



GTE6L-F4211

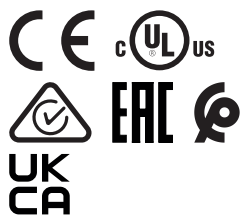
G6

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

Type	part no.
GTE6L-F4211	1105818

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.	0 mm
Sensing range max.	450 mm
Reference object	Object with 90% remission factor (complies with standard white according to DIN 5033)
Recommended sensing range for the best performance	5 mm ... 400 mm
Emitted beam	
Light source	Laser
Type of light	Visible red light
Shape of light spot	Point-shaped
Light spot size (distance)	Ø 0.4 mm (150 mm)
Maximum dispersion of the emitted beam around the standardized transmission axis (squint angle)	< +/- 1.5° (at Ta = +23 °C)
Key laser figures	
Normative reference	IEC 60825-1 / CDRH 21 CFR 1040.10 & 1040.11
Laser class	1 ¹⁾
Wave length	680 nm
Pulse duration	2 µs
Maximum pulse power	≤ 11.9 mW

¹⁾ Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.

Average service life		100,000 h at T _a = +25 °C
Smallest detectable object (MDO) typ.		
		0.4 mm, at 150 mm distance (object with 90% remission factor (corresponds to 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

¹⁾ Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.

Safety-related parameters

MTTF_D	662 years
DC_{avg}	0 %
T_M (mission time)	10 years

Electronics

Supply voltage U _B		10 V DC ... 30 V DC ¹⁾
Ripple		< 5 V _{pp}
Usage category		DC-13 (According to EN 60947-5-2)
Current consumption		≤ 20 mA, without load. At U _B = 24 V
Protection class		III
Digital output		
	Number	2 (Complementary)
	Type	PNP
	Switching mode	Light/dark switching
	Signal voltage PNP HIGH/LOW	Approx. U _B -3 V / 0 V
	Output current I _{max.}	≤ 100 mA ²⁾
	Circuit protection outputs	Reverse polarity protected
		Overcurrent protected
		Short-circuit protected
	Response time	≤ 625 μs
	Switching frequency	1,000 Hz ³⁾
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⁾ With light/dark ratio 1:1.

Function of pin 2/white (WH)	Digital output, dark switching, object present → output $\bar{Q}$ LOW
Function of pin 2/white (WH) – detail	The pin 2 function of the sensor can be switched
	Additional possible settings via operating mode switch

¹⁾ Limit values.

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

³⁾ With light/dark ratio 1:1.

Mechanics

Housing	Rectangular
Dimensions (W x H x D)	12 mm x 31.5 mm x 21 mm
Connection	Male connector M8, 4-pin
Material	
Housing	Plastic, ABS
Front screen	Plastic, PMMA
Cable	Plastic, PVC
Male connector	Metal, copper alloy (C3604 CUZN39PB3)
Weight	Approx. 60 g

Ambient data

Enclosure rating	IP67 (EN 60529)
Ambient operating temperature	-20 °C ... +50 °C ^{1) 2)}
Ambient temperature, storage	-40 °C ... +70 °C
Typ. Ambient light immunity	Sunlight: ≤ 13,000 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

¹⁾ As of $T_a \Rightarrow 45\text{ °C}$, a max. supply voltage $U_B = 24\text{ V}$ and a max. load current $I_{\text{max.}} = 50\text{ mA}$ is permitted.

²⁾ Below $T_u = -20\text{ °C}$, a warm-up time of 3 seconds is required.

Certificates

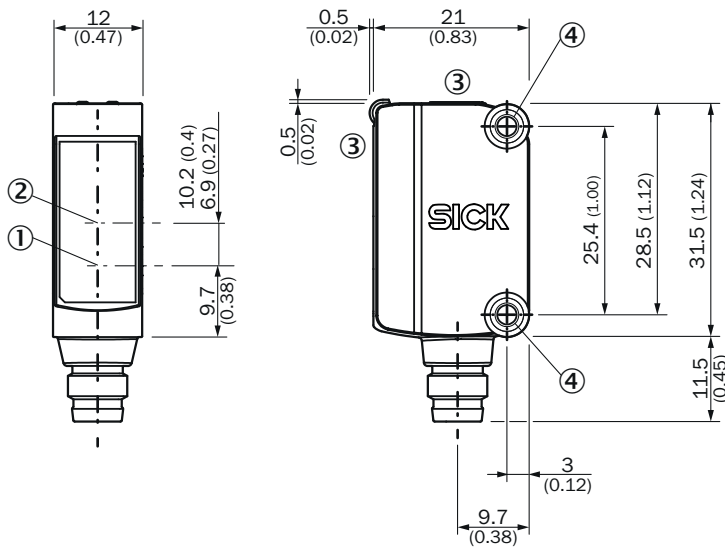
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
cULus certificate	✓
EAC certificate / DoC	✓
Laser safety (IEC 60825-1) declaration of manufacturer	✓

