



DATA SHEET

# GSE6SP-1GA1217EZZZ

G6  
Photoelectric sensors

**SICK** Sensor Intelligence

## PHOTOELECTRIC SENSORS

## GSE6SP-1GA1217EZZZ

## ORDERING INFORMATION

Type	part no.
GSE6SP-1GA1217EZZZ	1135345

Further device versions and accessories at [www.sick.com/G6](http://www.sick.com/G6)



Illustration may differ



## DETAILED TECHNICAL DATA

## FEATURES

Functional principle	Through-beam photoelectric sensor	
Sensing range	Sensing range min.	0 m
	Sensing range max.	20 m
Maximum distance range from receiver to sender (operating reserve 1)	0 m ... 20 m	
Recommended distance range from receiver to sender (operating reserve 2)	0 m ... 17 m	
Recommended sensing range for the best performance	0 m ... 17 m	
Emitted beam	Light source	PinPoint LED
	Type of light	Visible red light
	Shape of light spot	Point-shaped
	Light spot size (distance)	Ø 473.8 mm (10 m)
Key LED figures	Normative reference	EN 62471:2008-09   IEC 62471:2006, modified
	LED risk group marking	Free group
	Wave length	640 nm
	Average service life	100,000 h at T <sub>a</sub> = +25 °C
Adjustment	Potentiometer	For setting the sensing range, 270°
	Operating mode switch	For inverting the switching function (light/dark switching)
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 <sub>D</sub>	1,724 years
DC <sub>avg</sub>	0%
T <sub>M</sub> (mission time)	20 years

**ELECTRONICS**

Supply voltage U <sub>B</sub>	10 V DC ... 30 V DC <sup>1)</sup>																
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	≤ 30 mA, without load. At U <sub>B</sub> = 24 V																
Protection class	III																
Digital output	<table border="0"> <tr> <td>Number</td> <td>1</td> </tr> <tr> <td>Type</td> <td>PNP</td> </tr> <tr> <td>Switching mode</td> <td>Light/dark switching</td> </tr> <tr> <td>Signal voltage PNP HIGH/LOW</td> <td>Approx. U<sub>B</sub>-3 V / 0 V</td> </tr> <tr> <td>Output current I<sub>max.</sub></td> <td>≤ 100 mA <sup>2)</sup></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>≤ 625 μs <sup>3)</sup></td> </tr> <tr> <td>Switching frequency</td> <td>1,000 Hz <sup>4)</sup></td> </tr> </table>	Number	1	Type	PNP	Switching mode	Light/dark switching	Signal voltage PNP HIGH/LOW	Approx. U <sub>B</sub> -3 V / 0 V	Output current I <sub>max.</sub>	≤ 100 mA <sup>2)</sup>	Circuit protection outputs	Reverse polarity protected Overcurrent protected Short-circuit protected	Response time	≤ 625 μs <sup>3)</sup>	Switching frequency	1,000 Hz <sup>4)</sup>
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<sup>1)</sup> Limit values.<sup>2)</sup> At U<sub>B</sub> > 24 V, I max. = 50 mA.<sup>3)</sup> Signal transit time with resistive load.<sup>4)</sup> With light/dark ratio 1:1.**MECHANICS**

Housing	Rectangular								
Dimensions (W x H x D)	12 mm x 31.6 mm x 21 mm								
Connection	Cable, 3-wire, 2 m								
Connection detail	<table border="0"> <tr> <td>Deep-freeze property</td> <td>Do not bend below 0 °C</td> </tr> <tr> <td>Conductor size</td> <td>0.14 mm<sup>2</sup></td> </tr> <tr> <td>Cable diameter</td> <td>Ø 3.4 mm</td> </tr> <tr> <td>Length of cable (L)</td> <td>2 m</td> </tr> </table>	Deep-freeze property	Do not bend below 0 °C	Conductor size	0.14 mm <sup>2</sup>	Cable diameter	Ø 3.4 mm	Length of cable (L)	2 m
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Housing	Plastic, ABS								
Front screen	Plastic, PMMA								
Cable	Plastic, PVC								
Weight	Approx. 80 g								
Maximum tightening torque of the fixing screws	0.4 Nm								

