



GTB20M-3ASD116GZZZ G20

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.

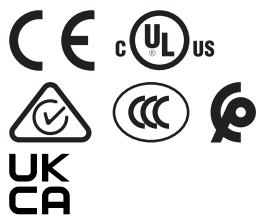


Ordering information

Type	part no.
GTB20M-3ASD116GZZZ	1120796

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	Infrared 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	850 nm
Average service life	100,000 h at Ta = +25 °C
Adjustment	

Display	Potentiometer 1	For setting the sensing range, 7 rotations
	Operating mode switch	For inverting the switching function (light/dark switching)
	Potentiometer 2	For adjusting the delay time
	Potentiometer 3	For selecting the delay time
	LED green	Operating indicatorStatic on: power onStatic off: object not present
	LED yellow	Status of received light beamStatic on: object present

Electronics

Supply voltage U_e	24 V AC/DC ... 240 V AC/DC ¹⁾																
Ripple	< 10 %																
Usage category	DC-13 (according to EN 60947-1) AC-15 (according to EN 60947-1)																
Current consumption	≤ 10 mA, Without load At 230 V AC/DC ≤ 45 mA, Without load At 24 V AC/DC																
Protection class	II																
Digital output	<table border="1"><tr><td>Number</td><td>2 (Complementary)</td></tr><tr><td>Type</td><td>Relay, SPDT, electrically isolated ²⁾</td></tr><tr><td>Switching mode</td><td>Light/dark switching</td></tr><tr><td>Output current $I_{max.}$</td><td>4 A@250 V AC, 4 A@24 VDC, 0.11 A@250 V DC UL: 4 A@250 V AC, general use 4 A @ 250 V AC, resistive (NO) 3 A @ 250 V AC, resistive (NC) 4 A @ 24 V DC, NO, general use 3 A @ 24 V DC, NC, general use R300/B300 (NO contacts only)</td></tr><tr><td>Response time</td><td>≤ 15 ms</td></tr><tr><td>Switching frequency</td><td>10 Hz ³⁾</td></tr><tr><td>Time functions</td><td>Deactivated (factory setting), switch-on delay, off delay, ON and OFF delay</td></tr><tr><td>Delay time</td><td>Adjustable via time delay selector switch, 0 ms ... 10,000 ms, 0 ms (factory setting)</td></tr></table>	Number	2 (Complementary)	Type	Relay, SPDT, electrically isolated ²⁾	Switching mode	Light/dark switching	Output current $I_{max.}$	4 A@250 V AC, 4 A@24 VDC, 0.11 A@250 V DC UL: 4 A@250 V AC, general use 4 A @ 250 V AC, resistive (NO) 3 A @ 250 V AC, resistive (NC) 4 A @ 24 V DC, NO, general use 3 A @ 24 V DC, NC, general use R300/B300 (NO contacts only)	Response time	≤ 15 ms	Switching frequency	10 Hz ³⁾	Time functions	Deactivated (factory setting), switch-on delay, off delay, ON and OFF delay	Delay time	Adjustable via time delay selector switch, 0 ms ... 10,000 ms, 0 ms (factory setting)
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Pin/Wire assignment	<table border="1"><tr><td>BN 1</td><td>L/(+)</td></tr><tr><td>BU 2</td><td>N/(-)</td></tr><tr><td>GY 3</td><td>Relay COM</td></tr><tr><td>BK 4</td><td>Relay NORelay output, light switching, object present → output HIGH</td></tr><tr><td>WH 5</td><td>Relay NCRelay output, dark switching, object present → output LOW</td></tr></table>	BN 1	L/(+)	BU 2	N/(-)	GY 3	Relay COM	BK 4	Relay NORelay output, light switching, object present → output HIGH	WH 5	Relay NCRelay output, dark switching, object present → output LOW						
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¹⁾ +/- 10 %.

²⁾ Valid only for devices manufactured before June 18, 2023 with a date code of 2324 or earlier. Suitable arc suppression with inductive or capacitive load. Relay contacts are separated from the supply voltage by a base insulation of 3.2 mm. Depending on the application, additional insulation may be required in the user wiring.

³⁾ With light/dark ratio 1:1.

Mechanics

Housing	Rectangular
Dimensions (W x H x D)	23.5 mm x 74.5 mm x 63 mm

Connection	Cable with Q6 male connector, 6-pin, AC/UC-coded, 300 mm	
Connection detail	Deep-freeze property	Do not bend below 0 °C
	Length of cable (L)	270 mm
Material	Housing	Plastic, ABS
	Front screen	Plastic, PMMA
	Cable	Plastic, PVC
	Male connector	Plastic, PC
Weight	Approx. 155 g	

Ambient data

Enclosure rating	IP65 (EN 60529)
Ambient operating temperature	-30 °C ... +60 °C ¹⁾
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, EN 61000-6-3
UL File No.	NRKH.E348498 & NRKH7.E348498

¹⁾ The max. ambient temperature is 50 °C (UL).

