

GTB10-R3822

**PHOTOELECTRIC SENSORS** 



#### PHOTOELECTRIC SENSORS

#### Ordering information

Туре	part no.
GTB10-R3822	1065864

Included in delivery: BEF-G10UC01 (1)

Other models and accessories → www.sick.com/G10

Illustration may differ



#### Detailed technical data

#### **Features**

Functional principle	Photoelectric proximity sensor
Functional principle detail	Background suppression
Dimensions (W x H x D)	20 mm x 50 mm x 51.5 mm
Housing design (light emission)	Rectangular
Sensing range max.	20 mm 1,200 mm <sup>1)</sup>
Type of light	Infrared light
Light source	LED <sup>2)</sup>
Light spot size (distance)	Ø 22 mm (700 mm)
Wave length	850 nm
Adjustment	Potentiometer, 5 turns

 $<sup>^{1)}</sup>$  Object with 90% remission (based on standard white, DIN 5033).

## Mechanics/electronics

Supply voltage U <sub>e</sub>	24 V AC/DC 240 V AC/DC <sup>1)</sup>
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<sup>&</sup>lt;sup>1)</sup> +- 10 %.

 $<sup>^{2)}</sup>$  Average service life: 100,000 h at TU = +25 °C.

 $<sup>^{2)}\ \</sup>mbox{Provide}$  suitable spark suppression for inductive or capacitive loads.

 $<sup>^{3)}</sup>$  With light/dark ratio 1:1.

 $<sup>^{4)}</sup>$  Do not bend below 0  $^{\circ}\text{C}.$ 

 $<sup>^{5)}</sup>$  C = interference suppression.

<sup>&</sup>lt;sup>6)</sup> Reference voltage: 250 V AC.

 $<sup>^{7}</sup>$ ) In the case of a DC supply (ref. to EN 61000-6-3) the length of cable between the supply source and the sensor must be < 30 m.

<sup>&</sup>lt;sup>8)</sup> UL: 0 °C ... +50 °C.

 $<sup>^{9)}</sup>$  Complies with the UL325 standard when used with sturdy protection hood (e.g. BEF-G10WSG, 2071960).

