



DATA SHEET

# GTE6SP-1GE1146EZZZ

G6  
Photoelectric sensors

**SICK** Sensor Intelligence

## PHOTOELECTRIC SENSORS

## GTE6SP-1GE1146EZZZ

## ORDERING INFORMATION

Type	part no.
GTE6SP-1GE1146EZZZ	<a href="#">1135464</a>

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



Illustration may differ



## DETAILED TECHNICAL DATA

## FEATURES

Functional principle	Photoelectric proximity sensor	
Functional principle detail	Energetic	
Sensing range	Sensing range min.	30 mm
	Sensing range max.	900 mm
	Recommended sensing range for the best performance	80 mm ... 190 mm
Emitted beam	Light source	PinPoint LED
	Type of light	Visible red light
	Shape of light spot	Point-shaped
	Light spot size (distance)	Ø 3.4 mm (150 mm)
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
Smallest detectable object (MDO) typ.	Object with 90% remission factor (complies with standard white according to DIN 5033)	
Adjustment	Potentiometer	For setting the sensing range, 5 rotations
	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 present

Static off: object not present

**SAFETY-RELATED PARAMETERS**

MTTF <sub>D</sub>	4,121 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	≤ 20 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>NPN: open collector</td> </tr> <tr> <td>Switching mode</td> <td>Light/dark switching</td> </tr> <tr> <td>Signal voltage NPN HIGH/LOW</td> <td>Approx. U<sub>B</sub> / ≤ 3 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>≤ 1,250 μs <sup>3)</sup></td> </tr> <tr> <td>Switching frequency</td> <td>500 Hz <sup>4)</sup></td> </tr> </table>	Number	1	Type	NPN: open collector	Switching mode	Light/dark switching	Signal voltage NPN HIGH/LOW	Approx. U <sub>B</sub> / ≤ 3 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	≤ 1,250 μs <sup>3)</sup>	Switching frequency	500 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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Front screen	Plastic, PMMA								
Cable	Plastic, PVC								
Weight	Approx. 40 g								
Maximum tightening torque of the fixing screws	0.4 Nm								

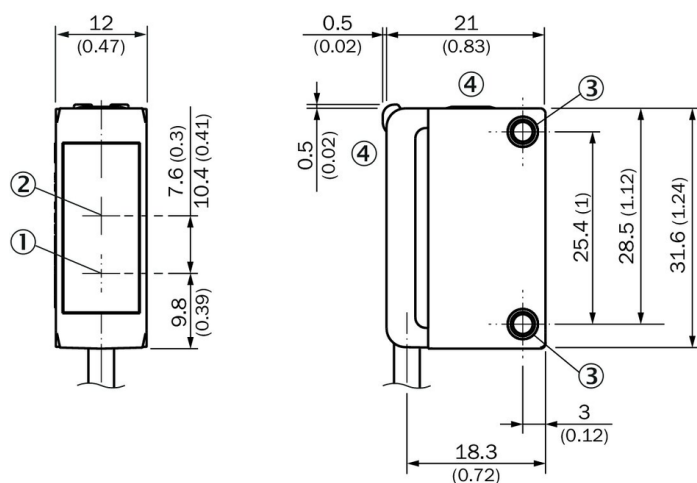
**AMBIENT DATA**

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)	✓

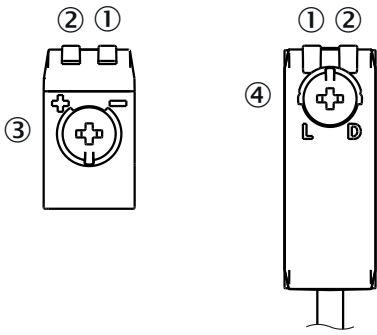
**DIMENSIONAL DRAWING**



Dimensions in mm (inch)

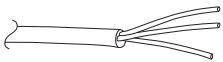
- ① Center of optical axis, sender
- ② Center of optical axis, receiver
- ③ Mounting holes M3
- ④ display and adjustment elements

