



MINI, EASY, SMART

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Product description

The new CSM color sensor from SICK offers improved gloss behavior combined with an IO-Link function and a miniature housing. The CSM is ideal for applications where color characteristics need to be detected reliably and installation space is at a premium. The sensor detects and monitors objects on the basis of their color. The small CSM

color sensor can be set using a simple teach-in method, while the new IO-Link function enables intelligent diagnostics, visualization of sensor parameters, and straightforward format changes. Thanks to a switching frequency of up to 1.7 kHz, the CSM is also suitable for use with high-speed machines and manufacturing processes.

At a glance

- Color sensor in a new miniature housing
- Static and teach-in method for 1 color using control cable or control panel
- Over IO-Link up to 8 colors teachable
- Switching frequency: 1.7 kHz
- Sensing distance: 12.5 mm
- Compatibility with older color sensors thanks to cable with male connector M12

Your benefits

- Fast, seamless integration into existing applications thanks to a new miniature housing, saving time and money
- Increased switching frequency for improved machine productivity
- Flexible application possibilities thanks to a wide range of color tolerances
- Enhanced, intelligent diagnostics and visualization, as well as quick and easy format changes, thanks to IO-Link function
- Quick and easy installation cuts down on installation time
- Sorting processes are simplified by the distinction of up to 8 colors in one job



Additional information

Detailed technical dataC-95
 Ordering informationC-96
 Dimensional drawingC-96
 Connection diagramC-96
 AdjustmentsC-97
 Sensing distanceC-97
 Setting the switching threshold . .C-97
 Recommended accessoriesC-98

→ www.sick.com/de/en/CSM

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



Detailed technical data

Features

Dimensions (W x H x D)	12 mm x 32 mm x 22 mm
Housing design (light emission)	Rectangular
Light source ¹⁾	LED
Type of light	RGB
Wave length	640 nm, 525 nm, 470 nm
Teach-in mode	1-point-teach-in

¹⁾ Average service life: 100,000 h at $T_U = +25\text{ °C}$.

Mechanics/electronics

Supply voltage ¹⁾	12 V DC ... 24 V DC
Ripple ²⁾	< 5 V _{pp}
Power consumption ³⁾	< 50 mA
Switching frequency ⁴⁾	1.7 kHz
Response time ⁵⁾	300 μs
Jitter	150 μs
Switching output	PNP: HIGH = $V_S - \leq 2\text{ V}$ / LOW approx. 0 V NPN: HIGH = approx. V_S / LOW $\leq 2\text{ V}$ (depending on type)
Output (channel)	1 color / 8 colors via IO-Link
Output current I_{max} ⁶⁾	< 100 mA
Input, teach-in (ET)	PNP Teach: $U = 10\text{ V} \dots < U_V$ Run: $U < 2\text{ V}$ or open NPN Teach: $U < 2\text{ V}$ Run: $U = 10\text{ V} \dots < U_V$ or open (depending on type)
Connection type	Cable with connector M12, 4-pin, 0.2 m
Protection class	III
Circuit protection	V_S connections reverse-polarity protected, Output Q short-circuit protected, Interference suppression
Enclosure rating	IP 67
Weight	25 g
Housing material	Plastic, ABS

¹⁾ Limit values: DC 12 V (-10 %) ... DC 24 V (+20 %). Operation 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 supply voltage > 24 V, $I_{\text{max}} = 30\text{ mA}$. I_{max} is consumption count of all Q_n .

Ambient data

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

Ordering information

Other models → www.sick.com/de/en/CSM

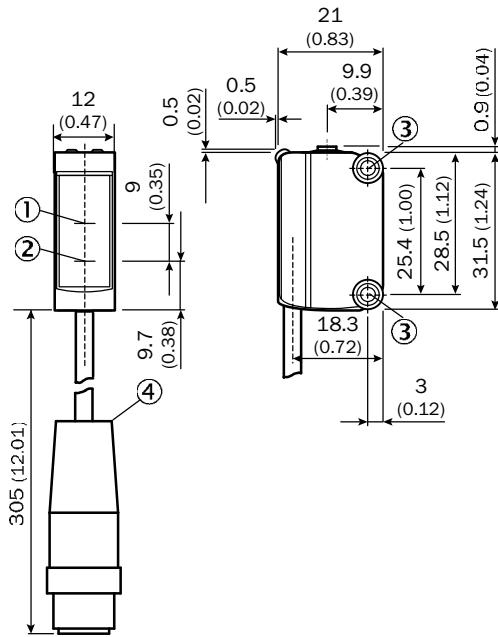
- **Sensing distance tolerance:** ± 3 mm
- **Light spot direction:** vertical

Sensing distance ¹⁾	Light spot size	Fieldbus interface	Output type	Connection diagram	Type	Part no.
12.5 mm	1.5 mm x 6.5 mm	-	PNP	Cd-092	CSM-WP11122P	1067291
			NPN	Cd-092	CSM-WN11122P	1067293
		IO-Link	PNP	Cd-321	CSM-WP117A2P	1067294

¹⁾ From front edge of lens.

