LUT9U-12306

LUT9

LUMINESCENCE SENSORS

SICK
Sensor Intelligence.

Illustration may differ

Ordering information

Type	part no.
LUT9U-12306	1047055

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

Detailed technical data

Features

Housing design	Large
Dimensions (W x H x D)	30.4 mm x 53 mm x 80 mm
Light source	LED, Ultraviolet light [1]
Light emission	Long and short side, exchangeable
Light spot size	5 mm x 15 mm
Light spot direction	Vertical
Receiving filters	≤ 420 nm [2]
Wave length	375 nm
Working range	20 mm ... 70 mm
Sensing distance	50 mm [3]
Receiving range	450 nm ... 750 nm
Adjustment	Teach-in button
Teach-in mode	Static 2-point teach-in with manual fine adjustment
Output function	Light switching [4]

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

[2] Filter blocks shorter wavelengths to suppress background luminescence.

[3] From leading edge of lens.

[4] L/D switching via teach-in.

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
	200 µs
	75 µs
Switching output	PNP NPN
Switching output (voltage)	PNP: HIGH = U_V ≤ 2 V / LOW approx. 0 V NPN: HIGH = approx. U_V / LOW ≤ 2 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)
Protection class	II [5]
Circuit protection	U_V connections, reverse polarity protected Output Q short-circuit protected Interference pulse suppression
Connection type	
	Plug, M12, 5-pin

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

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

[3] Without load.

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

[5] Reference voltage DC 50 V.

Mechanics

Housing material	Zinc diecast
Weight	400 g

Ambient data

Ambient operating temperature	–10 °C ... +55 °C
Ambient temperature, storage	–25 °C ... +75 °C
Shock load	According to IEC 60068
Enclosure rating	IP67

Certificates

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓

Moroccan declaration of conformity	✓
China RoHS	✓
Photobiological safety (IEC EN 62471)	✓

Classifications

ECLASS 5.0	27270908
ECLASS 5.1.4	27270908
ECLASS 6.0	27270908
ECLASS 6.2	27270908
ECLASS 7.0	27270908
ECLASS 8.0	27270908
ECLASS 8.1	27270908
ECLASS 9.0	27270908
ECLASS 10.0	27270908
ECLASS 11.0	27270908
ECLASS 12.0	27270908
ETIM 5.0	EC001822
ETIM 6.0	EC001822
ETIM 7.0	EC001822
ETIM 8.0	EC001822
UNSPSC 16.0901	39121528

Dimensional drawing LUT9x-x2xxx, light emission: long and short side, exchangeable

Dimensions in mm (inch)
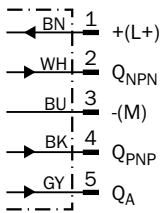① M5 threaded mounting hole, 5.5 mm deep
② Lens (light transmission), can be replaced by blind screw
④ Connector M12 (rotatable up to 90°)
⑤ see dimensional drawings of lenses
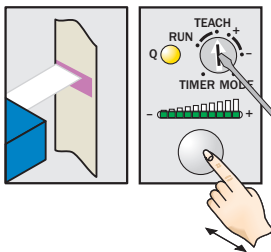⑥ Blind screw can be replaced by lens

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-312

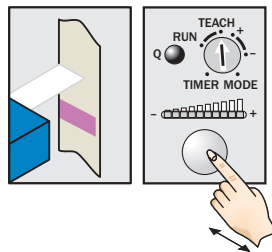|		
BN	1	+(L+)
WH	2	Q_{NPN}
BU	3	-(M)
BK	4	Q_{PNP}
GY	5	Q_A

Concept of operation Teach-in static
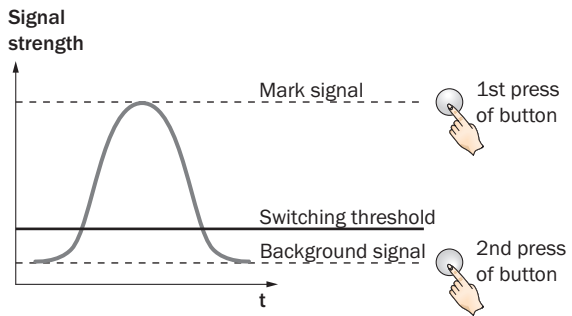
1. Position mark

