



# CS81-N1112

CS8

COLOR SENSORS

**SICK**  
Sensor Intelligence.



### Ordering information

Type	Part no.
CS81-N1112	1028228

Other models and accessories → [www.sick.com/CS8](http://www.sick.com/CS8)



### Detailed technical data

#### Features

<b>Dimensions (W x H x D)</b>	30.4 mm x 80 mm x 53 mm
<b>Sensing distance</b>	12.5 mm <sup>1)</sup>
<b>Sensing distance tolerance</b>	± 3 mm
<b>Housing design (light emission)</b>	Rectangular
<b>Light source</b>	LED, RGB <sup>2)</sup>
<b>Wave length</b>	640 nm, 525 nm, 470 nm
<b>Light spot size</b>	2 mm x 4 mm
<b>Light spot direction</b>	Vertical
<b>Adjustment</b>	Teach-in button
<b>Teach-in mode</b>	Static 1-point teach-in

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

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

#### 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>	< 120 mA <sup>3)</sup>
<b>Switching frequency</b>	1 kHz <sup>4)</sup> 3 kHz 6 kHz Adjustable

<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> Consumption count Q1 / Q2.

<sup>7)</sup> AT > 200 μs.

<sup>8)</sup> Reference voltage DC 32 V.

<b>Response time</b>	500 $\mu$ s, 160 $\mu$ s, 85 $\mu$ s <sup>5)</sup>
<b>Switching output</b>	NPN
<b>Switching output (voltage)</b>	NPN: HIGH = approx. $V_S$ / LOW $\leq$ 2 V
<b>Output (channel)</b>	1 color
<b>Output current <math>I_{max}</math>.</b>	< 100 mA <sup>6)</sup>
<b>Input, teach-in (ET)</b>	NPN Teach: U < 2 V Run: U = 10 V ... < $U_V$
<b>Input, blanking input (AT)</b>	NPN Blanked: U < 2 V Free-running: U > 10 V ... < $U_V$ <sup>7)</sup>
<b>Retention time (ET)</b>	25 ms, non-volatile memory
<b>Time delay</b>	Deactivation delay 20 ms, shiftable
<b>Connection type</b>	Male connector M12, 5-pin
<b>Protection class</b>	II <sup>8)</sup>
<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>	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) Consumption count Q1 / Q2.

7) AT > 200  $\mu$ s.

8) Reference voltage DC 32 V.

## Ambient data

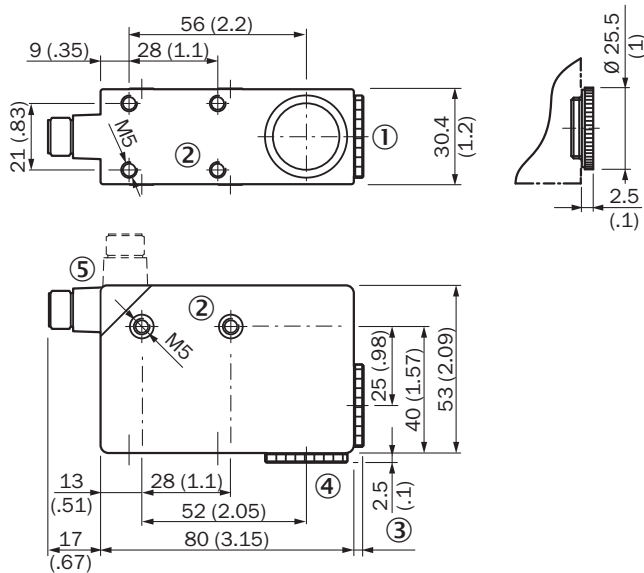
<b>Ambient operating temperature</b>	-10 °C ... +55 °C
<b>Ambient storage temperature</b>	-20 °C ... +75 °C
<b>Shock load</b>	According to IEC 60068
<b>UL File No.</b>	NRKH.E181493 & NRKH7.E181493

## Classifications

<b>ECl@ss 5.0</b>	27270907
<b>ECl@ss 5.1.4</b>	27270907
<b>ECl@ss 6.0</b>	27270907
<b>ECl@ss 6.2</b>	27270907
<b>ECl@ss 7.0</b>	27270907
<b>ECl@ss 8.0</b>	27270907
<b>ECl@ss 8.1</b>	27270907
<b>ECl@ss 9.0</b>	27270907
<b>ECl@ss 10.0</b>	27270907

