



Color sensors CS8, CS8-1

CS81-N1112



Model Name > CS81-N1112
Part No. > 1028228



At a glance

- One (CS8-1) or four (CS8-4) colors can be saved
- 12.5 mm or 60 mm sensing distance
- Fast response time up to 85 μ s
- High resolution color
- Bar graph display shows the correlation of the colors
- Extremely precise light spot and high resolution
- Metal housing with two light exits (interchangeable)

Your benefits

- Identify and store up to four colors. No need to reprogram the sensor for changeovers, reducing downtime.
- High resolution colors can be matched exactly for better process reliability
- Maintains the extreme precision of the light spot, enabling a consistent object detection
- A bar graph display provides information about the color quality and detection reliability, ensuring simple process monitoring
- Broad spectrum of color tolerances enables more flexible use
- Fast response times at high speeds for reliable detection
- Detection reliability is not affected by varying temperatures



Features

Dimensions (L x W x H):	53 mm x 30.4 mm x 80 mm
Sensing distance ¹⁾ :	12.5 mm
Sensing distance tolerance:	± 3 mm
Light source ^{2), 3)} :	LED red, green, blue
Light spot size:	2 mm x 4 mm
Light spot direction:	Vertical
Adjustment:	Static 1-point teach-in

¹⁾ From front edge of lens ²⁾ Average service life of 100,000 h at $T_A = +25^\circ\text{C}$ ³⁾ Wave length: 470 nm, 525 nm, 640 nm

Mechanics/electronics

Supply voltage V_s ¹⁾ :	DC 10 V ... 30 V
Ripple ²⁾ :	< 5 Vpp
Power consumption ³⁾ :	< 120 mA

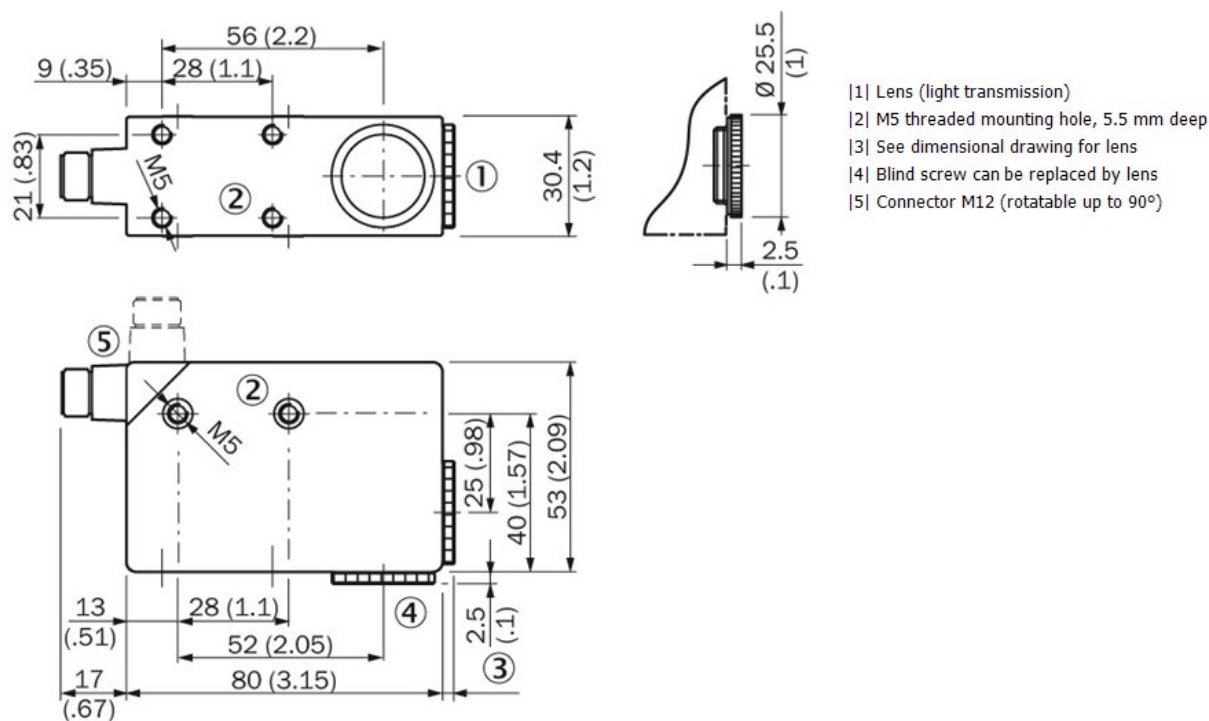
Switching frequency ⁴⁾ :	Adjustable, 1 kHz 3 kHz 6 kHz
Response time ⁵⁾ :	500 µs 160 µs 85 µs
Output type:	NPN: HIGH = approx. VS / LOW ≤ 2 V
Switching mode:	NPN
Output (channel):	1 color
Output current I _{max} . ⁶⁾ :	< 100 mA
Input, teach-in (ET):	NPN:; Run: U = 10 V ... < U _V , Teach: U < 2 V
Input, blanking input (AT) ⁷⁾ :	Blanked: U < 2 V, Free-running: U > 10 V ... < U _v , NPN:
Retention time (ET):	25 ms, non-volatile memory
Time delay:	Deactivation delay 20 ms, shiftable
Connection type:	Connector M12, 5-pin
Protection class ⁸⁾ :	II
Circuit protection:	VS connections reverse-polarity protected Output Q short-circuit protected Interference suppression
Enclosure rating:	IP 67
Weight:	Ca. 400 g
Housing material:	Zinc diecast

