



# KT5W-2P1213

KT5

CONTRAST SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ

### Ordering information

Type	part no.
KT5W-2P1213	1016715

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

### Detailed technical data

#### Features

<b>Housing design</b>	Middle
<b>Dimensions (W x H x D)</b>	30.4 mm x 53 mm x 80 mm
<b>Light source</b>	LED, RGB <sup>1)</sup>
<b>Light emission</b>	Long and short side of housing, exchangeable
<b>Light spot size</b>	1.5 mm x 5.5 mm
<b>Light spot direction</b>	Vertical <sup>2)</sup>
<b>Wave length</b>	470 nm, 525 nm, 640 nm
<b>Sensing distance</b>	≤ 20 mm <sup>3)</sup>
<b>Adjustment</b>	Teach-in button
<b>Teach-in mode</b>	Teach-in dynamic

<sup>1)</sup> Average service life: 100,000 h at T<sub>U</sub> = +25 °C.

<sup>2)</sup> In relation to long side of housing.

<sup>3)</sup> From leading edge of lens.

#### 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
<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>y</sub> tolerances.

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

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

<sup>5)</sup> Short-circuit-proof.

<sup>6)</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_{\text{max}}</math></b>	100 mA <sup>5)</sup>
<b>Input, teach-in (ET)</b>	PNP Teach: $U = 10 \text{ V} \dots < U_V$ Run: $U < 2 \text{ V}$
<b>Input, light/dark (L/D)</b>	PNP Light: $U = 0 \text{ V}$ Dark: $U > 10 \text{ V} \dots < U_V$
<b>Retention time (ET)</b>	25 ms, non-volatile memory
<b>Time delay</b>	None
<b>Protection class</b>	II <sup>6)</sup>
<b>Circuit protection</b>	$U_V$ connections, reverse polarity protected Output Q short-circuit protected Interference pulse suppression
<b>Connection type</b>	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.

5) Short-circuit-proof.

6) Reference voltage DC 50 V.

## Mechanics

<b>Housing material</b>	Zinc diecast
<b>Weight</b>	400 g

## Ambient data

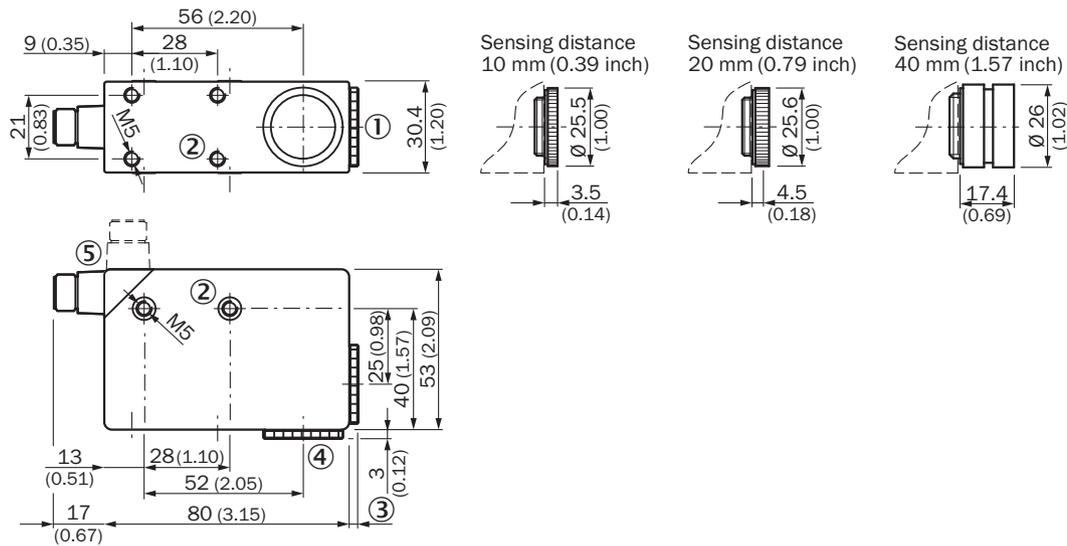
<b>Ambient operating temperature</b>	-10 °C ... +55 °C
<b>Ambient temperature, storage</b>	-25 °C ... +75 °C
<b>Shock load</b>	According to IEC 60068
<b>Enclosure rating</b>	IP67

## 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

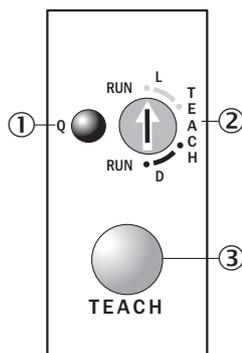
### Dimensional drawing KT5-2 Teach-in, KT5-2 Display



Dimensions in mm (inch)

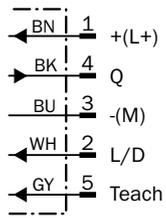
- ① Lens (light transmission), can be exchanged for pos. 4
- ② M5 threaded mounting hole, 5.5 mm deep
- ③ see dimensional drawings of lenses
- ④ Blind screw can be replaced by pos. 1
- ⑤ Connector M12 (rotatable up to 90°)

