CSM1
Color Sensors

Compact color detection

SICK
Sensor Intelligence.

Compact color detection

Product description

The compact CSM is ideal for all applications where space is limited. It identifies, sorts or checks objects according to color. Teach-in of the color tolerance (precise, medium, and coarse) is easy. The CSM is characterized by its user-friendly operation and has a switching frequency of 1.5 kHz.

At a glance

- One color can be saved
- 12.5 mm sensing distance
- Switching frequency 1.5 kHz
- Color tolerance (precise, medium, coarse) can be set
- Static object teach-in via control cable or control panel
- Small housing

Your benefits

- Easy integration into existing machines – even in places where space is limited
- Fast and easy setup saves time and costs
- Broad spectrum of color tolerances enables more flexible use

Additional information

Detailed technical data

Features

Dimensions (L x W x H)	22 mm x 12 mm x 40 mm
Light source [1) 2)]	LED red, green, blue
Adjustment	Static 1-point teach-in

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

[2)] Wave length: 470 nm, 525 nm, 640 nm.

Mechanics/electronics

Supply voltage V_S [1)]	DC 12 V ... 24 V
Ripple [2)]	< 5 V_{PP}
Power consumption [3)]	< 35 mA
Switching frequency [4)]	1.5 kHz
Response time [5)]	500 µs
Switching output voltage	NPN: HIGH = approx. V_S / LOW ≤ 2 V PNP: HIGH = V_S– ≤ 2 V / LOW approx. 0 V
Output current $I_{max.}$	< 100 mA
Input, teach-in (ET)	PNP: Teach: U = 10 V ... < U_V Run: U < 2 V NPN: Teach: U < 2 V Run: U = 10 V ... < U_V
Connection type	Connector M12, 4-pin
Protection class [6)]	II
Circuit protection	V_S connections reverse-polarity protected Output Q short-circuit protected Interference suppression
Enclosure rating	IP 67
Weight	Approx. 11 g
Housing material	ABS

[1)] Limit values: DC 12 V (–10 %) ... DC 24 (+20 %).
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)] Reference voltage 50 V DC.

Ambient data

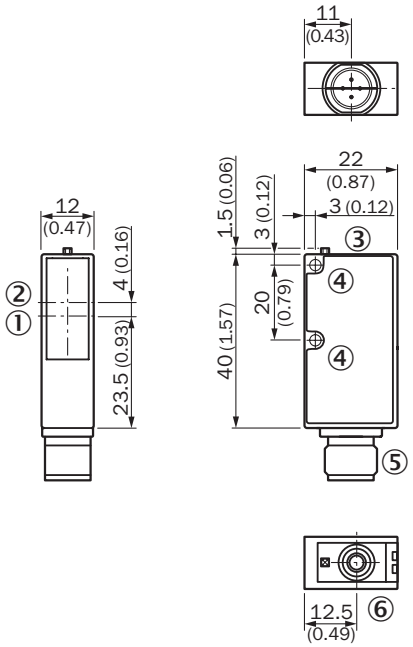
Ambient temperature	Operation: –10 °C ... +55 °C Storage: –20 °C ... +75 °C
Shock load	According to IEC 60068

Ordering information

Sensing distance [1)]	Sensing distance tolerance	Light spot size	Light spot direction	Output (channel)	Switching output	Model name	Part no.
12.5 mm	± 2 mm	1.5 mm x 6.5 mm	Longitudinal	1 color	NPN	CSM1-N1114	1018514
					PNP	CSM1-P1114	1022569

[1)] From front edge of lens.

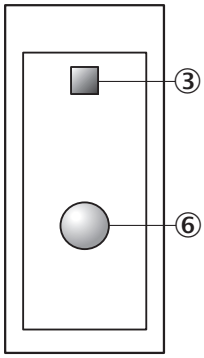
Dimensional drawing



All dimensions in mm (inch)

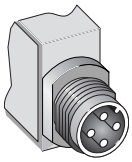
① Axis of the sender optics
② Axis of the receiver optics
③ LED signal strength indicator
④ Mounting hole, Ø 3 mm
⑤ Connector M12
⑥ Teach-in button

