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DATA SHEET

RSB1-0310D070050KH3EZZZZZZ

Roller Sensor Bar
Photoelectric sensors

SICK Sensor Intelligence



Illustration may differ

PHOTOELECTRIC SENSORS

RSB1-0310D070050KH3EZZZZ

ORDERING INFORMATION

Type	part no.
RSB1-0310D070050KH3EZZZZZZ	1139191

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

DETAILED TECHNICAL DATA

FEATURES

Functional principle	Photoelectric proximity sensor
Functional principle detail	Energetic
Sensing range	
Sensing range min.	2 mm
Sensing range max.	300 mm
Reference object	Object with 90% remission factor (complies with standard white according to DIN 5033)
Recommended sensing range for the best performance	2 mm ... 45 mm
Emitted beam	
Light source	LED
Type of light	Infrared light
Shape of light spot	Point-shaped
Light spot size (distance)	27 mm x 29 mm (45 mm)
Maximum dispersion of the emitted beam around the standardized transmission axis (squint angle)	< +/- 4° (at Ta = +23 °C)
Key LED figures	
LED risk group marking	Free group
Wave length	850 nm
Average service life	100,000 h at T_a = +25 °C
Number of beams	4
Beam separation	70 mm
Distance from 1st beam to leading edge of housing (including end cap)	50 mm
Smallest detectable object (MDO) typ.	70 mm, Dependent on distance between beams
Adjustment	
None	–
Display	
LED green	Operating indicator Static on: power on
LED yellow	Status of received light beam Static on: object present

	Static off: object not present
Special applications	Detecting flat objects, Detecting perforated objects, Detecting objects with position tolerances, Detecting uneven, shiny objects

ELECTRONICS

Supply voltage U_B	10 V DC ... 30 V DC
Ripple	≤ 5 V_{pp}
Usage category	DC-12 (According to EN 60947-5-2) DC-13 (According to EN 60947-5-2)
Current consumption	17 mA, without load. At U_B = 24 V
Protection class	III
Digital output	
Number	1
Type	PNP: open collector
Switching mode	Light/dark switching
Signal voltage PNP HIGH/LOW	Approx. U_B-2.5 V / 0 V
Output current $I_{max.}$	≤ 100 mA
Circuit protection outputs	Reverse polarity protected Overcurrent protected Short-circuit protected
Response time	≤ 1 ms [1]
Repeatability (response time)	1 ms
Switching frequency	500 Hz [2]
Pin/Wire assignment	
BN 1	+ (L+)
WH 2	Q_2
BU 3	- (M)
BK 4	Q_1
Function of pin 4/black (BK)	Digital output, dark switching, object present → output LOW
Function of pin 2/white (WH)	Digital output, light switching, object present → output HIGH

[1] Signal transit time with resistive load.

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

MECHANICS

Dimensions (W x H x D)	310 mm x 20.3 mm x 17 mm [1]
Connection	Cable with connector M8, 4-pin, with knurled nut [2]
Connection detail	
Deep-freeze property	Do not bend below 0 °C
Conductor size	0.13 mm²
Cable diameter	Ø 3.6 mm
Length of cable (L)	1 m [2]
Material	
Housing	Metal, Aluminum (anodised)
Front screen	Plastic, PMMA
Cable	Plastic, PVC
Male connector	Plastic, PVC
Weight	Approx. 112.8 g
Mounting system type	None

[1] W = length of Roller Sensor Bar (in the installed state).

[2] Due to the manufacturing process, the cable can be a little longer.

AMBIENT DATA

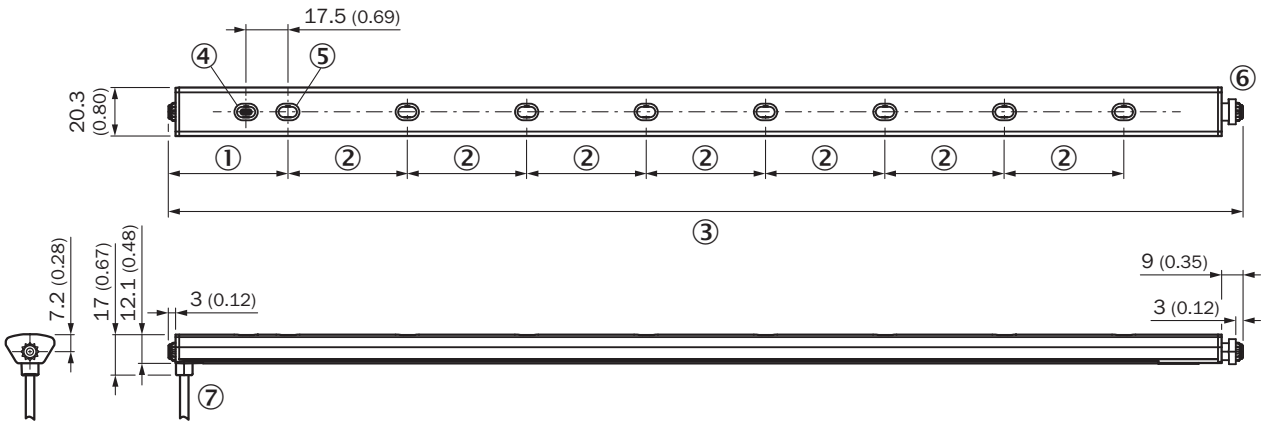
Enclosure rating	IP67 (EN 60529)

