



DATA SHEET

GSE20M-QK112170ZZZ

G20
Photoelectric sensors

SICK

Sensor Intelligence



Illustration may differ

PHOTOELECTRIC SENSORS

GSE20M-
QK112170ZZZ

ORDERING INFORMATION

Type	part no.
GSE20M-QK112170ZZZ	1120852

Further device versions and accessories at www.sick.com/G20



DETAILED TECHNICAL DATA

FEATURES

Functional principle	Through-beam photoelectric sensor	
Sensing range	Sensing range min.	0 m
	Sensing range max.	120 m
	Maximum distance range from receiver to sender (operating reserve 1)	0 m ... 120 m
	Recommended distance range from receiver to sender (operating reserve 2)	0 m ... 85 m
Emitted beam	Light source	LED
	Type of light	Infrared light
	Shape of light spot	Rectangular
	Light spot size (distance)	Ø 800 mm (20,000 mm)
	Maximum dispersion of the emitted beam around the standardized transmission axis (squint angle)	< +/- 1.5° (at T _u = +23 °C)
Key LED figures	Normative reference	EN 62471:2008-09 IEC 62471:2006, modified
	LED risk group marking	Free group
	Wave length	850 nm
	Average service life	100,000 h at T _a = +25 °C
Adjustment	Potentiometer	For sensitivity adjustment, 270°
Display	LED green	Operating indicator Static on: power on
	LED yellow	Status of received light beam Static on: object not present Static off: object present

SAFETY-RELATED PARAMETERS

MTTF _D	524 years
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DC _{avg}	0%
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ELECTRONICS

Supply voltage U_g	10 V DC ... 30 V DC ¹⁾																		
Ripple	< 5 V _{pp}																		
Usage category	DC-13 (according to EN 60947-1)																		
Current consumption	≤ 30 mA, without load. At $U_g = 24$ V																		
Protection class	III																		
Digital output	<table> <tr> <td>Number</td><td>2 (Complementary)</td></tr> <tr> <td>Type</td><td>Push-pull: PNP/NPN</td></tr> <tr> <td>Switching mode</td><td>Light/dark switching</td></tr> <tr> <td>Signal voltage PNP HIGH/LOW</td><td>$V_s - (\leq 3 \text{ V}) / \text{approx. } 0 \text{ V}$</td></tr> <tr> <td>Signal voltage NPN HIGH/LOW</td><td>$V_s - (\leq 3 \text{ V}) / \text{approx. } 0 \text{ V}$</td></tr> <tr> <td>Output current I_{max}</td><td>≤ 100 mA ²⁾</td></tr> <tr> <td>Circuit protection outputs</td><td>Reverse polarity protected Overcurrent protected Short-circuit protected</td></tr> <tr> <td>Response time</td><td>≤ 500 μs</td></tr> <tr> <td>Switching frequency</td><td>1,000 Hz ³⁾</td></tr> </table>	Number	2 (Complementary)	Type	Push-pull: PNP/NPN	Switching mode	Light/dark switching	Signal voltage PNP HIGH/LOW	$V_s - (\leq 3 \text{ V}) / \text{approx. } 0 \text{ V}$	Signal voltage NPN HIGH/LOW	$V_s - (\leq 3 \text{ V}) / \text{approx. } 0 \text{ V}$	Output current I_{max}	≤ 100 mA ²⁾	Circuit protection outputs	Reverse polarity protected Overcurrent protected Short-circuit protected	Response time	≤ 500 μs	Switching frequency	1,000 Hz ³⁾
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Pin/Wire assignment, sender																			
Function of pin 3/black (BK)	Input, sender off, LOW active																		
Pin/Wire assignment, receiver																			
Function of pin 4/black (BK)	Digital output, dark switching, object present → output $\bar{Q}$ HIGH																		
Function of pin 3/black (BK)	Digital output, light switching, object present → output Q LOW																		

¹⁾ Limit values.