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

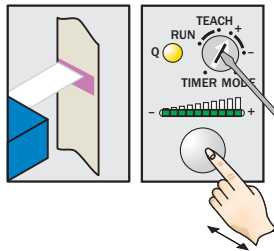Background signal — 2nd press of button

t

Note

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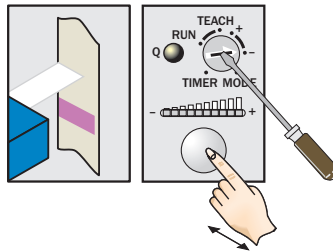
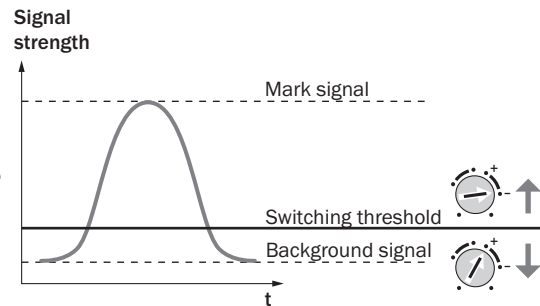## Concept of operation Button +/-

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).
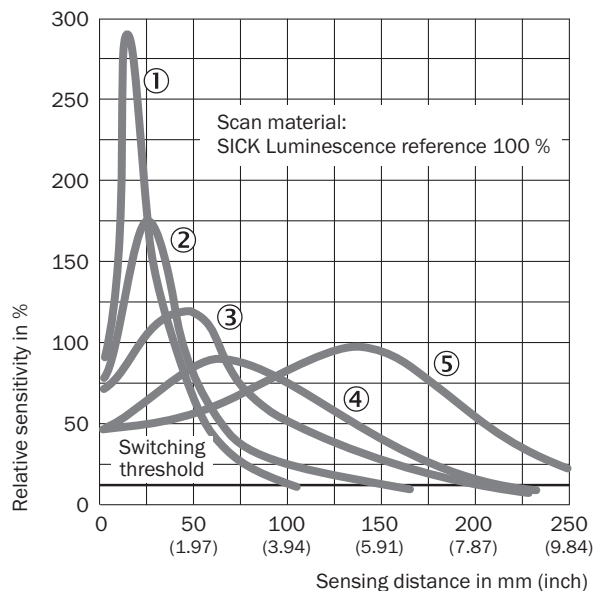
Sensitivity setting

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).
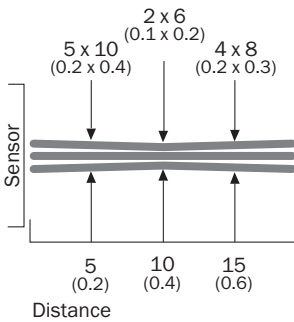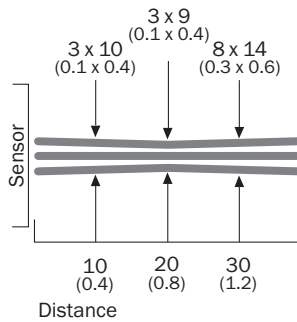Adjustments are intendend for luminescence background suppression.

Sensing distance

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
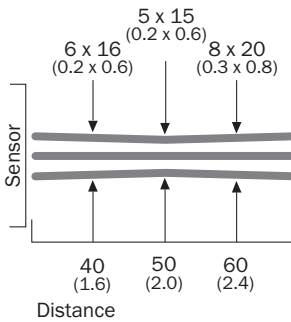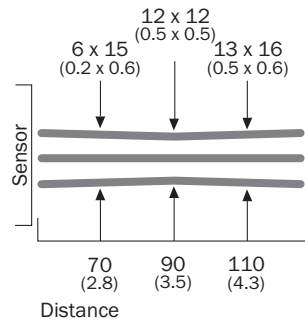⑤ Sensing distance 150 mm
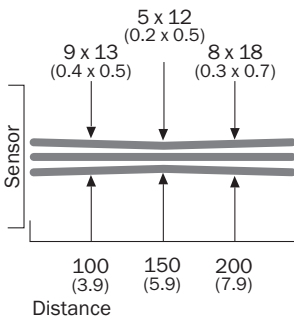
Light spot size

