick.com/LUT9

	Type	Part no.
Function Block Factory		
• **Description:** The Function Block Factory supports common programmable logic controllers (PLCs) from various manufacturers, such as Siemens, Beckhoff, Rockwell Automation and B&R. More information on the FBF can be found here.	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."

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