



# G10

POWERFUL DETECTION, SMART INSTALLATION –  
DOWN TO THE LAST DETAIL

Small photoelectric sensors

**SICK**  
Sensor Intelligence.

# IMPRESSIVE PERFORMANCE: G10 – MORE FOR LESS

Sensors are often used together. This is especially true for applications in the logistics and machine building industries. Consequently, time-saving mounting solutions are becoming more and more important. The G10 photoelectric sensor and the Q-Lock mounting system combine quick installation with a rugged design, maintenance-free operation and reliable object detection. All this at a reasonable cost. G10 - more for less.

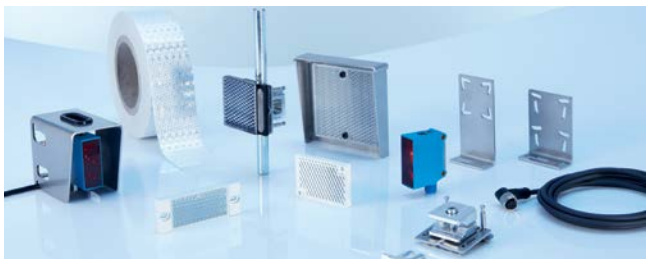


## Impressively quick:

- Innovative Q-Lock system for remarkably quick sensor installation – drastically reducing machine installation time
- Extremely powerful transmitter LED with PinPoint technology for easy, precise alignment - even on very dark objects and at long distances
- Bright indicator LEDs for quick status monitoring

## Impressively powerful:

- Highly reliable and durable despite optical interference or mechanical loads
- Reliable detection of depolarizing objects
- Precise background suppression even for long sensing distances
- Rugged unibody plastic housing - with metal sleeves for secure mounting
- Immune to dirt, humidity and extreme temperatures from -30 and +60 °C
- Low-maintenance optics, rugged electronics and mechanical parts



### Impressively versatile:

- A complete photoelectric sensor product family, including photoelectric proximity sensors, photoelectric retro-reflective sensors and through-beam photoelectric sensors
- Large range of cables, reflectors and mounting accessories
- Available in two voltage versions: 10 to 30 V DC with PNP/NPN transistor output and 24 to 240 V AC/DC with relay output



### Impressively cost-effective:

- Excellent price/performance ratio
- Mounting and alignment in seconds with the Q-Lock system
- Especially attractive for large-scale applications

# Q-LOCK: THE QUICKEST MOUNTING FOR LOGISTICS AUTOMATION – BAR NONE



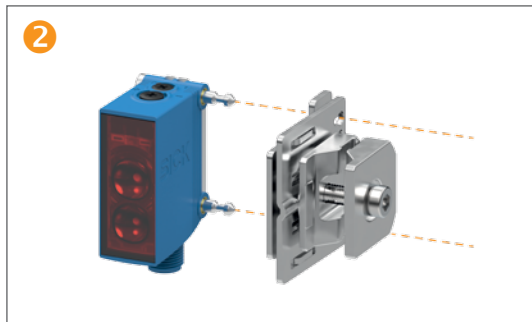
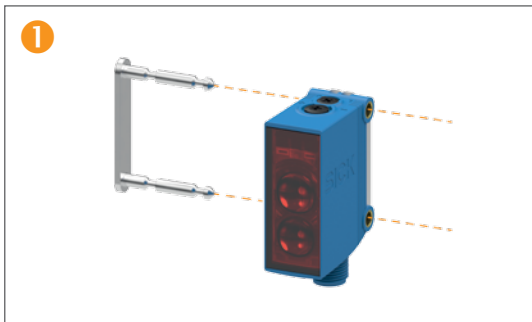
G10 delivers on its promises. Lightning fast. Like many innovative solutions from SICK, the Q-Lock mounting system is tailored to the demands of our customers: providing greater flexibility and saving time in sensor rod mounting installation – for example, in roller conveyor applications.

## Tailor-made for logistics applications

• GL10-P4551	1064702	Photoelectric retro-reflective sensor for foil-wrapped objects	see page 26
• GL10-N1551	1065892	Photoelectric retro-reflective sensor for foil-wrapped objects	see page 26
• GL10-P4554	1065893	Photoelectric retro-reflective sensor for foil-wrapped objects incl. Q-Lock mounting system	see page 26
• GTB10-P4411S01	1066852	Photoelectric proximity sensor for foil-wrapped objects	see page 9
• GTB10-N1411S02	1066853	Photoelectric proximity sensor for foil-wrapped objects	see page 9
• BEF-KHSQ12R01	2071260	incl. Q-Lock mounting system	see page 44
• P250	5304812	Reflector	see page 46




More information from  
[www.sick.com/G10](http://www.sick.com/G10)




The Q-Lock mounting system from SICK consists of two pre-assembled modules: pin plate and clamp bracket. The sensor is easily attached to the pin place ①. Then the clamp bracket is placed over the ends of the pins ② and locked in place ③. Subsequently, the entire unit is mounted from the side of the 12-mm round rod by means of a snap fastener. It can be aligned in any direction, either in the horizontal plane, the vertical plane or in a 360° orientation. Just tighten the screw and you're done! ④

# POWERFUL DETECTION, SMART INSTALLATION - DOWN TO THE LAST DETAIL



The diagram at the top left shows a sensor emitting a light beam towards a target, with a return arrow indicating detection. Below it are two blue GTB10 sensors, one shown from the front and one from the side, highlighting their compact, rectangular design.



CCC  
CE c UL US  
PinPoint by SICK

**Additional information**

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## Product description

GTB10 photoelectric proximity sensors with background suppression sensors are characterized by their ability to combine long sensing ranges of up to 1,200 mm with reliable background suppression. They support different optics (PinPoint red light or infrared light), power supplies (DC or AC/DC), and switching outputs (PNP/NPN or relay). Combined with an extensive range of accessories, these sensors are able

to support a wide variety of applications. The patented Q-Lock assembly system for the G10 product family reduces the time required to install and align the sensor to just a few seconds, making this the ideal product for logistics applications. Summary: the GTB10 provides quick and flexible sensor installation, ensures error-free operation, and keeps costs under control.

## At a glance

- Long sensing ranges: up to 1,200 mm with background suppression
- PinPoint LED with bright and precise light spot
- Immunity to ambient light
- 10 V DC ... 30 V DC or 24 V AC/DC ... 240 V AC/DC power supply with PNP/NPN or relay output
- Small housing design
- Rugged sensor housing with metal-reinforced holes for assembly
- Q-Lock assembly system for mounting and aligning the sensor within a few seconds

## Your benefits

- Long sensing ranges for maximum operating reserves
- Powerful background suppression ensures precise detection, regardless of reflective surfaces and objects
- Efficient installation: the GTB10 and the Q-Lock assembly system save valuable hours when mounting and commissioning multiple sensors
- Universal DC or AC/DC power supply for even greater application flexibility
- Highly reliable and durable despite optical interference and mechanical loads
- Wide range of accessories simplifies sensor integration: aids for assembly and connectors

→ [www.mysick.com/en/GTB10](http://www.mysick.com/en/GTB10)

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.





## Detailed technical data

## Features

	DC	AC/DC
<b>Sensor principle</b>	Photoelectric proximity sensor	
<b>Detection principle</b>	Background suppression	
<b>Dimensions (W x H x D)</b>	20 mm x 50 mm x 39 mm	20 mm x 50 mm x 51.5 mm
<b>Housing design (light emission)</b>	Rectangular	
<b>Sensing range max.</b>		
Visible red light	20 mm ... 950 mm <sup>1)</sup>	
Infrared light	20 mm ... 1,200 mm <sup>1)</sup>	
<b>Type of light</b>	Visible red light	Visible red light / Infrared light (depending on type)
<b>Light source</b>	PinPoint LED <sup>2)</sup>	PinPoint LED <sup>2)</sup> LED <sup>2)</sup> (depending on type)
<b>Light spot size (distance)</b>		
Visible red light	Ø 8 mm (700 mm)	
Infrared light	Ø 22 mm (700 mm)	
<b>Wave length</b>		
Visible red light	625 nm	
Infrared light	850 nm	
<b>Adjustment</b>	Potentiometer, 5 turns	

<sup>1)</sup> Object with 90 % reflectance (referred to standard white, DIN 5033)

<sup>2)</sup> Average service life of 100,000 h at T<sub>A</sub> = +25 °C.

## Mechanics/electronics

	DC	AC/DC
<b>Supply voltage</b>	10 V DC ... 30 V DC <sup>1)</sup>	24 V AC/DC ... 240 V AC/DC <sup>2)</sup>
<b>Ripple <sup>3)</sup></b>	± 5 V <sub>SS</sub>	
<b>Power consumption</b>	≤ 20 mA <sup>4)</sup>	≤ 2,5 VA
<b>Output type</b>	PNP NPN, open collector (depending on type)	Relay, SPDT, electrically isolated <sup>5)</sup>
<b>Switching mode</b>	Light/dark-switching / Light switching (depending on type)	–
<b>Switching mode selector</b>	Selectable via light/dark selector	–
<b>Output current I<sub>max</sub></b>	≤ 100 mA	–
<b>Switching current max. (switching voltage)</b>	–	0.11 A (250 V DC) 3 A (30 V DC) 3 A (250 V AC)
<b>Switching frequency max. <sup>7)</sup>(Response time)</b>	1,000 Hz (≤ 500 µs <sup>6)</sup> ) 500 Hz (≤ 1 ms <sup>6)</sup> ) (depending on type)	20 Hz (≤ 10 ms)
<b>Connection type</b>	Connector, M12 Cable, 2 m <sup>8)</sup> (depending on type)	Cable, 2 m <sup>8)</sup>
<b>Circuit protection</b>	A <sup>9)</sup> B <sup>10)</sup> C <sup>11)</sup> D <sup>12)</sup>	C <sup>11)</sup>
<b>Protection class</b>	III	II <sup>13)</sup>

	DC	AC/DC
<b>Weight</b>	Connector M12, 4-pin	Ca. 35 g
	Cable, 3-wire	Ca. 90 g
	Cable, 5-wire	–
<b>Interference emission</b>	–	EN 61000-6-3 (2011-09) <sup>14)</sup>
<b>Housing material</b>	PVC / PMMA	
<b>Enclosure rating</b>	IP 67	
<b>Relay switching cycles min.</b>	–	100.000 cycles (3 A)
<b>Items supplied</b>	Mounting bracket BEF-G10DC01 (depending on type)	Mounting bracket BEF-G10UC01 (depending on type)
<b>Usage category</b>	–	AC-15, DC-13, according to EN 60947-1
<b>EMC</b>	EN 60947-5-2	
<b>UL File No.</b>	E348498	
<b>Ambient operating temperature</b>	–30 °C ... +60 °C	
<b>Ambient storage temperature</b>	–40 °C ... +70 °C	

<sup>1)</sup> Limit values: operation in short-circuit protected network max. 8 A.

<sup>2)</sup> +- 10 %.

<sup>3)</sup> May not exceed or fall short of  $V_S$  tolerances.

<sup>4)</sup> Without load.

<sup>5)</sup> Provide suitable spark suppression for inductive or capacitive loads.

<sup>6)</sup> Signal transit time with resistive load.

<sup>7)</sup> With light/dark ratio 1:1.

<sup>8)</sup> Do not bend below 0 °C.

<sup>9)</sup> A =  $V_S$  connections reverse-polarity protected.

<sup>10)</sup> B = inputs and output reverse-polarity protected.

<sup>11)</sup> C = interference suppression.

<sup>12)</sup> D = outputs overcurrent and short-circuit protected.

<sup>13)</sup> Reference voltage: 250 V AC.

<sup>14)</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.



## Ordering information

Other models available at [www.mysick.com/en/GTB10](http://www.mysick.com/en/GTB10)

### GTB10, DC

- **Sensor principle:** Photoelectric proximity sensor
- **Detection principle:** Background suppression
- **Supply voltage:** 10 V DC ... 30 V DC
- **Switching frequency max.:** 1,000 Hz
- **Light spot size (distance):** Ø 8 mm (700 mm)
- **Type of light:** visible red light
- **Switching mode:** Light/dark-switching
- **Adjustment:** potentiometer, 5 turns

Sensing range max. <sup>1)</sup>	Output type	Connection	Connection diagram	Items supplied	Model name	Part no.
20 mm ... 950 mm	PNP	Cable, 3-wire, 2 m, PVC	Cd-044	-	GTB10-P1211	1065854
				Mounting bracket BEF-G10DC01	GTB10-P1212	1065856
		Connector M12, 4-pin	Cd-066	-	GTB10-P4211	1064694
				Mounting bracket BEF-G10DC01	GTB10-P4212	1065857
	NPN	Cable, 3-wire, 2 m, PVC	Cd-044	-	GTB10-N1211	1065858
				Mounting bracket BEF-G10DC01	GTB10-N1212	1065859
		Connector M12, 4-pin	Cd-066	-	GTB10-N4211	1065860
				Mounting bracket BEF-G10DC01	GTB10-N4212	1065861

<sup>1)</sup> Object with 90 % reflectance (referred to standard white, DIN 5033)

### GTB10, DC, optimized for logistics applications

- **Sensor principle:** Photoelectric proximity sensor
- **Detection principle:** Background suppression
- **Supply voltage:** 10 V DC ... 30 V DC
- **Switching frequency max.:** 500 Hz
- **Light spot size (distance):** Ø 8 mm (700 mm)
- **Type of light:** visible red light
- **Switching mode:** Light switching
- **Adjustment:** potentiometer, 5 turns

Sensing range max. <sup>1)</sup>	Output type	Connection	Connection diagram	Items supplied	Model name	Part no.
20 mm ... 950 mm	PNP	Connector M12, 4-pin	Cd-066	-	GTB10-P4411S01	1066852
	NPN	Cable, 3-wire, 2 m, PVC	Cd-044	-	GTB10-N1411S02	1066853

<sup>1)</sup> Object with 90 % reflectance (referred to standard white, DIN 5033)