<b>ECl@ss 11.0</b>	27270907
<b>ETIM 5.0</b>	EC001817
<b>ETIM 6.0</b>	EC001817
<b>ETIM 7.0</b>	EC001817
<b>UNSPSC 16.0901</b>	39121528

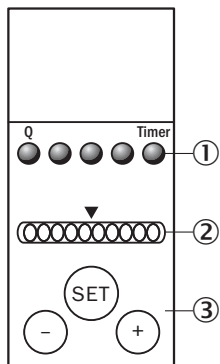
### Dimensional drawing (Dimensions in mm (inch))



- ① Lens (light emission)
- ② M5 threaded mounting hole, 5.5 mm deep
- ③ See dimensional drawings of lenses
- ④ Blind screw, can be replaced by lens
- ⑤ Connector M12 (rotatable up to 90°)

### Adjustments

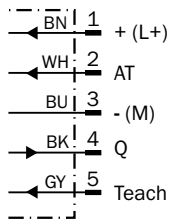
CS8-1



- ① Function signal indicators (yellow)
- ② Bar graph (green), power-on left-hand LED
- ③ Teach-in pushbutton / +/- pushbutton

## Connection diagram

Cd-313



## Concept of operation

### Setting the switching threshold

**1. Trigger teach-in**

Position object in light field. Press SET button > 1 s.

**2. Select color tolerance**

If necessary adapt tolerance with "+" button (more coarse) or "-" button (more precise).

**3. Confirm teach-in**

Press SET button > 1 s. Color correspondence is visualized via bar graph display.

### Display of the color correspondence

**1. Full correspondence**

Color detected = Q active.

**2. Correspondence**

Color just detected = Q active.

**3. No correspondence**

Color not detected = Q inactive.

**Special settings**

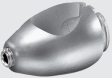




"Evaluation mode," "Tolerance change during operation," "Show quality," "Time stage," and "Output logic" can be set via a special menu (cf. appropriate operating instructions for the device).

and   
 > 1 s = enter/exit  
 or   
 < 1 s = navigate  
  
 > 1 s = select/confirm

## Recommended accessories

Other models and accessories → [www.sick.com/CS8](http://www.sick.com/CS8)

	Brief description	Type	Part no.
<b>Universal bar clamp systems</b>			
	Plate G for universal clamp bracket, steel, zinc coated, Universal clamp (2022726), mounting hardware	BEF-KHS-G01	2022464
	Plate K for universal clamp bracket, steel, zinc coated, Universal clamp (2022726), mounting hardware	BEF-KHS-K01	2022718

	<b>Brief description</b>	<b>Type</b>	<b>Part no.</b>
	Universal clamp bracket for rod mounting, steel, zinc coated, without mounting hardware	BEF-KHS-KH1	2022726
	Mounting bar, straight, 200 mm, steel, steel, zinc coated, without mounting hardware	BEF-MS12G-A	4056054
	Mounting bar, straight, 300 mm, steel, steel, zinc coated, without mounting hardware	BEF-MS12G-B	4056055
	Mounting bar, L-shaped, 150 mm x 150 mm, steel, steel, zinc coated, without mounting hardware	BEF-MS12L-A	4056052
	Mounting bar, L-shaped, 250 x 250 mm, steel, steel, zinc coated, without mounting hardware	BEF-MS12L-B	4056053
<b>Plug connectors and cables</b>			
	Head A: female connector, M12, 5-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 2 m	YF2A15-020VB5XLEAX	2096239
	Head A: female connector, M12, 5-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m	YF2A15-050VB5XLEAX	2096240
	Head A: female connector, M12, 5-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 10 m	YF2A15-100VB5XLEAX	2096241
	Head A: female connector, M12, 5-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 2 m	YG2A15-020VB5XLEAX	2096215
	Head A: female connector, M12, 5-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m	YG2A15-050VB5XLEAX	2096216
	Head A: female connector, M12, 5-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 10 m	YG2A15-100VB5XLEAX	2096217
	Head A: female connector, M12, 5-pin, straight Cable: unshielded	DOS-1205-G	6009719
	Head A: female connector, M12, 5-pin, angled Head B: - Cable: unshielded	DOS-1205-W	6009720

## 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)