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Product data sheet



GL6L-F2211

G6

MINIATURE PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.

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GL6L-F2211 | G6

MINIATURE PHOTOELECTRIC SENSORS



Illustration may differ

Ordering information

Type	Part no.
GL6L-F2211	1109726

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

Detailed technical data

Features

Functional principle	Photoelectric retro-reflective sensor
Sensing range	
Sensing range min.	0.08 m
Sensing range max.	12 m
Maximum distance range from reflector to sensor (operating reserve 1)	0.08 m ... 12 m
Recommended distance range from reflector to sensor (operating reserve 2)	0.08 m ... 10 m
Reference reflector	Reflector P250F
Recommended sensing range for the best performance	0.08 m ... 4.2 m
Polarisation filters	Yes
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	2 µs
Maximum pulse power	≤ 11.9 mW
Average service life	100,000 h at T_a = +25 °C
Smallest detectable object (MDO) typ.	

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	3.5 mm (at 1 m distance (object with 90% remission (corresponds on standard white DIN 5033)))
Adjustment	
Potentiometer	For setting the sensing range
Operating mode switch	For inverting the switching function (light/dark switching)
Indication	
LED green	Operating indicator Static on: power on
LED yellow	Status of received light beam Static on: object not present Static off: object present

Safety-related parameters

$MTTF_D$	1,005 years
DC_{avg}	0 %
T_M (mission time)	10 years (EN 60825-1)

Electrical data

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
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
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 U_B connections, reverse polarity protected.

[2] At U_B > 24 V, I max. = 50 mA.

[3] With light/dark ratio 1:1.

Mechanical data

Housing	Rectangular
Dimensions (W x H x D)	12 mm x 31.5 mm x 21 mm

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Connection	Cable, 4-wire, 2 m
Connection detail	
Deep-freeze property	Do not bend below 0 °C
Conductor size	0.14 mm²
Cable diameter	Ø 8 mm
Length of cable (L)	2 m
Material	
Housing	Plastic, ABS
Front screen	Plastic, PMMA
Cable	PVC
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, 3x30 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_a = –20 °C a warm-up time of 3 seconds is required.

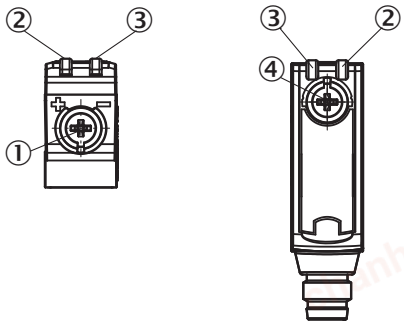
Classifications

ECLASS 5.0	27270902
ECLASS 5.1.4	27270902
ECLASS 6.0	27270902
ECLASS 6.2	27270902
ECLASS 7.0	27270902
ECLASS 8.0	27270902
ECLASS 8.1	27270902
ECLASS 9.0	27270902
ECLASS 10.0	27270902
ECLASS 11.0	27270902
ECLASS 12.0	27270902
ETIM 5.0	EC002717
ETIM 6.0	EC002717
ETIM 7.0	EC002717
ETIM 8.0	EC002717
UNSPSC 16.0901	39121528

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Adjustments

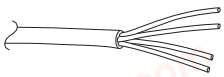
Display and adjustment elements



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

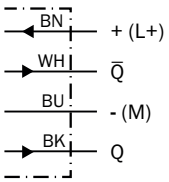
Connection type

Cable, 4-wire



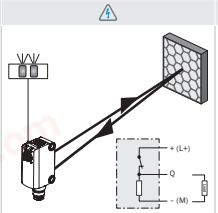
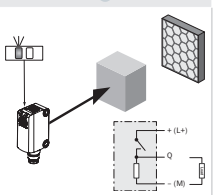
Connection diagram

Cd-094

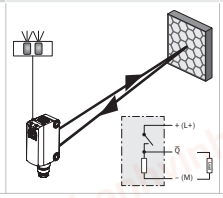
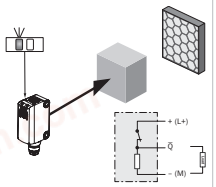