GTB10, AC/DC

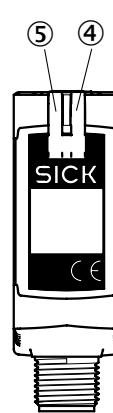
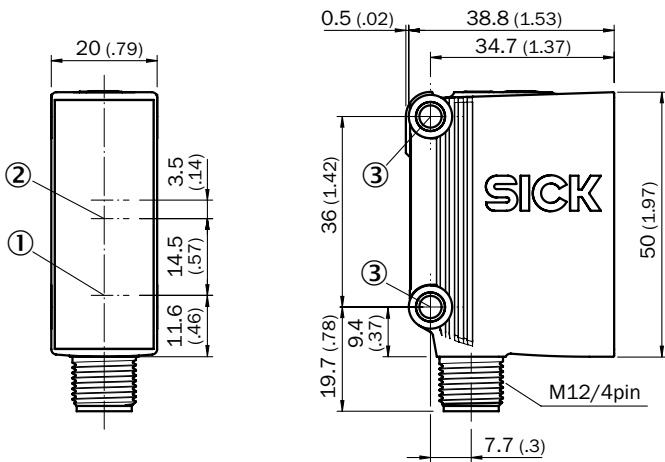
- **Sensor principle:** Photoelectric proximity sensor
- **Detection principle:** Background suppression
- **Supply voltage:** 24 V AC/DC ... 240 V AC/DC
- **Switching frequency max.:** 20 Hz
- **Output type:** relay
- **Adjustment:** potentiometer, 5 turns
- **Connection:** Cable, 5-wire, 2 m, PVC

Sensing range max. <sup>1)</sup>	Light spot size (distance)	Type of light	Connection diagram	Items supplied	Model name	Part no.
20 mm ... 950 mm	Ø 8 mm (700 mm)	Visible red light	Cd-163	-	GTB10-R3811	1064686
				Mounting bracket BEF-G10UC01	GTB10-R3812	1065862
20 mm ... 1,200 mm	Ø 22 mm (700 mm)	Infrared light	Cd-163	-	GTB10-R3821	1065863
				Mounting bracket BEF-G10UC01	GTB10-R3822	1065864

<sup>1)</sup> Object with 90 % reflectance (referred to standard white, DIN 5033)

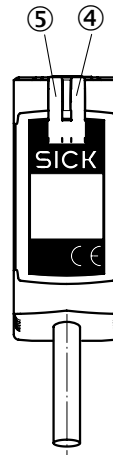
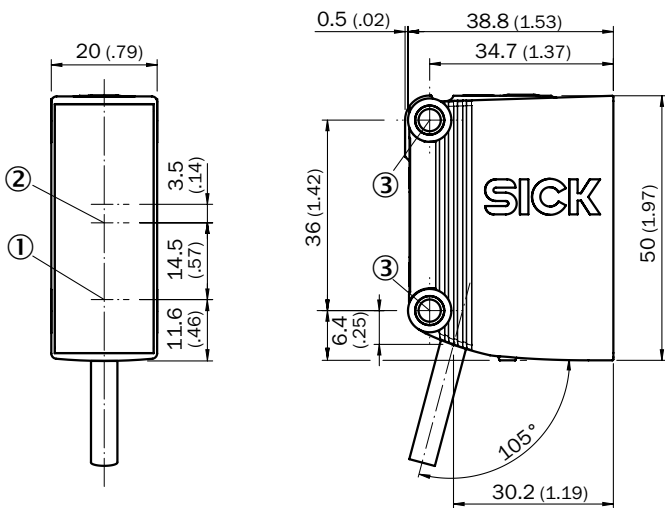
**Dimensional drawings** (Dimensions in mm (inch))

**GTB10, DC, connector**



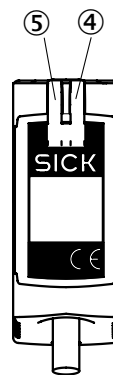
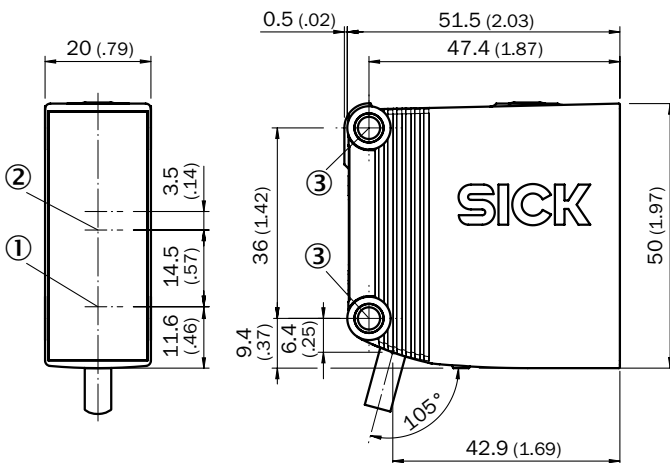
- ① Center of optical axis, sender
- ② Center of optical axis, receiver
- ③ Mounting hole  $\varnothing$  4,2 mm
- ④ LED indicator yellow: Light received
- ⑤ LED signal strength indicator green:power on

**GTB10, DC, cable**



- ① Center of optical axis, sender
- ② Center of optical axis, receiver
- ③ Mounting hole  $\varnothing$  4,2 mm
- ④ LED indicator yellow: Light received
- ⑤ LED signal strength indicator green:power on

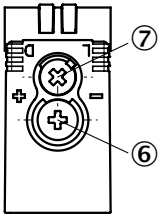
**GTB10, AC/DC, cable**



- ① Center of optical axis, sender
- ② Center of optical axis, receiver
- ③ Mounting hole  $\varnothing$  4,2 mm
- ④ LED indicator yellow: Light received
- ⑤ LED signal strength indicator green:power on

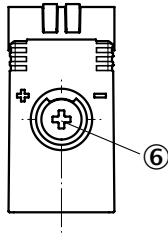
Adjustments

GTB10, DC



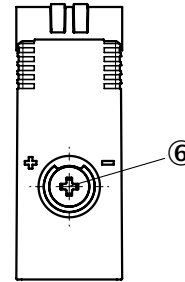
- ⑥ Sensing range adjustment
- ⑦ Light/dark selector

GTB10, logistics, DC



- ⑥ Sensing range adjustment

GTB10, AC/DC

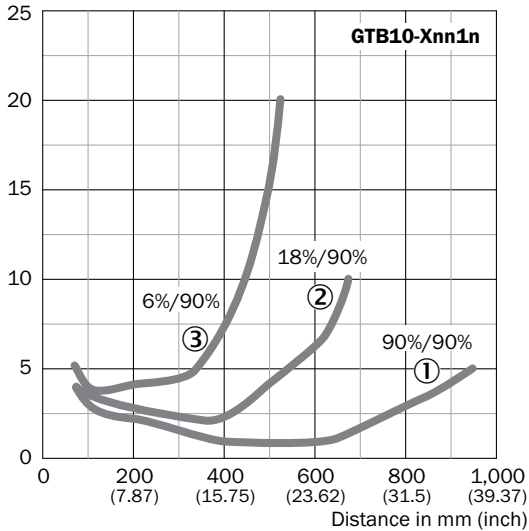


- ⑥ Sensing range adjustment

Sensing range

GTB10, redlight

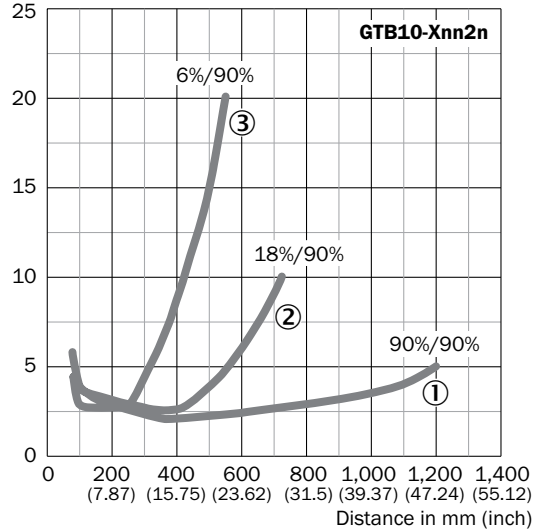
% of sensing range



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

GTB10, infrared light

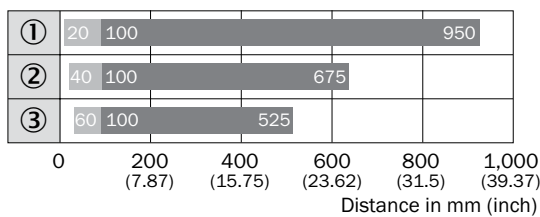
% of sensing range



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

Bar diagrams

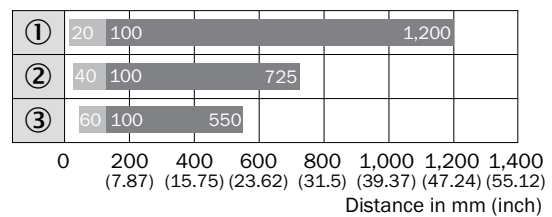
GTB10, redlight



■ Sensing range      ■ Sensing range max.

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

GTB10, infrared light

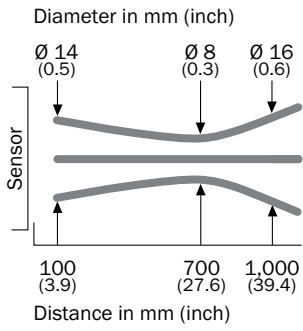


■ Sensing range      ■ Sensing range max.

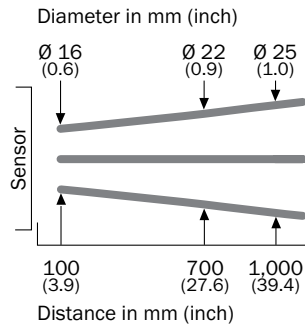
- ① Sensing range on white, 90 % remission
- ② Sensing range on grey, 18 % remission
- ③ Sensing range on black, 6 % remission

### Light spot diameter

GTB10, redlight

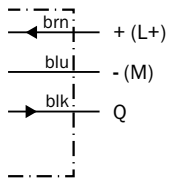


GTB10, infrared light

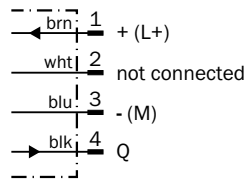


### Connection diagram

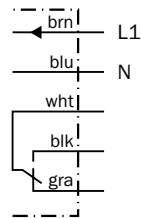
Cd-044




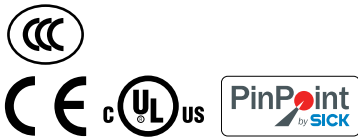
Cd-066



Cd-163



# POWERFUL DETECTION, SMART INSTALLATION - DOWN TO THE LAST DETAIL

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## Product description

GTE10 energetic photoelectric sensors are characterized by their long sensing ranges of up to 2,000 mm and their small housing. They support different optics (PinPoint red light or infrared light), power supplies (DC or AC/DC), and switching outputs (PNP/NPN or relay). Combined with an extensive range of accessories, these sensors are able to

support a wide variety of applications. The patented Q-Lock assembly system for the G10 product family reduces the time required to install and align the sensor to just a few seconds. Summary: the GTE10 provides quick and flexible sensor installation, ensures error-free operation, and keeps costs under control.

## At a glance

- Long sensing ranges: up to 2,000 mm
- PinPoint LED with bright and precise light spot
- Immunity to ambient light
- 10 V DC ... 30 V DC or 24 V AC/DC ... 240 V AC/DC power supply with PNP/ NPN or relay output
- Small housing design
- Rugged sensor housing with metal-reinforced holes for assembly
- Q-Lock assembly system for mounting and aligning the sensor within a few seconds

## Your benefits

- Long sensing ranges for maximum operating reserves
- Efficient installation: the GTE10 and the Q-Lock assembly system save valuable hours when mounting and commissioning multiple sensors
- Universal DC or AC/DC power supply for even greater application flexibility
- Highly reliable and durable despite optical interference or mechanical loads
- Wide range of accessories simplifies sensor integration: aids for assembly and connectors

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For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



## Detailed technical data

## Features

	DC	AC/DC
<b>Sensor principle</b>	Photoelectric proximity sensor	
<b>Detection principle</b>	Energetic	
<b>Dimensions (W x H x D)</b>	20 mm x 50 mm x 39 mm	20 mm x 50 mm x 51.5 mm
<b>Housing design (light emission)</b>	Rectangular	
<b>Sensing range max.</b>		
Visible red light	20 mm ... 1,300 mm <sup>1)</sup>	
Infrared light	20 mm ... 2,000 mm <sup>1)</sup>	
<b>Sensing range</b>		
Visible red light	40 mm ... 950 mm <sup>1)</sup>	
Infrared light	40 mm ... 1,400 mm <sup>1)</sup>	
<b>Type of light</b>	Visible red light	Visible red light / Infrared light (depending on type)
<b>Light source</b>	PinPoint LED <sup>2)</sup>	PinPoint LED <sup>2)</sup> LED <sup>2)</sup> (depending on type)
<b>Light spot size (distance)</b>		
Visible red light	Ø 28 mm (1,400 mm)	
Infrared light	Ø 57 mm (1,500 mm)	
<b>Wave length</b>		
Visible red light	625 nm	
Infrared light	850 nm	
<b>Adjustment</b>	Potentiometer, 270 °	

<sup>1)</sup> Object with 90 % reflectance (referred to standard white, DIN 5033)

<sup>2)</sup> Average service life of 100,000 h at T<sub>A</sub> = +25 °C.