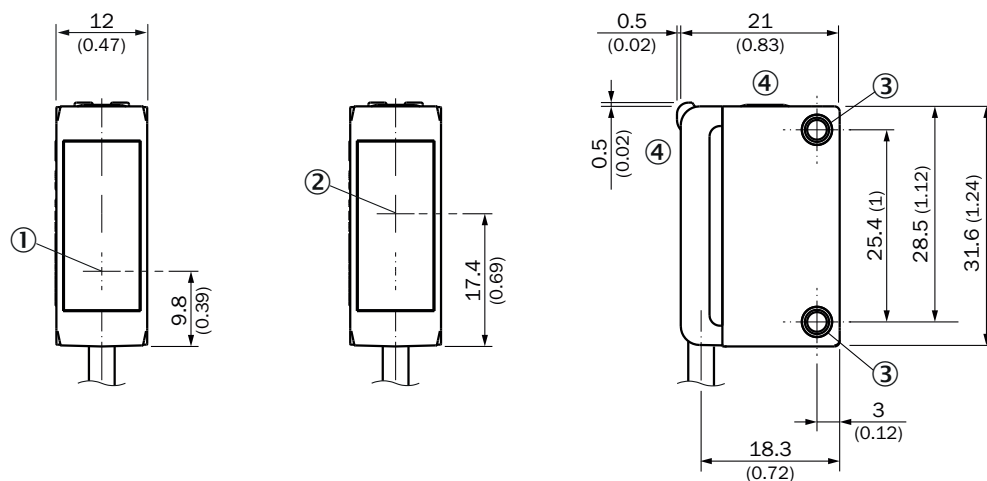
**AMBIENT DATA**

Enclosure rating	IP67 (EN 60529)
Ambient operating temperature	-30 °C ... +55 °C
Ambient temperature, storage	-40 °C ... +70 °C
Typ. Ambient light immunity	Sunlight: ≤ 30,000 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 ... 55 Hz (Amplitude 0.5 mm, 3 x 30 min (EN60068-2-6))
Air humidity	35 % ... 95 %, relative humidity (no condensation)
Electromagnetic compatibility (EMC)	EN 60947-5-2
UL File No.	NRKH.E348498 & NRKH7.E348498

**CERTIFICATES**

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
cULus certificate	✓
Photobiological safety (IEC EN 62471)	✓

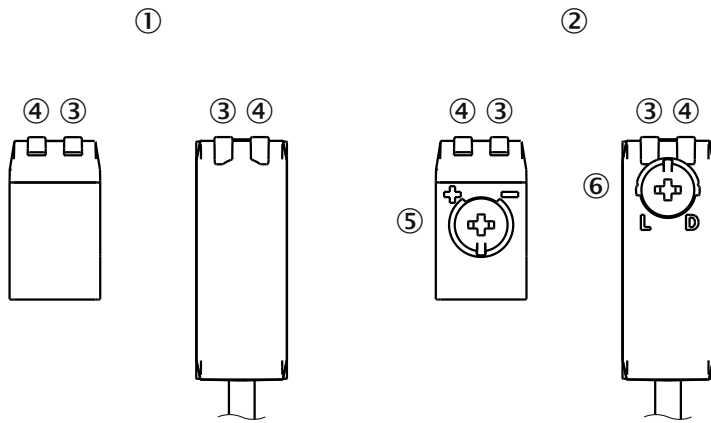
**DIMENSIONAL DRAWING**



Dimensions in mm (inch)

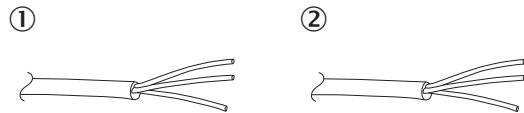
- ① Center of optical axis, sender
- ② Center of optical axis, receiver
- ③ Mounting holes M3
- ④ display and adjustment elements

