



# GSE6SP-22E121AEZZZ

G6

PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ

Ordering information

Type	part no.
GSE6SP-22E121AEZZZ	1139416

Other models and accessories → [www.sick.com/G6](http://www.sick.com/G6)

Detailed technical data

Features

<b>Functional principle</b>		Through-beam photoelectric sensor
<b>Sensing range</b>		
	Sensing range min.	0 m
	Sensing range max.	20 m
	Recommended sensing range for the best performance	0 m ... 17 m
<b>Emitted beam</b>		
	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)
<b>Key LED figures</b>		
	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
<b>Adjustment</b>		
	Operating mode switch	For inverting the switching function (light/dark switching)
<b>Display</b>		
	LED green	Operating indicatorStatic on: power on
	LED yellow	Status of received light beamStatic on: object not presentStatic off: object present

Electronics

<b>Supply voltage U<sub>B</sub></b>	10 V DC ... 30 V DC <sup>1)</sup>
<b>Ripple</b>	≤ 5 V <sub>pp</sub>
<b>Usage category</b>	DC-12 (According to EN 60947-5-2) DC-13 (According to EN 60947-5-2)

<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.

<b>Current consumption</b>	≤ 30 mA, without load. At $U_B = 24\text{ V}$	
<b>Protection class</b>	III	
<b>Digital output</b>		
Number	1	
Type	NPN: open collector	
Switching mode	Light switching	
Signal voltage NPN HIGH/LOW	Approx. $U_B / \leq 3\text{ V}$	
Output current $I_{\max}$	≤ 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>	
<b>Pin/Wire assignment</b>		
Function of pin 4/black (BK)	Digital output, light switching, object present → output Q HIGH	
Function of pin 4/black (BK) – detail	The pin 4 function of the sensor can be switched	
	Additional possible settings via operating mode switch	

<sup>1)</sup> Limit values.

<sup>2)</sup> At  $U_B > 24\text{ V}$ ,  $I_{\max} = 50\text{ mA}$ .

<sup>3)</sup> Signal transit time with resistive load.

<sup>4)</sup> With light/dark ratio 1:1.

## Mechanics

<b>Housing</b>	Rectangular	
<b>Dimensions (W x H x D)</b>	12 mm x 31.6 mm x 21 mm	
<b>Connection</b>	Male connector M8, 4-pin	
<b>Material</b>		
Housing	Plastic, ABS	
Front screen	Plastic, PMMA	
Male connector	Metal, copper alloy (C3604 CUZN39PB3)	
<b>Weight</b>	Approx. 10 g	
<b>Maximum tightening torque of the fixing screws</b>	0.4 Nm	

