

**KTS-WS41141142ZZZZ**

KTS

**CONTRAST SENSORS**

**SICK**  
Sensor Intelligence.

Illustration may differ

### Ordering information

Type	Part no.
KTS-WS41141142ZZZZ	1221031

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



### Detailed technical data

#### Features

<b>Special applications</b>	Standard
<b>Device type</b>	Easy Teach
<b>Dimensions (W x H x D)</b>	26 mm x 62 mm x 47.5 mm
<b>Sensing distance</b>	≤ 13 mm
<b>Sensing distance tolerance</b>	± 3 mm
<b>Housing design</b>	Middle
<b>Light source</b>	LED, RGB <sup>1)</sup>
<b>Wave length</b>	470 nm, 525 nm, 625 nm
<b>Light emission</b>	Long side of housing
<b>Light spot size</b>	1.2 mm x 3.9 mm
<b>Light spot direction</b>	Vertical <sup>2)</sup>
<b>Receiving filters</b>	None
<b>Teach-in mode</b>	2-point teach-in
<b>Output function</b>	Light/dark switching
<b>Delay time</b>	-
<b>Special features</b>	-
<b>Delivery status</b>	2-point teach-in
<b>Parameter presettings</b>	None
<b>Setting the key lock</b>	Standard

<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.

#### Mechanics/electronics

<b>Supply voltage</b>	10.8 V DC ... 28.8 V DC <sup>1)</sup>
<b>Ripple</b>	≤ 5 V <sub>pp</sub> <sup>2)</sup>

<sup>1)</sup> Limit values: DC 12 V (-10 %) ... DC 24 V (+20 %). Operation 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> Total current of all Outputs.

<b>Current consumption</b>	< 100 mA <sup>3)</sup>
<b>Switching frequency</b>	25 kHz <sup>4)</sup>
<b>Response time</b>	20 µs <sup>5)</sup>
<b>Jitter</b>	10 µs
<b>Switching output</b>	PNP, NPN
<b>Switching output (voltage)</b>	PNP: HIGH = $V_S - 3\text{ V}$ / LOW = 0 V NPN: HIGH = $V_S$ / LOW $\leq 3\text{ V}$
<b>Output current <math>I_{\text{max}}</math></b>	100 mA <sup>6)</sup>
<b>Retention time (ET)</b>	35 ms, non-volatile memory
<b>Connection type</b>	Male connector M12, 4-pin
<b>Protection class</b>	III
<b>Circuit protection</b>	$U_V$ connections, reverse polarity protected Output Q short-circuit protected Interference pulse suppression
<b>Enclosure rating</b>	IP67
<b>Weight</b>	68 g
<b>Housing material</b>	Plastic, VISTAL®
<b>Optics material</b>	Plastic, COP

<sup>1)</sup> Limit values: DC 12 V (-10 %) ... DC 24 V (+20 %). Operation 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> Total current of all Outputs.

## Ambient data

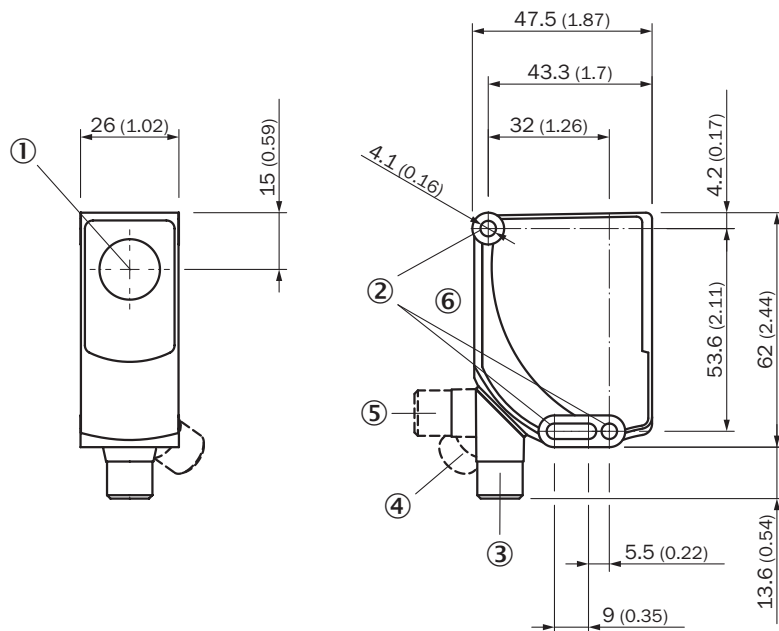
<b>Ambient operating temperature</b>	-20 °C ... +60 °C
<b>Ambient temperature, storage</b>	-25 °C ... +75 °C
<b>Shock load</b>	According to IEC 60068-2-27 (30 g/11 ms)
<b>UL File No.</b>	E181493

## Classifications

<b>eCl@ss 5.0</b>	27270906
<b>eCl@ss 5.1.4</b>	27270906
<b>eCl@ss 6.0</b>	27270906
<b>eCl@ss 6.2</b>	27270906
<b>eCl@ss 7.0</b>	27270906
<b>eCl@ss 8.0</b>	27270906
<b>eCl@ss 8.1</b>	27270906
<b>eCl@ss 9.0</b>	27270906
<b>eCl@ss 10.0</b>	27270906
<b>eCl@ss 11.0</b>	27270906
<b>eCl@ss 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

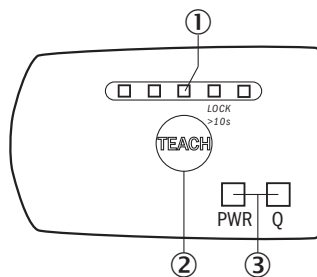
### Dimensional drawing (Dimensions in mm (inch))



