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DATA SHEET

CS81-P1112

CS8
Color sensors

SICK
Sensor Intelligence



Illustration may differ

COLOR SENSORS

CS81-P1112

ORDERING INFORMATION

Type	part no.
CS81-P1112	1028224

Further device versions and accessories at www.sick.com/CS8

DETAILED TECHNICAL DATA

FEATURES

Housing design	Middle
Dimensions (W x H x D)	30.4 mm x 80 mm x 53 mm
Light source	LED, RGB [1]
Light spot size	2 mm x 4 mm
Light spot direction	Vertical
Wave length	640 nm, 525 nm, 470 nm
Sensing distance	≤ 12.5 mm [2]
Sensing distance tolerance	± 3 mm
Adjustment	Teach-in button
Teach-in mode	Static 1-point teach-in

[1] Average service life: 100,000 h at T_U = +25 °C.

[2] From leading edge of lens.

ELECTRONICS

Supply voltage	10 V DC ... 30 V DC [1]
Ripple	< 5 V_{pp} [2]

[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] At 24 V.

[6] AT > 200 µs.

[7] Reference voltage DC 32 V.

Current consumption	< 120 mA [3]
Switching frequency	1 kHz [4] 3 kHz 6 kHz
Response time	500 µs 160 µs 85 µs
Switching output	PNP
Switching output (voltage)	PNP: HIGH = U_v ≤ 2 V / LOW approx. 0 V
Output (channel)	1 color
Output current $I_{max.}$	100 mA [5]
Input, teach-in (ET)	PNP Teach: U = 10 V ... < U_v Run: U < 2 V
Input, blanking input (AT)	PNP Blanked: U > 10 V ... < Uv Free-running: U < 2 V [6]
Retention time (ET)	25 ms, non-volatile memory
Time delay	Deactivation delay 20 ms, shiftable
Protection class	II [7]
Circuit protection	U_v connections, reverse polarity protected Output Q short-circuit protected Interference pulse suppression
Connection type	 Plug, M12, 5-pin

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[3] Without load.

[4] With light/dark ratio 1:1.

[5] At 24 V.

[6] AT > 200 µs.

[7] Reference voltage DC 32 V.

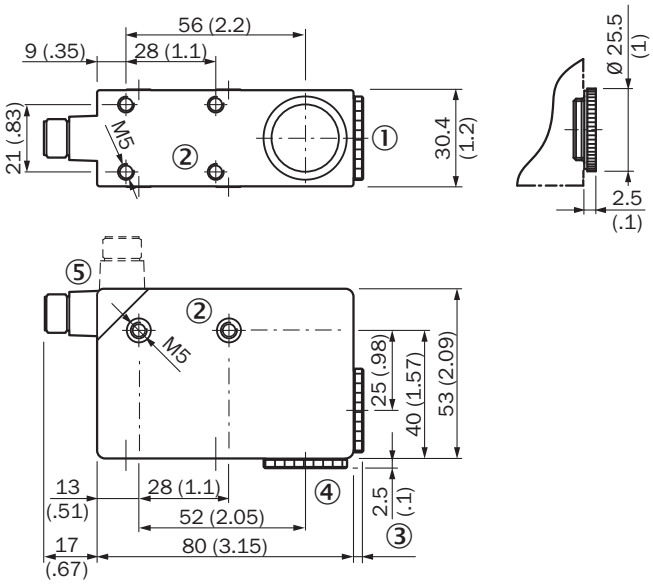
MECHANICS

Housing material	Zinc diecast
Weight	400 g

AMBIENT DATA

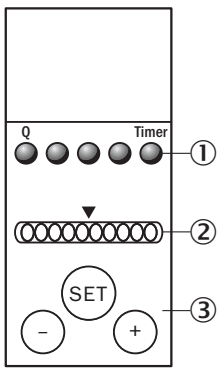
Ambient operating temperature	–10 °C ... +55 °C
Ambient temperature, storage	–20 °C ... +75 °C
Shock load	According to IEC 60068
Enclosure rating	IP67
UL File No.	NRKH.E181493 & NRKH7.E181493

DIMENSIONAL DRAWING



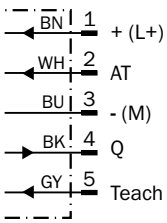
Dimensions in mm (inch)
① lens (light emission)
② M5 threaded mounting hole, 5.5 mm deep
③ see dimensional drawings of lenses
④ blind screw, can be replaced by lens
⑤ Connector M12 (rotatable up to 90°)

ADJUSTMENTS CS8-1



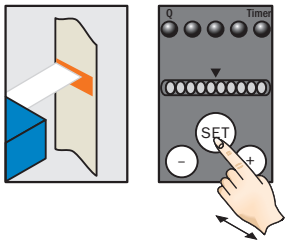
① Function signal indicators (yellow)
② bar graph (green), power-on left-hand LED
③ teach-in pushbutton / +/– pushbutton

CONNECTION DIAGRAM CD-313



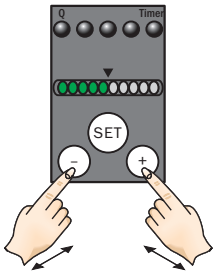
SETTING THE SWITCHING THRESHOLD

1. Trigger teach-in



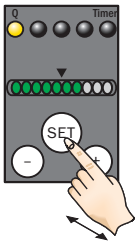
Position object in light field.
Press SET button > 1 s.

2. Select color tolerance



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

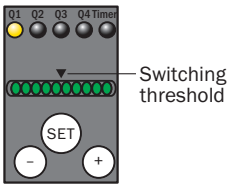
3. Confirm teach-in



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

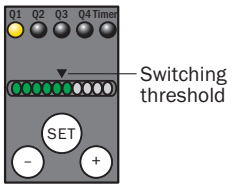
DISPLAY OF THE COLOR CORRESPONDENCE

1. Full correspondence



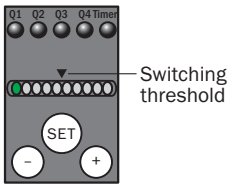
Color detected
= Q active.

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

(SET)
> 1 s = select/confirm

Further information as well as suitable accessories, example applications and downloads such as CAD dimensional models, operating instructions and software can be found at www.sick.com/1028224

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SICK AT A GLANCE

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SICK combines sensor intelligence with industry expertise and certified consulting services. We provide the ideal foundation for scalable as well as tailor-made automation solutions and create added value along the entire value chain. Our close partnerships with our customers are more than just a promise: Together, we optimize productivity, improve quality, protect health and safety, and help build a sustainable future. All with empathy and trust.

Since 1946, we have been developing innovative technologies with passion and a pioneering spirit. With a global network in around 40 countries, SICK has a global presence and is always close by. The company's headquarters are located in Waldkirch near Freiburg, Germany. Our customers benefit from our understanding of both local and global requirements, which enables us to deliver tailor-made solutions

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