



# CS84-P1112

## CS8

COLOR SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ

## Ordering information

| Type       | part no. |
|------------|----------|
| CS84-P1112 | 1028226  |

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</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 leading 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> | 0.5 kHz, 1 kHz, 3.5 kHz <sup>4)</sup> adjustable |
| <b>Response time</b>       | 1,000 μs, 500 μs, 145 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>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> At 24 V.

<sup>7)</sup> AT > 200 μs.

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

|                                             |                                                                                                                     |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| <b>Switching output (voltage)</b>           | PNP: HIGH = $U_V \leq 2 \text{ V}$ / LOW approx. 0 V                                                                |
| <b>Output (channel)</b>                     | 4 colors                                                                                                            |
| <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, blanking input (AT)</b>           | PNP<br>Blanked: $U > 10 \text{ V} \dots < U_V$<br>Free-running: $U < 2 \text{ V}$ <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, 8-pin                                                                                           |
| <b>Protection class</b>                     | II <sup>8)</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                                                                                                 |

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) At 24 V.

7) AT > 200  $\mu\text{s}$ .

8) Reference voltage DC 32 V.

## Ambient data

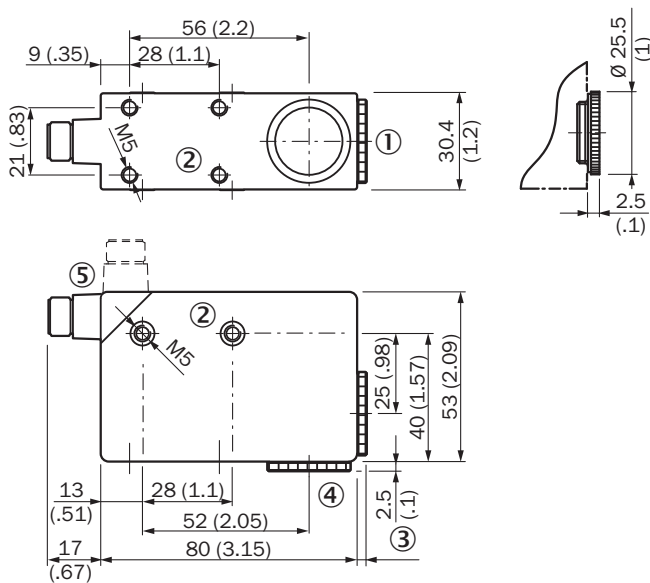
|                                      |                              |
|--------------------------------------|------------------------------|
| <b>Ambient operating temperature</b> | -10 °C ... +55 °C            |
| <b>Ambient temperature, storage</b>  | -20 °C ... +75 °C            |
| <b>Shock load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

## Classifications

|                     |          |
|---------------------|----------|
| <b>ECLASS 5.0</b>   | 27270907 |
| <b>ECLASS 5.1.4</b> | 27270907 |
| <b>ECLASS 6.0</b>   | 27270907 |
| <b>ECLASS 6.2</b>   | 27270907 |
| <b>ECLASS 7.0</b>   | 27270907 |
| <b>ECLASS 8.0</b>   | 27270907 |
| <b>ECLASS 8.1</b>   | 27270907 |
| <b>ECLASS 9.0</b>   | 27270907 |
| <b>ECLASS 10.0</b>  | 27270907 |
| <b>ECLASS 11.0</b>  | 27270907 |
| <b>ECLASS 12.0</b>  | 27270907 |
| <b>ETIM 5.0</b>     | EC001817 |

|                       |          |
|-----------------------|----------|
| <b>ETIM 6.0</b>       | EC001817 |
| <b>ETIM 7.0</b>       | EC001817 |
| <b>ETIM 8.0</b>       | EC001817 |
| <b>UNSPSC 16.0901</b> | 39121528 |

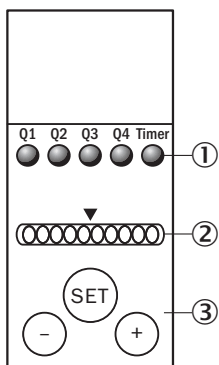
## Dimensional drawing



Dimensions in mm (inch)

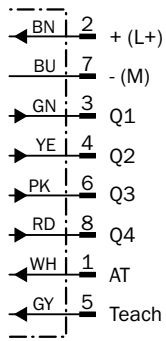
- ① lens (light emission)
- ② M5 threaded mounting hole, 5.5 mm deep
- ③ see dimensional drawings of lenses
- ④ blind screw, can be replaced by lens
- ⑤ Connector M12 (rotatable up to 90°)

