



# LUT3-650

LUT3

LUMINESCENCE SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



## Ordering information

| Type     | Part no. |
|----------|----------|
| LUT3-650 | 1015398  |

Other models and accessories → [www.sick.com/LUT3](http://www.sick.com/LUT3)

## 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>       | ≤ 50 mm <sup>1)</sup>   |
| <b>Housing design</b>         | Large                   |
| <b>Working range</b>          | 30 mm ... 60 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>        | 5 mm x 15 mm            |
| <b>Light spot direction</b>   | Vertical                |
| <b>Receiving filters</b>      | KV 418 (standard)       |
| <b>Receiving range</b>        | 450 nm ... 750 nm       |
| <b>Adjustment</b>             | Potentiometer           |
| <b>Output function</b>        | Light switching         |

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

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

### Mechanics/electronics

|                            |                                   |
|----------------------------|-----------------------------------|
| <b>Supply voltage</b>      | 12 V DC ... 30 V DC <sup>1)</sup> |
| <b>Ripple</b>              | < 2 V <sub>pp</sub> <sup>2)</sup> |
| <b>Current consumption</b> | < 60 mA <sup>3)</sup>             |
| <b>Switching frequency</b> | 1.5 kHz <sup>4)</sup>             |

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

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

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

<sup>4)</sup> With light/dark ratio 1:1.

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

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

|                                            |                                                                                                                     |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| <b>Response time</b>                       | 350 $\mu$ s <sup>5)</sup>                                                                                           |
| <b>Switching output</b>                    | PNP, NPN                                                                                                            |
| <b>Switching output (voltage)</b>          | PNP: HIGH = $V_S - \leq 3$ V / LOW = approx. 0 V<br>NPN: HIGH = approx. $U_V$ / LOW $\leq 2$ V                      |
| <b>Switching mode</b>                      | Light switching                                                                                                     |
| <b>Output current <math>I_{max}</math></b> | 100 mA                                                                                                              |
| <b>Connection type</b>                     | Male connector M12, 4-pin                                                                                           |
| <b>Protection class</b>                    | II <sup>6)</sup>                                                                                                    |
| <b>Circuit protection</b>                  | $U_V$ connections, reverse polarity protected<br>Output Q short-circuit protected<br>Interference pulse suppression |
| <b>Enclosure rating</b>                    | IP67                                                                                                                |
| <b>Weight</b>                              | 400 g                                                                                                               |
| <b>Housing material</b>                    | 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.

5) Signal transit time with resistive load.

6) Reference voltage DC 50 V.

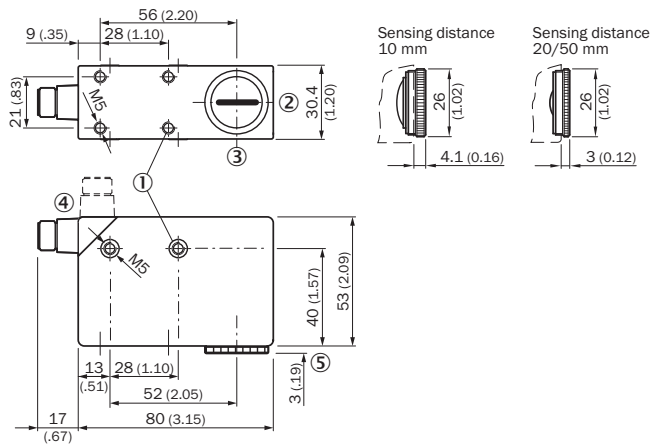
## Ambient data

|                                      |                              |
|--------------------------------------|------------------------------|
| <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       |
| <b>UL File No.</b>                   | NRKH.E181493 & NRKH7.E181493 |

## Classifications

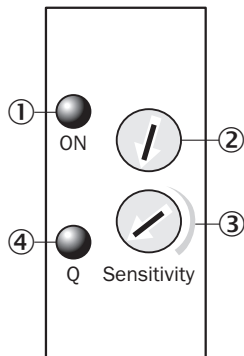
|                       |          |
|-----------------------|----------|
| <b>eCl@ss 5.0</b>     | 27270908 |
| <b>eCl@ss 5.1.4</b>   | 27270908 |
| <b>eCl@ss 6.0</b>     | 27270908 |
| <b>eCl@ss 6.2</b>     | 27270908 |
| <b>eCl@ss 7.0</b>     | 27270908 |
| <b>eCl@ss 8.0</b>     | 27270908 |
| <b>eCl@ss 8.1</b>     | 27270908 |
| <b>eCl@ss 9.0</b>     | 27270908 |
| <b>eCl@ss 10.0</b>    | 27270908 |
| <b>eCl@ss 11.0</b>    | 27270908 |
| <b>eCl@ss 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))



- ① M5 threaded mounting hole, 5.5 mm deep
- ② Light spot direction
- ③ Center of optical axis
- ④ Connector M12 (rotatable up to 90°)
- ⑤ See dimensional drawings of lenses

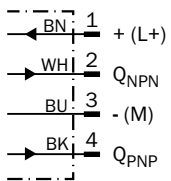
**Adjustments**



- ① Function signal indicator (green)
- ② Not assigned
- ③ Sensitivity control
- ④ Function signal indicator (yellow), switching output

