



CS81-N3612

CS8

COLOR SENSORS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

| Type | Part no. |
|------------|----------|
| CS81-N3612 | 1028229 |

Included in delivery: Lens, TW60 (1)

Other models and accessories → www.sick.com/CS8

Detailed technical data

Features

| | |
|-----------------------------------|-------------------------|
| Dimensions (W x H x D) | 30.4 mm x 80 mm x 53 mm |
| Sensing distance | ≤ 60 mm ¹⁾ |
| Sensing distance tolerance | ± 9 mm |
| Housing design | Rectangular |
| Light source | LED, RGB ²⁾ |
| Wave length | 640 nm, 525 nm, 470 nm |
| Light spot size | 13 mm x 13 mm |
| Adjustment | Teach-in button |
| Teach-in mode | Static 1-point teach-in |

¹⁾ From leading edge of lens.

²⁾ Average service life: 100,000 h at T_U = +25 °C.

Mechanics/electronics

| | |
|----------------------------|---|
| Supply voltage | 10 V DC ... 30 V DC ¹⁾ |
| Ripple | < 5 V _{pp} ²⁾ |
| Current consumption | < 120 mA ³⁾ |
| Switching frequency | 1 kHz, 3 kHz, 6 kHz ⁴⁾ adjustable |
| Response time | 500 μs, 160 μs, 85 μs ⁵⁾ |

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 μs.

⁸⁾ Reference voltage DC 32 V.

| | |
|---|---|
| Switching output | NPN |
| Switching output (voltage) | NPN: HIGH = approx. U_V / LOW ≤ 2 V |
| Output (channel) | 1 color |
| Output current I_{\max} | 100 mA ⁶⁾ |
| Input, teach-in (ET) | NPN Teach: $U < 2$ V Run: $U = 10$ V ... $< U_V$ |
| Input, blanking input (AT) | NPN Blanked: $U < 2$ V Free-running: $U > 10$ V ... $< U_V$ ⁷⁾ |
| Retention time (ET) | 25 ms, non-volatile memory |
| Time delay | Deactivation delay 20 ms, shiftable |
| Connection type | Male connector M12, 5-pin |
| Protection class | II ⁸⁾ |
| Circuit protection | U_V connections, reverse polarity protected Output Q short-circuit protected Interference pulse suppression |
| Enclosure rating | IP67 |
| Weight | 400 g |
| Housing material | 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 μ s.

⁸⁾ Reference voltage DC 32 V.

Ambient data

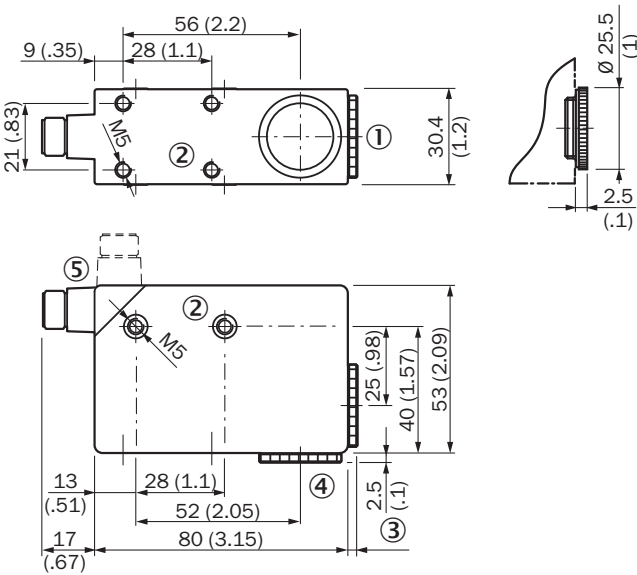
| | |
|--------------------------------------|------------------------------|
| Ambient operating temperature | -10 °C ... +55 °C |
| Ambient temperature, storage | -20 °C ... +75 °C |
| Shock load | According to IEC 60068 |
| UL File No. | NRKH.E181493 & NRKH7.E181493 |