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



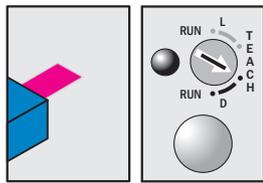
- ① Function signal indicator (yellow)
- ② Pre-selection switch
- ③ Teach-in button

Connection diagram Cd-324



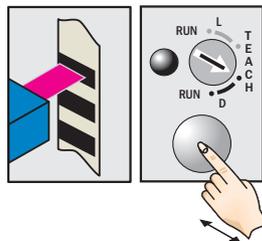
Concept of operation KT5-2 Teach-in, teach-in dynamic

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



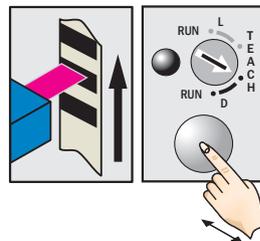
Turn rotary switch to desired teach position:  
 D = dark switching  
 L = light switching

**2. Position mark or background**

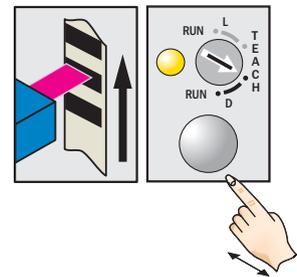


Press the teach-in button and keep it pressed.

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

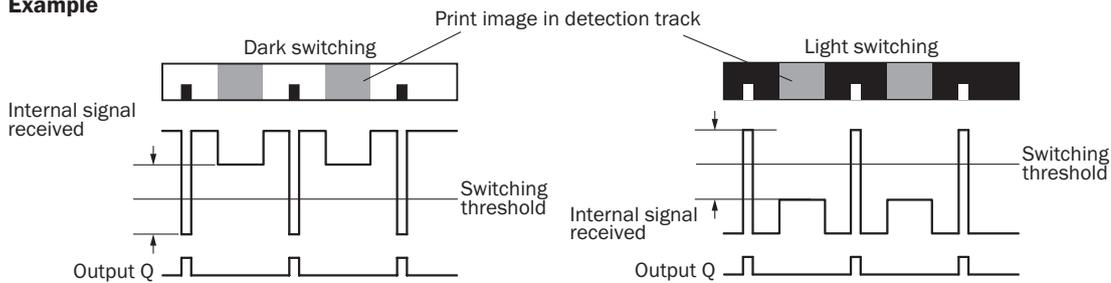


Keep the teach-in button pressed.



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

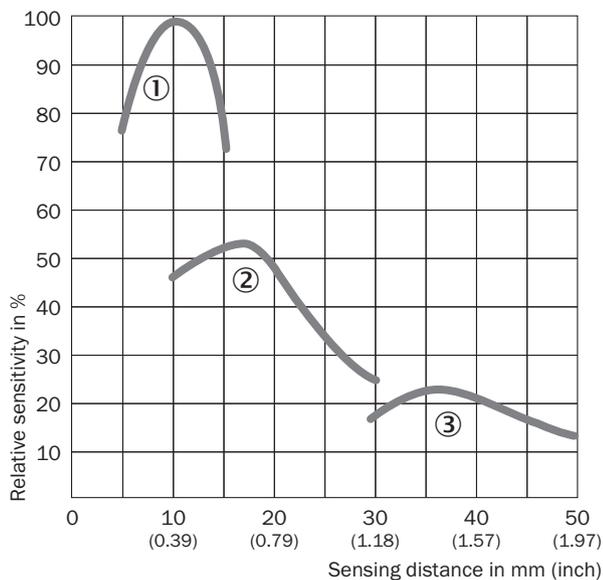
**Example**



**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.
<b>Mounting systems</b>			
	<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
<b>reflectors and optics</b>			
	<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>Description:</b> Unshielded</li> <li><b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</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-1205-G	6009719
	<ul style="list-style-type: none"> <li><b>Description:</b> Unshielded</li> <li><b>Connection type head A:</b> Female connector, M12, 5-pin, angled, A-coded</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-1205-W	6009720
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <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>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YG2A15-020VB5XLEAX	2096215
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <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>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YG2A15-050VB5XLEAX	2096216
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <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>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YG2A15-100VB5XLEAX	2096217
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, unshielded</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> 2 m, 5-wire, PVC</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YF2A15-020VB5XLEAX	2096239
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, unshielded</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> 5 m, 5-wire, PVC</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YF2A15-050VB5XLEAX	2096240
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, unshielded</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> 10 m, 5-wire, PVC</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YF2A15-100VB5XLEAX	2096241
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <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>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YG2A15-C60VB5XLEAX	2145573
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <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>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YG2A15-010VB5XLEAX	2145574
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <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> </ul>	YG2A15-030VB5XLEAX	2145575

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

## WORLDWIDE PRESENCE:

Contacts and other locations –[www.sick.com](http://www.sick.com)