Classifications

ECLASS 5.0	27270903
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ECLASS 5.1.4	27270903
ECLASS 6.0	27270903
ECLASS 6.2	27270903
ECLASS 7.0	27270903
ECLASS 8.0	27270903
ECLASS 8.1	27270903
ECLASS 9.0	27270903
ECLASS 10.0	27270904
ECLASS 11.0	27270904
ECLASS 12.0	27270903
ETIM 5.0	EC001821
ETIM 6.0	EC001821
ETIM 7.0	EC002719
ETIM 8.0	EC002719
UNSPSC 16.0901	39121528

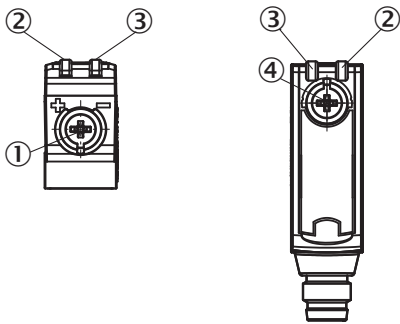
Dimensional drawing



Dimensions in mm (inch)

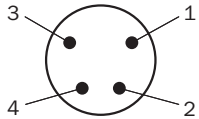
- ① Center of optical axis, sender
- ② Center of optical axis, receiver
- ③ display and adjustment elements
- ④ Mounting holes M3

display and adjustment elements

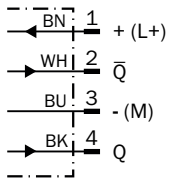


- ① Potentiometer
- ② LED yellow
- ③ LED green
- ④ operating mode switch

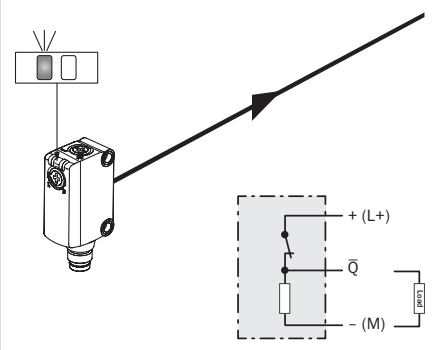
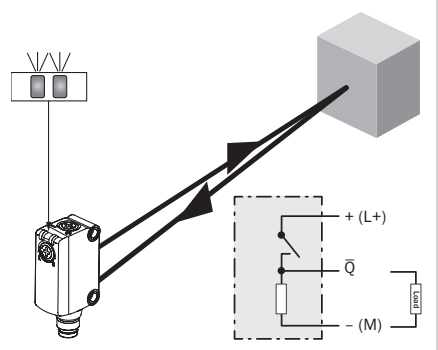
Connection type Male connector M8, 4-pin



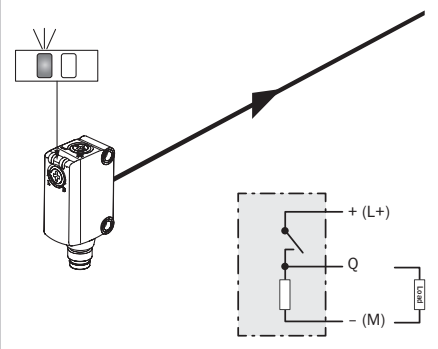
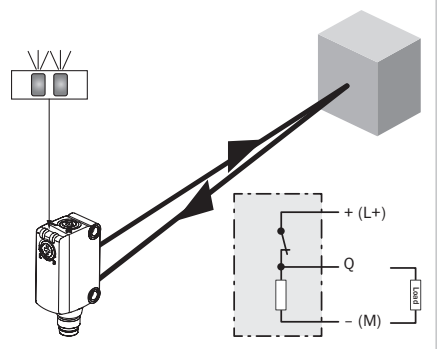
Connection diagram Cd-084