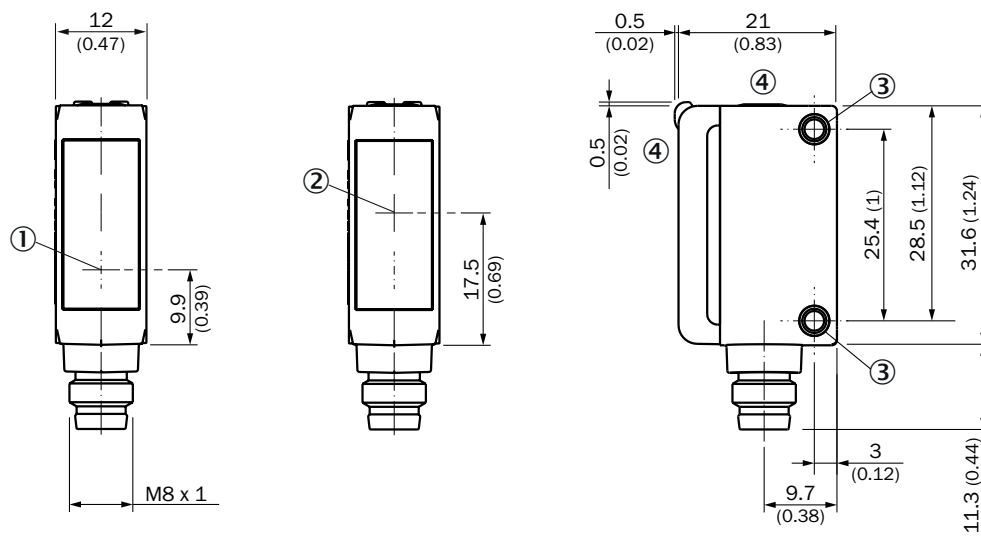
## Ambient data

<b>Enclosure rating</b>	IP67 (EN 60529)
<b>Ambient operating temperature</b>	–30 °C ... +55 °C
<b>Ambient temperature, storage</b>	–40 °C ... +70 °C
<b>Typ. Ambient light immunity</b>	Sunlight: ≤ 30,000 lx
<b>Shock resistance</b>	11 ms (3 positive and 3 negative shocks along X, Y, Z axes, 18 total shocks (EN60068-2-27))
<b>Vibration resistance</b>	10 Hz ... 55 Hz (Amplitude 0.5 mm, 3 x 30 min (EN60068-2-6))
<b>Air humidity</b>	35 % ... 95 %, relative humidity (no condensation)
<b>Electromagnetic compatibility (EMC)</b>	EN 60947-5-2
<b>UL File No.</b>	NRKH.E348498 & NRKH7.E348498

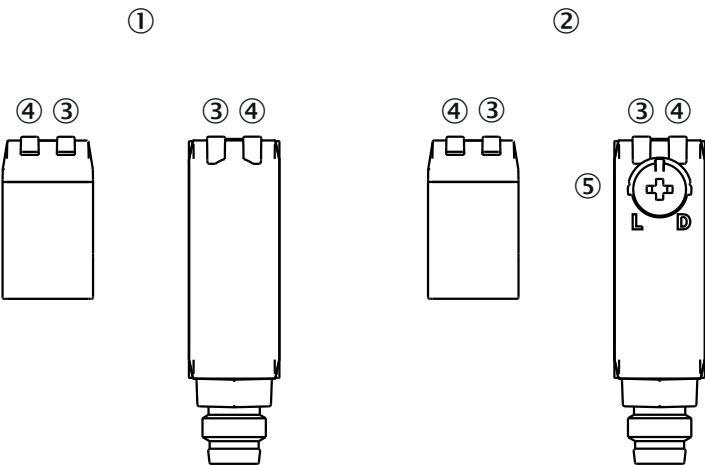
## Classifications

<b>ECLASS 5.0</b>	27270901
<b>ECLASS 5.1.4</b>	27270901
<b>ECLASS 6.0</b>	27270901
<b>ECLASS 6.2</b>	27270901
<b>ECLASS 7.0</b>	27270901
<b>ECLASS 8.0</b>	27270901
<b>ECLASS 8.1</b>	27270901
<b>ECLASS 9.0</b>	27270901
<b>ECLASS 10.0</b>	27270901
<b>ECLASS 11.0</b>	27270901
<b>ECLASS 12.0</b>	27270901
<b>ETIM 5.0</b>	EC002716
<b>ETIM 6.0</b>	EC002716
<b>ETIM 7.0</b>	EC002716
<b>ETIM 8.0</b>	EC002716
<b>UNSPSC 16.0901</b>	39121528

## Dimensional drawing

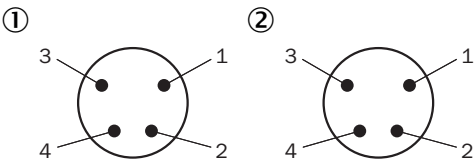


display and adjustment elements



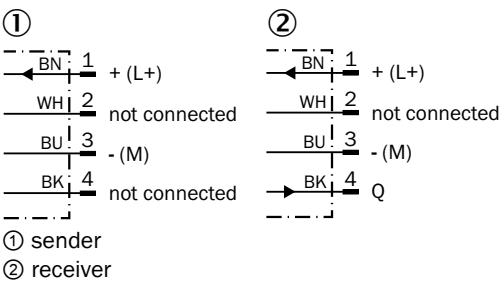
- ① sender
- ② receiver
- ③ LED green
- ④ LED yellow
- ⑤ operating mode switch