Power consumption         ≤ 2.5 VA           Switching output         Relay, SPDT, electrically isolated ²¹           Switching mode         Light/dark switching ²¹           Switching load max. (current/voltage)         0.11 A (250 V DC) 3 A (230 V AC)           Response time         ≤ 10 ms           Switching frequency         20 Hz ²³           Connection type         Cable, 5-wire, 2 m ⁴¹           Cable material         Plastic, PVC           Conductor cross section         0.25 mm²           Circuit protection         0.5 %           Protection class         II 6°           Weight         115 g           Interference emission         EN 61000-63 (2011-09) ¹¹           Housing material         Plastic, ABS/PMMA           Enclosure rating         IP67           Relay switching cycles min.         100.000 cycles (3 A)           Items supplied         DC-13 (according to EN 60947-1)           Usage category         DC-13 (according to EN 60947-1)           Act Is (according to EN 60947-1)         Act Is (according to EN 60947-1)           Ambient operating temperature         -3 ° ° c +60 ° ° °           Ambient temperature, storage         -4 ° ° c +70 ° °           UL File No.         NR	Ripple	< 10 %
Switching mode  Light/dark switching <sup>2)</sup> Response time  \$10 ms  Switching frequency  20 Hz <sup>3)</sup> Connection type  Cable, 5-wire, 2 m <sup>4)</sup> Cable material  Plastic, PVC  Conductor cross section  Circuit protection  Circuit protection  Circuit protection  Light  Light Light  Light  Light  Light Light  Light  Light  Light  Light  Light  Light  Light  Light  Light  Light  Light  Light  Light  Light  Light	Power consumption	≤ 2.5 VA
Switching load max. (current/voltage)         0.11 A (250 V DC) 3 A (30 V DC) 3 A (30 V DC) 3 A (250 V AC)           Response time         ≤ 10 ms           Switching frequency         20 Hz ³)           Connection type         Cable, 5-wire, 2 m ⁴)           Cable material         Plastic, PVC           Conductor cross section         0.25 mm²           Circuit protection         c⁵           Protection class         II ⁵)           Weight         115 g           Interference emission         EN 61000-6-3 (2011-09) ¹)           Housing material         Plastic, ABS/PMMA           Enclosure rating         IP67           Relay switching cycles min.         100.000 cycles (3 A)           Items supplied         Mounting bracket BEF-G10UC01           Usage category         DC-13 (according to EN 60947-1) AC-15 (according to EN 60947-1) AC-15 (according to EN 60947-1) EN 60947-5-2EN 61000-6-3 (2011-09)           Ambient operating temperature         -30 °C +60 °C <sup>8)</sup> Ambient temperature, storage         -40 °C +70 °C           UL File No.         NRKH.E348498 & NRKH7.E348498	Switching output	Relay, SPDT, electrically isolated <sup>2)</sup>
Response time \$10 ms  Switching frequency 20 Hz 3)  Connection type Cable, 5-wire, 2 m 4)  Cable material Plastic, PVC  Conductor cross section 0.25 mm²  Circuit protection class II 6)  Weight 115 g  Interference emission EN 61000-63 (2011-09) 7)  Housing material Plastic, ABS/PMMA  Enclosure rating IP67  Relay switching cycles min. 100.000 cycles (3 A)  Items supplied Mounting bracket BEF-G10UC01  Usage category DC-13 (according to EN 60947-1) AC-15 (according to EN 60947-1)  AC-15 (according to EN 60947-1)  AC-15 (according to EN 60947-1)  AC-15 (according to EN 60947-1)  AC-15 (according to EN 60947-1)  AC-15 (according to EN 60947-1)  AC-15 (according to EN 60947-1)  AC-15 (according to EN 60947-1)  AC-15 (according to EN 60947-1)  AC-15 (according to EN 60947-1)  AC-15 (according to EN 60947-1)  AC-15 (according to EN 60947-1)  AC-15 (according to EN 60947-1)  AC-15 (according to EN 60947-1)  AC-15 (according to EN 60947-1)  Electromagnetic compatibility (EMC)  Ambient deperature, storage -40 °C +60 °C 8)  Ambient temperature, storage -40 °C +70 °C  UL File No. NRKH.E348498 & NRKH7.E348498	Switching mode	Light/dark switching <sup>2)</sup>
Switching frequency  Connection type  Cable, 5-wire, 2 m 4)  Cable material  Plastic, PVC  Conductor cross section  0.25 mm²  Circuit protection  Circuit protection  Protection class  II 6)  Weight  Interference emission  Housing material  Plastic, ABS/PMMA  Enclosure rating  IP67  Relay switching cycles min.  Items supplied  Mounting bracket BEF-G10UC01  Usage category  DC-13 (according to EN 60947-1) AC-15 (according to EN 60947-1) AC-15 (according to EN 60947-1) AC-15 (according to EN 60947-1)  Ambient operating temperature  Ambient temperature, storage  UL File No.  NRKH.E348498 & NRKH7.E348498	Switching load max. (current/voltage)	3 A (30 V DC)
Connection type Cable, 5-wire, 2 m 4) Cable material Plastic, PVC Conductor cross section 0.25 mm² Circuit protection Circuit protection Protection class II 6) Weight 115 g Interference emission EN 61000-6-3 (2011-09) 7) Housing material Plastic, ABS/PMMA Enclosure rating IP67 Relay switching cycles min. Items supplied Mounting bracket BEF-G10UC01 Usage category DC-13 (according to EN 60947-1) AC-15 (according to EN 60947-1) Electromagnetic compatibility (EMC) Ambient operating temperature -30 °C +60 °C 8) Ambient temperature, storage UL File No. NRKH.E348498 & NRKH7.E348498	Response time	≤ 10 ms