Certificates

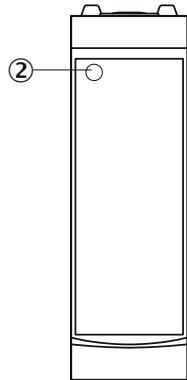
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China-RoHS	✓
CCC certificate	✓
cULus certificate	✓
Photobiological safety (IEC EN 62471)	✓

Classifications

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

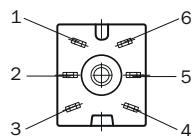
ECLASS 11.0	27270904
ECLASS 12.0	27270903
ETIM 5.0	EC002719
ETIM 6.0	EC002719
ETIM 7.0	EC002719
ETIM 8.0	EC002719
UNSPSC 16.0901	39121528

display and adjustment elements

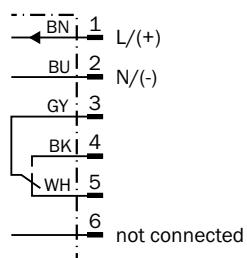


② LED yellow

Connection type

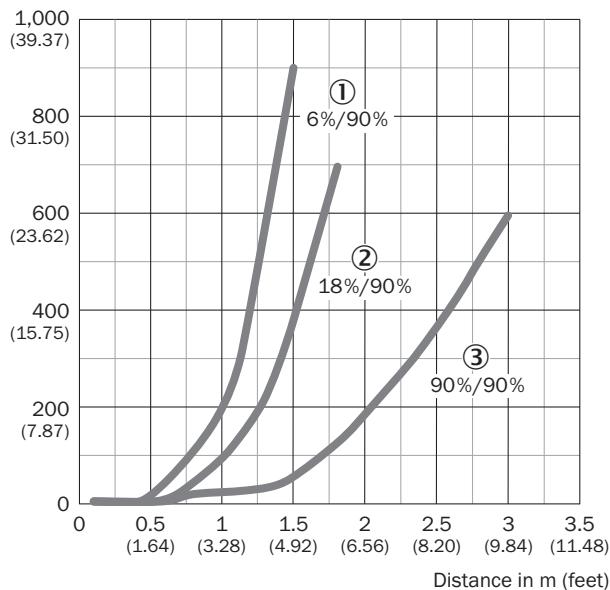


Connection diagram Cd-181



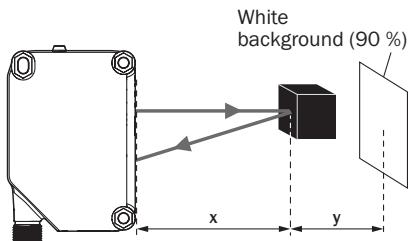
Characteristic curve

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

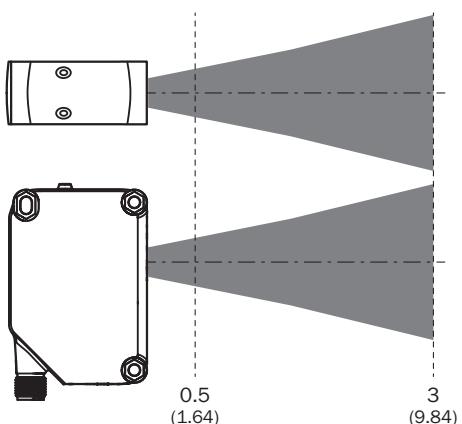
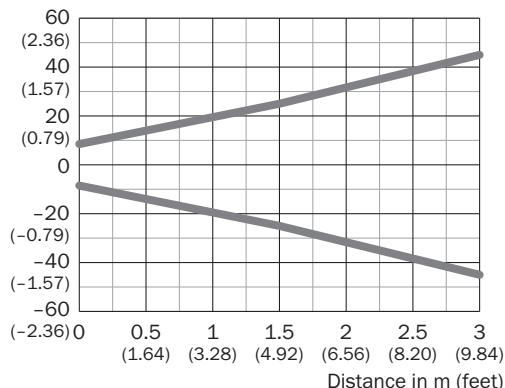
Example:
Safe suppression of the background



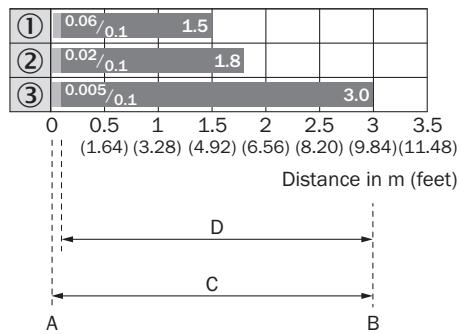
Black object (6 % remission)
Set sensing range $x = 1.0$ m
Needed minimum distance to white background $y = 200$ mm

Light spot size

Dimensions in mm (inch)

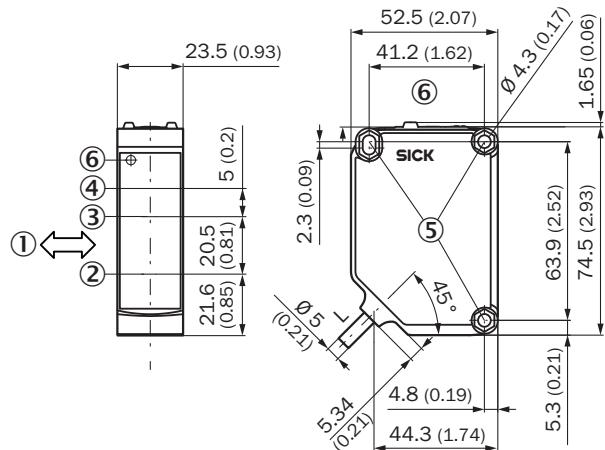


Sensing range diagram



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

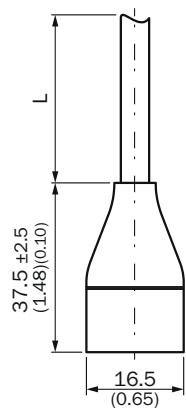


Dimensions in mm (inch)

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

Dimensional drawing



Dimensions in mm (inch)

For length of cable (L), see technical data

Recommended accessories

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

	Brief description	Type	part no.
Mounting systems			
	<ul style="list-style-type: none"> 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

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