pinouts



- male connector M8, 4-pin
- ① receiver
  - ② sender

Connection diagram Cd-057



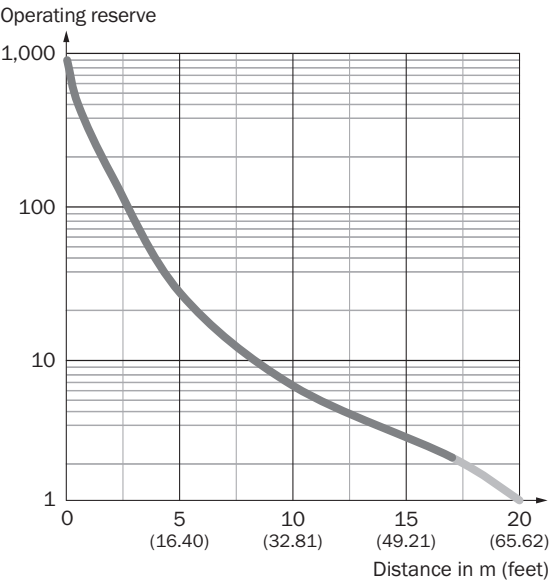
Truth table NPN - light switching Q

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

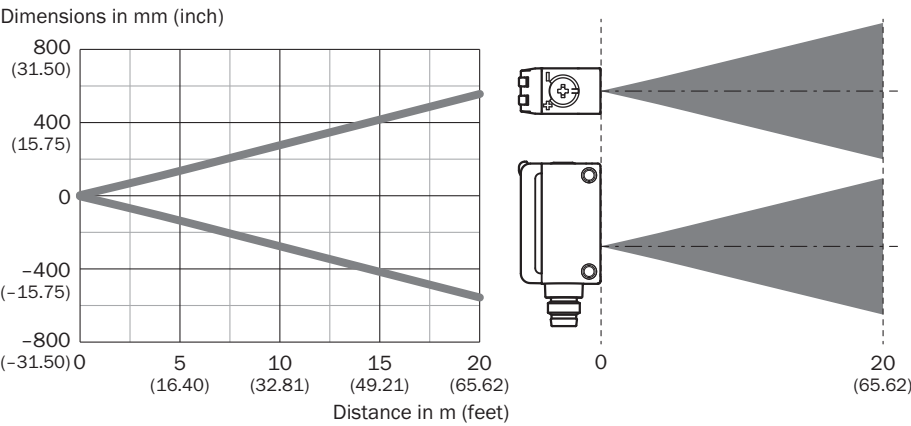
Truth table PNP - dark switching  $\bar{Q}$

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

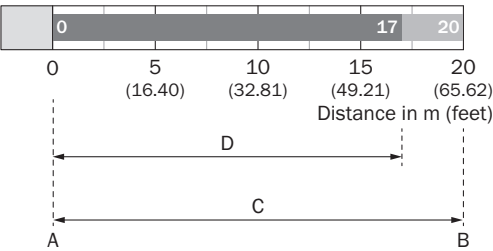
Characteristic curve



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

Recommended accessories

Other models and accessories → [www.sick.com/G6](http://www.sick.com/G6)

	Brief description	Type	part no.
Mounting systems			
	<ul style="list-style-type: none"><li>• <b>Description:</b> Clamp bar to fix G6 sensors on rods of 12 mm, clamp-on design up to 4 mm wall thickness</li><li>• <b>Material:</b> Steel</li><li>• <b>Details:</b> Aluminum (clamp bar), stainless steel (bracket)</li><li>• <b>Items supplied:</b> Clamp bar mounting and clamp function, mounting bracket, mounting hardware</li></ul>	BEF-KHS-IS12G6	2086865
	<ul style="list-style-type: none"><li>• <b>Material:</b> Stainless steel</li><li>• <b>Details:</b> Stainless steel (1.4301)</li><li>• <b>Suitable for:</b> W4S</li></ul>	BEF-WN-G6	2062909



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