Truth table

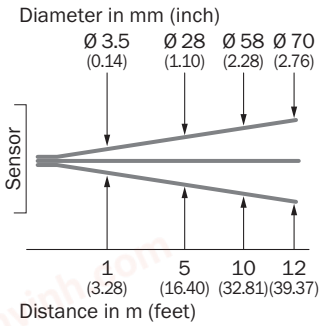
PNP - light switching

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

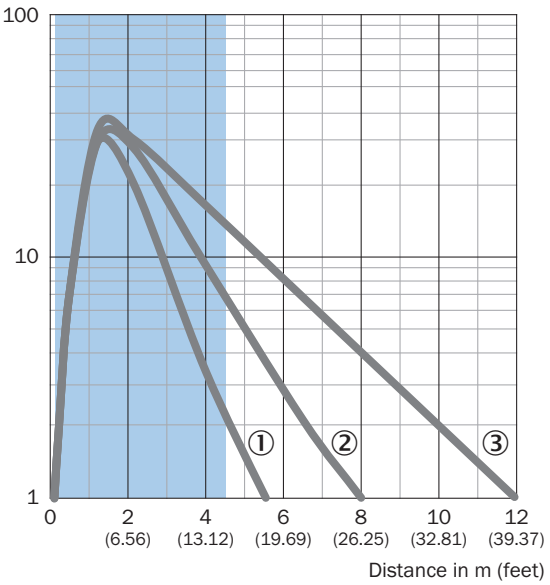
PNP - dark switching

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

Characteristic curve



Operating reserve

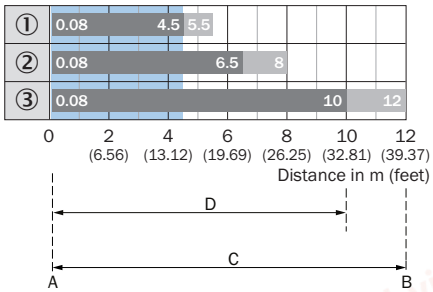


Recommended sensing range for the best performance

① PL10F reflector
② Reflector PL20F
③ Reflector P250F

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Sensing range diagram

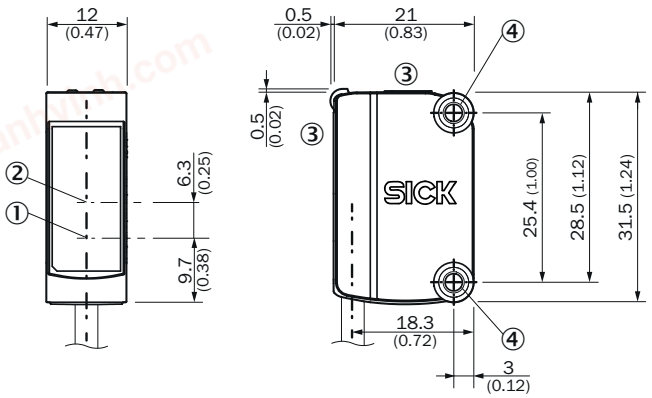


A = Sensing range min. in m
B = Sensing range max. in m
C = Maximum distance range from reflector to sensor (operating reserve 1)
D = Recommended distance range from reflector to sensor (operating reserve 2)

Recommended sensing range for the best performance

① PL10F reflector
② Reflector PL20F
③ Reflector P250F

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

Recommended accessories

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

	Brief description	Type	Part no.
Universal bar clamp systems			
	Clamp bar to fix G6 sensors on rods of 12 mm, clamp-on design up to 4 mm wall thickness, aluminum (clamp bar), stainless steel (bracket), clamp bar mounting and clamp function, mounting bracket, mounting hardware	BEF-KHS-IS12G6	2086865

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	Brief description	Type	Part no.
Mounting brackets and plates			
	Stainless steel (1.4301)	BEF-WN-G6	2062909
Reflectors			
	Fine triple reflector, screw connection, suitable for laser sensors, 20 mm x 60 mm, PMMA/ABS, Screw-on, 2 hole mounting	PL20F	5308844

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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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