Cable material Plastic, PVC Conductor cross section 0.25 mm² Circuit protection Circuit p	Switching frequency	20 Hz <sup>3)</sup>
Conductor cross section  Circuit protection  C 5)  Protection class  II 6)  Weight  Interference emission  EN 61000-6-3 (2011-09) 7)  Housing material  Plastic, ABS/PMMA  Enclosure rating  IP67  Relay switching cycles min.  Items supplied  Mounting bracket BEF-G10UC01  Usage category  C-13 (according to EN 60947-1) AC-15 (according to EN 60947-1) AC-15 (according to EN 60947-1) AC-15 (according to EN 60947-1)  AC-15 (according to EN 60947-1) AC-15 (according to EN 60947-1)  AC-15 (according	Connection type	Cable, 5-wire, 2 m <sup>4)</sup>
Circuit protection class     6    Protection class     6    Weight   115 g    Interference emission   EN 61000-6-3 (2011-09) 7)  Housing material   Plastic, ABS/PMMA    Enclosure rating   IP67    Relay switching cycles min.   100.000 cycles (3 A)    Items supplied   Mounting bracket BEF-G10UC01    Usage category   DC-13 (according to EN 60947-1)   AC-15 (according to EN 60947-1	Cable material	Plastic, PVC
Protection class    II 6	Conductor cross section	0.25 mm <sup>2</sup>
Weight115 gInterference emissionEN 61000-6-3 (2011-09) T)Housing materialPlastic, ABS/PMMAEnclosure ratingIP67Relay switching cycles min.100.000 cycles (3 A)Items suppliedMounting bracket BEF-G10UC01Usage categoryDC-13 (according to EN 60947-1) AC-15 (according to EN 60947-1)Electromagnetic compatibility (EMC)EN 60947-5-2EN 61000-6-3 (2011-09)Ambient operating temperature-30 °C +60 °C 8)Ambient temperature, storage-40 °C +70 °CUL File No.NRKH.E348498 & NRKH7.E348498	Circuit protection	C <sup>5)</sup>
Interference emission  EN 61000-6-3 (2011-09) TO  Housing material  Plastic, ABS/PMMA  IP67  Relay switching cycles min.  I00.000 cycles (3 A)  Items supplied  Mounting bracket BEF-G10UC01  Usage category  DC-13 (according to EN 60947-1) AC-15 (according to EN 60947-1) Electromagnetic compatibility (EMC)  EN 60947-5-2EN 61000-6-3 (2011-09)  Ambient operating temperature  -30 °C +60 °C ®)  Ambient temperature, storage  -40 °C +70 °C  UL File No.  NRKH.E348498 & NRKH7.E348498	Protection class	II <sup>6)</sup>
Housing material Plastic, ABS/PMMA  Enclosure rating Relay switching cycles min. 100.000 cycles (3 A)  Items supplied Mounting bracket BEF-G10UC01  Usage category DC-13 (according to EN 60947-1) AC-15 (according to EN 60947-1) Electromagnetic compatibility (EMC) EN 60947-5-2EN 61000-6-3 (2011-09)  Ambient operating temperature -30 °C +60 °C <sup>8)</sup> Ambient temperature, storage UL File No. NRKH.E348498 & NRKH7.E348498	Weight	115 g
Enclosure ratingIP67Relay switching cycles min.100.000 cycles (3 A)Items suppliedMounting bracket BEF-G10UC01Usage categoryDC-13 (according to EN 60947-1) AC-15 (according to EN 60947-1)Electromagnetic compatibility (EMC)EN 60947-5-2EN 61000-6-3 (2011-09)Ambient operating temperature-30 °C +60 °C 8)Ambient temperature, storage-40 °C +70 °CUL File No.NRKH.E348498 & NRKH7.E348498	Interference emission	EN 61000-6-3 (2011-09) <sup>7)</sup>
Relay switching cycles min.  100.000 cycles (3 A)  Items supplied  Mounting bracket BEF-G10UC01  Usage category  DC-13 (according to EN 60947-1) AC-15 (according to EN 60947-1)  Electromagnetic compatibility (EMC)  EN 60947-5-2EN 61000-6-3 (2011-09)  Ambient operating temperature  -30 ° C +60 ° C <sup>8)</sup> Ambient temperature, storage  UL File No.  NRKH.E348498 & NRKH7.E348498	Housing material	Plastic, ABS/PMMA
Items supplied  Mounting bracket BEF-G10UC01  Usage category  DC-13 (according to EN 60947-1) AC-15 (according to EN 60947-1)  Electromagnetic compatibility (EMC)  EN 60947-5-2EN 61000-6-3 (2011-09)  Ambient operating temperature  -30 °C +60 °C <sup>8)</sup> Ambient temperature, storage  UL File No.  NRKH.E348498 & NRKH7.E348498	Enclosure rating	IP67
Usage category  DC-13 (according to EN 60947-1) AC-15 (according to EN 60947-1)  Electromagnetic compatibility (EMC)  EN 60947-5-2EN 61000-6-3 (2011-09)  Ambient operating temperature  -30 ° C +60 ° C <sup>8)</sup> Ambient temperature, storage  UL File No.  NRKH.E348498 & NRKH7.E348498	Relay switching cycles min.	100.000 cycles (3 A)
AC-15 (according to EN 60947-1)  Electromagnetic compatibility (EMC)  EN 60947-5-2EN 61000-6-3 (2011-09)  Ambient operating temperature  -30 °C +60 °C <sup>8)</sup> Ambient temperature, storage  -40 °C +70 °C  UL File No.  NRKH.E348498 & NRKH7.E348498	Items supplied	Mounting bracket BEF-G10UC01
Ambient operating temperature  -30 °C +60 °C <sup>8)</sup> -40 °C +70 °C  UL File No.  NRKH.E348498 & NRKH7.E348498	Usage category	
Ambient temperature, storage -40 °C +70 °C UL File No. NRKH.E348498 & NRKH7.E348498	Electromagnetic compatibility (EMC)	EN 60947-5-2EN 61000-6-3 (2011-09)
UL File No. NRKH.E348498 & NRKH7.E348498	Ambient operating temperature	-30 °C +60 °C <sup>8)</sup>
	Ambient temperature, storage	-40 °C +70 °C
More standards UL325 <sup>9)</sup>	UL File No.	NRKH.E348498 & NRKH7.E348498
	More standards	UL325 9)