**DISPLAY AND ADJUSTMENT ELEMENTS**



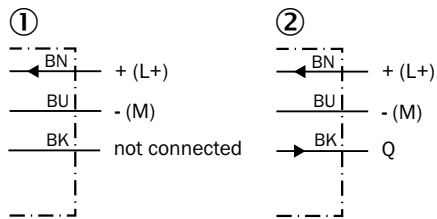
- ① sender
- ② receiver
- ③ LED green
- ④ LED yellow
- ⑤ Potentiometer
- ⑥ operating mode switch

**CONNECTION TYPE CABLE, 3-WIRE**



- ① sender
- ② receiver

**CONNECTION DIAGRAM CD-049**



- ① sender
- ② receiver

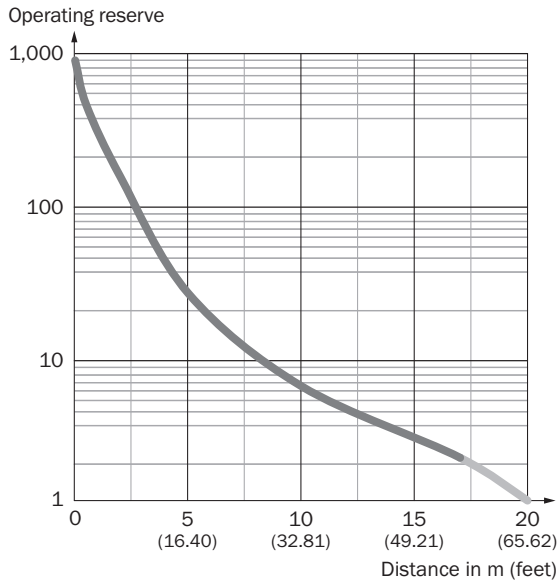
TRUTH TABLE PNP - DARK SWITCHING  $\bar{Q}$

	Dark switching $\bar{Q}$ (normally open)	
	Object not present → Output LOW	Object present → Output HIGH
Light receive	✓	✗
Light receive indicator	☀	✗
Load resistance	✗	⚡

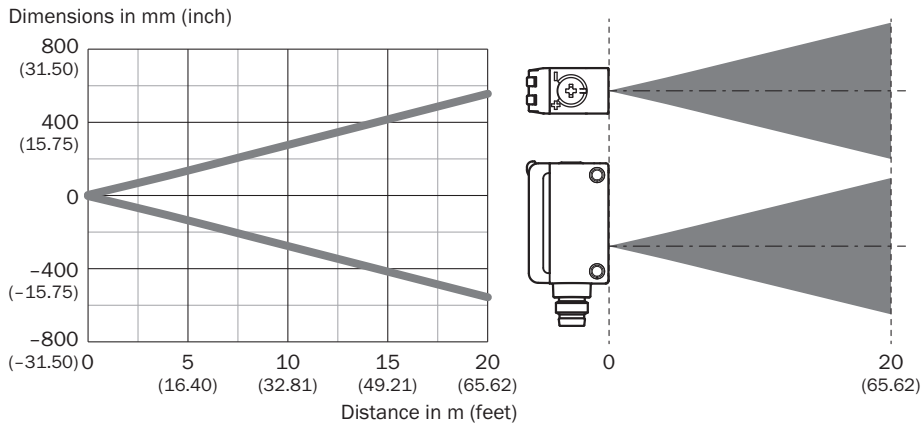
TRUTH TABLE PNP - LIGHT SWITCHING Q

	Light switching Q (normally closed)	
	Object not present → Output HIGH	Object present → Output LOW
Light receive	✓	✗
Light receive indicator	☀	✗
Load resistance	⚡	✗

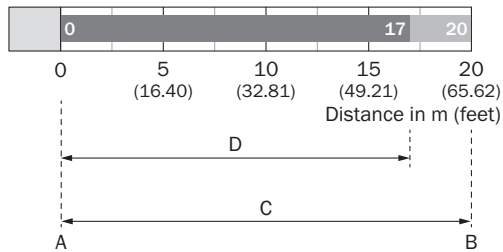
**CHARACTERISTIC CURVE**



**LIGHT SPOT SIZE**



**SENSING RANGE DIAGRAM**



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

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/1135345](http://www.sick.com/1135345)



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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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Sensor Intelligence