## Mechanics/electronics

	DC	AC/DC
<b>Supply voltage</b>	10 V DC ... 30 V DC <sup>4)</sup>	24 V AC/DC ... 240 V AC/DC <sup>2)</sup>
<b>Ripple <sup>3)</sup></b>	± 5 V <sub>SS</sub>	
<b>Power consumption</b>	≤ 20 mA <sup>4)</sup>	≤ 2,5 VA
<b>Output type</b>	PNP NPN, open collector (depending on type)	Relay, SPDT, electrically isolated <sup>5)</sup>
<b>Switching mode</b>	Light/dark-switching	–
<b>Switching mode selector</b>	Selectable via light/dark selector	–
<b>Output current I<sub>max.</sub></b>	≤ 100 mA	–
<b>Switching current max. (switching voltage)</b>	–	0.11 A (250 V DC) 3 A (30 V DC) 3 A (250 V AC)
<b>Switching frequency max. <sup>7)</sup>(Response time)</b>	1,000 Hz (≤ 500 µs <sup>6)</sup> )	20 Hz (≤ 10 ms)
<b>Connection type</b>	Connector, M12 Cable, 2 m <sup>8)</sup> (depending on type)	Cable, 2 m <sup>8)</sup>



	DC	AC/DC
<b>Circuit protection</b>	A <sup>9)</sup> B <sup>10)</sup> C <sup>11)</sup> D <sup>12)</sup>	C <sup>11)</sup>
<b>Protection class</b>	III	II <sup>13)</sup>
<b>Weight</b>		
Connector M12, 4-pin	Ca. 35 g	-
Cable, 3-wire	Ca. 90 g	-
Cable, 5-wire	-	Ca. 115 g
<b>Interference emission</b>	-	EN 61000-6-3 (2011-09) <sup>14)</sup>
<b>Housing material</b>	PVC / PMMA	
<b>Enclosure rating</b>	IP 67	
<b>Relay switching cycles min.</b>	-	100.000 cycles (3 A)
<b>Items supplied</b>	Mounting bracket BEF-G10DC01 (depending on type)	Mounting bracket BEF-G10UC01 (depending on type)
<b>Usage category</b>	-	AC-15, DC-13, according to EN 60947-1
<b>EMC</b>	EN 60947-5-2	
<b>UL File No.</b>	E348498	
<b>Ambient operating temperature</b>	-30 °C ... +60 °C	
<b>Ambient storage temperature</b>	-40 °C ... +70 °C	

<sup>1)</sup> Limit values: operation in short-circuit protected network max. 8 A.

<sup>2)</sup> +- 10 %.

<sup>3)</sup> May not exceed or fall short of  $V_s$  tolerances.

<sup>4)</sup> Without load.

<sup>5)</sup> Provide suitable spark suppression for inductive or capacitive loads.

<sup>6)</sup> Signal transit time with resistive load.

<sup>7)</sup> With light/dark ratio 1:1.

<sup>8)</sup> Do not bend below 0 °C.

<sup>9)</sup> A =  $V_s$  connections reverse-polarity protected.

<sup>10)</sup> B = inputs and output reverse-polarity protected.

<sup>11)</sup> C = interference suppression.

<sup>12)</sup> D = outputs overcurrent and short-circuit protected.

<sup>13)</sup> Reference voltage: 250 V AC.

<sup>14)</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.

## Ordering information

Other models available at [www.mysick.com/en/GTE10](http://www.mysick.com/en/GTE10)

### GTE10, DC

- **Sensor principle:** Photoelectric proximity sensor
- **Detection principle:** energetic
- **Supply voltage:** 10 V DC ... 30 V DC
- **Switching frequency max.:** 1,000 Hz
- **Light spot size (distance):** Ø 28 mm (1,400 mm)
- **Type of light:** visible red light
- **Switching mode:** Light/dark-switching
- **Adjustment:** potentiometer, 270 °

Sensing range max. <sup>1)</sup>	Output type	Connection	Connection diagram	Items supplied	Model name	Part no.
20 mm ... 1,300 mm	PNP	Cable, 3-wire, 2 m, PVC	Cd-044	-	GTE10-P1211	1065865
				Mounting bracket BEF-G10DC01	GTE10-P1212	1065866
	NPN	Connector M12, 4-pin	Cd-066	-	GTE10-P4211	1064697
				Mounting bracket BEF-G10DC01	GTE10-P4212	1065867
	Cable, 3-wire, 2 m, PVC	Cd-044	-	GTE10-N1211	1065868	
			Mounting bracket BEF-G10DC01	GTE10-N1212	1065869	
Connector M12, 4-pin	Cd-066	-	GTE10-N4211	1065871		
		Mounting bracket BEF-G10DC01	GTE10-N4212	1065872		

<sup>1)</sup> Object with 90 % reflectance (referred to standard white, DIN 5033)

### GTE10, AC/DC

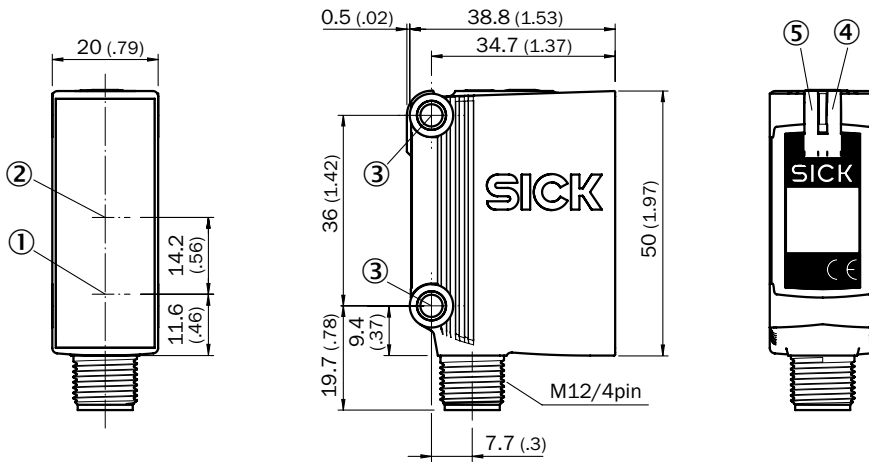
- **Sensor principle:** Photoelectric proximity sensor
- **Detection principle:** energetic
- **Supply voltage:** 24 V AC/DC ... 240 V AC/DC
- **Switching frequency max.:** 20 Hz
- **Output type:** relay
- **Adjustment:** potentiometer, 270 °
- **Connection:** Cable, 5-wire, 2 m, PVC

Sensing range max. <sup>1)</sup>	Light spot size (distance)	Type of light	Connection diagram	Items supplied	Model name	Part no.
20 mm ... 1,300 mm	Ø 28 mm (1,400 mm)	Visible red light	Cd-163	-	GTE10-R3811	1064688
				Mounting bracket BEF-G10UC01	GTE10-R3812	1065873
20 mm ... 2,000 mm	Ø 57 mm (1,500 mm)	Infrared light	Cd-163	-	GTE10-R3821	1065874
				Mounting bracket BEF-G10UC01	GTE10-R3822	1065875

<sup>1)</sup> Object with 90 % reflectance (referred to standard white, DIN 5033)

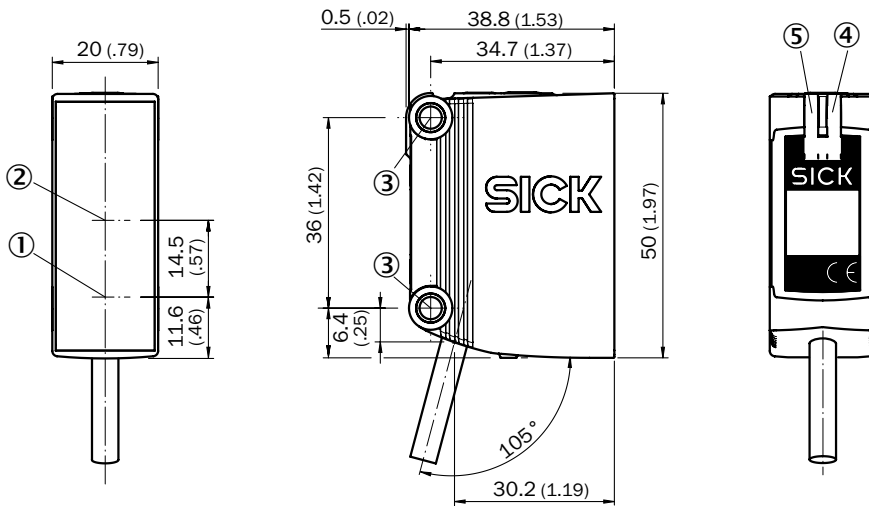
Dimensional drawings (Dimensions in mm (inch))

GTE10, DC, connector



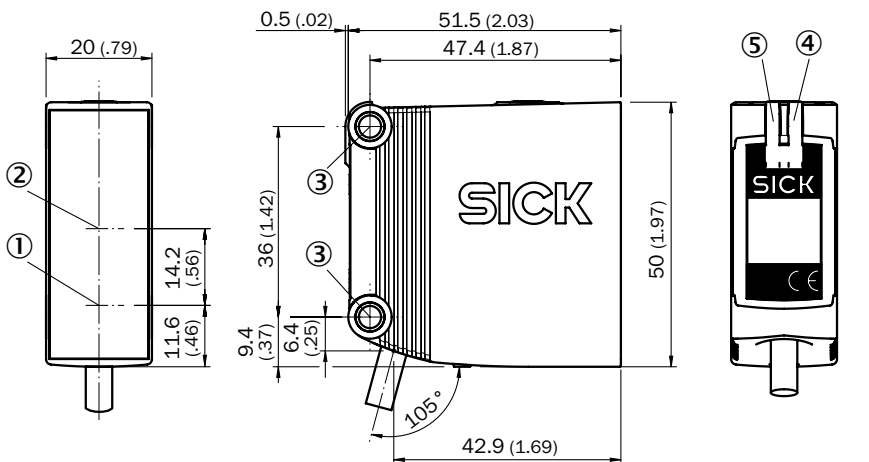
- ① Center of optical axis, sender
- ② Center of optical axis, receiver
- ③ Mounting hole  $\varnothing$  4,2 mm
- ④ LED indicator yellow: Light received
- ⑤ LED signal strength indicator green:power on

GTE10, DC, cable



- ① Center of optical axis, sender
- ② Center of optical axis, receiver
- ③ Mounting hole  $\varnothing$  4,2 mm
- ④ LED indicator yellow: Light received
- ⑤ LED signal strength indicator green:power on

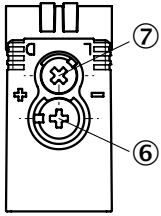
GTE10, AC/DC, cable



- ① Center of optical axis, sender
- ② Center of optical axis, receiver
- ③ Mounting hole  $\varnothing$  4,2 mm
- ④ LED indicator yellow: Light received
- ⑤ LED signal strength indicator green:power on

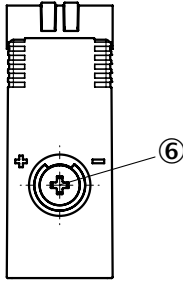
### Adjustments

GTE10, DC



- ⑥ Sensing range adjustment
- ⑦ Light/dark selector

GTE10, AC/DC

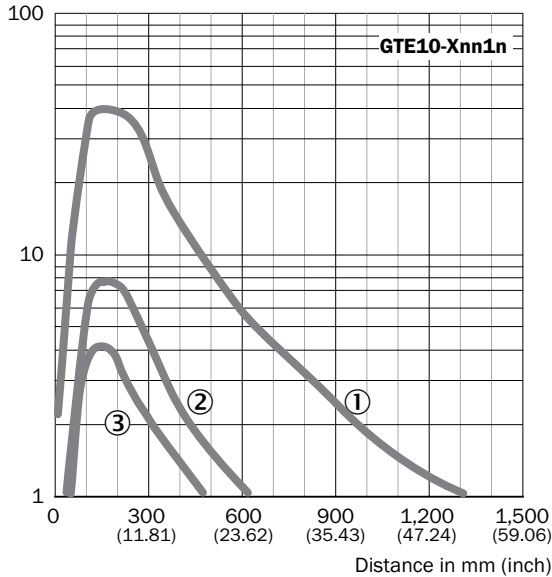


- ⑥ Sensing range adjustment

### Sensing range

GTE10, red light

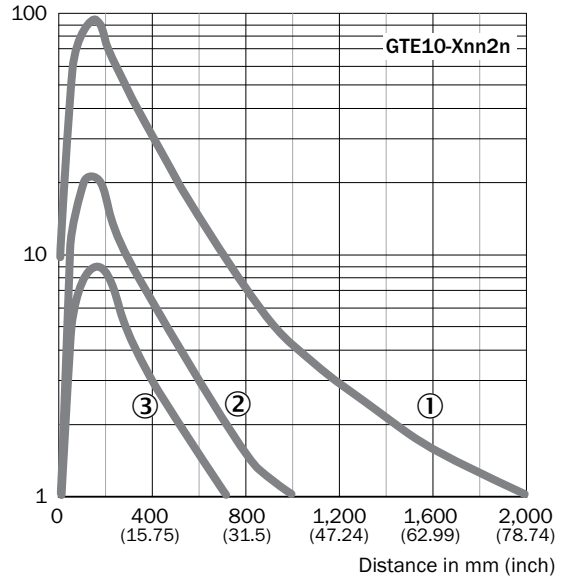
Operating reserve



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

GTE10, infrared light

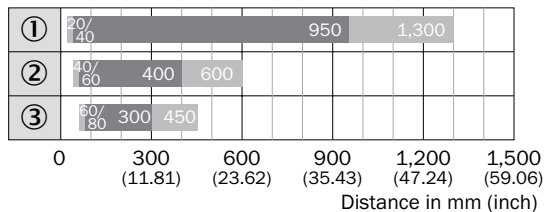
Operating reserve



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

### Bar diagrams

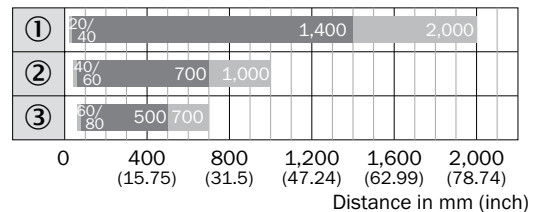
GTE10, red light



- Sensing range
- Sensing range max.

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

GTE10, infrared light

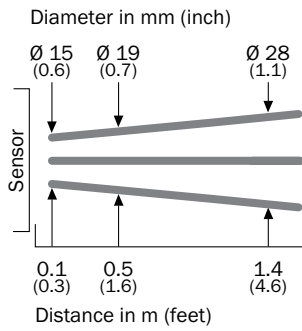


- Sensing range
- Sensing range max.

