Data sheet

GTE6SP-21E1146EZZZ

G6

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.

Illustration may differ

Ordering information

Type	part no.
GTE6SP-21E1146EZZZ	1139411

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	≤ 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	NPN: open collector
Switching mode	Light switching
Signal voltage NPN HIGH/LOW	Approx. U_B / ≤ 3 V
Output current $I_{max.}$	≤ 100 mA [2]
Circuit protection outputs	Reverse polarity protected
	Overcurrent protected
	Short-circuit protected
Response time	≤ 1,250 µs [3]
Switching frequency	500 Hz [4]
Pin/Wire assignment	
Function of pin 4/black (BK)	Digital output, light switching, object present → output Q LOW
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

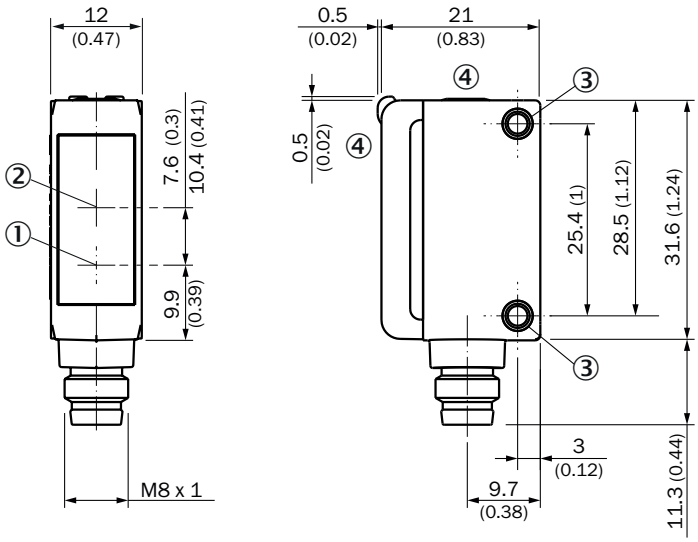
Enclosure rating	IP67 (EN 60529)
Ambient operating temperature	–30 °C ... +55 °C
Ambient temperature, storage	–40 °C ... +70 °C
Typ. Ambient light immunity	Sunlight: ≤ 30,000 lx

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

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

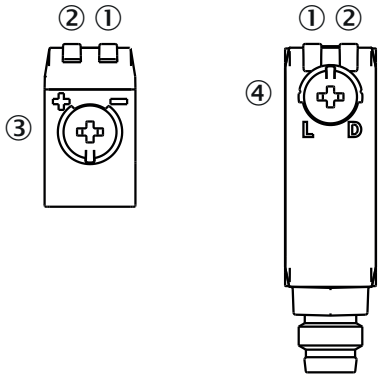
Dimensional drawing



Dimensions in mm (inch)
① Center of optical axis, sender
② Center of optical axis, receiver
③ Mounting holes M3

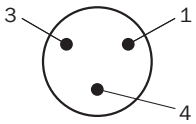
④ display and adjustment elements

display and adjustment elements

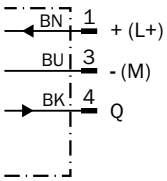


① LED green
② LED yellow
③ Potentiometer
④ operating mode switch

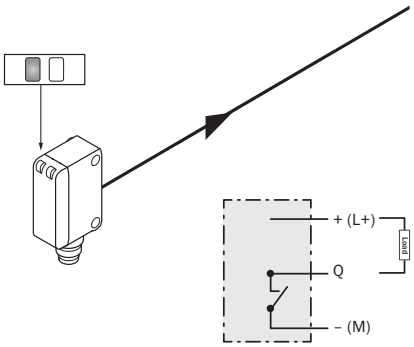
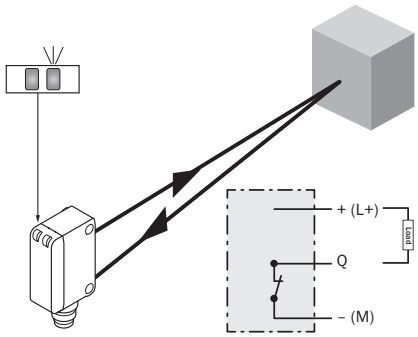
Connection type Connector M8, 3-pin



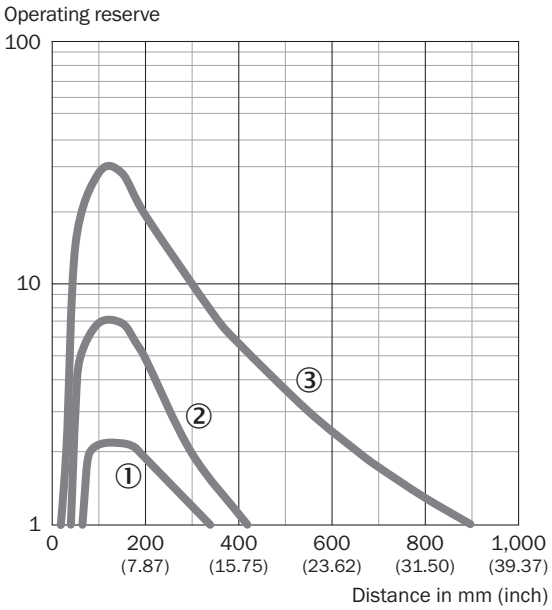
Connection diagram Cd-045



Truth table NPN - light switching Q

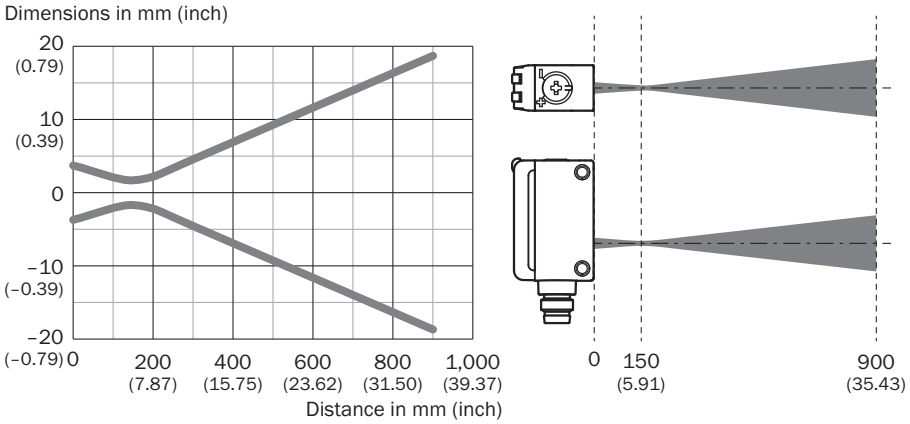
	Light switching Q (normally open)	
	Object not present ➜ Output HIGH	Object present ➜ Output LOW
Light receive	⊗	✓
Light receive indicator	⊗	●
Load resistance	⊗	⚠
		

Characteristic curve

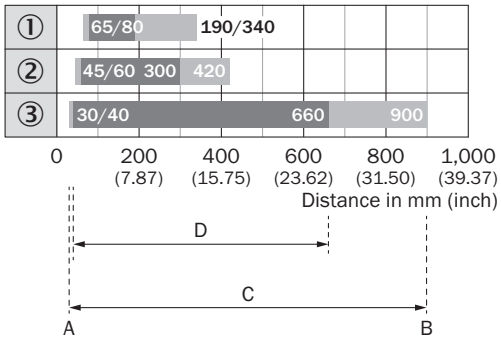


① Black object, 6% remission factor
② Gray object, 18% remission factor
③ White object, 90% remission factor

Light spot size



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

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.”

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