¹⁾ Limit values: operation in short-circuit protected network max. 8 A
 ²⁾ May not exceed or fall short of V_S tolerances
 ³⁾ Without load
 ⁴⁾ With light/dark ratio 1:1
 ⁵⁾ Signal transit time with resistive load
 ⁶⁾ Consumption count Q1 ... Q4
 ⁷⁾ AT > 200 µs
 ⁸⁾ Reference voltage DC 32 V

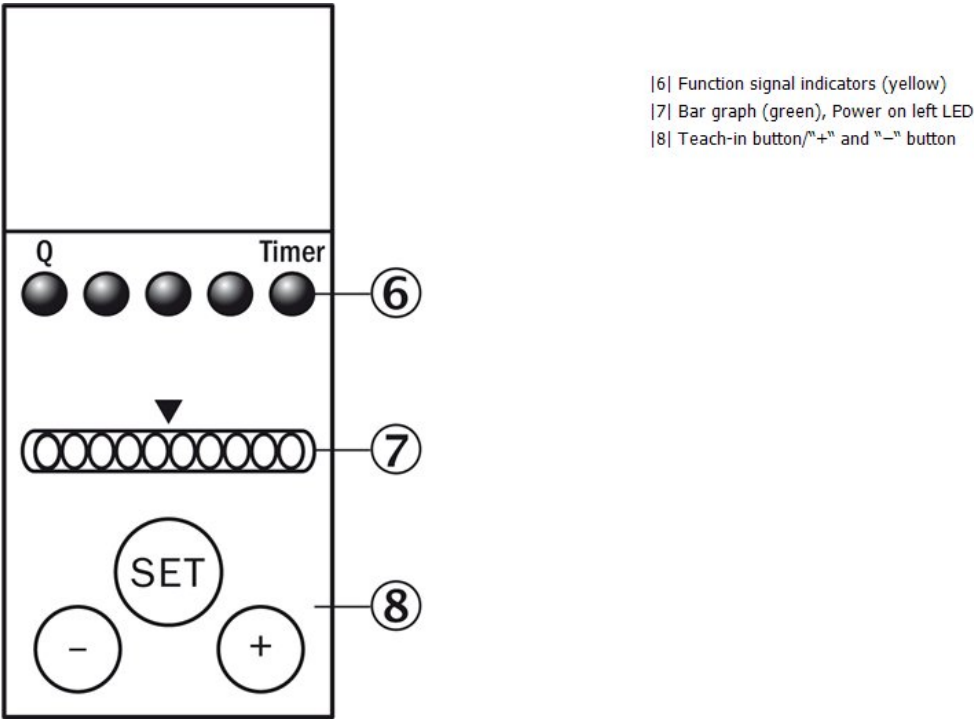
Ambient data

Ambient temperature:	Operation: -10 ... 55 °C, Storage: -20 ... 75 °C
Shock load:	According to IEC 60068
UL File-No.:	UL No. NRKH.E181493 & cUL No. NRKH7.E181493

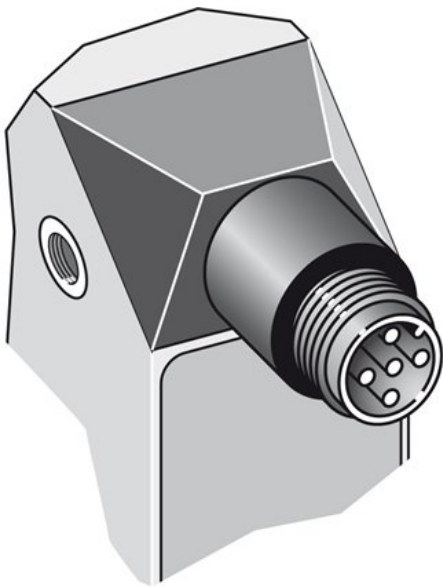
Dimensional drawing



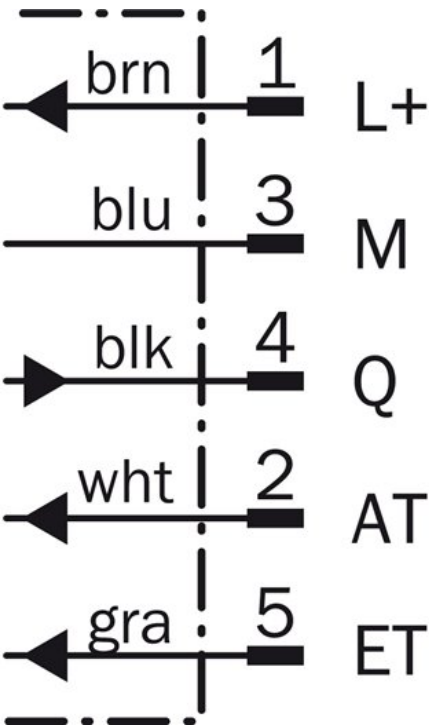
Adjustments



Connection type

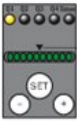


Connection diagram



Display of the color correspondence

1. Full correspondence



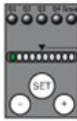
Color detected
= Q active.

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).

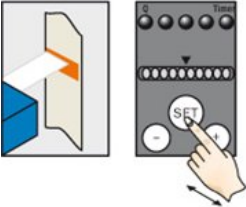
○ and ○
> 1 s = enter/exit

○ or ○
< 1 s = navigate

SET
> 1 s = select/confirm

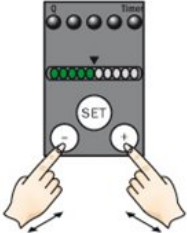
Setting the switching threshold

1. Trigger teach-in



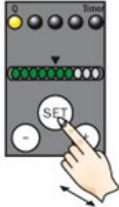
Position object in light field.
Press SET button > 1 s.

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.

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