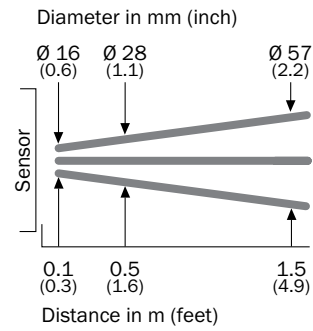
- ① Sensing range on white, 90 % remission
- ② Sensing range on grey, 18 % remission
- ③ Sensing range on black, 6 % remission

Light spot diameter

GTE10, red light

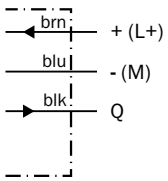


GTE10, infrared light

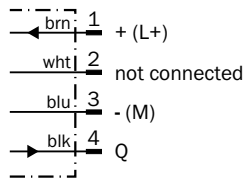


Connection diagram

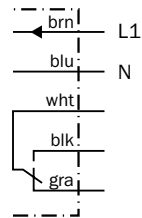
Cd-044



Cd-066

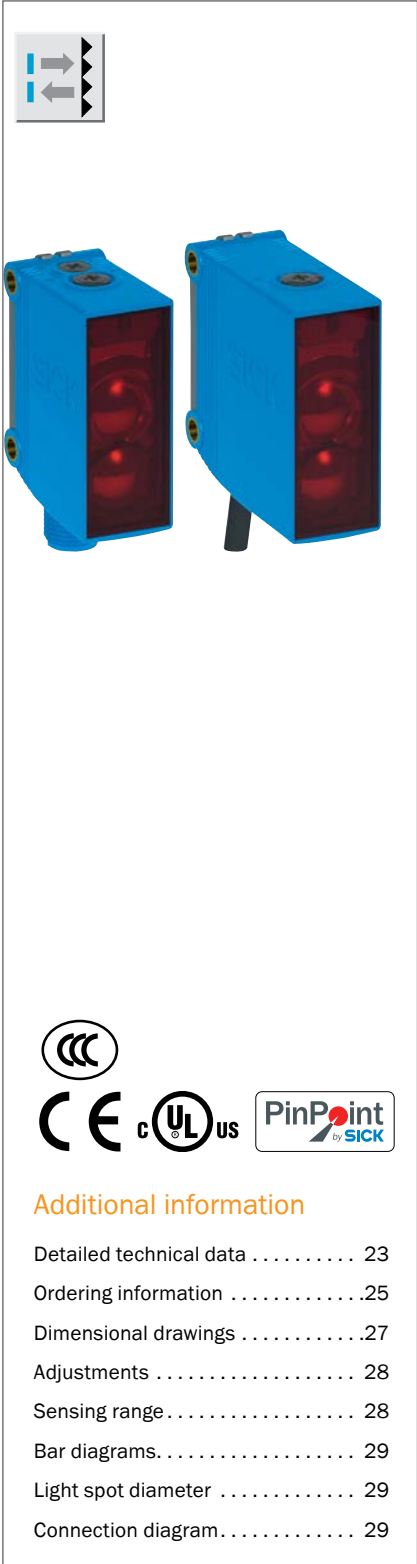


Cd-163





# POWERFUL DETECTION, SMART INSTALLATION - DOWN TO THE LAST DETAIL



## Product description

GL10 photoelectric retro-reflective sensors are characterized by their long sensing ranges of up to 15 m on the PL80A reflector and their small housing. They support different operation options (with or without sensor setting), power supplies (DC or AC/DC), and switching outputs (PNP/NPN or relay). Combined with an extensive range of accessories, these sensors are able to support a wide variety of applications. The pat-

ented Q-Lock assembly system for the G10 product family reduces the time required to install and align the sensor to just a few seconds, making this the ideal product for logistics applications. Summary: the GL10 provides quick and flexible sensor installation, ensures error-free operation, and keeps costs under control.

## At a glance

- Long sensing ranges: up to 15 m on PL80A reflector
- PinPoint LED with bright and precise light spot
- Immunity to ambient light
- 10 V DC ... 30 V DC or 24 V AC/DC ... 240 V AC/DC power supply with PNP/NPN or relay output
- With or without sensitivity adjustment
- Small housing design
- Rugged sensor housing with metal-reinforced holes for assembly
- Q-Lock assembly system for mounting and aligning the sensor within a few seconds

## Your benefits

- Long sensing ranges for maximum operating reserves
- Efficient installation: the GL10 and the Q-Lock assembly system save valuable hours when mounting and commissioning multiple sensors
- Universal DC or AC/DC power supply for even greater application flexibility
- Highly reliable and durable despite optical interference or mechanical loads
- Wide range of accessories simplifies sensor integration: aids for assembly, connecting cables, and reflectors

→ [www.mysick.com/en/GL10](http://www.mysick.com/en/GL10)

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.





## Detailed technical data

## Features

	DC	AC/DC
<b>Sensor principle</b>	Photoelectric retro-reflective sensor	
<b>Detection principle</b>	Standard optics	
<b>Dimensions (W x H x D)</b>	20 mm x 50 mm x 39 mm	20 mm x 50 mm x 51.5 mm
<b>Housing design (light emission)</b>	Rectangular	
<b>Sensing range max.</b>	0.08 m ... 15 m <sup>1)</sup> 0,15 m ... 12 m <sup>1)</sup> 0.08 m ... 12 m <sup>2)</sup> 0,15 m ... 10 m <sup>2)</sup> (depending on type)	0.08 m ... 15 m <sup>1)</sup> 0.08 m ... 12 m <sup>2)</sup>
<b>Sensing range</b>	0.15 m ... 12 m <sup>1)</sup> 0,3 m ... 9,5 m <sup>1)</sup> 0.15 m ... 10 m <sup>2)</sup> 0,3 m ... 8 m <sup>2)</sup> (depending on type)	0.15 m ... 12 m <sup>1)</sup> 0.15 m ... 10 m <sup>2)</sup>
<b>Type of light</b>	Visible red light	
<b>Light source <sup>3)</sup></b>	PinPoint LED	
<b>Light spot size (distance)</b>	Ø 58 mm (5 m)	
<b>Wave length</b>	625 nm	
<b>Adjustment</b>	Potentiometer, 270 °	

<sup>1)</sup> PL80A.<sup>2)</sup> P250.<sup>3)</sup> Average service life of 100,000 h at T<sub>A</sub> = +25 °C.

## Mechanics/electronics

	DC	AC/DC
<b>Supply voltage</b>	10 V DC ... 30 V DC <sup>1)</sup>	24 V AC/DC ... 240 V AC/DC <sup>2)</sup>
<b>Ripple <sup>3)</sup></b>	± 5 V <sub>SS</sub>	
<b>Power consumption</b>	≤ 20 mA <sup>4)</sup>	≤ 2,5 VA
<b>Output type</b>	PNP NPN, open collector (depending on type)	Relay, SPDT, electrically isolated <sup>5)</sup>
<b>Switching mode</b>	Light/dark-switching / Light switching (depending on type)	–
<b>Switching mode selector</b>	Selectable via light/dark selector	–
<b>Output current I<sub>max.</sub></b>	≤ 100 mA	–
<b>Switching current max. (switching voltage)</b>	–	0.11 A (250 V DC) 3 A (30 V DC) 3 A (250 V AC)
<b>Switching frequency max. <sup>7)</sup> (Response time)</b>	1,000 Hz (≤ 500 µs <sup>6)</sup> ) 500 Hz (≤ 1 ms <sup>6)</sup> ) (depending on type)	20 Hz (≤ 10 ms)
<b>Connection type</b>	Connector, M12 Cable, 2 m <sup>8)</sup> (depending on type)	Cable, 2 m <sup>8)</sup>
<b>Circuit protection</b>	A <sup>9)</sup> B <sup>10)</sup> C <sup>11)</sup> D <sup>12)</sup>	C <sup>11)</sup>

	DC	AC/DC
<b>Protection class</b>	III	II <sup>13)</sup>
<b>Weight</b>		
Connector M12, 4-pin	Ca. 35 g	-
Cable, 3-wire	Ca. 90 g	-
Cable, 5-wire	-	Ca. 115 g
<b>Polarisation filter</b>	✓	
<b>Interference emission</b>	-	EN 61000-6-3 (2011-09) <sup>14)</sup>
<b>Housing material</b>	PVC / PMMA	
<b>Enclosure rating</b>	IP 67	
<b>Relay switching cycles min.</b>	-	100.000 cycles (3 A)
<b>Items supplied</b>	Mounting bracket BEF-G10DC01, Reflector P250, Q-Lock mounting system BEF-KH-SQ12R01 (depending on type)	Mounting bracket BEF-G10UC01, Reflector P250 (depending on type)
<b>Usage category</b>	-	AC-15, DC-13, according to EN 60947-1
<b>EMC</b>	EN 60947-5-2	
<b>UL File No.</b>	E348498	
<b>Ambient operating temperature</b>	-30 °C ... +60 °C	
<b>Ambient storage temperature</b>	-40 °C ... +70 °C	

<sup>1)</sup> Limit values: operation in short-circuit protected network max. 8 A.

<sup>2)</sup> +- 10 %.

<sup>3)</sup> May not exceed or fall short of  $V_s$  tolerances.

<sup>4)</sup> Without load.

<sup>5)</sup> Provide suitable spark suppression for inductive or capacitive loads.

<sup>6)</sup> Signal transit time with resistive load.

<sup>7)</sup> With light/dark ratio 1:1.

<sup>8)</sup> Do not bend below 0 °C.

<sup>9)</sup> A =  $V_s$  connections reverse-polarity protected.

<sup>10)</sup> B = inputs and output reverse-polarity protected.

<sup>11)</sup> C = interference suppression.

<sup>12)</sup> D = outputs overcurrent and short-circuit protected.

<sup>13)</sup> Reference voltage: 250 V AC.

<sup>14)</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.

## Ordering information

Other models available at [www.mysick.com/en/GL10](http://www.mysick.com/en/GL10)

### GL10, DC

- **Sensor principle:** Photoelectric retro-reflective sensor
- **Supply voltage:** 10 V DC ... 30 V DC
- **Switching frequency max.:** 1,000 Hz
- **Light spot size (distance):** Ø 58 mm (5 m)
- **Type of light:** visible red light
- **Switching mode:** Light/dark-switching

Sensing range max.	Output type	Adjustment	Connection	Connection diagram	Items supplied	Model name	Part no.	
0.08 m ... 15 m <sup>1)</sup>	PNP	-	Cable, 3-wire, 2 m, PVC	Cd-044	-	GL10-P1111	1065876	
					Mounting bracket BEF-G10DC01, Reflector P250	GL10-P1112	1065877	
		Connector M12, 4-pin	Cd-066	-	GL10-P4111	1065878		
				Mounting bracket BEF-G10DC01, Reflector P250	GL10-P4112	1065879		
		Potentiometer, 270 °	Cable, 3-wire, 2 m, PVC	Cd-044	-	GL10-P1211	1065885	
					Mounting bracket BEF-G10DC01, Reflector P250	GL10-P1212	1065886	
	Connector M12, 4-pin	Cd-066	-	GL10-P4211	1065890			
			Mounting bracket BEF-G10DC01, Reflector P250	GL10-P4212	1065887			
	0.08 m ... 12 m <sup>2)</sup>	NPN	-	Cable, 3-wire, 2 m, PVC	Cd-044	-	GL10-N1111	1065880
						Mounting bracket BEF-G10DC01, Reflector P250	GL10-N1112	1065882
			Connector M12, 4-pin	Cd-066	-	GL10-N4111	1065883	
					Mounting bracket BEF-G10DC01, Reflector P250	GL10-N4112	1065884	
Potentiometer, 270 °			Cable, 3-wire, 2 m, PVC	Cd-044	-	GL10-N1211	1065888	
					Mounting bracket BEF-G10DC01, Reflector P250	GL10-N1212	1065889	
Connector M12, 4-pin	Cd-066	-	GL10-N4211	1064700				
		Mounting bracket BEF-G10DC01, Reflector P250	GL10-N4212	1065891				

<sup>1)</sup> PL80A.

<sup>2)</sup> P250.

**GL10, DC, optimized for logistics applications, detection of stretch foil wrapped objects**

- **Sensor principle:** Photoelectric retro-reflective sensor
- **Supply voltage:** 10 V DC ... 30 V DC
- **Switching frequency max.:** 500 Hz
- **Light spot size (distance):** Ø 58 mm (5 m)
- **Type of light:** visible red light
- **Adjustment:** no/fix

Sensing range max.	Output type	Switching mode	Connection	Connection diagram	Items supplied	Model name	Part no.
0.15 m ... 12 m <sup>1)</sup> 0.15 m ... 10 m <sup>2)</sup>	PNP	Light switching	Connector M12, 4-pin	Cd-066	-	GL10-P4551	1064702
		Light/dark-switching			Q-Lock mounting system BEF-KH-SQ12R01	GL10-P4554	1065893
				Complementary switching output	Cd-083	-	GL10-P4151
		Q-Lock mounting system BEF-KH-SQ12R01				GL10-F4551	1071153
	NPN	Light switching	Cable, 3-wire, 2 m, PVC	Cd-044	-	GL10-F4554	1071170
					-	GL10-N1551	1065892

<sup>1)</sup> PL80A.

<sup>2)</sup> P250.

