



KT5G-2P2121  
KT5

## CONTRAST SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ

## Ordering information

| Type        | part no. |
|-------------|----------|
| KT5G-2P2121 | 1016009  |

Other models and accessories → [www.sick.com/KT5](http://www.sick.com/KT5)

## 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>       | ≤ 10 mm <sup>1)</sup>                        |
| <b>Housing design</b>         | Rectangular                                  |
| <b>Light source</b>           | LED, green <sup>2)</sup>                     |
| <b>Wave length</b>            | 520 nm                                       |
| <b>Light emission</b>         | Long and short side of housing, exchangeable |
| <b>Light spot size</b>        | 1.2 mm x 4.2 mm                              |
| <b>Light spot direction</b>   | Horizontal <sup>3)</sup>                     |
| <b>Adjustment</b>             | Potentiometer                                |
| <b>Output function</b>        | Light/dark switching                         |

<sup>1)</sup> From leading edge of lens.<sup>2)</sup> Average service life: 100,000 h at  $T_U = +25^\circ\text{C}$ .<sup>3)</sup> In relation to long side of housing.

## 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> | < 80 mA <sup>3)</sup>             |
| <b>Switching frequency</b> | 10 kHz <sup>4)</sup>              |
| <b>Response time</b>       | 50 µs <sup>5)</sup>               |
| <b>Switching output</b>    | PNP                               |

<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>Y</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> Short-circuit-proof.<sup>7)</sup> Reference voltage DC 50 V.

|  |   |
|--|---|
| <b>Switching output (voltage)</b>          | PNP: HIGH = $U_V \leq 2$ V / LOW approx. 0 V  |
| <b>Switching mode</b>                      | Light/dark switching  |
| <b>Output current <math>I_{max}</math></b> | 100 mA <sup>6)</sup>  |
| <b>Time delay</b>                          | 20 ms   |
| <b>Connection type</b>                     | Male connector M12, 4-pin   |
| <b>Protection class</b>                    | II <sup>7)</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   |

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

<sup>2)</sup> May not exceed or fall below  $U_V$  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> Short-circuit-proof.

<sup>7)</sup> Reference voltage DC 50 V.

