



**MULTITASK PHOTOELECTRIC SENSORS** 

MULTITASK PHOTOELECTRIC SENSORS



Ordering information

Туре	Part no.
RSB1-0615F103050KHAEZZZZZ	1130979

Other models and accessories -> 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 per- formance	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	6
Beam separation	103 mm
Distance from 1st beam to leading edge of housing (including end cap)	50 mm
Smallest detectable object (MDO) typ.	
	103 mm (Dependent on distance between beams)
Adjustment	
None	-
Indication	
LED green	Operating indicator Static on: power on
LED yellow	Status of received light beam

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Static on: object present Static of: object not present Static of: object not present Detecting uneven, shiny objects        Electronics        Supply voltage Ug      10 V DC 30 V DC        Ripple      5 Vmp        Usage category      DC: 12 (According to EN 60947-5-2) DC: 12 (According to EN 60947-5-2) DC: 13 (According to EN 60947-5-2)        Current consumption      25 mA, without load. At Ug = 24 V        Protection class      III        Digital output      1        Number      1        Number      1        Signal voltage PNP HiGH/LOW      Approx. Ug-2.5 V / 0 V        Output current Ima      ≤ 100 mA        Curcuit protection outputs      Reverse polarity protected Overcurrent protected Signal voltage PNP HiGH/LOW        Number      1        Reverse polarity protected Overcurrent protected Signal voltage PNP HiGH/LOW        Reverse polarity protected Overcurrent protected Short Circuit protection outputs      Reverse polarity protected Overcurrent protected Short Circuit protected        PIN/Wire assignment      -1      Not connected        IN      2        Que      (1+)        BIN 2      (1-)        BIN 2      (1-)        BIN 2      (1-)			
Detecting uneven, shiny objects        Electronics        Supply voltage Ug      0 V D C 30 V D C        Ripple      5 V <sub>B</sub> Usage category      DC:12 (According to EN 60947-5-2) DC:13 (According to EN 60947-5-2) DC:13 (According to EN 60947-5-2)        Fortection class      D        Protection class      I        Number      1        Protection class      I        Number      1        Number      1        Signal voltage PNP HIGH/LOW      Approx. Ug-2.5 V/0 V        Output current Igma      5100 mA        Response time      5100 mA        Response time      5100 mA        Response time      5100 mA        Overcurrent Igma      500 mA        Response time      5100 mA        Response time <th></th> <th></th>			
Supply voltage Ug04 VDC30 VDCRipple05 VmpRipple05 VmpUsage category05 VmpCurrent consumption05 CmA, without load. At Ug = 24 VProtection classIIDigital output1Number1Number1Signal voltage PNP HIGH/L00Ught/dark switchingOutput current Imm100 MACircuit protection output100 MASignal voltage PNP HIGH/L00200 VMAOutput current Imm2100 MAResponse time210 MASignal voltage Nerrent Protected Switching frequereOutput current Imm100 MACircuit protected Switching frequere200 MAResponse time210 MAResponse time210 MASwitching frequere200 MASwitching frequere200 MAResponse time210 MASwitching frequere200 MASwitching frequer	Special applications		
Ripple    5 V <sub>pp</sub> Usage category    DC-12 (According to EN 60947-5-2) DC-13 (According to EN 60947-5-2)      Current consumption    25 mA, without load. At Ug = 24 V      Protection class    III      Digital output    1      Protection class    Usage category      Signal voltage PNP HIGH/LOW    Approx. Ug-2.5 V/O V      Signal voltage PNP HIGH/LOW    Approx. Ug-2.5 V/O V      Output current Imace    100 MA      Circuit protection output    3 Un S <sup>-1</sup> Response time    sint-sint protected Overcurrent protected Sint-sint protected Overcurrent protected Sint-circuit protected S	Electronics		
Usage categoryDC-12 (According to EN 60947-5-2) DC-13 (According to EN 60947-5-2) DC-13 (According to EN 60947-5-2)Current consumption25 mA, without load. At Ug = 24 VProtection classIIDigital output1Digital output1Number1Signal voltage PNP HIGH/LOWApprox Lg-2.5 V/0 VOutput current Image100 mACircuit protection outputeverse polarity protected Short-circuit protected 	Supply voltage U <sub>B</sub>	10 V DC 30 V DC	
DC-13 (According to EN 60947-5-2)        Current consumption      25 mA, without load. At Ug = 24 V        Protection class      III        Digital output      III        Digital output      1        Number      Ight/dark switching        Switching mode      Light/dark switching        Signal voltage PNP HIGH/LOW      Approx. Ug : 2.5 V / 0 V        Output current Image      5 100 mA        Circuit protection output      Reverse polarity protected Short-circuit protected Short-circuit protected Short-circuit protected Short-circuit protected Short-circuit protected      State Short Short-Short Short Sho	Ripple	≤ 5 V <sub>pp</sub>	