**GL10, AC/DC**

- **Sensor principle:** Photoelectric retro-reflective sensor
- **Detection principle:** Standard optics
- **Supply voltage:** 24 V AC/DC ... 240 V AC/DC
- **Switching frequency max.:** 20 Hz
- **Light spot size (distance):** Ø 58 mm (5 m)
- **Type of light:** visible red light
- **Output type:** relay
- **Connection:** Cable, 5-wire, 2 m, PVC

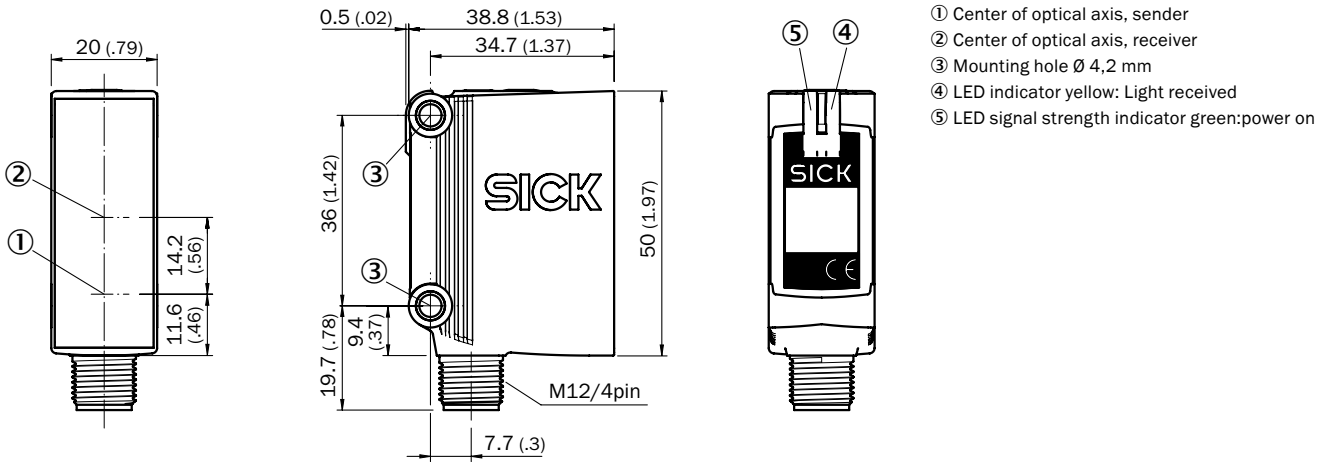
Sensing range max.	Adjustment	Connection diagram	Items supplied	Model name	Part no.
0.08 m ... 15 m <sup>1)</sup> 0.08 m ... 12 m <sup>2)</sup>	-	Cd-163	-	GL10-R3711	1065896
			Mounting bracket BEF-G10UC01, Reflector P250	GL10-R3712	1065897
	Potentiometer, 270 °	Cd-163	-	GL10-R3811	1064689
			Mounting bracket BEF-G10UC01, Reflector P250	GL10-R3812	1065898

<sup>1)</sup> PL80A.

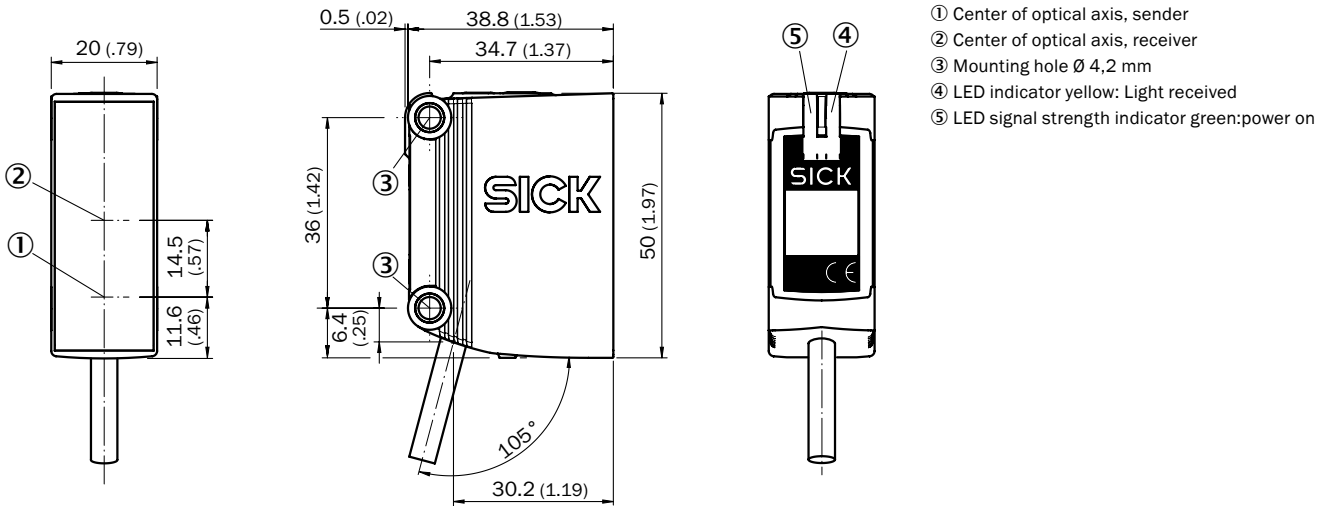
<sup>2)</sup> P250.

**Dimensional drawings** (Dimensions in mm (inch))

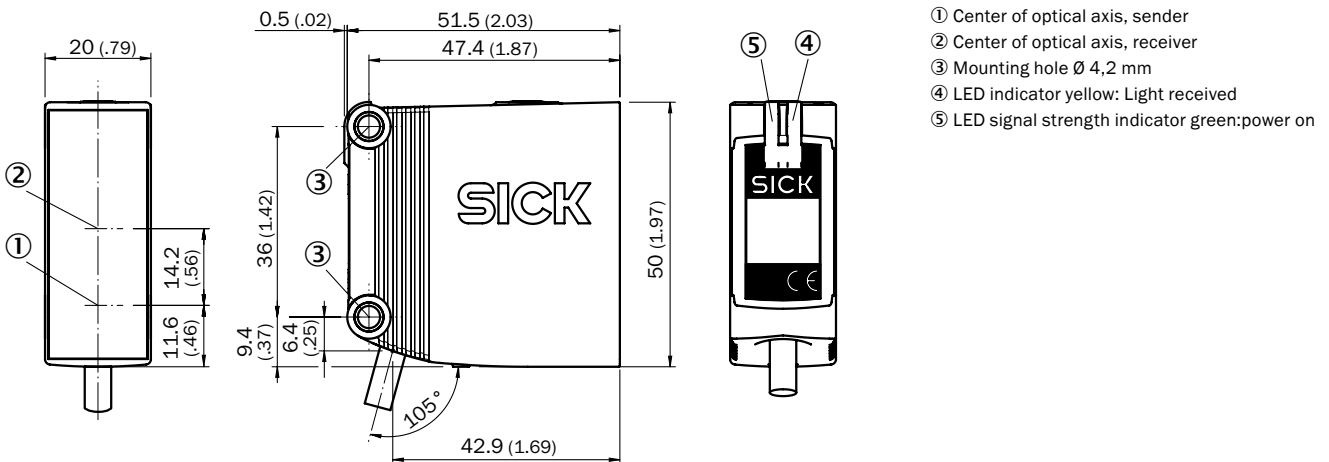
**GL10, DC, connector**



**GL10, DC, cable**

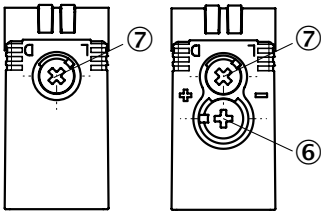


**GL10, AC/DC, cable**



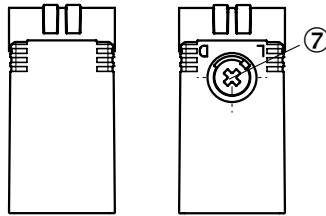
Adjustments

GL10, DC



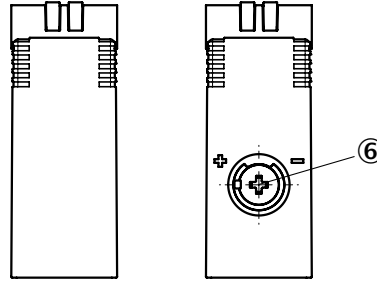
- ⑥ Sensing range adjustment
- ⑦ Light/dark selector

GL10, logistics, DC



- ⑦ Light/dark selector

GL10, AC/DC

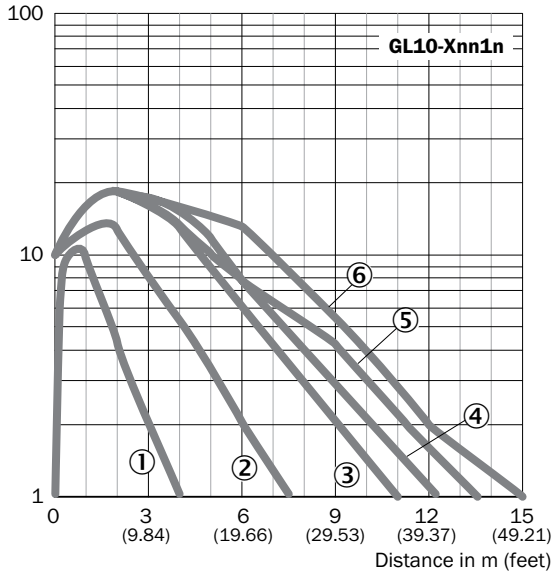


- ⑥ Sensing range adjustment

Sensing range

GL10, DC, AC/DC

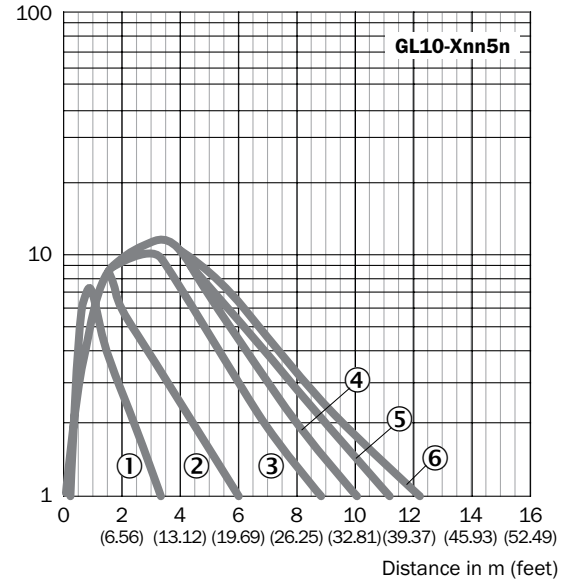
Operating reserve



- ① REF-IRF-56
- ② PL20A
- ③ PL30A
- ④ P250
- ⑤ PL40A
- ⑥ PL80A

GL10, logistics, DC

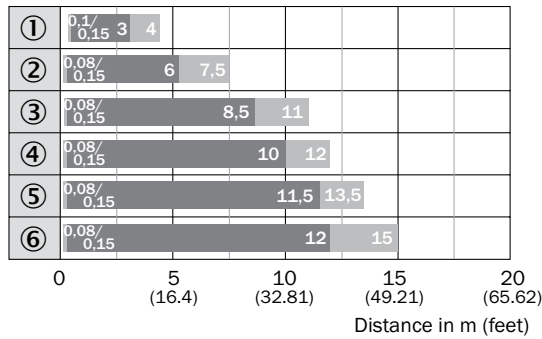
Operating Reserve



- ① REF-IRF-56
- ② PL20A
- ③ PL30A
- ④ P250
- ⑤ PL40A
- ⑥ PL80A

### Bar diagrams

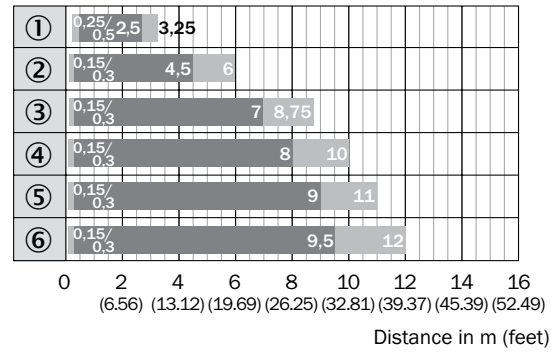
GL10, DC, AC/DC



■ Sensing range      ■ Sensing range max.

- ① REF-IRF-56
- ② PL20A
- ③ PL30A
- ④ P250
- ⑤ PL40A
- ⑥ PL80A

GL10, logistics, DC

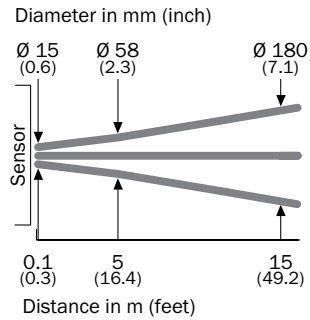


■ Sensing range      ■ Sensing range max.

- ① REF-IRF-56
- ② PL20A
- ③ PL30A
- ④ P250
- ⑤ PL40A
- ⑥ PL80A

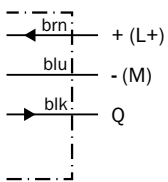
### Light spot diameter

GL10

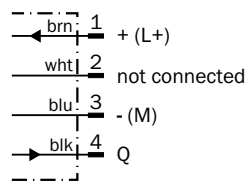


### Connection diagram

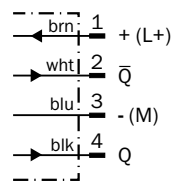
Cd-044



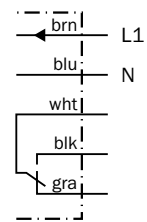
Cd-066



Cd-083




Cd-163





# POWERFUL DETECTION, SMART INSTALLATION - DOWN TO THE LAST DETAIL



The diagram shows a sensor emitting a light beam that reflects off a transparent object and returns to the sensor. Below it are two blue GL10G sensors, one shown from the front and one from the side.

**CE** **cULus** **PinPoint by SICK**

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## Product description

GL10G photoelectric retro-reflective sensors for the detection of transparent objects are characterized by their long sensing ranges of up to 12 m on the PL80A reflector and their small housing. Combined with an extensive range of accessories, they provide a simple way to integrate sensors into systems. The

patented Q-Lock assembly system for the G10 reduces the time required to install and align the sensor to just a few seconds, making this the ideal product for logistics applications. Summary: the GL10G provides quick and flexible sensor installation, ensures error-free operation, and keeps costs under control.