- ① Optical axis
- ② Fixing hole
- ③ M12 male connector, delivery state
- ④ M12 male connector, end stop right
- ⑤ M12 male connector, end stop left
- ⑥ Display and adjustment elements

### Adjustments

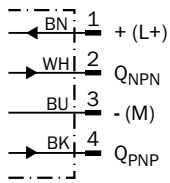
Display and adjustment elements



- ① Bar graph
- ② Single teach-in button
- ③ LED status indicator

## Connection diagram

Cd-086

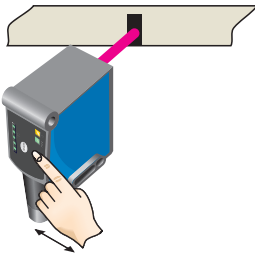


## Concept of operation

KTS Core Easy Teach - Setting the switching threshold

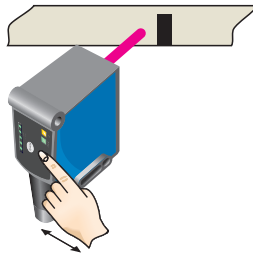
Suitable for manual positioning of the object to be detected, e.g. marks and background.

### 1. Position mark



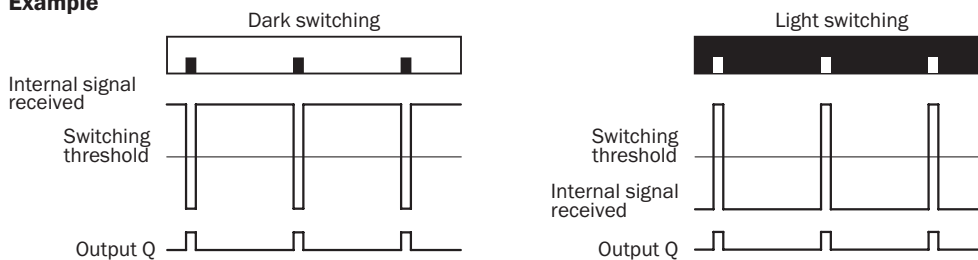
When setting the contrasts to be detected, the first LED (green) flashes in the bar graph. Press Teach-in pushbutton.

### 2. Position background



When setting the contrasts to be detected, the second LED (green) flashes in the bar graph. Press Teach-in pushbutton.

### Example



### Switching characteristics

The optimum emitted light is selected automatically (at RGB variants).  
 Static teach-in: light/dark setting is defined using teach-in sequence.

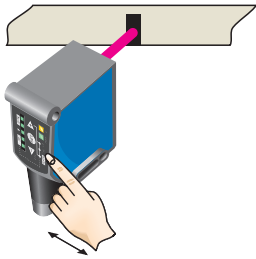
Keylock (activation and deactivation): Press and hold the Teach-in pushbutton > 10 s.

Teach-in failure: The Q-LED (yellow) flashes and all LEDs flash on the bar graph (green).

KTS Core - setting the switching threshold (2-point teach-in)

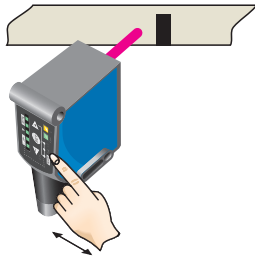
Suitable for manual positioning of the object to be detected, e.g. marks and background.

### 1. Position mark



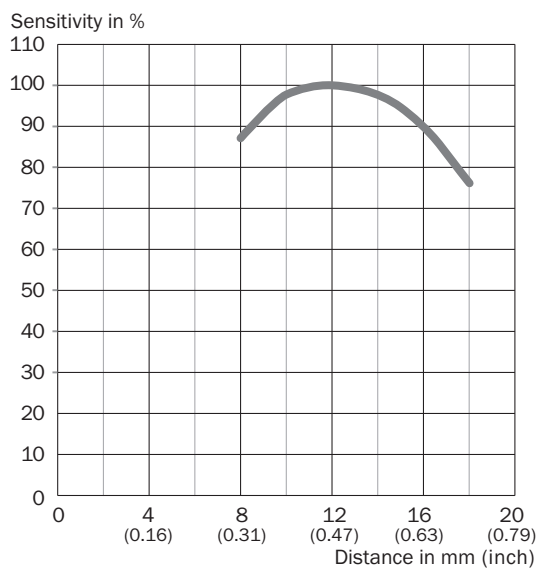
When setting the contrasts to be detected, the first LED (green) flashes in the bar graph. Press set button.

### 2. Position background




When setting the contrasts to be detected, the second LED (green) flashes in the bar graph. Press set button. The Quality of Teach is displayed.





## Sensing distance



## Recommended accessories

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

	Brief description	Type	Part no.
Universal bar clamp systems			
	Plate K for universal clamp bracket, steel, zinc coated, Universal clamp (2022726), mounting hardware	BEF-KHS-K01	2022718

	Brief description	Type	Part no.
	Mounting bar, straight, 200 mm, steel, steel, zinc coated, without mounting hardware	BEF-MS12G-A	4056054
	Mounting bar, L-shaped, 150 mm x 150 mm, steel, steel, zinc coated, without mounting hardware	BEF-MS12LA	4056052
Plug connectors and cables			
	Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m	YF2A14-050VB3XLEAX	2096235
	Head A: male connector, M12, 4-pin, straight Cable: unshielded	STE-1204-G	6009932

## 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)