



GTE6SP-21A1146EZZZ

G6

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

Type	part no.
GTE6SP-21A1146EZZZ	1151753

Other models and accessories → www.sick.com/G6

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 _a = +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 indicatorStatic on: power on

LED yellow		Status of received light beamStatic on: object presentStatic off: object not present
Electronics		
Supply voltage U_B		10 V DC ... 30 V DC ¹⁾
Ripple		$\leq 5 V_{pp}$
Usage category		DC-12 (According to EN 60947-5-2) DC-13 (According to EN 60947-5-2)
Current consumption		Without load. At $U_B = 24 V$
Protection class		III
Digital output		
Number		1
Type		PNP
Switching mode		Light switching
Signal voltage PNP HIGH/LOW		Approx. $U_B - 3 V / 0 V$
Output current I_{max}		$\leq 100 mA$ ²⁾
Circuit protection outputs		Reverse polarity protected
		Overcurrent protected
		Short-circuit protected
Response time		$\leq 1,250 \mu s$ ³⁾
Switching frequency		500 Hz ⁴⁾
Pin/Wire assignment		
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
¹⁾ Limit values. ²⁾ At $U_B > 24 V$, $I_{max} = 50 mA$. ³⁾ Signal transit time with resistive load. ⁴⁾ 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		Connector M8, 3-pin
Material		
Housing		Plastic, ABS
Front screen		Plastic, PMMA
Male connector		Metal, copper alloy (C3604 CUZN39PB3)
Weight		Approx. 10 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	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)	✓

Classifications

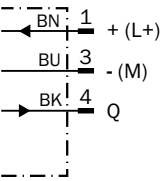
ECLASS 5.0	27270904
ECLASS 5.1.4	27270904
ECLASS 6.0	27270904
ECLASS 6.2	27270904
ECLASS 7.0	27270904
ECLASS 8.0	27270904
ECLASS 8.1	27270904
ECLASS 9.0	27270904
ECLASS 10.0	27270904
ECLASS 11.0	27270904
ECLASS 12.0	27270903
ETIM 5.0	EC002719
ETIM 6.0	EC002719
ETIM 7.0	EC002719
ETIM 8.0	EC002719
UNSPSC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

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

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

A circle with three points labeled 1, 3, and 4. Point 1 is at the top right, point 3 is at the top left, and point 4 is at the bottom center.

Connection diagram Cd-045

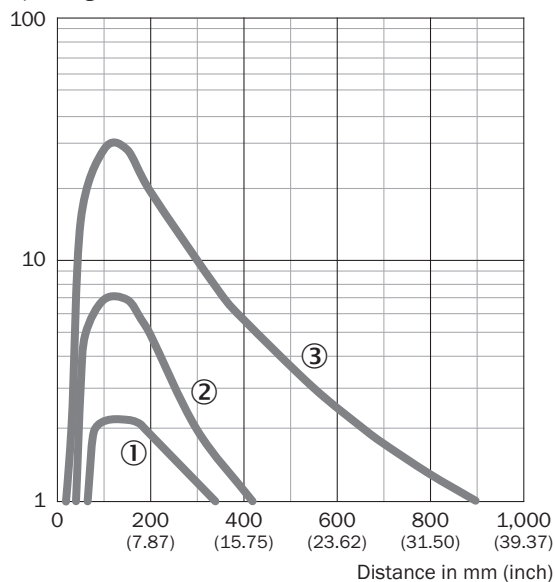


Truth table PNP - light switching Q

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

Characteristic curve

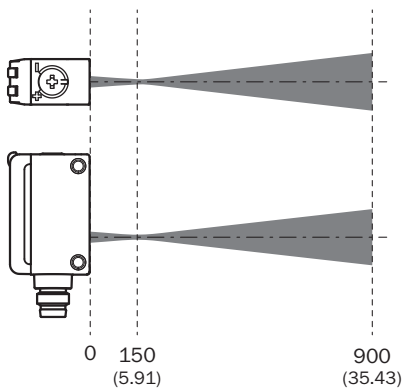
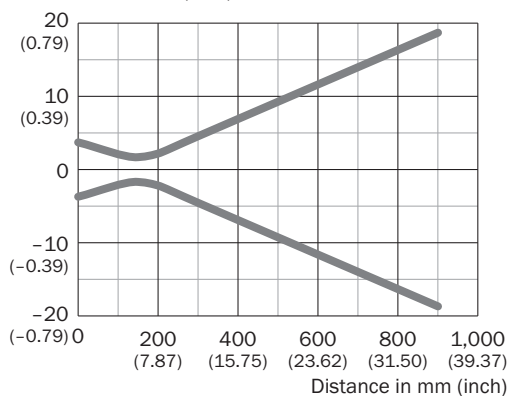
Operating reserve



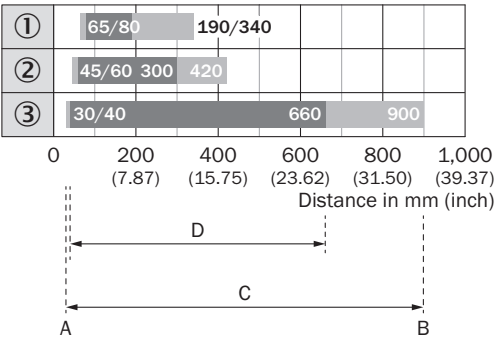
- ① Black object, 6% remission factor
- ② Gray object, 18% remission factor
- ③ White object, 90% remission factor

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

Recommended accessories

Other models and accessories → www.sick.com/G6

	Brief description	Type	part no.
Mounting systems			
	Description: Clamp bar to fix G6 sensors on rods of 12 mm, clamp-on design up to 4 mm wall thickness Material: Steel Details: Aluminum (clamp bar), stainless steel (bracket) Items supplied: Clamp bar mounting and clamp function, mounting bracket, mounting hardware	BEF-KHS-IS12G6	2086865
	Material: Stainless steel Details: Stainless steel (1.4301) Suitable for: W4S	BEF-WN-G6	2062909

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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.”

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