²⁾ At $U_g > 24$ V, $I_{\text{max}} = 100$ mA.

³⁾ With light/dark ratio 1:1.

MECHANICS

Housing	Rectangular
Dimensions (W x H x D)	23.5 mm x 74.5 mm x 52.5 mm
Connection	Terminal connection, 4 terminals
Material	
Housing	Plastic, ABS
Front screen	Plastic, PMMA
Weight	Approx. 171 g

AMBIENT DATA

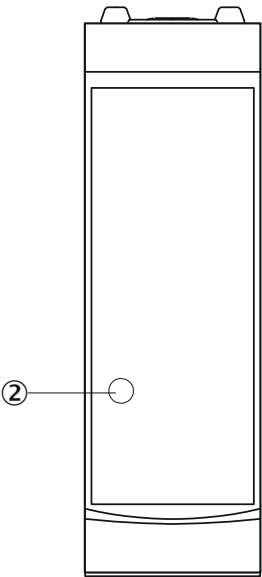
Enclosure rating	IP67 (EN 60529)
Ambient operating temperature	-30 °C ... +60 °C
Ambient temperature, storage	-40 °C ... +70 °C
Typ. Ambient light immunity	Sunlight: ≤ 20,000 lx
Shock resistance	30 g, 11 ms (3 positive and 3 negative shocks along X, Y, Z axes, 18 total shocks (EN60068-2-27))
Vibration resistance	10 Hz ... 1,000 Hz (Amplitude 1 mm, 3 x 30 min (EN60068-2-6))
Air humidity	35 % ... 95 %, relative humidity (no condensation)
Electromagnetic compatibility (EMC)	EN 60947-5-2 ¹⁾
UL File No.	NRKH.E348498 & NRKH7.E348498

¹⁾ The device can cause interference when it is used in a residential environment.

CERTIFICATES

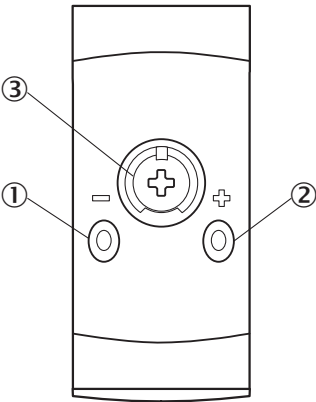
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
China Compulsory Product Certification (CCC) exempt	✓
Photobiological safety (IEC EN 62471)	✓