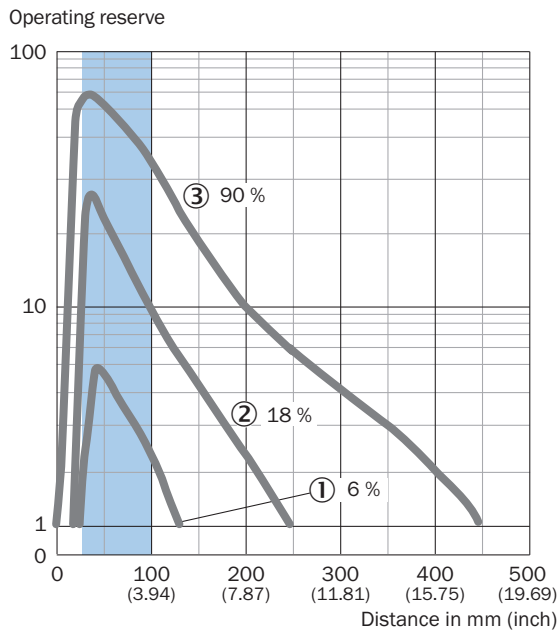
Truth table PNP - dark switching

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

Truth table PNP - light switching

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

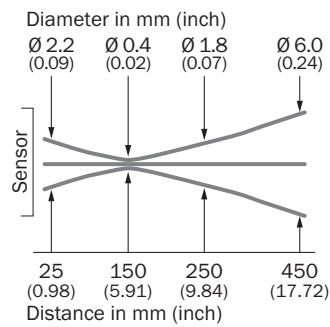
Characteristic curve



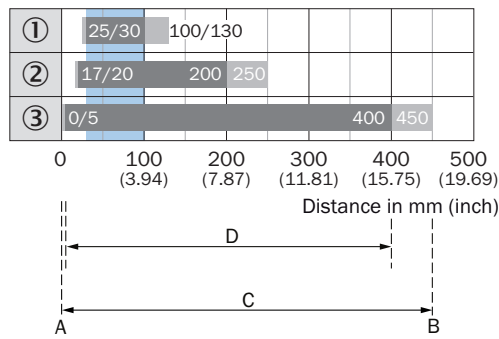
Recommended sensing range for the best performance

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

Characteristic curve



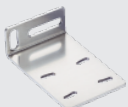
Sensing range diagram



- Recommended sensing range for the best performance
- ① Black object, 6% remission factor
 - ② Gray object, 18% remission factor
 - ③ White object, 90% remission factor

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
	Description: Mounting bracket for wall mounting Material: Stainless steel Details: Stainless steel Items supplied: Mounting hardware included Suitable for: W8, W8G, W8 Laser, W8 Inox, G6, G6 Inox, W100 Laser, W100-2, KTM Core, KTM Prime, CSM, LUTM, W4S	BEF-W100-A	5311520
	Material: Stainless steel Details: Stainless steel (1.4301) Suitable for: W4S, W4S	BEF-WN-G6	2062909
	Description: Plate N11N for universal clamp bracket Material: Stainless steel Details: Stainless steel 1.4571 (sheet), Stainless steel 1.4408 (clamp) Items supplied: Universal clamp (5322627), mounting hardware Usable for: DeltaPac, Glare, WTD20E	BEF-KHS-N11N	2071081

	Brief description	Type	part no.
connectors and cables			
	• Connection type head A: Male connector, M8, 4-pin, straight, A-coded • Description: Unshielded • Connection systems: Screw-type terminals • Permitted cross-section: 0.14 mm² ... 0.5 mm²	STE-0804-G	6037323
	• Connection type head A: Female connector, M8, 4-pin, straight, A-coded • Connection type head B: Flying leads • Signal type: Sensor/actuator cable • Cable: 5 m, 4-wire, PUR, halogen-free • Description: Sensor/actuator cable, unshielded • Application: Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation	YF8U14-050UA3XLEAX	2094792
	• Connection type head A: Female connector, M8, 4-pin, straight, A-coded • Connection type head B: Flying leads • Signal type: Sensor/actuator cable • Cable: 5 m, 4-wire, PVC • Description: Sensor/actuator cable, unshielded • Application: Zones with chemicals, Uncontaminated zones	YF8U14-050VA3XLEAX	2095889

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