**DISPLAY AND ADJUSTMENT ELEMENTS**

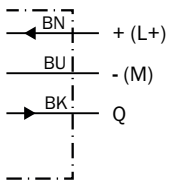


- ① LED green
- ② LED yellow
- ③ Potentiometer
- ④ operating mode switch

**CONNECTION TYPE CABLE, 3-WIRE**



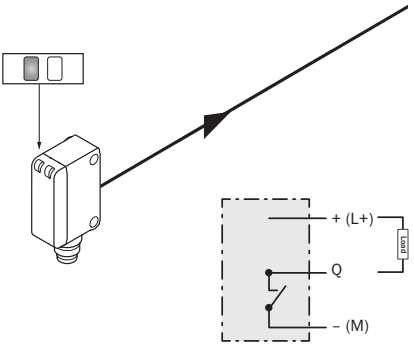
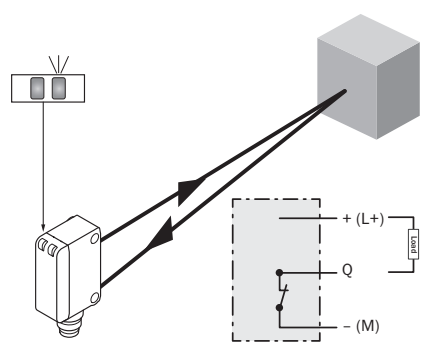
**CONNECTION DIAGRAM CD-043**



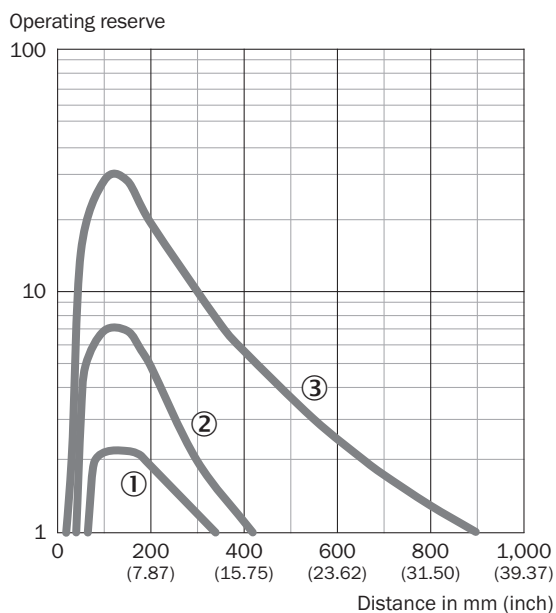
**TRUTH TABLE NPN - DARK SWITCHING  $\bar{Q}$**

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

**TRUTH TABLE NPN - LIGHT SWITCHING Q**

	Light switching Q (normally open)	
	Object not present → Output HIGH	Object present → Output LOW
Light receive	⊗	✔
Light receive indicator	⊗	☀
Load resistance	⊗	⚡
		

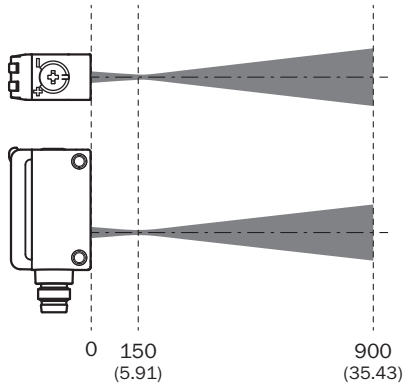
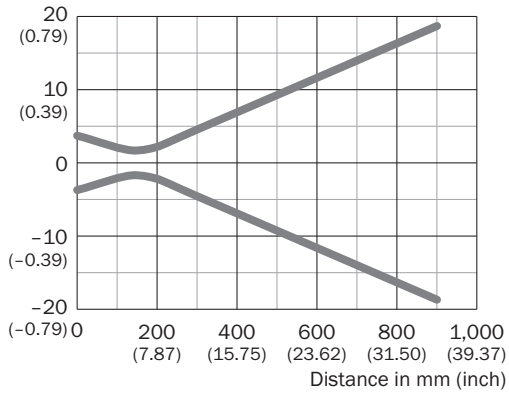
**CHARACTERISTIC CURVE**



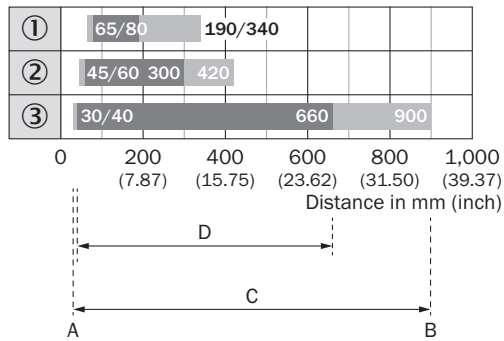
- ① Black object, 6% remission factor
- ② Gray object, 18% remission factor
- ③ White object, 90% remission factor

**LIGHT SPOT SIZE**

Dimensions in mm (inch)



**SENSING RANGE DIAGRAM**



1	Black object, 6% remission factor
2	Gray object, 18% remission factor
3	White object, 90% remission factor
A	Sensing range min. in mm
B	Sensing range max. in mm
C	Maximum distance range from sensor to object
D	Recommended distance range from sensor to object

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/1135464](http://www.sick.com/1135464)



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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