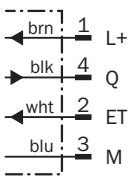
Adjustments



Connection type and diagram

Connector
M12, 4-pin





Recommended accessories

Plug connectors and cables

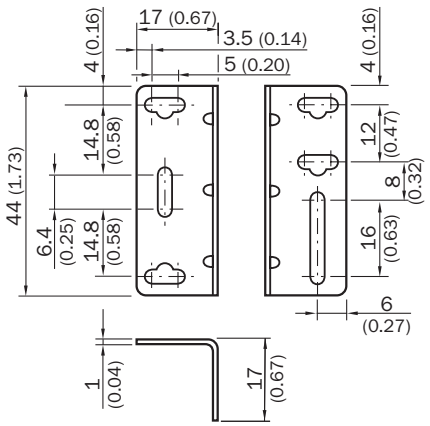
Connector M12, 4-pin

Connector type	Enclosure rating	Flying leads	Sheath material	Cable length	Model name	Part no.
Female connector	IP 67	Straight	PVC	2 m	DOL-1204-G02M	6009382
				5 m	DOL-1204-G05M	6009866
				10 m	DOL-1204-G10M	6010543
				15 m	DOL-1204-G15M	6010753
		Angled	PVC	2 m	DOL-1204-W02M	6009383
				5 m	DOL-1204-W05M	6009867
				10 m	DOL-1204-W10M	6010541
		Straight	–	–	DOS-1204-G	6007302
		Angled	–	–	DOS-1204-W	6007303

Mounting brackets/plates

Mounting system type	Material	Model name	Part no.
Mounting bracket	Steel, zinc coated	BEF-WN-W9-2	2022855

BEF-WN-W9-2

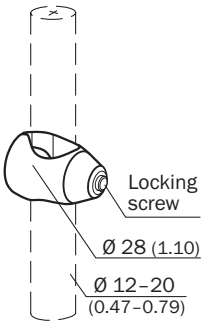


All dimensions in mm (inch)

Terminal and alignment brackets

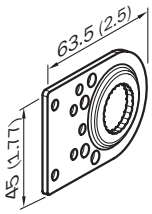
Mounting system type	Description	Material	Model name	Part no.
Universal bar clamps	Universal bar clamp	Die-cast zinc	BEF-KHS-KH1	2022726
	Plate L for universal bar clamp	Steel, zinc coated	BEF-KHS-L01	2023057
	Mounting rod straight	Steel, zinc coated	BEF-MS12G-A	4056054
			BEF-MS12G-B	4056055
	Mounting rod L-shaped	Steel, zinc coated	BEF-MS12L-A	4056052
			BEF-MS12L-B	4056053

BEF-KHS-KH1



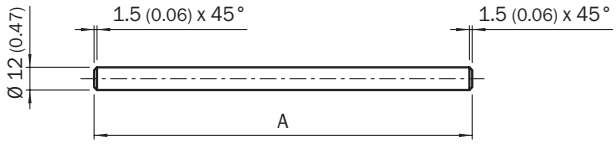
All dimensions in mm (inch)

BEF-KHS-L01



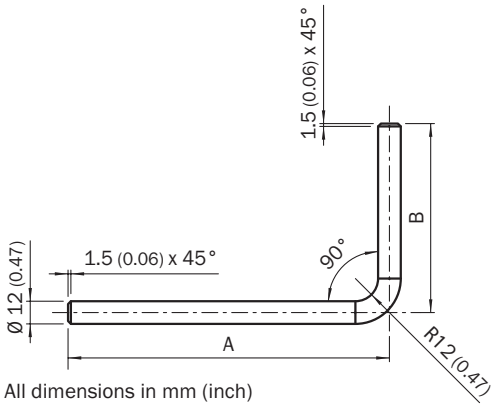
All dimensions in mm (inch)

BEF-MS12G-A (size A = 200 mm)
BEF-MS12G-B (size A = 300 mm)