Ambient operating temperature	–40 °C ... +60 °C
Ambient temperature, storage	–40 °C ... +75 °C
Shock resistance	30 g, 11 ms (3 positive and 3 negative shocks along X, Y, Z axes, 18 total shocks (EN60068-2-27))
Vibration resistance	10 Hz ... 55 Hz (Amplitude 1 mm, 3 x 30 min (EN60068-2-6))
Air humidity	15 % ... 95 %, relative humidity (no condensation), as per IEC 60947-5-2
Electromagnetic compatibility (EMC)	EN 60947-5-2
UL File No.	NRKH.E189383 & NRKH7.E189383

CERTIFICATES

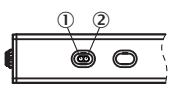
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
China RoHS	✓
China Compulsory Product Certification (CCC) exempt	✓
cULus certificate	✓

DIMENSIONAL DRAWING



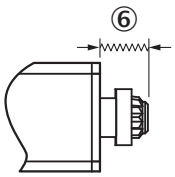
Dimensions in mm (inch)
① Distance from 1st beam to leading edge of housing (including end cap)
② Beam separation
③ length of Roller Sensor Bar (in the installed state)
④ display and adjustment elements
⑤ First beam (number of beams varies depending on the variant)
⑥ Spring loaded end cap (for further information see the installation note)
⑦ Connection

DISPLAY AND ADJUSTMENT ELEMENTS



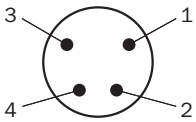
① LED green
② LED yellow

INSTALLATION NOTE

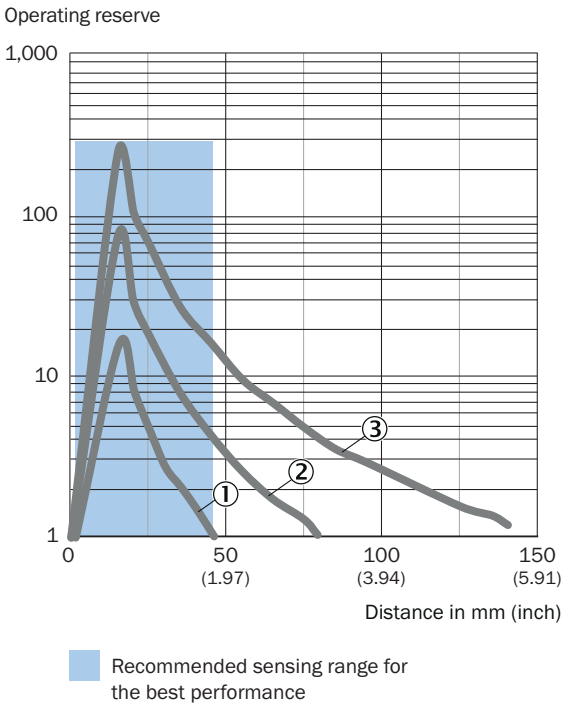


⑥ Range of motion of the spring loaded end cap (up to 5 mm of compression in uninstalled state)

CONNECTION TYPE MALE CONNECTOR M8, 4-PIN



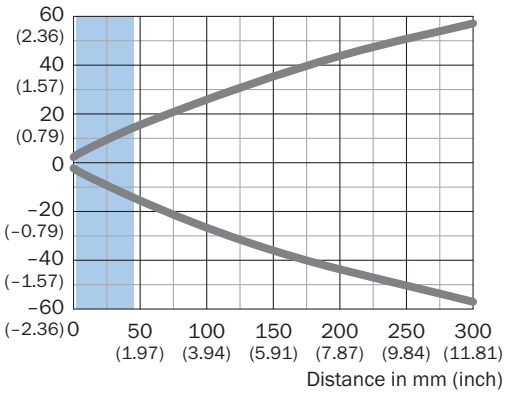
CHARACTERISTIC CURVE

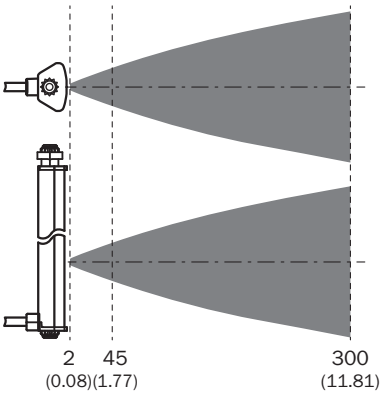


① Black object, 6% remission factor
② Gray object, 18% remission factor
③ White object, 90% remission factor

LIGHT SPOT SIZE

Dimensions in mm (inch)

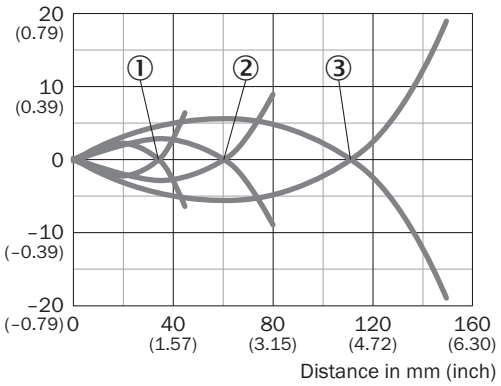




Recommended sensing range for the best performance

LIGHT SPOT SIZE

mm (inch)



① Black object, 6% remission factor
② Gray object, 18% remission factor
③ White object, 90% remission factor

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/1139191

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SICK AT A GLANCE

SICK is a leading global technology company for intelligent sensors and integrated solutions in industrial automation. Our technologies set benchmarks, making your industrial processes more efficient, safer and more sustainable – both in logistics and manufacturing operations.

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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