DISPLAY AND ADJUSTMENT ELEMENTS



② LED yellow

DISPLAY AND ADJUSTMENT ELEMENTS

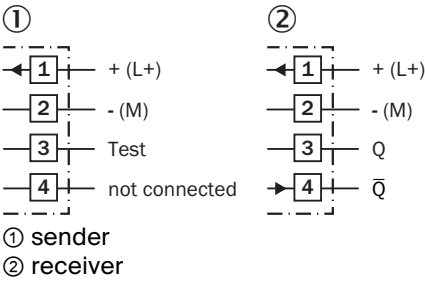


- ① LED green
- ② LED yellow
- ③ Potentiometer

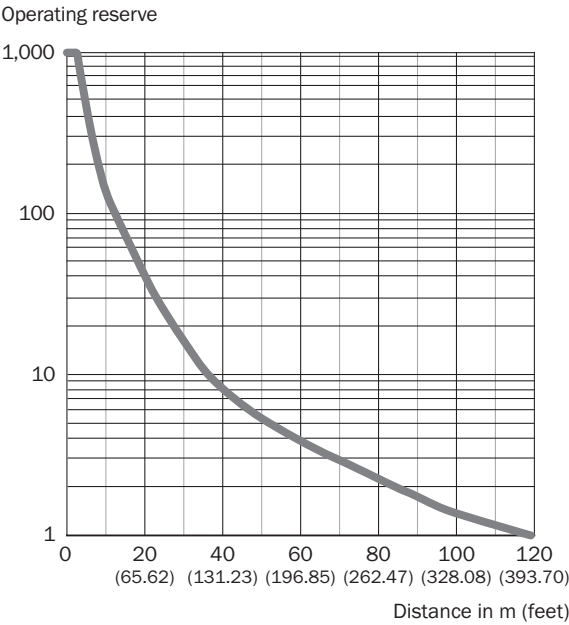
CONNECTION TYPE



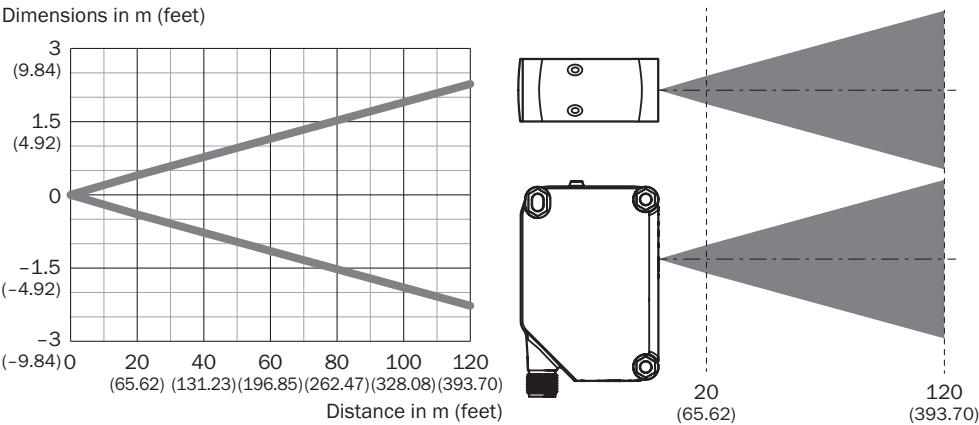
CONNECTION DIAGRAM CD-584



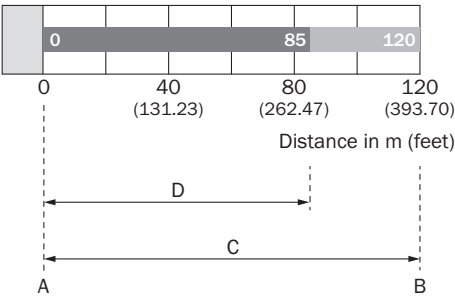
CHARACTERISTIC CURVE



LIGHT SPOT SIZE

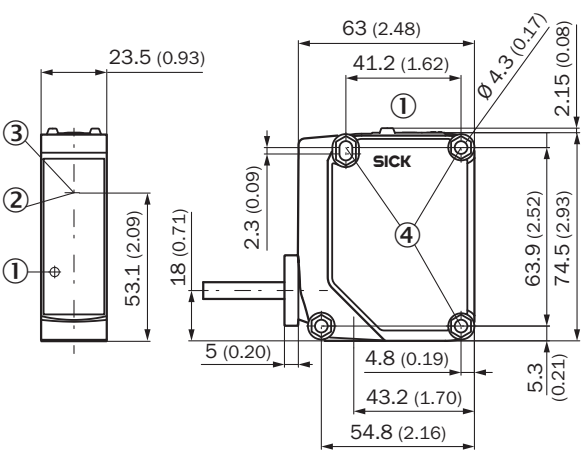


SENSING RANGE DIAGRAM



A	Sensing range min. in mm
B	Sensing range max. in mm
C	Maximum distance range from receiver to sender
D	Recommended distance range from receiver to sender

DIMENSIONAL DRAWING



- Dimensions in mm (inch)
- ① display and adjustment elements
 - ② Center of optical axis, sender
 - ③ Center of optical axis, receiver
 - ④ Fixing hole $\varnothing$ 4.3 mm, both sides for hexagon nut M4

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/1120852



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WALDKIRCH
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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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