GTB20G-1H111160ZZZ
G20

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.

Ordering information

Type	part no.
GTB20G-1H111160ZZZ	1120789

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

Illustration may differ

Detailed technical data

Features

Functional principle	Photoelectric proximity sensor
Functional principle detail	Background suppression
Sensing range	
Sensing range min.	0.005 m
Sensing range max.	3 m
Adjustable switching threshold for background suppression	0.1 m ... 3 m
Reference object	Object with 90% remission factor (complies with standard white according to DIN 5033)
Minimum distance between set sensing range and background (black 6% / white 90%)	200 mm, at a distance of 1000 mm
Emitted beam	
Light source	LED
Type of light	Visible red light
Shape of light spot	Rectangular
Light spot size (distance)	Ø 28 mm (500 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 setting the sensing range, 7 rotations

Display	
LED green	Operating indicatorStatic on: power onStatic off: object not present
LED yellow	Status of received light beamStatic on: object presentStatic off: object not present

Safety-related parameters

$MTTF_D$	806 years
DC_{avg}	0%

Electronics

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	≤ 1.67 ms
Switching frequency	300 Hz [3]
Pin/Wire assignment	
BN	+ (L+)
WH	Q̄Digital output, dark switching, object present → output Q̄ LOW
BU	- (M)
BK	QDigital output, light switching, object present → output Q HIGH

[1] Limit values.
[2] At U_B > 24 V, I max. = 100 mA.
[3] With light/dark ratio 1:1.

Mechanics

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. 120 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

Certificates

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China-RoHS	✓
cULus certificate	✓
Photobiological safety (IEC EN 62471)	✓

Classifications

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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

display and adjustment elements
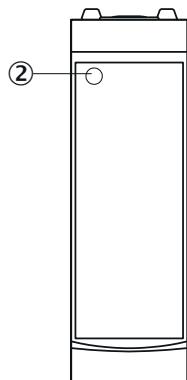
② LED yellow

display and adjustment elements
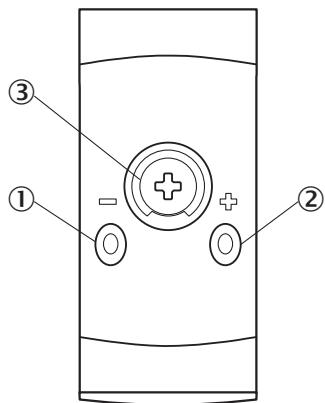
① LED green
② LED yellow
③ Potentiometer

Connection type Cable, 4-wire
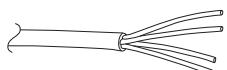
Connection diagram Cd-094

|	
BN	+ (L+)
WH	$\overline{Q}$
BU	- (M)
BK	Q
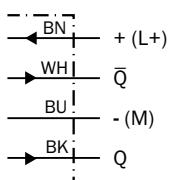
Characteristic curve

Minimum distance in mm (y) between the set sensing range (x) and white background (90 % remission)
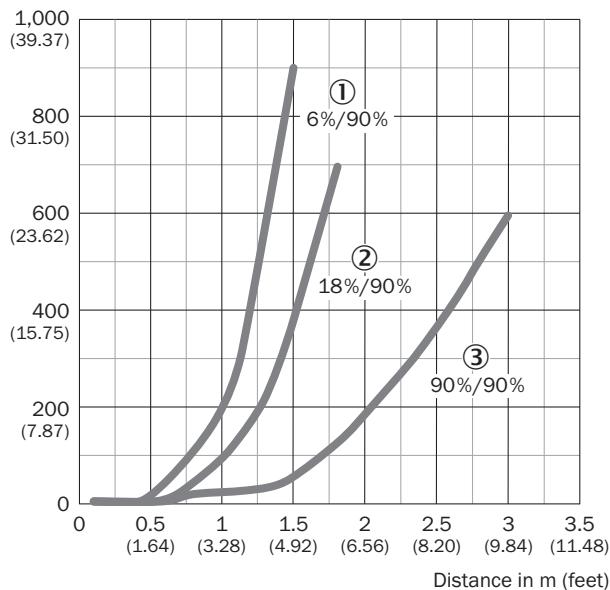
① Black object, 6% remission factor
② Gray object, 18% remission factor
③ White object, 90% remission factor