Protection classIIDigital outputDigital output1Numbe1Yer open collectorYer open collectorSignal voltage PNP HIGH/L0Xeprox. Ug-2.5 V/ O VOutput current Imax4100 mACircuit protection outputKeverse polarity protected Short-circuit protected 	Usage category		
Digital outputINumber1NumberNPP: open collectorSwitching modelight/dark switchingSignal voltage PNP HIGH // 00Aprox. Ug-2.5 V / 0 VOutput current Imper100 mACircuit protection outputResponserimeSwitching frequere1 msSwitching frequere0 otput 2Pin/Wire assignmentNot connectedSwitching frequere1Q1QQGNot connectedSWI AQQNot ConnectedSWI AQQNot ConnectedSWI AQQNot ConnectedSWI AQQNot ConnectedSWI AQSWI AQSWI ASWI ASW	Current consumption	25 mA, without load. At $U_B$ = 24 V	
Number1Image: NumberPiP: open collectorSwitchingSignal voltage PNP HiGH //OSignal voltage PNP HiGH //OAprox. Up-2.5 V / O VOutput current Image: Number //OSignal voltage PNP HiGH //OCircuit protection current Image: Number //OSignal voltage PNP HiGH //OResponse timeSignal voltage PNP HiGH //OResponse timeSignal voltage PNP HiGH //OResponse timeSignal voltage PNP HiGH //OBredetability response timeSignal voltage PNP HiGH //OBredetability response timeSignal voltage PNP HiGH //OPiP/Wire assignmentImage: Number //OSignal voltage PNP HiGH //ONumber //OSignal voltage PNP Hight //	Protection class	III	
Image: here in the second se	Digital output		
Switching numberJigh/dat switchingSignal voltage PNP HIGH/D0Aprox. Up-2.5 V / 0 VOutput current number5 Aprox. Up-2.5 V / 0 VCircuit protection outputSwerse polarity protected Switchireut protected Short-circuit protected <br< th=""><th>Number</th><th>1</th></br<>	Number	1	
Signal voltage PNP HIGH/LOWAprox. Ug-2.5 V / 0 VOutput current Imax< 100 mACircuit protection outputsReverse polarity protected Sverurent p	Туре	PNP: open collector	
Output current Imax.    ≤ 100 mA      Circuit protection outputs    Reverse polarity protected Short-circuit protected Short-circuit protected      Response time    ≤ 1 ms <sup>1</sup> )      Repeatability (response time)    1 ms      Switching frequero    500 Hz <sup>2</sup> )      Pin/Wire assignment    1      V    V      V    V      Q1    V      VH 4    Q2      Q1    V      VH 4    Q2      VH 5    VH 6      VH 6    Not connected      MU 5    (M)      Output 6    Not connected      MU 6    Not connected      MU 7    Subscience      MU 8    Q1      MU 9    Subscience			
LineReverse polarity protected Overcurrent protected Short-circuit protected Short-circuit protected Short-circuit protected Short-circuit protected Short-circuit protected 	Signal voltage PNP HIGH/LOW Approx. U <sub>B</sub> -2.5 V / 0 V		
Vercurrent protected Short-circuit protectedResponse time\$1 ms 1Repeatability (response time1msSwitching frequere00 Hz 2Pin/Wire assignment**\$100 Hz 2*\$100 Hz 2*<	Output current I <sub>max.</sub>	≤ 100 mA	
Repeatability (response time)    1 ms      Switching frequeeo    500 Hz <sup>2</sup> )      Pin/Wire assignment    V      Pin/Wire assignment    01 connected      BN 2    + (L+)      BK 3    Q1      VH 4    Q2      BK 3    - (M)      BK 4    - (M)      BK 5    - (M)      BK 5    - (M)      BK 6    - (M)      BK 7    - (M)      BK 8    - (M)      BK 9    -	Circuit protection outputs	Overcurrent protected	
Switching frequence $_{00  Hz}^2$ Pin/Wire assignment $_{00  Hz}^2$ $(-1)$ Not connected $BN2$ $(-1)$ $BK3$ $(-1)$ $B$	Response time	$\leq$ 1 ms <sup>1)</sup>	
Pin/Wire assignment    Not connected      1    Not connected      BN 2    iL+i      BK 3    Q      I 4    Q2      I 5    iNiconnected      I 6    Not connected	Repeatability (response time)	1 ms	
Image: Not connectedBN 2F(+)BK 3Q1WH 4Q2BU 5OMOMOMFunction of pin 4/black (BM)Digital output, light switching, object present → output HIGH	Switching frequency	500 Hz <sup>2)</sup>	
BN 2+ (L+)BK 3Q1WH 4Q2BU 5- (M)ConnectedNot connectedFunction of pin 4/black (B)Digital output, light switching, object present → output HIGH	Pin/Wire assignment		
BK3Q1WH4Q2BU5·(M)ConnectedNot connectedFunction of pin 4/black (B)Digital output, light switching, object present → output HIGH	- 1	Not connected	
WH 4Q2BU 5- (M)- 6Not connectedFunction of pin 4/black (BK)Digital output, light switching, object present → output HIGH	BN 2	+ (L+)	
BU 5 - (M) - 6 Not connected Function of pin 4/black (BK) Digital output, light switching, object present → output HIGH	ВК З	Q <sub>1</sub>	
- 6Not connectedFunction of pin 4/black (BK)Digital output, light switching, object present → output HIGH	WH 4	Q <sub>2</sub>	
Function of pin 4/black (BK) Digital output, light switching, object present → output HIGH	BU 5	- (M)	
	- 6	Not connected	
Euroption of nin 2 (block (PK)) Digital output dark quitabing abject present soutput LOW	Function of pin 4/black (BK)	Digital output, light switching, object present → output HIGH	
Function of pin 5/ black (bK) Digital output, dark Switching, object present → output Low	Function of pin 3/black (BK)	Digital output, dark switching, object present $\rightarrow$ output LOW	

<sup>1)</sup> Signal transit time with resistive load.