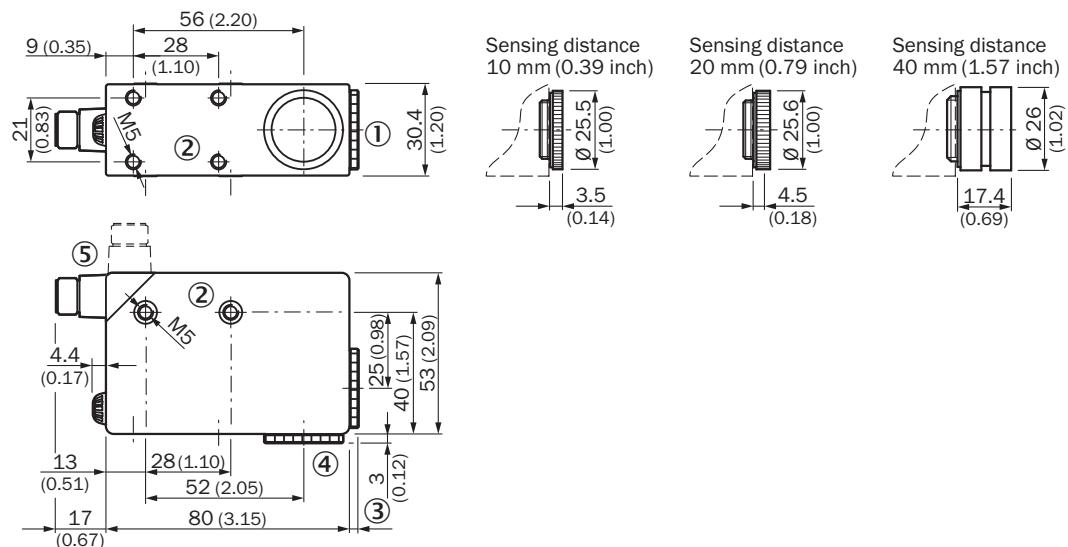
#### Ambient data

|                                      |                              |
|--------------------------------------|------------------------------|
| <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>ECLASS 5.0</b>     | 27270906 |
| <b>ECLASS 5.1.4</b>   | 27270906 |
| <b>ECLASS 6.0</b>     | 27270906 |
| <b>ECLASS 6.2</b>     | 27270906 |
| <b>ECLASS 7.0</b>     | 27270906 |
| <b>ECLASS 8.0</b>     | 27270906 |
| <b>ECLASS 8.1</b>     | 27270906 |
| <b>ECLASS 9.0</b>     | 27270906 |
| <b>ECLASS 10.0</b>    | 27270906 |
| <b>ECLASS 11.0</b>    | 27270906 |
| <b>ECLASS 12.0</b>    | 27270906 |
| <b>ETIM 5.0</b>       | EC001820 |
| <b>ETIM 6.0</b>       | EC001820 |
| <b>ETIM 7.0</b>       | EC001820 |
| <b>ETIM 8.0</b>       | EC001820 |
| <b>UNSPSC 16.0901</b> | 39121528 |

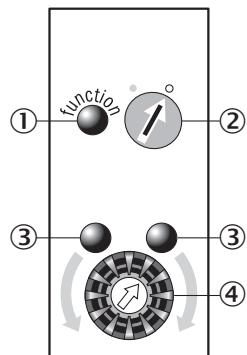
## Dimensional drawing KT5-2 Potentiometer



Dimensions in mm (inch)

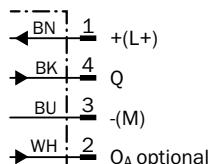
- ① Lens (light transmission), can be exchanged for pos. 4
- ② M5 threaded mounting hole, 5.5 mm deep
- ③ see dimensional drawings of lenses
- ④ Blind screw can be replaced by pos. 1
- ⑤ Connector M12 (rotatable up to 90°)

## Adjustments KT5-2 Potentiometer



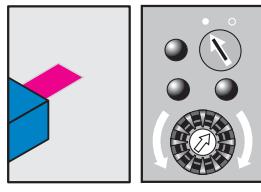
- ① Function signal indicator (yellow)
- ② Pre-selection switch (light/dark switching)
- ③ Switching threshold adjustment
- ④ Installation aid (green)

## Connection diagram Cd-327



## Concept of operation KT5-2 Potentiometer

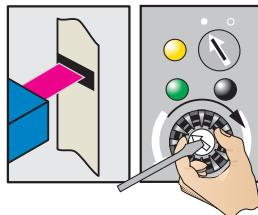
### 1. Select switching function (light/dark)



Turn the rotary switch to the desired position.

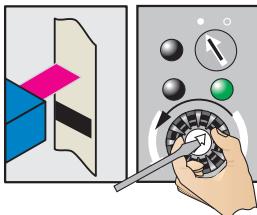
○ = light switching  
● = dark switching

### 2. Position mark

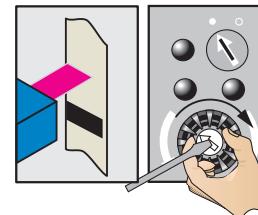


Turn potentiometer in the direction shown (green LED illuminates) until the yellow LED status changes and the green LED opposite illuminates.

### 3. Position background

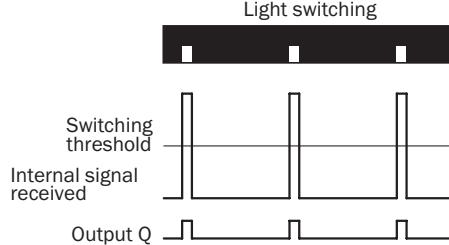
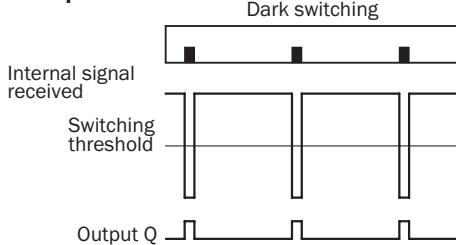


Gradually turn back the potentiometer (count the number of turns) until the yellow LED changes status again and illuminates.



Turn the potentiometer forward again by half the number of turns to ensure that the switching threshold is optimally set.