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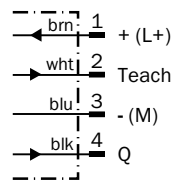
Dimensional drawing (Dimensions in mm (inch))



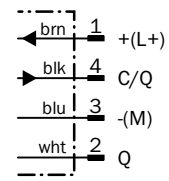
- ① Optical axis receiver
- ② Optical axis sender
- ③ Fixing hole M3
- ④ Cable with male connector

Connection diagram

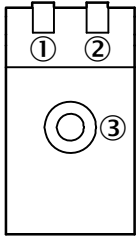
Cd-092



Cd-321

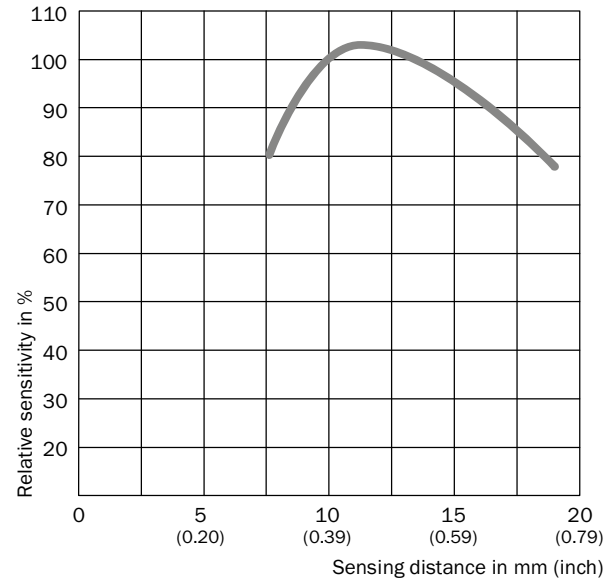


Adjustments



- ① Status indicator LED, yellow: Status switching output Q
- ② Status indicator LED green: supply voltage on
- ③ Teach-in button

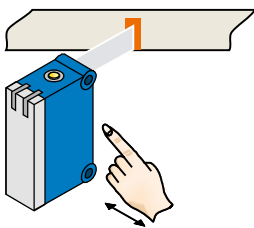
Sensing distance



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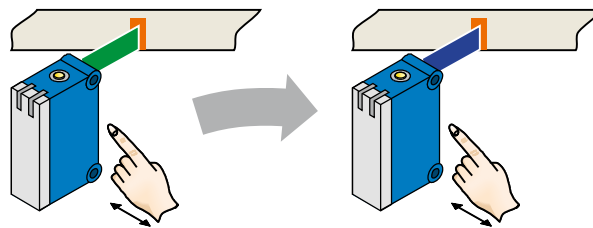
Setting the switching threshold

1. Trigger teach-in



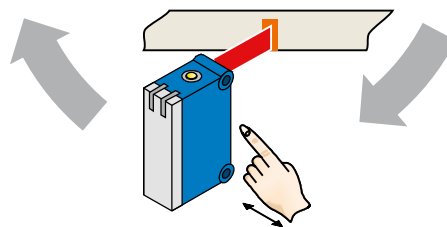
Position object in light field.
Press teach-in button > 1 s.

2. Select color tolerance



Press teach-in button when transmitted light is green
= **tolerance medium**
(standard setting).

Press teach-in button when transmitted light is blue
= **tolerance precise.**



Press teach-in button when transmitted light is red
= **tolerance coarse.**

Teach-in can also be performed using an external control signal (only dynamic teach-in).




Keylock activation and deactivation: hold down teach-in button > 30 s.

Teach-in failure: yellow LED indicator and the transmitted light of the sensor flashing quickly.

Recommended accessories



Universal bar clamp systems

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Figure	Material	Description	Type	Part no.
	Steel, zinc coated	Universal clamp bracket for rod mounting	BEF-KHS-KH1	2022726
		Plate L for universal clamp bracket	BEF-KHS-L01	2023057
	Zinc plated steel (sheet), diecast zinc (clamp)	Plate N08 for universal clamp bracket	BEF-KHS-N08	2051607
	Stainless steel 1.4571 (sheet), stainless steel 1.4408 (clamp)	Plate N08N for universal clamp bracket	BEF-KHS-N08N	2051616
	Steel, zinc coated	Mounting bar, straight, 200 mm, steel	BEF-MS12G-A	4056054
		Mounting bar, straight, 300 mm, steel	BEF-MS12G-B	4056055
Mounting bar, L-shaped, 150 mm x 150 mm, steel		BEF-MS12L-A	4056052	
Mounting bar, L-shaped, 250 x 250 mm, steel		BEF-MS12L-B	4056053	

Mounting brackets and mounting plates

Mounting brackets



Figure	Material	Description	Type	Part no.
	Stainless steel	Mounting bracket for wall mounting	BEF-W100-A	5311520
	Steel, zinc coated	Mounting bracket for floor mounting	BEF-W100-B	5311521
			BEF-WN-W100-S01	4073866

Mounting plates

Figure	Material	Description	Type	Part no.
	Stainless steel	Adapter plate CSM1 to CSM	BEF-AP-KTMS01	2068786

Modules and gateways



Connection modules

Figure	Description	Type	Part no.
	IO-Link version V1.1, Port class 2, PIN 2, 4, 5 galvanically connected, Supply voltage 18 V DC ... 32 V DC (limit values, operation in short-circuit protected network max. 8 A)	SICK Memory Stick	1064290
	IO-Link V1.1 Class A port, USB2.0 port, optional external power supply 24V / 1A	SiLink2 Master	1061790

Plug connectors and cables

Connecting cables with female connector

M12, 4-pin, PVC, chemical resistant

Figure	Connection type head A	Connection type head B	Connecting cable	Type	Part no.
	Female connector, M12, 4-pin, straight, unshielded	Cable, open conductor heads	2 m, 4-wire	DOL-1204-G02M	6009382
			5 m, 4-wire	DOL-1204-G05M	6009866
	Female connector, M12, 4-pin, angled, unshielded	Cable, open conductor heads	2 m, 4-wire	DOL-1204-W02M	6009383
			5 m, 4-wire	DOL-1204-W05M	6009867

→ For additional accessories, please see page K-240