## Adjustments CS8-4



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

## Connection diagram Cd-311



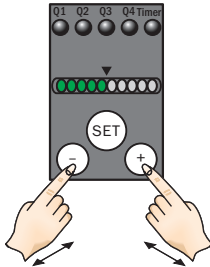
## Setting the switching threshold

### 1. Trigger teach-in



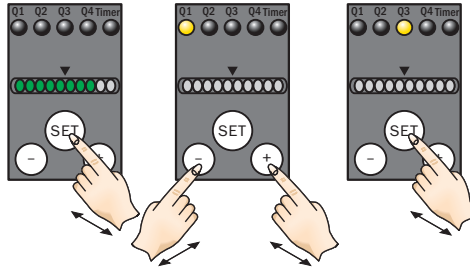
Position object in light field.  
Press SET button > 1 s.

### 2. Select color tolerance



If requested adapt tolerance with  
"+" button (more coarse) or  
"-" button (more precise).  
Press SET button > 1 s.

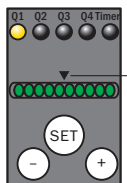
### 3. Allocate channel to color



Allocate channel for color with  
"+" button (Q1 to Q4) or  
"-" button (Q4 to Q1).  
Press SET button > 1 s.

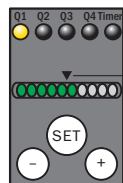
## Display of the color correspondence

### 1. Full correspondence



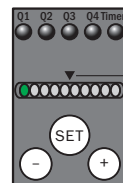
Color detected  
= Q active.

### 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

SET  
> 1 s = select/confirm

### Recommended accessories

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

|                                                                                   | 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  |

|                                                                                     | Brief description                                                                                                                                                                                                                                                                                                                                                                                                                 | Type               | part no. |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|
| connectors and cables                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                   |                    |          |
|    | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 8-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> 0.25 mm<sup>2</sup> ... 0.5 mm<sup>2</sup></li> </ul>                                                                                                     | DOS-1208-G         | 6028422  |
|    | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 8-pin, straight, A-coded</li> <li>• <b>Description:</b> Shielded</li> <li>• <b>Connection systems:</b> Screw-type terminals</li> <li>• <b>Permitted cross-section:</b> 0.25 mm<sup>2</sup> ... 0.5 mm<sup>2</sup></li> </ul>                                                                                                       | DOS-1208-GA        | 6028369  |
|    | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 8-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, 8-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, shielded</li> <li>• <b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul> | YF2A28-020VA6XLEAX | 2096243  |
|    | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 8-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, 8-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, shielded</li> <li>• <b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul> | YF2A28-050VA6XLEAX | 2096244  |
|    | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 8-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, 8-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, shielded</li> <li>• <b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul>   | YG2A28-020VA6XLEAX | 2096218  |
|   | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 8-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, 8-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, shielded</li> <li>• <b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul>   | YG2A28-050VA6XLEAX | 2096219  |
|  | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 8-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> 0.5 m, 8-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, shielded</li> <li>• <b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul> | YG2A28-C50VA6XLEAX | 2145694  |
|  | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 8-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, 8-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, shielded</li> <li>• <b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul> | YF2A28-030VA6XLEAX | 2145695  |
|  | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 8-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, 8-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, shielded</li> <li>• <b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul> | YG2A28-C60VA6XLEAX | 2145388  |
|  | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 8-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, 8-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, shielded</li> <li>• <b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul>   | YG2A28-010VA6XLEAX | 2145389  |
|  | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 8-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, 8-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, shielded</li> </ul>                                                                            | YG2A28-100VA6XLEAX | 2145391  |

|                                                                                   | 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, 8-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, 8-wire, PVC</li><li>• <b>Description:</b> Sensor/actuator cable, shielded</li><li>• <b>Application:</b> Zones with chemicals, Uncontaminated zones</li></ul> | YG2A28-030VA6XLEAX | 2145390  |
|  | <ul style="list-style-type: none"><li>• <b>Connection type head A:</b> Female connector, M12, 8-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, 8-wire, PVC</li><li>• <b>Description:</b> Sensor/actuator cable, shielded</li><li>• <b>Application:</b> Zones with chemicals, Uncontaminated zones</li></ul>                                                                      | YF2A28-C60VA6XLEAX | 2145385  |
|  | <ul style="list-style-type: none"><li>• <b>Connection type head A:</b> Female connector, M12, 8-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, 8-wire, PVC</li><li>• <b>Description:</b> Sensor/actuator cable, shielded</li><li>• <b>Application:</b> Zones with chemicals, Uncontaminated zones</li></ul>                                                                        | YF2A28-010VA6XLEAX | 2145386  |



## 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)