Example:
Safe suppression of the background

White background (90 %)
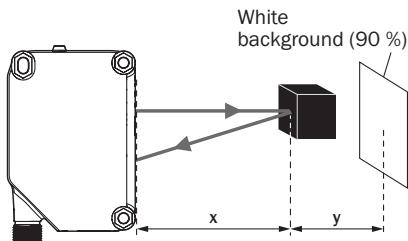
Black object (6 % remission)
Set sensing range x = 1.0 m
Needed minimum distance to white background y = 200 mm

Light spot size

Dimensions in mm (inch)
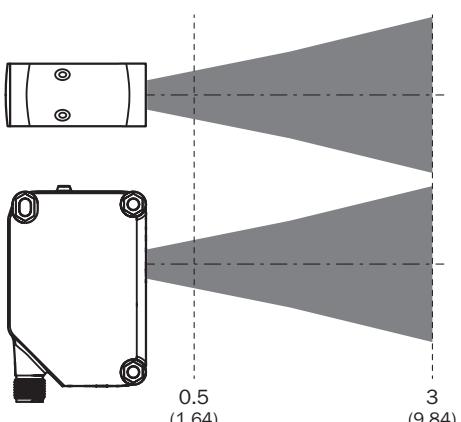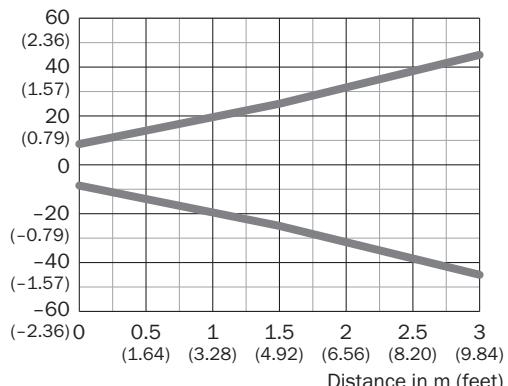
Sensing range diagram
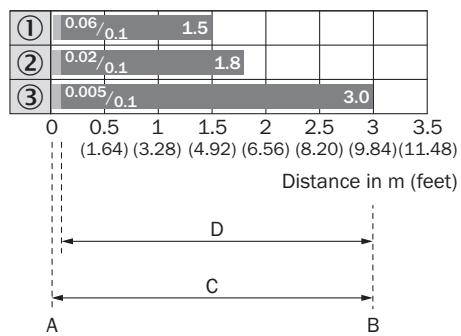
	1	Black object, 6% remission factor
	2	Gray object, 18% remission factor
	3	White object, 90% remission factor
	A	Sensing range min. in m
	B	Sensing range max. in m
	C	Field of view
	D	Adjustable switching threshold for background suppression

Dimensional drawing
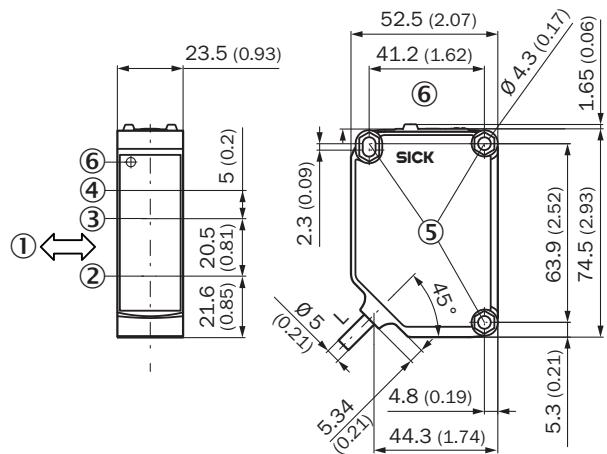
Dimensions in mm (inch)
For length of cable (L), see technical data
① Standard direction of the material being detected
② Center of optical axis, sender
③ Center of optical axis, receiver (close range)
④ Center of optical axis, receiver (far range)
⑤ Fixing hole ø 4.3 mm, both sides for hexagon nut M4
⑥ display and adjustment elements

Recommended accessories

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

Brief description	Type	part no.
Mounting systems		
• **Description:** Mounting bracket • **Material:** Stainless steel • **Details:** Stainless steel V2A (1.4301) • **Items supplied:** 2 screws, 2 nuts, 2 circlips, 2 washers for mounting the sensor • **Suitable for:** W280-2, G20	BEF-W280	5313885
connectors and cables		
• **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."

WORLDWIDE PRESENCE:

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