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.
Mounting systems			
	• **Description:** Plate G for universal clamp bracket • **Material:** Steel • **Details:** Steel, zinc coated • **Items supplied:** Universal clamp (2022726), mounting hardware • **Usable for:** W34, LUT3, KT5-2, KT10, CS8, W24-2, KT8, KT8	BEF-KHS-G01	2022464
	• **Description:** Plate K for universal clamp bracket • **Material:** Steel • **Details:** Steel, zinc coated • **Items supplied:** Universal clamp (2022726), mounting hardware • **Usable for:** W11-2, W12-3, W14-2, W18-3, W23-2, W24-2, W27-3, W30, W32, W34, W36, PL50A, PL80A, P250, UC12, LUT3, KT2, KT5-2, KT8, CS8, DT2, DS30, DS40, W12-2 Laser, W16, W26, KT5	BEF-KHS-K01	2022718

Brief description	Type	part no.
reflectors and optics		
• **Description:** Lens, 10 mm sensing distance	OBJ-LUT3-10	2016348
• **Description:** Lens, 20 mm sensing distance	OBJ-LUT3-20	2016349
• **Description:** Lens, 50 mm sensing distance	OBJ-LUT3-50	2016350
• **Description:** Lens, 90 mm scanning distance	OBJ-026	1001326

	Brief description	Type	part no.
connectors and cables			
	• **Connection type head A:** Female connector, M12, 5-pin, straight, A-coded • **Description:** Unshielded • **Connection systems:** Screw-type terminals • **Permitted cross-section:** ≤ 0.75 mm²	DOS-1205-G	6009719
	• **Connection type head A:** Female connector, M12, 5-pin, angled, A-coded • **Description:** Unshielded • **Connection systems:** Screw-type terminals • **Permitted cross-section:** ≤ 0.75 mm²	DOS-1205-W	6009720
	• **Connection type head A:** Female connector, M12, 5-pin, angled, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 2 m, 5-wire, PVC • **Description:** Sensor/actuator cable, unshielded • **Application:** Zones with chemicals, Uncontaminated zones	YG2A15-020VB5XLEAX	2096215
	• **Connection type head A:** Female connector, M12, 5-pin, angled, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 5 m, 5-wire, PVC • **Description:** Sensor/actuator cable, unshielded • **Application:** Zones with chemicals, Uncontaminated zones	YG2A15-050VB5XLEAX	2096216
	• **Connection type head A:** Female connector, M12, 5-pin, angled, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 10 m, 5-wire, PVC • **Description:** Sensor/actuator cable, unshielded • **Application:** Zones with chemicals, Uncontaminated zones	YG2A15-100VB5XLEAX	2096217
	• **Connection type head A:** Female connector, M12, 5-pin, straight, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 2 m, 5-wire, PVC • **Description:** Sensor/actuator cable, unshielded • **Application:** Zones with chemicals, Uncontaminated zones	YF2A15-020VB5XLEAX	2096239
	• **Connection type head A:** Female connector, M12, 5-pin, straight, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 5 m, 5-wire, PVC • **Description:** Sensor/actuator cable, unshielded • **Application:** Zones with chemicals, Uncontaminated zones	YF2A15-050VB5XLEAX	2096240
	• **Connection type head A:** Female connector, M12, 5-pin, straight, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 10 m, 5-wire, PVC • **Description:** Sensor/actuator cable, unshielded • **Application:** Zones with chemicals, Uncontaminated zones	YF2A15-100VB5XLEAX	2096241
	• **Connection type head A:** Female connector, M12, 5-pin, angled, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 0.6 m, 5-wire, PVC • **Description:** Sensor/actuator cable, unshielded • **Application:** Zones with chemicals, Uncontaminated zones	YG2A15-C60VB5XLEAX	2145573
	• **Connection type head A:** Female connector, M12, 5-pin, angled, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 1 m, 5-wire, PVC • **Description:** Sensor/actuator cable, unshielded • **Application:** Zones with chemicals, Uncontaminated zones	YG2A15-010VB5XLEAX	2145574
	• **Connection type head A:** Female connector, M12, 5-pin, angled, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 3 m, 5-wire, PVC • **Description:** Sensor/actuator cable, unshielded	YG2A15-030VB5XLEAX	2145575

	Brief description	Type	part no.
	• **Application:** Zones with chemicals, Uncontaminated zones • **Connection type head A:** Female connector, M12, 5-pin, straight, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 0.6 m, 5-wire, PVC • **Description:** Sensor/actuator cable, unshielded • **Application:** Zones with chemicals, Uncontaminated zones	YF2A15-C60VB5XLEAX	2145570
	• **Connection type head A:** Female connector, M12, 5-pin, straight, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 3 m, 5-wire, PVC • **Description:** Sensor/actuator cable, unshielded • **Application:** Zones with chemicals, Uncontaminated zones	YF2A15-030VB5XLEAX	2145572

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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