## At a glance

- Long sensing ranges for transparent objects: 12 m (with PL80A)
- PinPoint LED with bright and precise light spot
- Immunity to ambient light
- Small housing design
- Rugged sensor housing with metal-reinforced holes for assembly
- Q-Lock assembly system for mounting and aligning the sensor within a few seconds

## Your benefits

- Long sensing ranges for maximum operating reserves
- Reliable detection of transparent objects
- Efficient installation: the GL10G and the Q-Lock assembly system save valuable hours when mounting and commissioning multiple sensors
- Highly reliable and durable despite optical interference or mechanical loads
- Wide range of accessories simplifies sensor integration: aids for assembly, connecting cables, and reflectors

→ [www.mysick.com/en/GL10G](http://www.mysick.com/en/GL10G)

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



## Detailed technical data

## Features

	DC
<b>Sensor principle</b>	Photoelectric retro-reflective sensor
<b>Detection principle</b>	Clear material detection <sup>1)</sup>
<b>Dimensions (W x H x D)</b>	20 mm x 50 mm x 39 mm
<b>Housing design (light emission)</b>	Rectangular
<b>Sensing range max.</b>	0.15 m ... 12 m <sup>2)</sup> 0.15 m ... 10 m <sup>3)</sup>
<b>Sensing range</b>	0.3 m ... 9.5 m <sup>2)</sup> 0.3 m ... 8 m <sup>3)</sup>
<b>Type of light</b>	Visible red light
<b>Light source <sup>4)</sup></b>	PinPoint LED
<b>Light spot size (distance)</b>	Ø 58 mm (5 m)
<b>Wave length</b>	625 nm
<b>Adjustment</b>	Potentiometer, 270 °

<sup>1)</sup> Minimum signal attenuation 20 %. Temperature stability after adjustment and warm up time +/-10°C.

<sup>2)</sup> PL80A.

<sup>3)</sup> P250.

<sup>4)</sup> Average service life of 100,000 h at T<sub>A</sub> = +25 °C.

## Mechanics/electronics

	DC
<b>Supply voltage <sup>1)</sup></b>	10 V DC ... 30 V DC
<b>Ripple <sup>2)</sup></b>	± 5 V <sub>ss</sub>
<b>Power consumption <sup>3)</sup></b>	≤ 20 mA
<b>Output type</b>	PNP NPN, open collector (depending on type)
<b>Switching mode</b>	Light/dark-switching
<b>Switching mode selector</b>	Selectable via light/dark selector
<b>Output current I<sub>max.</sub></b>	≤ 100 mA
<b>Response time</b>	≤ 1 ms <sup>4)</sup>
<b>Switching frequency max. <sup>5)</sup></b>	500 Hz
<b>Connection type</b>	Connector, M12 Cable, 2 m <sup>6)</sup> (depending on type)
<b>Circuit protection</b>	A <sup>7)</sup> B <sup>8)</sup> C <sup>9)</sup> D <sup>10)</sup>
<b>Protection class</b>	III
<b>Weight</b>	
Connector M12, 4-pin	Ca. 35 g
Cable, 3-wire	Ca. 90 g
<b>Polarisation filter</b>	✓

	DC
Housing material	PVC / PMMA
Enclosure rating	IP 67
Items supplied	Mounting bracket BEF-G10DC01, Reflector P250 (depending on type)
EMC	EN 60947-5-2
UL File No.	E348498
Ambient operating temperature	-30 °C ... +60 °C
Ambient storage temperature	-40 °C ... +70 °C

<sup>1)</sup> Limit values: operation in short-circuit protected network max. 8 A.

<sup>2)</sup> May not exceed or fall short of  $V_s$  tolerances.

<sup>3)</sup> Without load.

<sup>4)</sup> Signal transit time with resistive load.

<sup>5)</sup> With light/dark ratio 1:1.

<sup>6)</sup> Do not bend below 0 °C.

<sup>7)</sup> A =  $V_s$  connections reverse-polarity protected.

<sup>8)</sup> B = inputs and output reverse-polarity protected.

<sup>9)</sup> C = interference suppression.

<sup>10)</sup> D = outputs overcurrent and short-circuit protected.

## Ordering information

Other models available at [www.mysick.com/en/GL10G](http://www.mysick.com/en/GL10G)

### GL10G, DC

- **Sensor principle:** Photoelectric retro-reflective sensor
- **Detection principle:** Clear material detection (Minimum signal attenuation 20 %.)
- **Supply voltage:** 10 V DC ... 30 V DC
- **Switching frequency max.:** 500 Hz
- **Light spot size (distance):** Ø 58 mm (5 m)
- **Type of light:** visible red light
- **Switching mode:** Light/dark-switching
- **Adjustment:** potentiometer, 270 °

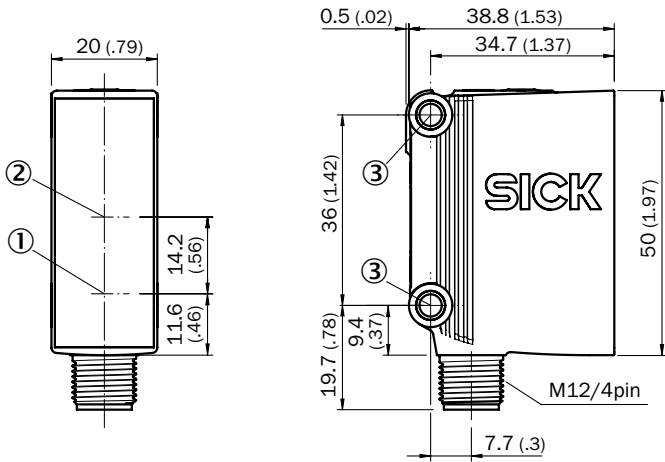
Sensing range max.	Output type	Connection	Connection diagram	Items supplied	Model name	Part no.
0.15 m ... 12 m <sup>1)</sup> 0.15 m ... 10 m <sup>2)</sup>	PNP	Connector M12, 4-pin	Cd-066	-	GL10G-P4251	1064704
				Mounting bracket BEF-G10DC01, Reflector P250	GL10G-P4252	1065894
	NPN	Cable, 3-wire, 2 m, PVC	Cd-044	-	GL10G-N1251	1064705
				Mounting bracket BEF-G10DC01, Reflector P250	GL10G-N1252	1065895

<sup>1)</sup> PL80A.

<sup>2)</sup> P250.

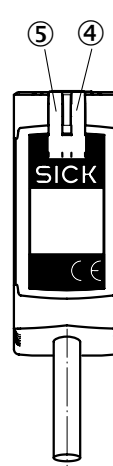
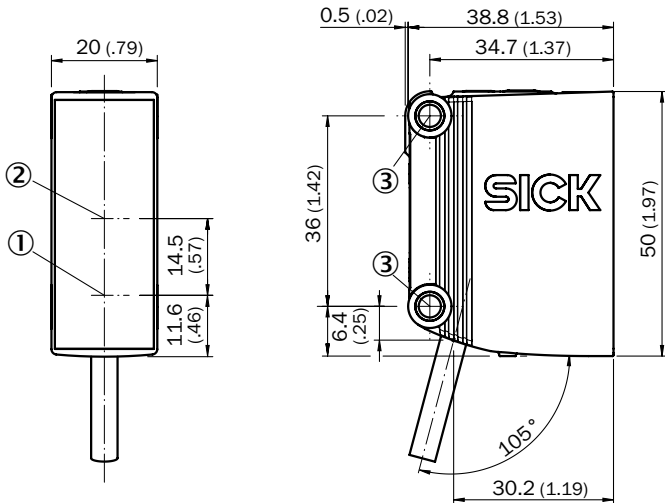
**Dimensional drawings** (Dimensions in mm (inch))

**GL10G, DC, connector**



- ① Center of optical axis, sender
- ② Center of optical axis, receiver
- ③ Mounting hole Ø 4,2 mm
- ④ LED indicator yellow: Light received
- ⑤ LED signal strength indicator green:power on

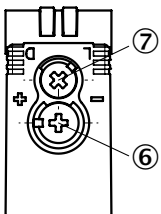
**GL10G, DC, cable**



- ① Center of optical axis, sender
- ② Center of optical axis, receiver
- ③ Mounting hole Ø 4,2 mm
- ④ LED indicator yellow: Light received
- ⑤ LED signal strength indicator green:power on

**Adjustments**

**GL10G, DC**

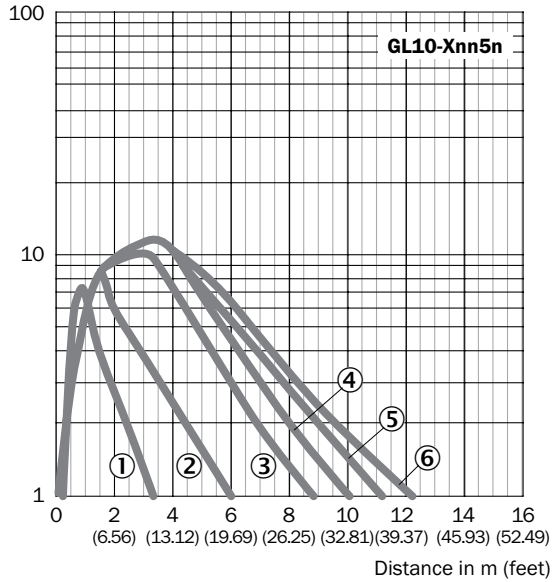


- ⑥ Sensing range adjustment
- ⑦ Light/dark selector

Sensing range

GL10G, DC

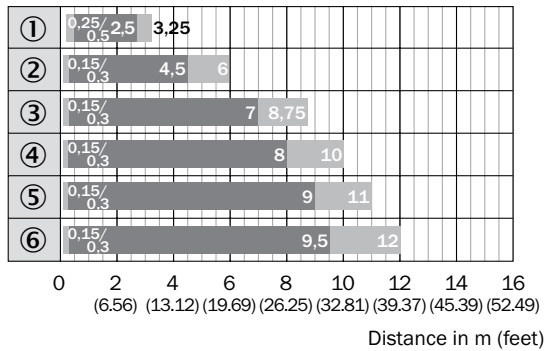
Operating Reserve



- ① REF-IRF-56
- ② PL20A
- ③ PL30A
- ④ P250
- ⑤ PL40A
- ⑥ PL80A

Bar diagrams

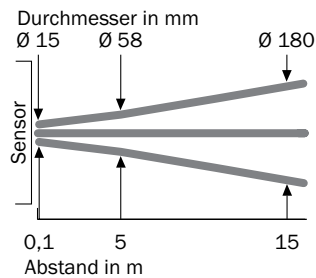
GL10G, DC



- ① REF-IRF-56
- ② PL20A
- ③ PL30A
- ④ P250
- ⑤ PL40A
- ⑥ PL80A

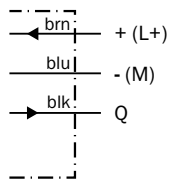
Light spot diameter

GL10G, DC

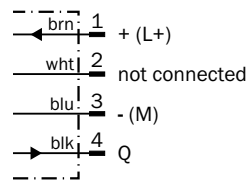


Connection diagram




Cd-044



Cd-066



# POWERFUL DETECTION, SMART INSTALLATION - DOWN TO THE LAST DETAIL

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## Product description

GSE10 through-beam photoelectric sensors are characterized by their long sensing ranges of up to 40 m and their small housing. They support different optics (PinPoint red light or infrared light), operation options (with or without sensor setting), power supplies (DC or AC/DC), and switching outputs (PNP/NPN or relay). Combined with an exten-

sive range of accessories, these sensors are able to support a wide variety of applications. The portfolio is completed by special accessories such as the weatherproof housing for the G10. Summary: the GSE10 provides quick and flexible sensor installation, ensures error-free operation, and keeps costs under control.

## At a glance

- Long sensing ranges: up to 40 m
- PinPoint LED with bright and precise light spot
- With or without sensitivity adjustment
- 10 V DC ... 30 V DC or 24 V AC/DC ... 240 V AC/DC power supply with PNP/NPN or relay output
- Small housing design
- Rugged sensor housing with metal-reinforced holes for assembly
- Weatherproof housing: ideal for outdoor applications

## Your benefits

- Long sensing ranges for maximum operating reserves
- Universal DC or AC/DC power supply for even greater application flexibility
- Highly reliable and durable despite optical interference or mechanical loads
- Wide range of accessories simplifies sensor integration: aids for assembly and connectors
- Long service life even when used in outdoor applications thanks to rugged weatherproof housing

→ [www.mysick.com/en/GSE10](http://www.mysick.com/en/GSE10)

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



## Detailed technical data

## Features

	DC	AC/DC
<b>Sensor principle</b>	Through-beam photoelectric sensor	
<b>Dimensions (W x H x D)</b>	20 mm x 50 mm x 39 mm	20 mm x 50 mm x 51.5 mm
<b>Housing design (light emission)</b>	Rectangular	
<b>Sensing range max.</b>	0 m ... 40 m	
<b>Sensing range</b>	0 m ... 35 m	
<b>Type of light</b>	Visible red light / Infrared light (depending on type)	
<b>Light source</b>	PinPoint LED <sup>1)</sup> LED <sup>1)</sup> (depending on type)	
<b>Light spot size (distance)</b>		
Visible red light	Ø 180 mm (15 m)	
Infrared light	Ø 433 mm (15 m)	
<b>Wave length</b>		
Visible red light	625 nm	
Infrared light	850 nm	
<b>Adjustment</b>	Potentiometer, 270 °	

<sup>1)</sup> Average service life of 100,000 h at T<sub>A</sub> = +25 °C.