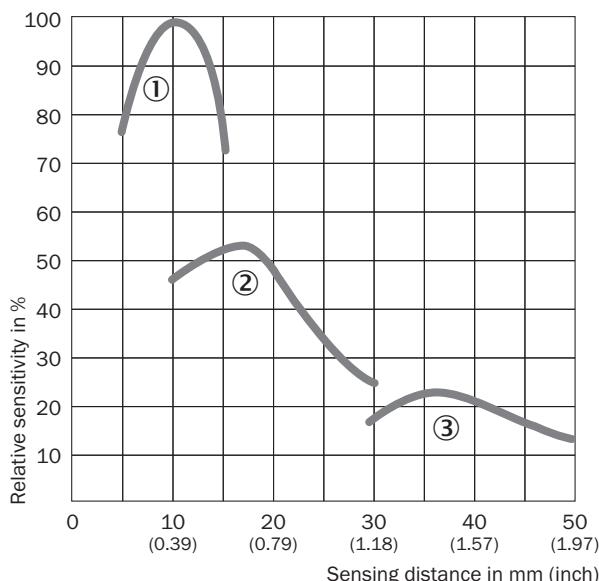
### Example



### Switching characteristics

The switching threshold is set in the center between the background and the mark.

### Sensing distance



① Sensing distance 10 mm

- ② Sensing distance 20 mm
- ③ Sensing distance 40 mm

## Recommended accessories

Other models and accessories → [www.sick.com/KT5](http://www.sick.com/KT5)

|   | <b>Brief description</b>  | <b>Type</b> | <b>part no.</b> |
|---|---|-------------|-----------------|
| Mounting systems  |   |             |                 |
|  | <ul style="list-style-type: none"> <li>• <b>Description:</b> Plate G for universal clamp bracket</li> <li>• <b>Material:</b> Steel</li> <li>• <b>Details:</b> Steel, zinc coated</li> <li>• <b>Items supplied:</b> Universal clamp (2022726), mounting hardware</li> <li>• <b>Usable for:</b> W34, LUT3, KT5-2, KT10, CS8, W24-2, KT8, KT8</li> </ul>   | BEF-KHS-G01 | 2022464         |
|  | <ul style="list-style-type: none"> <li>• <b>Description:</b> Plate K for universal clamp bracket</li> <li>• <b>Material:</b> Steel</li> <li>• <b>Details:</b> Steel, zinc coated</li> <li>• <b>Items supplied:</b> Universal clamp (2022726), mounting hardware</li> <li>• <b>Usable for:</b> 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</li> </ul> | BEF-KHS-K01 | 2022718         |
| reflectors and optics   |   |             |                 |
|   | <ul style="list-style-type: none"> <li>• <b>Description:</b> Lens, 20 mm sensing distance</li> </ul>  | OBJ-212     | 1011506         |
|   | <ul style="list-style-type: none"> <li>• <b>Description:</b> Lens, 40 mm sensing distance</li> </ul>  | OBJ-210     | 2010945         |
|   | <ul style="list-style-type: none"> <li>• <b>Description:</b> Lens, 10 mm sensing distance</li> </ul>  | OBJ-211     | 1004936         |