Classifications

| | |
|---------------------|----------|
| ECLASS 5.0 | 27270907 |
| ECLASS 5.1.4 | 27270907 |
| ECLASS 6.0 | 27270907 |
| ECLASS 6.2 | 27270907 |
| ECLASS 7.0 | 27270907 |
| ECLASS 8.0 | 27270907 |
| ECLASS 8.1 | 27270907 |
| ECLASS 9.0 | 27270907 |
| ECLASS 10.0 | 27270907 |
| ECLASS 11.0 | 27270907 |
| ECLASS 12.0 | 27270907 |

| | |
|----------------|----------|
| ETIM 5.0 | EC001817 |
| ETIM 6.0 | EC001817 |
| ETIM 7.0 | EC001817 |
| ETIM 8.0 | EC001817 |
| UNSPSC 16.0901 | 39121528 |

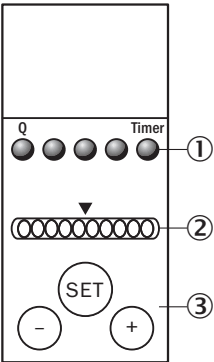
Dimensional drawing (Dimensions in mm (inch))



- 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

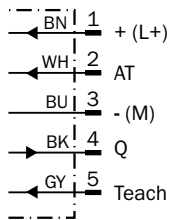
CS8-1



- 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

| | Brief description | Type | Part no. |
|-----------------------------|---|-------------|----------|
| Universal bar clamp systems | | | |
| | 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 |

| | Brief description | Type | Part no. |
|---|--|--------------------|----------|
|  | 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 |
| Plug connectors and cables | | | |
|  | <ul style="list-style-type: none"> • Connection type head A: Female connector, M12, 5-pin, straight, A-coded • Connection type head B: Flying leads • Signal type: Sensor/actuator cable • Cable: 2 m, 5-wire, PVC • Description: Sensor/actuator cable, unshielded • Application: Zones with chemicals | YF2A15-020VB5XLEAX | 2096239 |
| | <ul style="list-style-type: none"> • Connection type head A: Female connector, M12, 5-pin, straight, A-coded • Connection type head B: Flying leads • Signal type: Sensor/actuator cable • Cable: 5 m, 5-wire, PVC • Description: Sensor/actuator cable, unshielded • Application: Zones with chemicals | YF2A15-050VB5XLEAX | 2096240 |
| | <ul style="list-style-type: none"> • Connection type head A: Female connector, M12, 5-pin, straight, A-coded • Connection type head B: Flying leads • Signal type: Sensor/actuator cable • Cable: 10 m, 5-wire, PVC • Description: Sensor/actuator cable, unshielded • Application: Zones with chemicals | YF2A15-100VB5XLEAX | 2096241 |
| | <ul style="list-style-type: none"> • Connection type head A: Female connector, M12, 5-pin, angled, A-coded • Connection type head B: Flying leads • Signal type: Sensor/actuator cable • Cable: 2 m, 5-wire, PVC • Description: Sensor/actuator cable, unshielded • Application: Zones with chemicals | YG2A15-020VB5XLEAX | 2096215 |
| | <ul style="list-style-type: none"> • Connection type head A: Female connector, M12, 5-pin, angled, A-coded • Connection type head B: Flying leads • Signal type: Sensor/actuator cable • Cable: 5 m, 5-wire, PVC • Description: Sensor/actuator cable, unshielded • Application: Zones with chemicals | YG2A15-050VB5XLEAX | 2096216 |
| | <ul style="list-style-type: none"> • Connection type head A: Female connector, M12, 5-pin, angled, A-coded • Connection type head B: Flying leads • Signal type: Sensor/actuator cable • Cable: 10 m, 5-wire, PVC • Description: Sensor/actuator cable, unshielded • Application: Zones with chemicals | YG2A15-100VB5XLEAX | 2096217 |
|  | <ul style="list-style-type: none"> • Connection type head A: Female connector, M12, 5-pin, straight • Description: Unshielded, Head A: female connector, M12, 5-pin, straight, unshielded, for cable diameter 4 mm ... 6 mm Head B: - • Connection systems: Screw-type terminals • Permitted cross-section: ≤ 0.75 mm² | DOS-1205-G | 6009719 |
|  | <ul style="list-style-type: none"> • Connection type head A: Female connector, M12, 5-pin, angled • Description: Unshielded • Connection systems: Screw-type terminals • Permitted cross-section: ≤ 0.75 mm² | 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.”

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