



# KT5W-2P1123

KT5

CONTRAST SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ

### Ordering information

| Type        | part no. |
|-------------|----------|
| KT5W-2P1123 | 1017810  |

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, RGB <sup>2)</sup>                       |
| <b>Wave length</b>            | 470 nm, 525 nm, 640 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>   | Vertical <sup>3)</sup>                       |
| <b>Adjustment</b>             | Teach-in button                              |
| <b>Teach-in mode</b>          | Teach-in dynamic                             |

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

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

<sup>3)</sup> In relation to long side of housing.

#### 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 fall below or exceed U<sub>I</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 = $U_V \leq 2 \text{ V}$ / LOW approx. 0 V                                                                |
| <b>Output current <math>I_{\max}</math></b> | 100 mA <sup>6)</sup>                                                                                                |
| <b>Input, teach-in (ET)</b>                 | PNP<br>Teach: $U = 10 \text{ V} \dots < U_V$<br>Run: $U < 2 \text{ V}$                                              |
| <b>Input, light/dark (L/D)</b>              | PNP<br>Light: $U = 0 \text{ V}$<br>Dark: $U > 10 \text{ V} \dots < U_V$                                             |
| <b>Retention time (ET)</b>                  | 25 ms, non-volatile memory                                                                                          |
| <b>Time delay</b>                           | 20 ms<br>none                                                                                                       |
| <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 |

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.

5) Signal transit time with resistive load.

6) Short-circuit-proof.

7) Reference voltage DC 50 V.

## Mechanics

|                         |                  |
|-------------------------|------------------|
| <b>Housing material</b> | Zinc diecast     |
| <b>Connection type</b>  | Plug, M12, 5-pin |
| <b>Weight</b>           | 400 g            |

## Ambient data

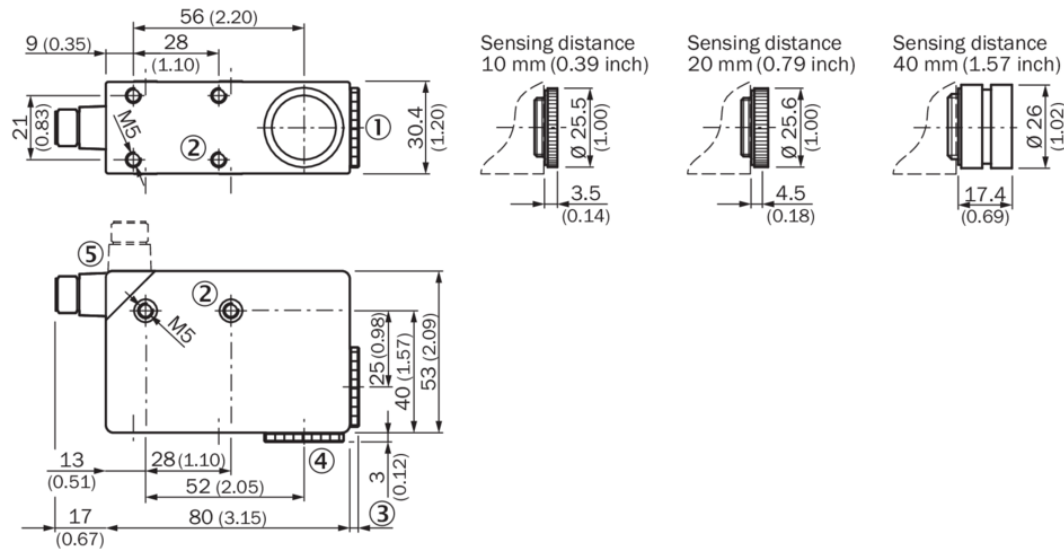
|                                      |                        |
|--------------------------------------|------------------------|
| <b>Ambient operating temperature</b> | -10 °C ... +55 °C      |
| <b>Ambient temperature, storage</b>  | -25 °C ... +75 °C      |
| <b>Shock load</b>                    | According to IEC 60068 |
| <b>Enclosure rating</b>              | IP67                   |

