GSE20G-1H112170ZZZ

G20

COMPACT PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.

Ordering information

Type	Part no.
GSE20G-1H112170ZZZ	1120847

Other models and accessories ➜ www.sick.com/G20

Illustration may differ

Detailed technical data

Features

Functional principle	Through-beam photoelectric sensor
Sensing range	
Sensing range min.	0 m
Sensing range max.	120 m
Maximum distance range from receiver to sender (operating reserve 1)	0 m ... 120 m
Recommended distance range from receiver to sender (operating reserve 2)	0 m ... 85 m
Emitted beam	
Light source	LED
Type of light	Visible red light
Shape of light spot	Rectangular
Light spot size (distance)	Ø 800 mm (20,000 mm)
Maximum dispersion of the emitted beam around the standardized transmission axis (squint angle)	< +/- 1.5° (at Ta = +23 °C)
Key LED figures	
Normative reference	EN 62471:2008-09	IEC 62471:2006, modified
LED risk group marking	Free group
Wave length	630 nm
Average service life	100,000 h at T_a = +25 °C
Adjustment	
Potentiometer	For sensitivity adjustment, 270°
Indication	
LED green	Operating indicator Static on: power on Static off: object present
LED yellow	Status of received light beam Static on: object not present

	Static off: object present

Safety-related parameters

$MTTF_D$	548 years
DC_{avg}	0%

Electrical data

Supply voltage U_B	10 V DC … 30 V DC [1]
Ripple	< 5 V_{pp}
Usage category	DC-13 (according to EN 60947-1)
Current consumption	≤ 30 mA, without load. At U_B = 24 V
Protection class	III
Digital output	
Number	2 (Complementary)
Type	Push-pull: PNP/NPN
Switching mode	Light/dark switching
Signal voltage PNP HIGH/LOW	V_S - (≤ 3 V) / approx. 0 V
Signal voltage NPN HIGH/LOW	V_S - (≤ 3 V) / approx. 0 V
Output current $I_{max.}$	≤ 100 mA [2]
Circuit protection outputs	Reverse polarity protected Overcurrent protected Short-circuit protected
Response time	≤ 500 µs
Switching frequency	1,000 Hz [3]
Pin/Wire assignment, sender	
BN	+ (L+)
WH	-
BU	- (M)
BK	Test -> M Input, sender off, LOW active
Pin/Wire assignment, receiver	
BN	+ (L+)
WH	$\bar{Q}$ Digital output, dark switching, object present → output $\bar{Q}$ HIGH The pin 2 function of the sensor can be switched
BU	- (M)
BK	Q Digital output, light switching, object present → output Q LOW The pin 4 function of the sensor can be switched

[1] Limit values.

[2] At U_B > 24 V, I max. = 100 mA.

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

Mechanical data

Housing	Rectangular
Dimensions (W x H x D)	23.5 mm x 74.5 mm x 52.5 mm
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 5 mm
Length of cable (L)	2 m
Material	
Housing	Plastic, ABS
Front screen	Plastic, PMMA
Cable	Plastic, PVC
Weight	Approx. 235 g

Ambient data

Enclosure rating	IP67 (EN 60529)
Ambient operating temperature	–30 °C ... +60 °C
Ambient temperature, storage	–40 °C ... +70 °C
Typ. Ambient light immunity	Sunlight: ≤ 20,000 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 ... 1,000 Hz (Amplitude 1 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	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

Adjustments

Display and adjustment elements
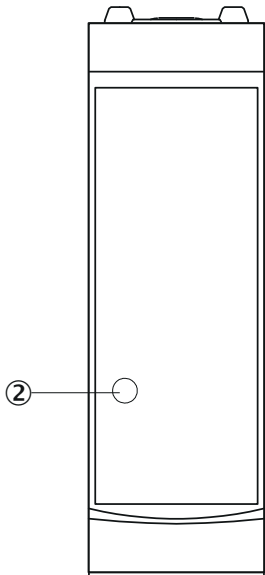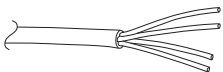

② LED yellow

Display and adjustment elements
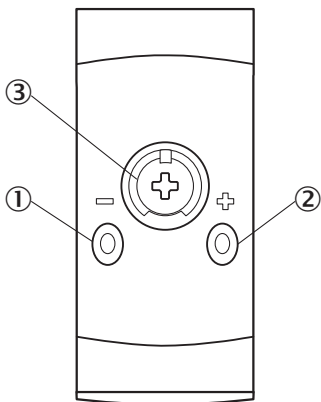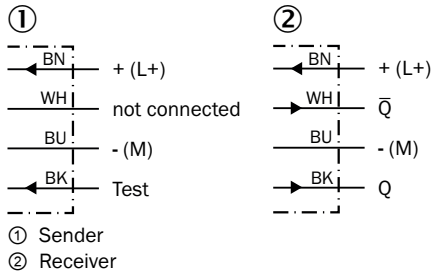