**Connection diagram**

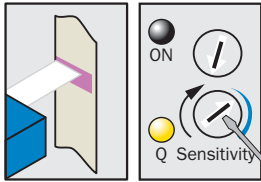
Cd-086



## Concept of operation

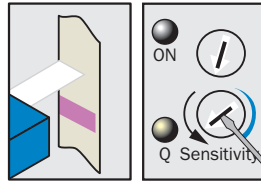
Potentiometer

### 1. Position mark



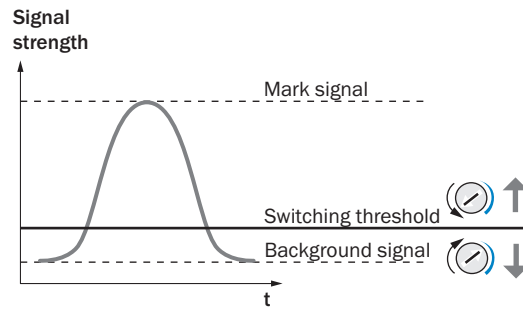
Turn "Sensitivity" rotary switch clockwise until yellow LED illuminates.

### 2. Position background



If yellow LED illuminates, turn "Sensitivity" rotary switch counter-clockwise until the yellow LED just goes out.

### Sensitivity setting

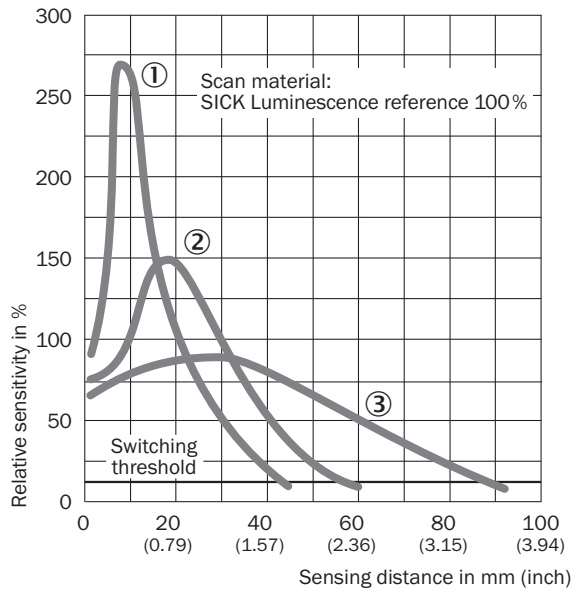


### Note

Adjustments are intended for luminescence background suppression.

## Sensing distance

Sensing distance

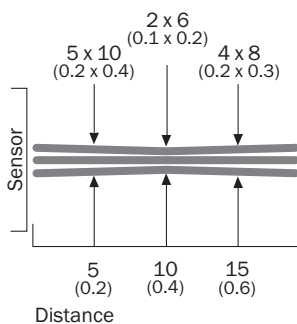


- ① Sensing distance 10 mm
- ② Sensing distance 20 mm
- ③ Sensing distance 50 mm

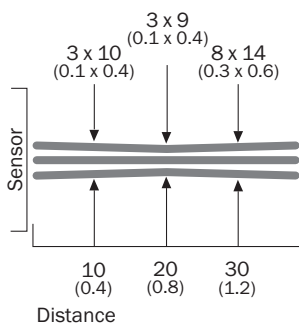
## Light spot size

Light spot size

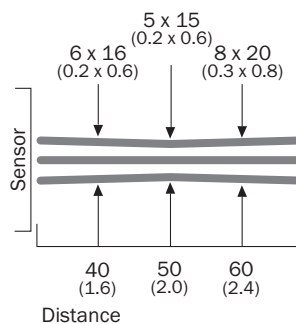
### Sensing distance 10 mm



### Sensing distance 20 mm



### Sensing distance 50 mm



## Recommended accessories

Other models and accessories → [www.sick.com/LUT3](http://www.sick.com/LUT3)

|                                    | Brief description                        | Type        | Part no. |
|------------------------------------|------------------------------------------|-------------|----------|
| <b>Lenses and accessories</b>      |                                          |             |          |
|                                    | 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>Reference materials</b>         |                                          |             |          |
|                                    |                                          | LUM-FT      | 1004460  |
|                                    |                                          | LUM-KLK     | 1002959  |
| <b>Universal bar clamp systems</b> |                                          |             |          |
|                                    |                                          | BEF-KHS-G01 | 2022464  |
|                                    |                                          | BEF-KHS-K01 | 2022718  |
|                                    |                                          | BEF-KHS-KH1 | 2022726  |
|                                    |                                          | BEF-MS12G-A | 4056054  |
|                                    |                                          | BEF-MS12G-B | 4056055  |
|                                    |                                          | BEF-MS12L-A | 4056052  |
|                                    |                                          | BEF-MS12L-B | 4056053  |

|                                                                                     | Brief description                                                                   | Type               | Part no. |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------|----------|
| Plug connectors and cables                                                          |                                                                                     |                    |          |
|    |    | YF2A14-020VB3XLEAX | 2096234  |
|    |    | YF2A14-050VB3XLEAX | 2096235  |
|    |    | YF2A14-100VB3XLEAX | 2096236  |
|    |    | YF2A14-150VB3XLEAX | 2096237  |
|  |  | YG2A14-020VB3XLEAX | 2095895  |
|  |  | YG2A14-050VB3XLEAX | 2095897  |
|  |  | YG2A14-100VB3XLEAX | 2095898  |
|  |  | DOS-1204-G         | 6007302  |
|  |  | DOS-1204-W         | 6007303  |

## 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)