## Classifications

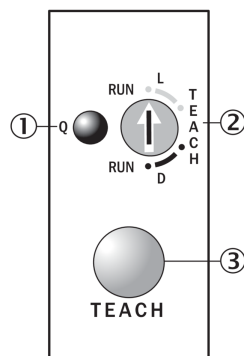
|                     |          |
|---------------------|----------|
| <b>ECLASS 5.0</b>   | 27270906 |
| <b>ECLASS 5.1.4</b> | 27270906 |
| <b>ECLASS 6.0</b>   | 27270906 |
| <b>ECLASS 6.2</b>   | 27270906 |
| <b>ECLASS 7.0</b>   | 27270906 |
| <b>ECLASS 8.0</b>   | 27270906 |
| <b>ECLASS 8.1</b>   | 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 Teach-in, KT5-2 Display

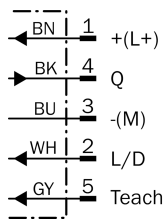


### Adjustments KT5-2 Teach-in, KT5W-xxx3



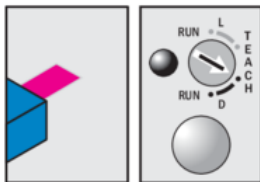
- ① Function signal indicator (yellow)
- ② Pre-selection switch
- ③ Teach-in button

## Connection diagram Cd-324



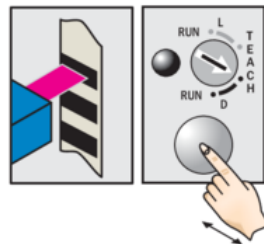
## Concept of operation KT5-2 Teach-in, teach-in dynamic

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



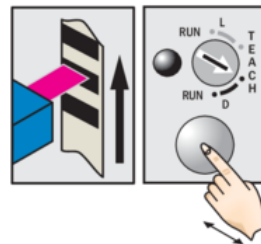
Turn rotary switch to desired teach position:  
D = dark switching  
L = light switching

### 2. Position mark or background

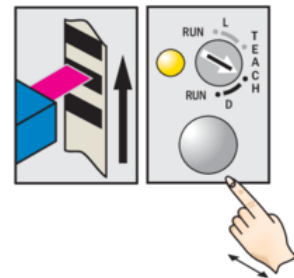


Press the teach-in button and keep it pressed.

### 3. Move at least one repeat length using the light spot

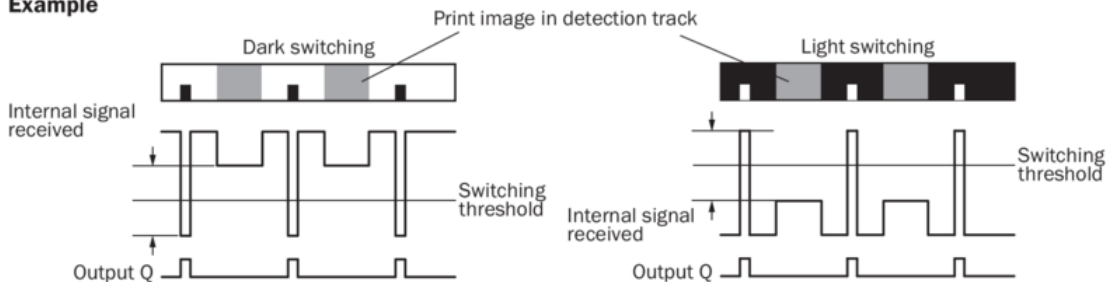


Keep the teach-in button pressed.



Release the teach-in button.  
Yellow LED will illuminate, when emitted light is on the mark.

### Example



### Switching characteristics

The optimum emitted light is selected automatically.