① LED green
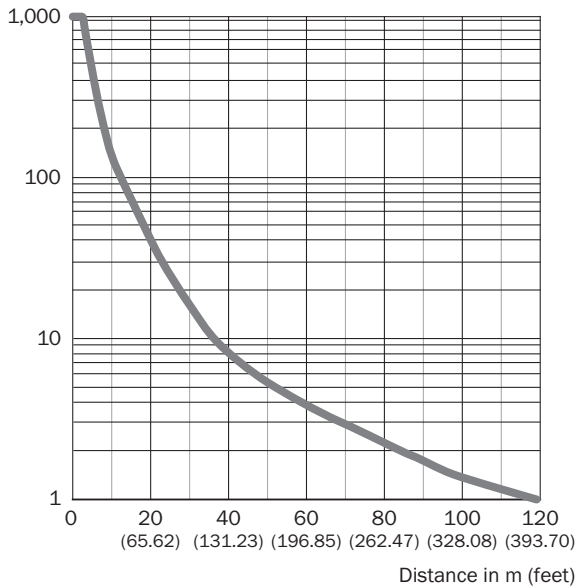② LED yellow
③ Potentiometer

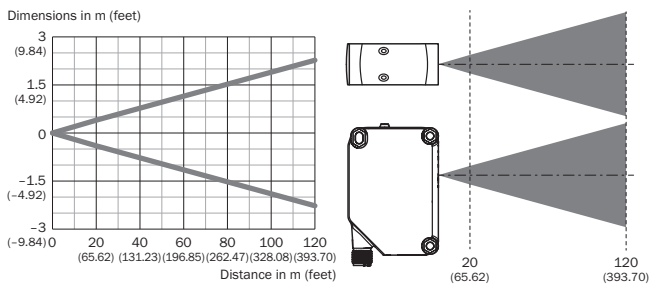## Connection type

Cable, 4-wire

Connection diagram

Cd-576

① ②

BN	+ (L+)		BN	+ (L+)
WH	not connected		WH	$\overline{Q}$
BU	- (M)		BU	- (M)
BK	Test		BK	Q

① Sender
② Receiver

Characteristic curve

Operating reserve

Distance in m (feet)

Light spot size

Dimensions in m (feet)

Distance in m (feet)

Sensing range diagram

0	85	120

0   40 (131.23)   80 (262.47)   120 (393.70)
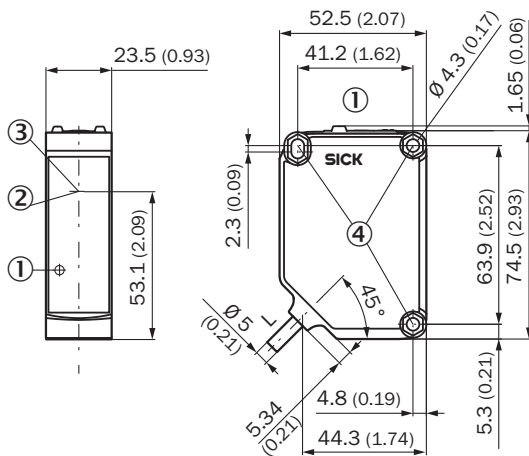
Distance in m (feet)

D

C

A   B
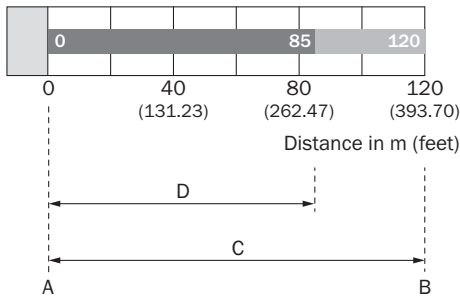
A	Sensing range min. in mm
B	Sensing range max. in mm
C	Maximum distance range from receiver to sender
D	Recommended distance range from receiver to sender

Dimensional drawing (Dimensions in mm (inch))

23.5 (0.93)

52.5 (2.07)
41.2 (1.62)
Ø 4.3 (0.17)
1.65 (0.06)

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53.1 (2.09)

2.3 (0.09)

63.9 (2.52)
74.5 (2.93)

45°

Ø 5 (0.21)

5.34 (0.21)
4.8 (0.19)
44.3 (1.74)
5.3 (0.21)

For length of cable (L), see technical data
① Display and adjustment elements
② Center of optical axis, sender
③ Center of optical axis, receiver
④ Fixing hole ø 4.3 mm, both sides for hexagon nut M4

Recommended accessories

Other models and accessories ➔ www.sick.com/G20

	Brief description	Type	Part no.
Mounting brackets and plates			
	Mounting bracket, Stainless steel V2A (1.4301), 2 screws, 2 nuts, 2 circlips, 2 washers for mounting the sensor	BEF-W280	5313885

	Brief description	Type	Part no.
Others			
	• **Connection type head A:** Male connector, M12, 4-pin, straight, A-coded • **Description:** Unshielded • **Connection systems:** Screw-type terminals • **Permitted cross-section:** ≤ 0.75 mm²	STE-1204-G	6009932
	• **Connection type head A:** Male connector, M12, 4-pin, straight, A-coded • **Description:** Unshielded • **Connection systems:** Cutting technology • **Permitted cross-section:** 0.34 mm² ... 0.75 mm²	STE-1204-GQU8	6044998

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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