<sup>2)</sup> With light/dark ratio 1:1.

#### Mechanics

Dimensions (W x H x D)	615 mm x 20.3 mm x 17 mm <sup>1)</sup>
Connection	Cable with connector RJ12, 6-pin <sup>2)</sup>
Connection detail	
Deep-freeze property	Do not bend below 0 °C
Conductor size	0.13 mm <sup>2</sup>
Cable diameter	Ø 3.6 mm

 $^{(1)}$  W = length of Roller Sensor Bar (in the installed state).

 $^{2)}$  Due to the manufacturing process, the cable can be a little longer.

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Length of cable (L)	1,000 mm <sup>2)</sup>
Material	
Housing	Metal, Aluminum (anodised)
Front screen	Plastic, PMMA
Cable	Plastic, PVC
Male connector	Plastic, polycarbonate
Weight	Approx. 223.3 g
Mounting system type	None

 $^{(1)}$  W = length of Roller Sensor Bar (in the installed state).

 $^{\rm 2)}$  Due to the manufacturing process, the cable can be a little longer.

#### Ambient data

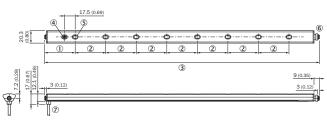
Enclosure rating	IP67 (EN 60529)
Ambient operating temperature	-40 °C +60 °C
Ambient temperature, storage	-40 °C +75 °C
Shock resistance	30 g, 11 ms (3 positive and 3 negative shocks along X, Y, Z axes, 18 total shocks (EN60068-2-27))
Vibration resistance	10 Hz 55 Hz (Amplitude 1 mm, 3 x 30 min (EN60068-2-6))
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

#### Classifications

ECLASS 5.0	27270904
ECLASS 5.1.4	27270904
ECLASS 6.0	27270904
ECLASS 6.2	27270904
ECLASS 7.0	27270904
ECLASS 8.0	27270904
ECLASS 8.1	27270904
ECLASS 9.0	27270904
ECLASS 10.0	27270904
ECLASS 11.0	27270904
ECLASS 12.0	27270903
ETIM 5.0	EC002719
ETIM 6.0	EC002719
ETIM 7.0	EC002719
ETIM 8.0	EC002719
UNSPSC 16.0901	39121528

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#### 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)
- Spring loaded end cap (for further information see the installation note)
  Connection

#### Adjustments

Display and adjustment elements



LED groon
 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**

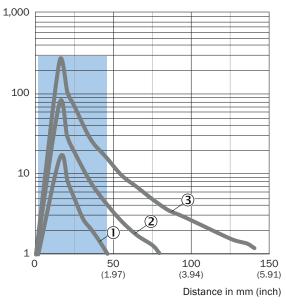
Cable with male connector RJ12



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#### Characteristic curve

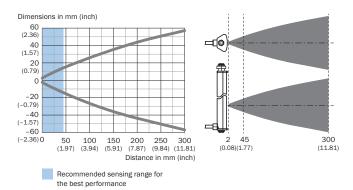




Recommended sensing range for the best performance

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

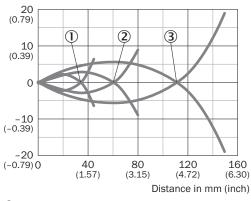
#### Light spot size



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① Black object, 6% remission factor

② Gray object, 18% remission factor

③ White object, 90% remission factor

#### **Recommended accessories**

Other models and accessories -> www.sick.com/Roller\_Sensor\_Bar

	Brief description	Туре	Part no.
Mounting brackets and plates			
0	8 mm round adapter bracket with adhesive back	BEF-AP-RSBADHA	2127765
	Adapter bracket with adhesive back	BEF-AP-RSBADHB	2127766
	Adapter bracket to snap between hex sections	BEF-AP-RSBCON	2127768
<ul><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><li>Solution</li><l< td=""><td>Hex adapter bracket</td><td>BEF-AP-RSBHEX</td><td>2127767</td></l<></ul>	Hex adapter bracket	BEF-AP-RSBHEX	2127767
	BEF-AP-RSBADHA, BEF-AP-RSBADHB, BEF-AP-RSBCON, BEF-AP-RSBHEX	BEF-AP-RSBKIT	2127759

# SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is "Sensor Intelligence."

# WORLDWIDE PRESENCE:

Contacts and other locations -www.sick.com



Online data sheet