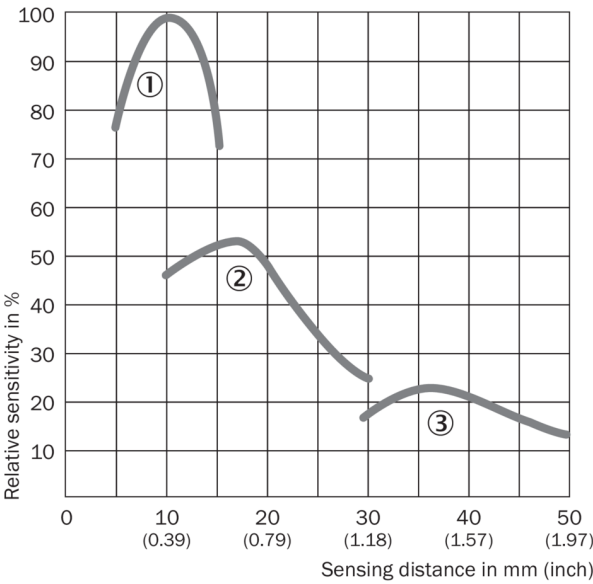
The switching threshold is set in the center between the lowest and the second-lowest reflectivity.

Teach-in can also be performed using an external control signal.

Light/dark setting can also be configured using an external control signal.

Observe the minimum speed (25 mm/s ... 300 mm/s).

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)

|                                                                                     | Brief description                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Type        | part no. |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------|
| 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, 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  |
|                                                                                     | <ul style="list-style-type: none"><li>• <b>Description:</b> Lens, 20 mm sensing distance</li></ul>                                                                                                                                                                                                                                                                                                                                                                        | OBJ-212     | 1011506  |

|                                                                                     | Brief description                                                                                                                                                                                                                                                                                                                                                                                                        | Type               | part no. |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|
| connectors and cables                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                          |                    |          |
|    | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 5-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 mm²</li> </ul>                                                                                                                                    | DOS-1205-G         | 6009719  |
|    | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 5-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 mm²</li> </ul>                                                                                                                                      | DOS-1205-W         | 6009720  |
|    | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 5-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, 5-wire, PVC</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul>    | YG2A15-020VB5XLEAX | 2096215  |
|    | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 5-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, 5-wire, PVC</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul>    | YG2A15-050VB5XLEAX | 2096216  |
|    | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 5-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, 5-wire, PVC</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul>   | YG2A15-100VB5XLEAX | 2096217  |
|   | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 5-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, 5-wire, PVC</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul>  | YF2A15-020VB5XLEAX | 2096239  |
|  | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 5-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, 5-wire, PVC</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul>  | YF2A15-050VB5XLEAX | 2096240  |
|  | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 5-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, 5-wire, PVC</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul> | YF2A15-100VB5XLEAX | 2096241  |
|  | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 5-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, 5-wire, PVC</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul>  | YG2A15-C60VB5XLEAX | 2145573  |
|  | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 5-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, 5-wire, PVC</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul>    | YG2A15-010VB5XLEAX | 2145574  |
|  | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 5-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> 3 m, 5-wire, PVC</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> </ul>                                                                            | YG2A15-030VB5XLEAX | 2145575  |

|                                                                                   | Brief description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Type               | part no. |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|
|  | <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, 5-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, 5-wire, PVC</li><li>• <b>Description:</b> Sensor/actuator cable, unshielded</li><li>• <b>Application:</b> Zones with chemicals, Uncontaminated zones</li></ul> | YF2A15-C60VB5XLEAX | 2145570  |
|                                                                                   | <ul style="list-style-type: none"><li>• <b>Connection type head A:</b> Female connector, M12, 5-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> 3 m, 5-wire, PVC</li><li>• <b>Description:</b> Sensor/actuator cable, unshielded</li><li>• <b>Application:</b> Zones with chemicals, Uncontaminated zones</li></ul>                                                                            | 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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