## Mechanics/electronics

	DC	AC/DC
<b>Supply voltage</b>	10 V DC ... 30 V DC <sup>1)</sup>	24 V AC/DC ... 240 V AC/DC <sup>2)</sup>
<b>Ripple <sup>3)</sup></b>	± 5 V <sub>SS</sub>	
<b>Power consumption</b>		
Sender	≤ 15 mA <sup>4)</sup>	≤ 2,0 VA
Receiver	≤ 20 mA <sup>4)</sup>	≤ 2,5 VA
<b>Output type</b>	PNP NPN, open collector (depending on type)	Relay, SPDT, electrically isolated <sup>5)</sup>
<b>Switching mode</b>	Light/dark-switching	–
<b>Switching mode selector</b>	Selectable via light/dark selector	–
<b>Output current I<sub>max.</sub></b>	≤ 100 mA	–
<b>Switching current max. (switching voltage)</b>	–	0.11 A (250 V DC) 3 A (30 V DC) 3 A (250 V AC)
<b>Response time</b>	≤ 500 µs <sup>6)</sup>	≤ 10 ms
<b>Switching frequency max. <sup>7)</sup></b>	1,000 Hz	20 Hz
<b>Connection type</b>	Connector, M12 Cable, 2 m <sup>8)</sup> (depending on type)	Cable, 2 m <sup>8)</sup>
<b>Circuit protection</b>	A <sup>9)</sup> B <sup>10)</sup> C <sup>11)</sup> D <sup>12)</sup>	C <sup>11)</sup>
<b>Protection class</b>	III	II <sup>13)</sup>



	DC	AC/DC
<b>Weight</b>		
Connector M12, 4-pin	Ca. 70 g	-
Cable, 3-wire	Ca. 180 g	-
Cable, 5-wire	-	Ca. 230 g
<b>Interference emission</b>	-	EN 61000-6-3 (2011-09) <sup>14)</sup>
<b>Housing material</b>	PVC / PMMA	
<b>Enclosure rating</b>	IP 67	
<b>Relay switching cycles min.</b>	-	100.000 cycles (3 A)
<b>Items supplied</b>	Mounting bracket BEF-G10DC01 (2x) (depending on type)	Mounting bracket BEF-G10UC01 (2x) (depending on type)
<b>Usage category</b>	-	AC-15, DC-13, according to EN 60947-1
<b>EMC</b>	EN 60947-5-2	
<b>UL File No.</b>	E348498	
<b>Test input</b>	Sender OFF at "Test" 0 V	-
<b>Ambient operating temperature</b>	-30 °C ... +60 °C	
<b>Ambient storage temperature</b>	-40 °C ... +70 °C	

<sup>1)</sup> Limit values: operation in short-circuit protected network max. 8 A.

<sup>2)</sup> +/- 10 %.

<sup>3)</sup> May not exceed or fall short of  $V_S$  tolerances.

<sup>4)</sup> Without load.

<sup>5)</sup> Provide suitable spark suppression for inductive or capacitive loads.

<sup>6)</sup> Signal transit time with resistive load.

<sup>7)</sup> With light/dark ratio 1:1.

<sup>8)</sup> Do not bend below 0 °C.

<sup>9)</sup> A =  $V_S$  connections reverse-polarity protected.

<sup>10)</sup> B = inputs and output reverse-polarity protected.

<sup>11)</sup> C = interference suppression.

<sup>12)</sup> D = outputs overcurrent and short-circuit protected.

<sup>13)</sup> Reference voltage: 250 V AC.

<sup>14)</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.

## Ordering information

Other models available at [www.mysick.com/en/GSE10](http://www.mysick.com/en/GSE10)

### GSE10, DC

- **Sensor principle:** Through-beam photoelectric sensor
- **Supply voltage:** 10 V DC ... 30 V DC
- **Switching frequency max.:** 1,000 Hz
- **Light spot size visible red light (distance):** Ø 180 mm (15 m)
- **Light spot size infrared light (distance):** Ø 433 mm (15 m)
- **Switching mode:** Light/dark-switching

Sensing range max.	Type of light	Output type	Adjustment	Connection	Connection diagram	Items supplied	Model name	Part no.	
0 m ... 40 m	Visible red light	PNP	-	Cable, 3-wire, 2 m, PVC	Cd-073	-	GSE10-P1111	1071898	
						Mounting bracket BEF-G10DC01 (2x)	GSE10-P1112	1071899	
				Connector M12, 4-pin		-	GSE10-P4111	1065899	
				Mounting bracket BEF-G10DC01 (2x)		GSE10-P4112	1065900		
				-		GSE10-P1211	1070734		
				Mounting bracket BEF-G10DC01 (2x)		GSE10-P1212	1070732		
		Infrared light	-	Potentiometer, 270 °	Connector M12, 4-pin	-	GSE10-P4211	1064706	
	Mounting bracket BEF-G10DC01 (2x)						GSE10-P4212	1065903	
		Infrared light	-	Potentiometer, 270 °	Connector M12, 4-pin	-	GSE10-P4221	1065906	
							Mounting bracket BEF-G10DC01 (2x)	GSE10-P4222	1065907
		Visible red light	NPN	-	Cable, 3-wire, 2 m, PVC	Cd-061	-	GSE10-N1111	1065901
							Mounting bracket BEF-G10DC01 (2x)	GSE10-N1112	1065902
							-	GSE10-N1211	1065904
		Infrared light	-	Potentiometer, 270 °	Cable, 3-wire, 2 m, PVC	Cd-061	Mounting bracket BEF-G10DC01 (2x)	GSE10-N1212	1065905
	-						GSE10-N1221	1065908	
	Mounting bracket BEF-G10DC01 (2x)						GSE10-N1222	1065909	

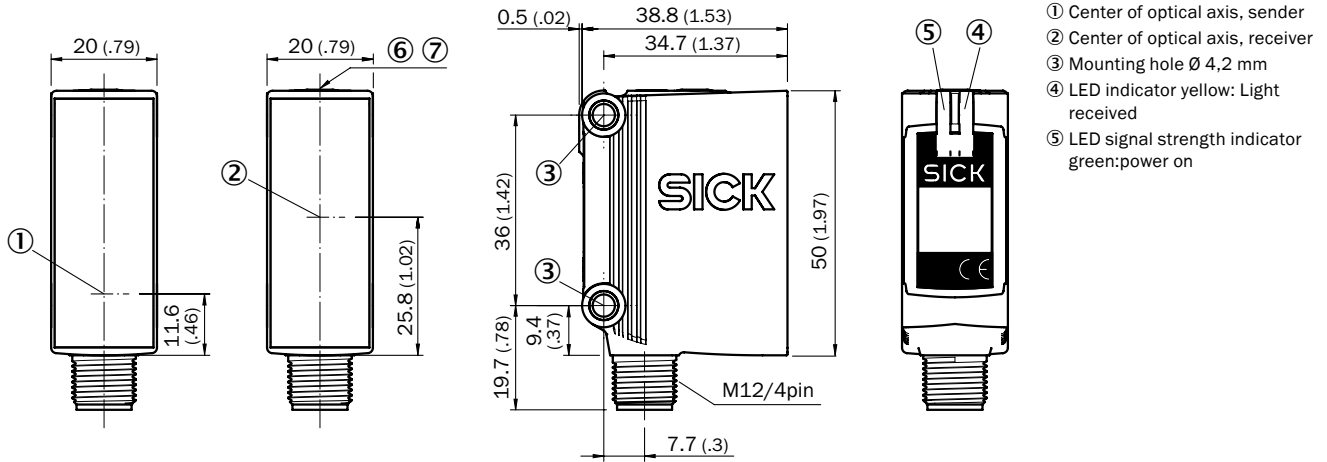
GSE10, AC/DC

- **Sensor principle:** Through-beam photoelectric sensor
- **Supply voltage:** 24 V AC/DC ... 240 V AC/DC
- **Switching frequency max.:** 20 Hz
- **Light spot size visible red light (distance):** Ø 180 mm (15 m)
- **Light spot size infrared light (distance):** Ø 433 mm (15 m)
- **Output type:** relay
- **Connection:** Cable, 5-wire, 2 m, PVC

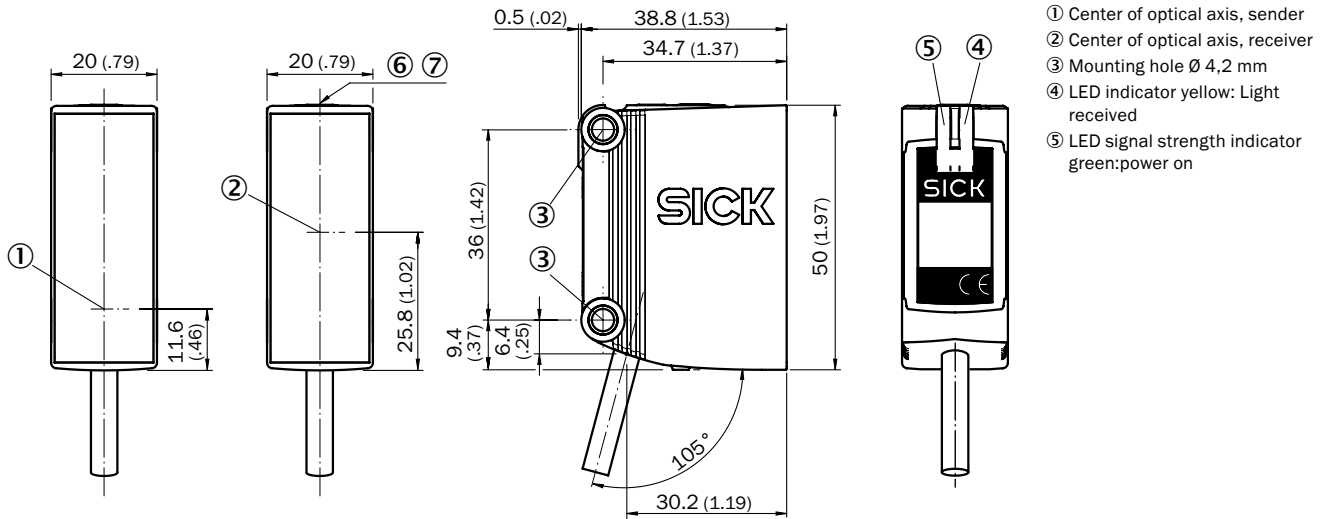
Sensing range max.	Type of light	Adjustment	Connection diagram	Items supplied	Model name	Part no.
0 m ... 40 m	Visible red light	-	Cd-170	-	GSE10-R3711	1065910
		Potentiometer, 270 °		Mounting bracket BEF-G10UC01 (2x)	GSE10-R3712	1065911
	-			GSE10-R3811	1064691	
	Infrared light	-		Mounting bracket BEF-G10UC01 (2x)	GSE10-R3812	1065912
				-	GSE10-R3721	1065913
		-		Mounting bracket BEF-G10UC01 (2x)	GSE10-R3722	1065914
-						