<sup>1) +- 10 %</sup> 

## 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

 $<sup>^{2)}\,\</sup>mbox{Provide}$  suitable spark suppression for inductive or capacitive loads.

 $<sup>^{3)}</sup>$  With light/dark ratio 1:1.

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 $<sup>^{5)}</sup>$  C = interference suppression.

 $<sup>^{6)}</sup>$  Reference voltage: 250 V AC.

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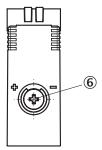
# PHOTOELECTRIC SENSORS

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

#### Certificates

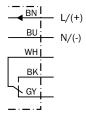
EU declaration of conformity	<b>√</b>
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China-RoHS	✓
CCC certificate	✓
cULus certificate	✓
Photobiological safety (DIN EN 62471) certificate	<b>✓</b>

# Adjustments



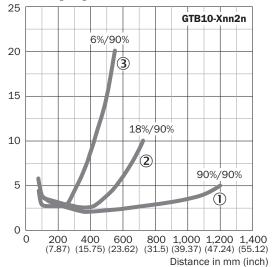
**6** Adjustment of sensing range

# Connection diagram Cd-163



#### scanning range

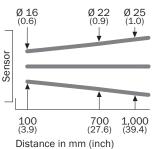




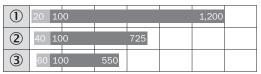
- ① Sensing range on white, 90% remission factor
- ② Sensing range on gray, 18% remission factor
- 3 Sensing range on black, 6% remission factor

#### Light spot size

Diameter in mm (inch)



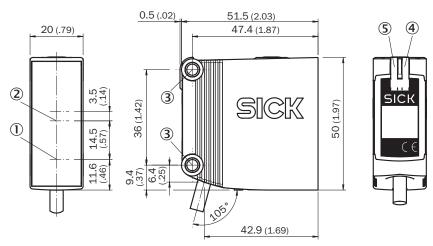
#### scanning range



0 200 400 600 800 1,000 1,200 1,400 (7.87) (15.75) (23.62) (31.5) (39.37) (47.24) (55.12) Distance in mm (inch)

- Sensing range Sensing range max.
- ① Sensing range on white, 90% remission factor
- 2 Sensing range on gray, 18% remission factor
- 3 Sensing range on black, 6% remission factor

#### Dimensional drawing GTB10, AC/DC, cable



Dimensions in mm (inch)

- ① Center of optical axis, sender
- 2 Center of optical axis, receiver
- 3 Mounting hole, Ø 4.2 mm
- 4 LED indicator yellow: Status of received light beam
- ⑤ LED indicator green: power on

#### Recommended accessories

Other models and accessories → www.sick.com/G10

	Brief description	Туре	part no.	
Mounting sys	Mounting systems			
	<ul> <li>Description: Q-Lock, bar clamp system for G10 and reflector P250</li> <li>Material: Zinc diecast, steel</li> <li>Details: Die-cast zinc, steel, zinc coated</li> <li>Suitable for: G10 and reflector P250</li> </ul>	BEF-KHSQ12R01	2071260	
connectors and cables				
	Connection type head A: Male connector, M12, 5-pin, straight, A-coded Description: Unshielded Connection systems: Screw-type terminals Permitted cross-section: ≤ 0.75 mm² Note: For field bus technology	STE-1205-G	6022083	

# 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