|   | Brief description   | Type               | part no. |
|---|---|--------------------|----------|
| connectors and cables   |   |                    |          |
|    | <ul style="list-style-type: none"><li><b>Connection type head A:</b> Female connector, M12, 4-pin, straight, A-coded</li><li><b>Description:</b> Unshielded</li><li><b>Connection systems:</b> Screw-type terminals</li><li><b>Permitted cross-section:</b> ≤ 0.75 mm<sup>2</sup></li></ul>   | DOS-1204-G         | 6007302  |
|    | <ul style="list-style-type: none"><li><b>Connection type head A:</b> Female connector, M12, 4-pin, angled, A-coded</li><li><b>Description:</b> Unshielded</li><li><b>Connection systems:</b> Screw-type terminals</li><li><b>Permitted cross-section:</b> ≤ 0.75 mm<sup>2</sup></li></ul>   | DOS-1204-W         | 6007303  |
|    | <ul style="list-style-type: none"><li><b>Connection type head A:</b> Female connector, M12, 4-pin, straight, A-coded</li><li><b>Connection type head B:</b> Flying leads</li><li><b>Signal type:</b> Sensor/actuator cable</li><li><b>Cable:</b> 2 m, 4-wire, PVC</li><li><b>Description:</b> Sensor/actuator cable, unshielded</li><li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li></ul>  | YF2A14-020VB3XLEAX | 2096234  |
|    | <ul style="list-style-type: none"><li><b>Connection type head A:</b> Female connector, M12, 4-pin, straight, A-coded</li><li><b>Connection type head B:</b> Flying leads</li><li><b>Signal type:</b> Sensor/actuator cable</li><li><b>Cable:</b> 5 m, 4-wire, PVC</li><li><b>Description:</b> Sensor/actuator cable, unshielded</li><li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li></ul>  | YF2A14-050VB3XLEAX | 2096235  |
|    | <ul style="list-style-type: none"><li><b>Connection type head A:</b> Female connector, M12, 4-pin, straight, A-coded</li><li><b>Connection type head B:</b> Flying leads</li><li><b>Signal type:</b> Sensor/actuator cable</li><li><b>Cable:</b> 10 m, 4-wire, PVC</li><li><b>Description:</b> Sensor/actuator cable, unshielded</li><li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li></ul> | YF2A14-100VB3XLEAX | 2096236  |
|   | <ul style="list-style-type: none"><li><b>Connection type head A:</b> Female connector, M12, 4-pin, straight, A-coded</li><li><b>Connection type head B:</b> Flying leads</li><li><b>Signal type:</b> Sensor/actuator cable</li><li><b>Cable:</b> 15 m, 4-wire, PVC</li><li><b>Description:</b> Sensor/actuator cable, unshielded</li><li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li></ul> | YF2A14-150VB3XLEAX | 2096237  |
|  | <ul style="list-style-type: none"><li><b>Connection type head A:</b> Female connector, M12, 4-pin, angled, A-coded</li><li><b>Connection type head B:</b> Flying leads</li><li><b>Signal type:</b> Sensor/actuator cable</li><li><b>Cable:</b> 2 m, 4-wire, PVC</li><li><b>Description:</b> Sensor/actuator cable, unshielded</li><li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li></ul>    | YG2A14-020VB3XLEAX | 2095895  |
|  | <ul style="list-style-type: none"><li><b>Connection type head A:</b> Female connector, M12, 4-pin, angled, A-coded</li><li><b>Connection type head B:</b> Flying leads</li><li><b>Signal type:</b> Sensor/actuator cable</li><li><b>Cable:</b> 5 m, 4-wire, PVC</li><li><b>Description:</b> Sensor/actuator cable, unshielded</li><li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li></ul>    | YG2A14-050VB3XLEAX | 2095897  |
|  | <ul style="list-style-type: none"><li><b>Connection type head A:</b> Female connector, M12, 4-pin, angled, A-coded</li><li><b>Connection type head B:</b> Flying leads</li><li><b>Signal type:</b> Sensor/actuator cable</li><li><b>Cable:</b> 10 m, 4-wire, PVC</li><li><b>Description:</b> Sensor/actuator cable, unshielded</li><li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li></ul>   | YG2A14-100VB3XLEAX | 2095898  |
|  | <ul style="list-style-type: none"><li><b>Connection type head A:</b> Female connector, M12, 4-pin, angled, A-coded</li><li><b>Connection type head B:</b> Flying leads</li><li><b>Signal type:</b> Sensor/actuator cable</li><li><b>Cable:</b> 0.6 m, 4-wire, PVC</li><li><b>Description:</b> Sensor/actuator cable, unshielded</li><li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li></ul>  | YG2A14-C60VB3XLEAX | 2145709  |
|  | <ul style="list-style-type: none"><li><b>Connection type head A:</b> Female connector, M12, 4-pin, angled, A-coded</li><li><b>Connection type head B:</b> Flying leads</li><li><b>Signal type:</b> Sensor/actuator cable</li><li><b>Cable:</b> 1 m, 4-wire, PVC</li><li><b>Description:</b> Sensor/actuator cable, unshielded</li><li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li></ul>    | YG2A14-010VB3XLEAX | 2145710  |

|   | <b>Brief description</b>  | <b>Type</b>        | <b>part no.</b> |
|---|---|--------------------|-----------------|
|  | <ul style="list-style-type: none"> <li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li> <li><b>Connection type head A:</b> Female connector, M12, 4-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 0.6 m, 4-wire, PVC</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul> | YF2A14-C60VB3XLEAX | 2145707         |
|  | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 4-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 1 m, 4-wire, PVC</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul>   | YF2A14-010VB3XLEAX | 2145708         |

## 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)