



GSE6L-F6211

G6

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.

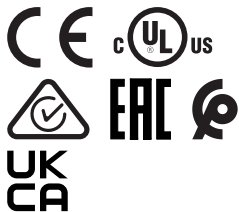


Ordering information

Type	part no.
GSE6L-F6211	1105831

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

Illustration may differ



Detailed technical data

Features

Functional principle		Through-beam photoelectric sensor
Sensing range		
	Sensing range min.	0 m
	Sensing range max.	40 m
	Recommended sensing range for the best performance	0 m ... 30 m
Polarisation filters		No
Emitted beam		
	Light source	Laser
	Type of light	Visible red light
	Shape of light spot	Point-shaped
	Light spot size (distance)	Ø 3.5 mm (1,000 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
	Wave length	680 nm
	Pulse duration	3 µs
	Maximum pulse power	≤ 7.8 mW
	Average service life	100,000 h at Ta = +25 °C
Smallest detectable object (MDO) typ.		
		3.5 mm (at 1 m distance (object with 90% remission factor (corresponds to standard white according to DIN 5033)))
Adjustment		
	Potentiometer	For setting the sensing range

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

Safety-related parameters

MTTF_D	1,005 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 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	≤ 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 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
	Function of pin 2/white (WH)	Digital output, dark switching, object present → output Q̄ HIGH
	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 V, I max. = 50 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		Cable with M8 male connector, 4-pin, 336 mm
Connection detail		
	Deep-freeze property	Do not bend below 0 °C

	Conductor size	0.14 mm ²
	Cable diameter	Ø 8 mm
	Length of cable (L)	300 mm
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 => 45 °C, a max. supply voltage U_B = 24 V and a max. load current I_{max.} = 50 mA is permitted.

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

Certificates

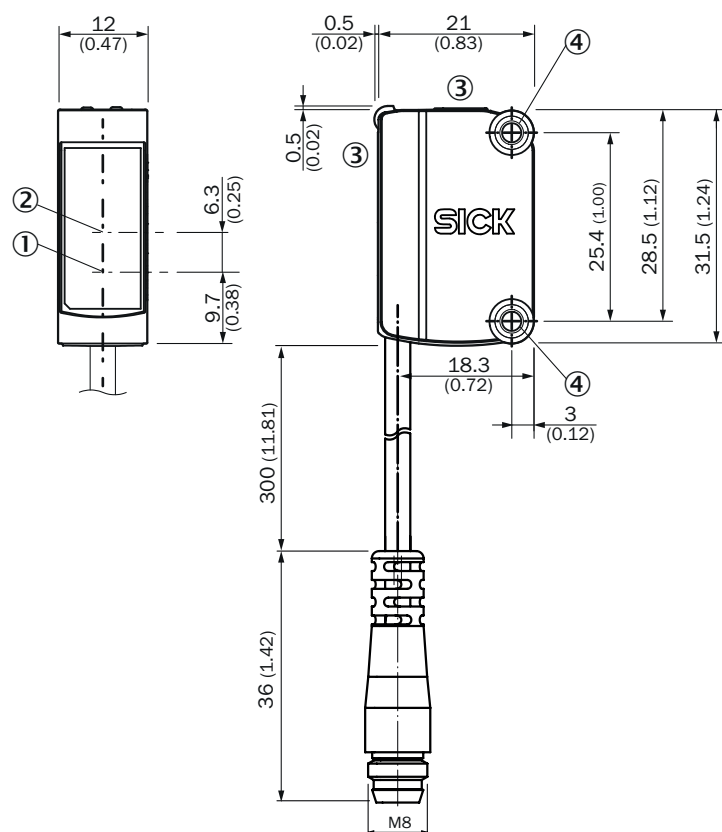
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China-RoHS	✓
cULus certificate	✓
EAC certificate / DoC	✓
Laser safety (IEC 60825-1) declaration of manufacturer	✓

Classifications

ECLASS 5.0	27270901
ECLASS 5.1.4	27270901
ECLASS 6.0	27270901
ECLASS 6.2	27270901
ECLASS 7.0	27270901
ECLASS 8.0	27270901
ECLASS 8.1	27270901
ECLASS 9.0	27270901