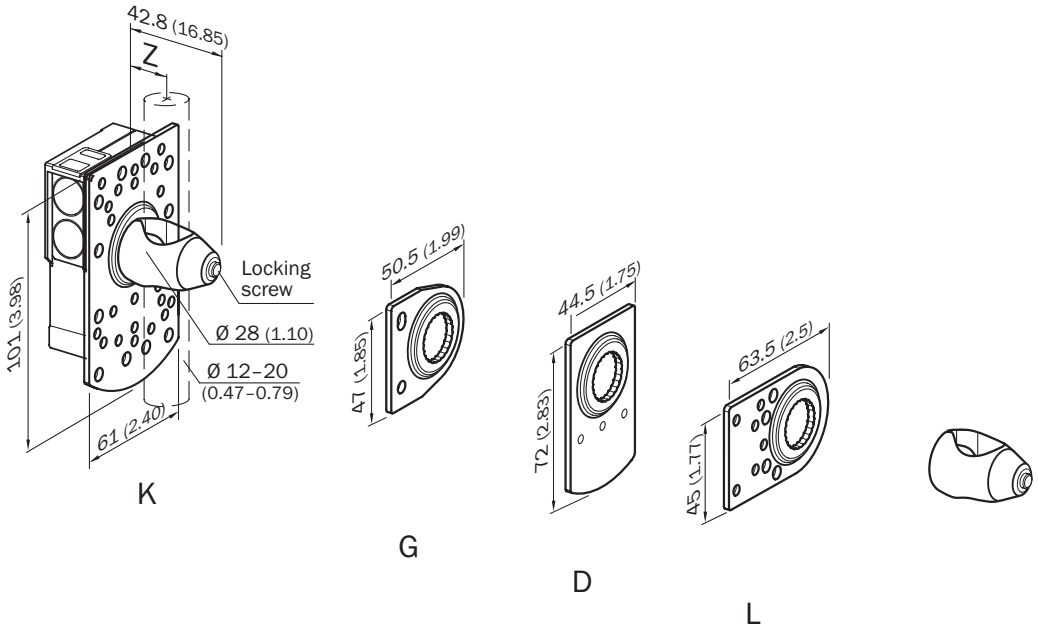
All dimensions in mm (inch)

BEF-MS12L-A (size A/B = 150 mm)
BEF-MS12L-B (size A/B = 250 mm)



All dimensions in mm (inch)

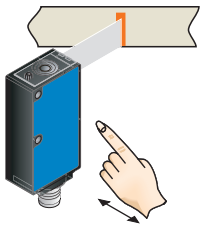
Principle of function – terminal and alignment brackets



All dimensions in mm (inch)

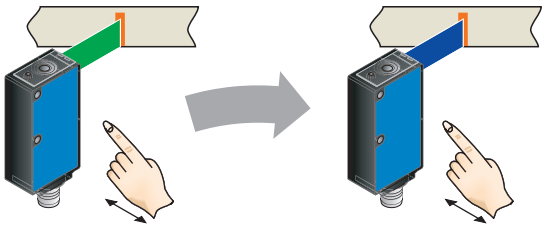
Setting the switching threshold via teach-in

1. Trigger teach-in



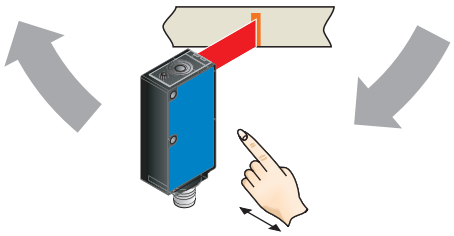
Position object in light field.
Press teach-in button > 1 s.

2. Select color tolerance



Press teach-in button > 1 s
when transmitted light is green
= tolerance medium (standard setting).

Press teach-in button > 1 s
when transmitted light is blue
= tolerance precise.



Press teach-in button > 1 s
when transmitted light is red
= tolerance coarse.

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Factory automation

With its intelligent sensors, safety systems, and automatic identification applications, SICK provides comprehensive solutions for factory automation.

- Non-contact detecting, counting, classifying, and positioning of any type of object
- Accident protection and personal safety using sensors, as well as safety software and services

Logistics automation

Sensors made by SICK form the basis for automating material flows and the optimization of sorting and warehousing processes.

- Automated identification with barcode and RFID reading devices for the purpose of sorting and target control in industrial material flow
- Detecting volume, position, and contours of objects and surroundings with laser measurement systems

Process automation

Optimized system solutions from SICK ensure efficient acquisition of environmental and process data in many industrial processes.

- Precise measurement of gases, liquids and dust concentrations for continuous monitoring of emissions and the acquisition of process data in production processes
- Gas flow measurements with maximum accuracy thanks to compact gas meters

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