ECLASS 10.0	27270901
ECLASS 11.0	27270901
ECLASS 12.0	27270901
ETIM 5.0	EC002716
ETIM 6.0	EC002716
ETIM 7.0	EC002716
ETIM 8.0	EC002716
UNSPSC 16.0901	39121528

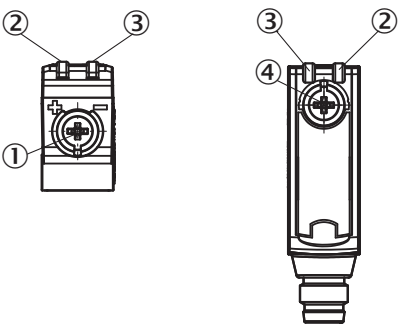
Dimensional drawing



Dimensions in mm (inch)

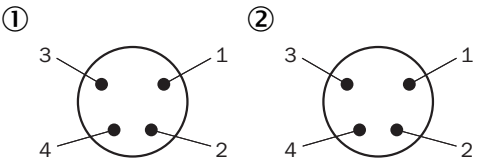
- ① Center of optical axis, sender
- ② Center of optical axis, receiver
- ③ display and adjustment elements
- ④ Mounting holes M3

display and adjustment elements



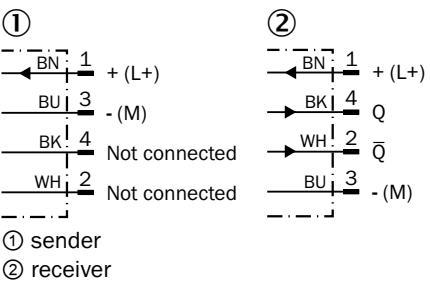
- ① Potentiometer
- ② LED yellow
- ③ LED green
- ④ operating mode switch

pinouts



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

Connection diagram Cd-232



- ① sender
- ② receiver

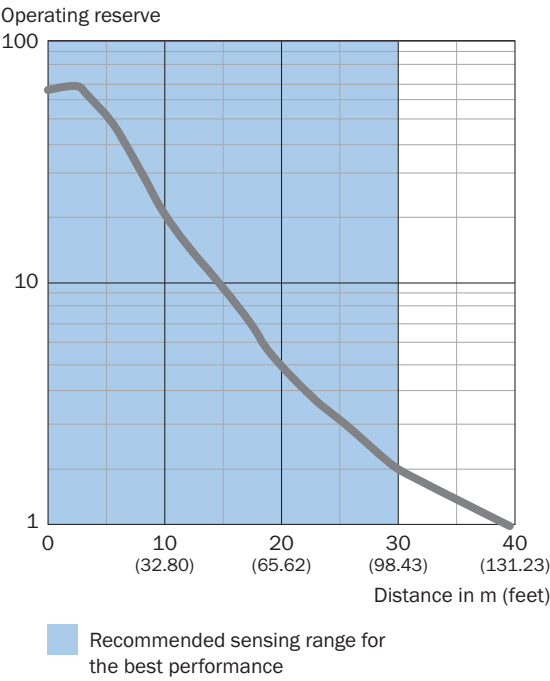
Truth table PNP - dark switching

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

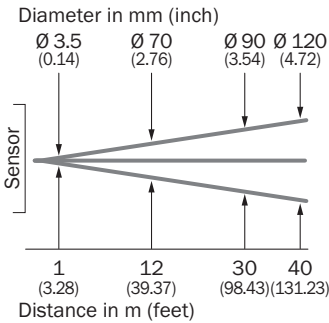
Truth table PNP - light switching

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

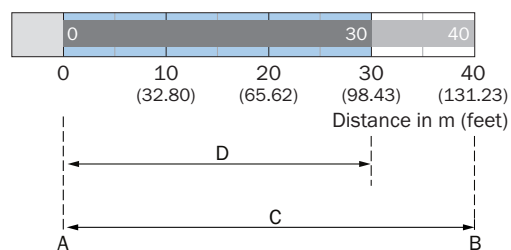
Characteristic curve



Light spot size



Sensing range diagram



A = Sensing range min. in m

B = Sensing range max. in m

C = Viewing range

D = Adjustable switching threshold

 Recommended sensing range for the best performance

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
		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