**Dimensional drawings** (Dimensions in mm (inch))

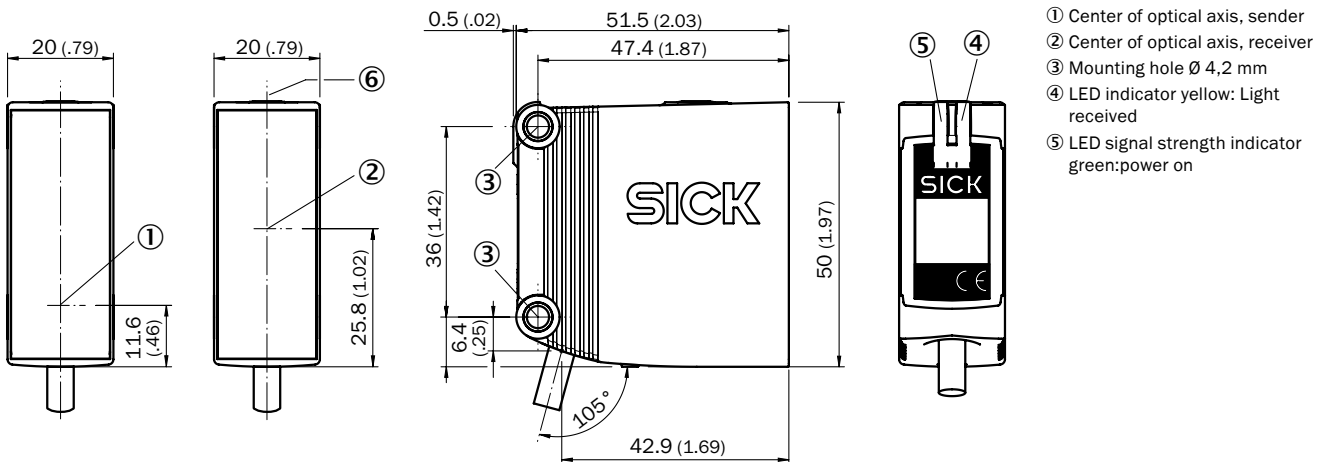
**GSE10, DC, connector**



**GSE10, DC, cable**

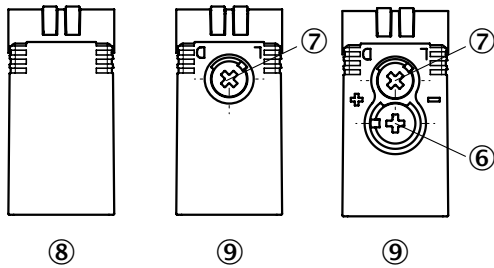


**GSE10, AC/DC, cable**



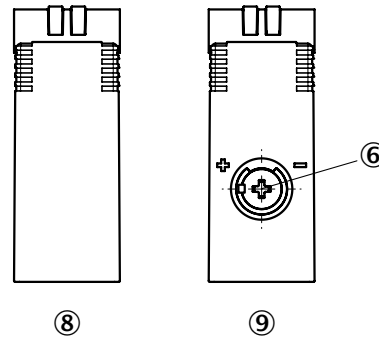
### Adjustments

GSE10, DC



- ⑥ Sensing range adjustment
- ⑦ Light/dark selector
- ⑧ Sender
- ⑨ Receiver

GSE10, AC/DC

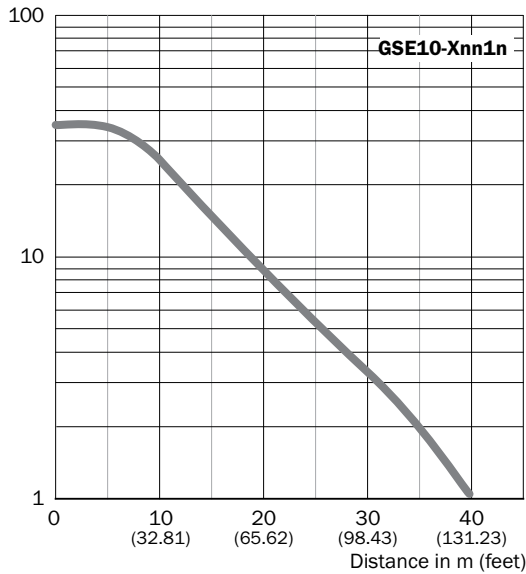


- ⑥ Sensing range adjustment
- ⑧ Sender/receiver
- ⑨ Receiver

### Sensing range

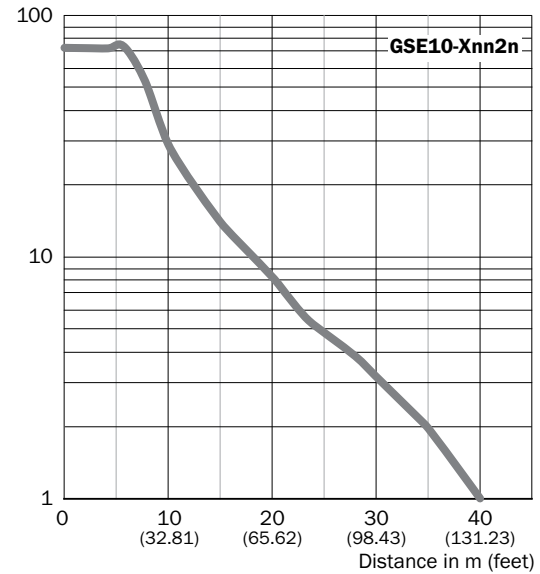
GSE10, red light

Operating reserve



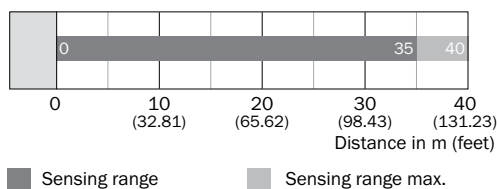
GSE10, infrared light

Operating reserve



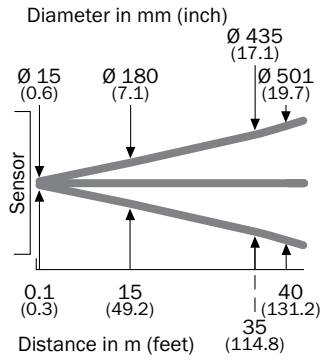
### Bar diagrams

GSE10

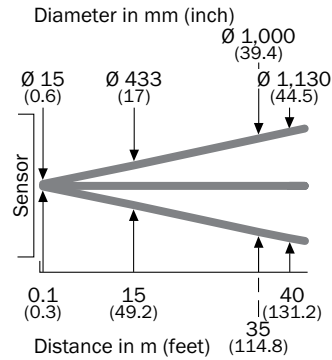


### Light spot diameter

GSE10, red light

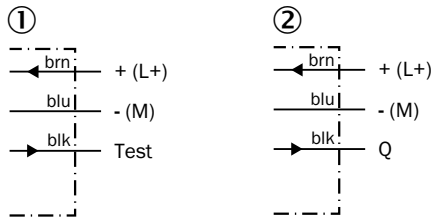


GSE10, infrared light



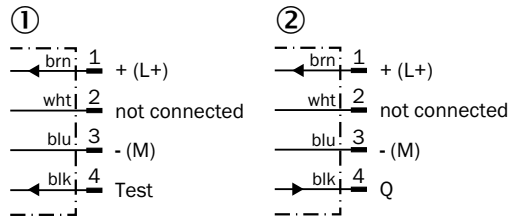
### Connection diagram

Cd-061



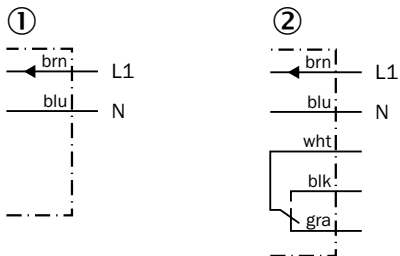
① Sender  
② Receiver

Cd-073



① Sender  
② Receiver

Cd-170





① Sender  
② Receiver










Accessories G10

Mounting brackets/plates

Mounting brackets



Figure	Description	Material	Model name	Part no.	GTx10 DC	GTx10 AC/DC	GL10 (G) DC	GL10 (G) AC/DC	GSE10 DC	GSE10 AC/DC
	Mounting bracket for wall and floor mounting for G10 DC	Steel, zinc coated	BEF-G10DC01	2071258	●	●	●	●	●	●
	Mounting bracket for wall and floor mounting for G10 AC/DC	Steel, zinc coated	BEF-G10UC01	2071259	●	●	●	●	●	●

Universal bar clamp systems

Figure	Description	Material	Model name	Part no.	GTx10 DC	GTx10 AC/DC	GL10 (G) DC	GL10 (G) AC/DC	GSE10 DC	GSE10 AC/DC
	Q-Lock, bar clamp system for G10 and reflector P250	Die-cast zinc, Steel, zinc coated	BEF-KHSQ12R01	2071260	●	●	●	●	●	●
	Q-Lock, bar clamp system for G10 and reflector P250, incl. sheet clamp		BEF-KHSQ12ZR01	2071262	●	●	●	●	●	●
	Mounting bar, straight, 200 mm	Steel, zinc coated	BEF-MS12G-A	4056054	●	●	●	●	●	●
	Mounting bar, straight, 300 mm	Steel, zinc coated	BEF-MS12G-B	4056055	●	●	●	●	●	●
	Mounting bar, L-shaped, 150 mm x 150 mm	Steel, zinc coated	BEF-MS12L-A	4056052	●	●	●	●	●	●
	Mounting bar, L-shaped, 250 x 250 mm	Steel, zinc coated	BEF-MS12L-B	4056053	●	●	●	●	●	●
	Mounting bar, Z-shaped, 150 mm x 70 mm x 150 mm	Steel, zinc coated	BEF-MS12Z-A	4056056	●	●	●	●	●	●
	Mounting bar, Z-shaped, 150 mm x 70 mm x 250 mm	Steel, zinc coated	BEF-MS12Z-B	4056057	●	●	●	●	●	●
	Bar clamp for bar diameter of 12 mm (fixing the mounting rod)	Aluminum	BEF-RMC-D12	5321878	●	●	●	●	●	●

Device protection (mechanical)

Protective housing/tubes






Figure	Description	Material	Model name	Part no.	GTx10 DC	GTx10 AC/DC	GL10 (G) DC	GL10 (G) AC/DC	GSE10 DC	GSE10 AC/DC
	Weather protection hood for G10	Steel, zinc coated	BEF-G10WSG	2071960	●	●	●	●	●	●
	Weather protection hood for reflectors PL80A, P250, PL40A	Steel, zinc coated	BEF-PL80AWSG	2071961	●	●	●	●	●	●




Reflectors

Angular

- **Description:** Rectangular, screw connection

Figure	Material	Dimensions	Model name	Part no.	GTx10 DC	GTx10 AC/DC	GL10 (G) DC	GL10 (G) AC/DC	GSE10 DC	GSE10 AC/DC
	PMMA/ABS	47 mm x 47 mm	P250	5304812	-	-	●	●	-	-
		38 mm x 15 mm	PL20A	1012719	-	-	●	●	-	-
		56 mm x 28 mm	PL30A	1002314	-	-	●	●	-	-
		37 mm x 56 mm	PL40A	1012720	-	-	●	●	-	-
		80 mm x 80 mm	PL80A	1003865	-	-	●	●	-	-

Round

Figure	Description	Material	Diameter	Model name	Part no.	GTx10 DC	GTx10 AC/DC	GL10 (G) DC	GL10 (G) AC/DC	GSE10 DC	GSE10 AC/DC
	Round, screw connection	PMMA/ABS	80 mm	C110A	5304549	-	-	●	●	-	-

Fine triple reflectors










Figure	Description	Material	Dimensions	Model name	Part no.	GTx10 DC	GTx10 AC/DC	GL10 (G) DC	GL10 (G) AC/DC	GSE10 DC	GSE10 AC/DC
	Fine triple, screw connection, suitable for laser sensors	PMMA/ABS	47 mm x 47 mm	P250F	5308843	-	-	●	●	-	-
			18 mm x 18 mm	PL10F	5311210	-	-	●	●	-	-
	Fine triple, chemically resistant, screw connection	Plastic	18 mm x 18 mm	PL10F CHEM	5321636	-	-	●	●	-	-
	Fine triple, screw connection, suitable for laser sensors	PMMA/ABS	38 mm x 16 mm	PL20F	5308844	-	-	●	●	-	-
	Fine triple, chemically resistant, screw connection, suitable for laser sensors	Plastic	16 mm x 38 mm	PL20F-CHEM	5326089	-	-	●	●	-	-

Figure	Description	Material	Dimensions	Model name	Part no.	GTx10 DC	GTx10 AC/DC	GL10 (G) DC	GL10 (G) AC/DC	GSE10 DC	GSE10 AC/DC
	Fine triple, screw connection, suitable for laser sensors	PMMA/ABS	56 mm x 28 mm	PL30F	5326523	-	-	●	●	-	-
			76 mm x 45 mm	PL81-1F	5325060	-	-	●	●	-	-

Reflective tape

Figure	Description	Dimensions	Model name	Part no.	GTx10 DC	GTx10 AC/DC	GL10 (G) DC	GL10 (G) AC/DC	GSE10 DC	GSE10 AC/DC
	Suitable for laser sensors, self-adhesive, cut, see alignment note	56.3 mm x 56.3 mm	REF-AC1000-56	4063030	-	-	●	●	-	-
	Self-adhesive	50 mm x 60 mm	REF-IRF-56	5314244	-	-	●	●	-	-

Plug connectors and cables

Connecting cable (female connector-open) M12, 4-pin, PVC

- **Enclosure rating:** IP 67





Figure	Connection type head A	Connection type head B	Cable length	Model name	Part no.	GTx10 DC	GTx10 AC/DC	GL10 (G) DC	GL10 (G) AC/DC	GSE10 DC	GSE10 AC/DC
	Female connector, M12, 4-pin, straight	Cable	2 m	DOL-1204-G02M	6009382	●	-	●	-	●	-
			5 m	DOL-1204-G05M	6009866	●	-	●	-	●	-
			10 m	DOL-1204-G10M	6010543	●	-	●	-	●	-
			15 m	DOL-1204-G15M	6010753	●	-	●	-	●	-
			20 m	DOL-1204-G20M	6034401	●	-	●	-	●	-

Figure	Connection type head A	Connection type head B	Cable length	Model name	Part no.	GTX10 DC	GTX10 AC/DC	GL10 (G) DC	GL10 (G) AC/DC	GSE10 DC	GSE10 AC/DC
	Female connector, M12, 4-pin, angled	Cable	2 m	DOL-1204-W02M	6009383	●	-	●	-	●	-
			5 m	DOL-1204-W05M	6009867	●	-	●	-	●	-
			10 m	DOL-1204-W10M	6010541	●	-	●	-	●	-
			15 m	DOL-1204-W15M	6036474	●	-	●	-	●	-
			20 m	DOL-1204-W20M	6033559	●	-	●	-	●	-



Female connector (ready to assemble) M12, 4-pin

- **Enclosure rating:** IP 67

Figure	Connection type head A	Connection type head B	Model name	Part no.	GTX10 DC	GTX10 AC/DC	GL10 (G) DC	GL10 (G) AC/DC	GSE10 DC	GSE10 AC/DC
	Female connector, M12, 4-pin, straight	-	DOS-1204-G	6007302	●	-	●	-	●	-
	Female connector, M12, 4-pin, angled	-	DOS-1204-W	6007303	●	-	●	-	●	-

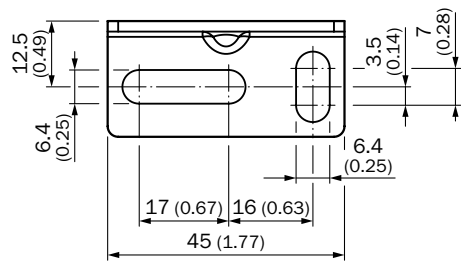
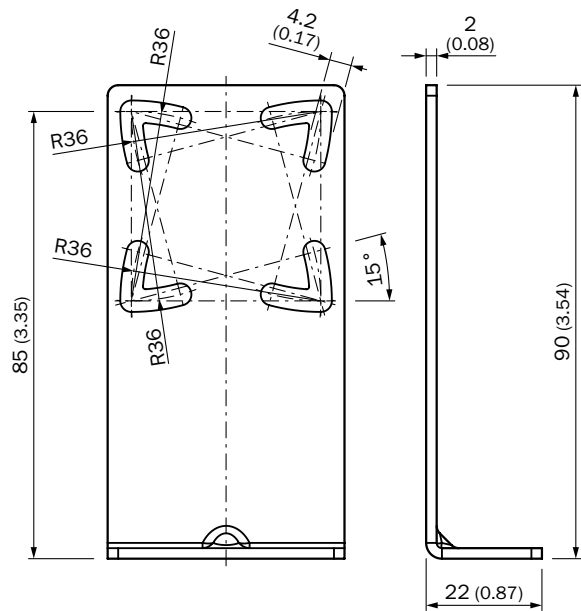
Male connector (ready to assemble) M12, 4-pin

- **Enclosure rating:** IP 67

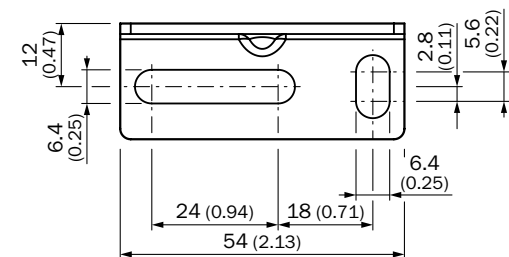
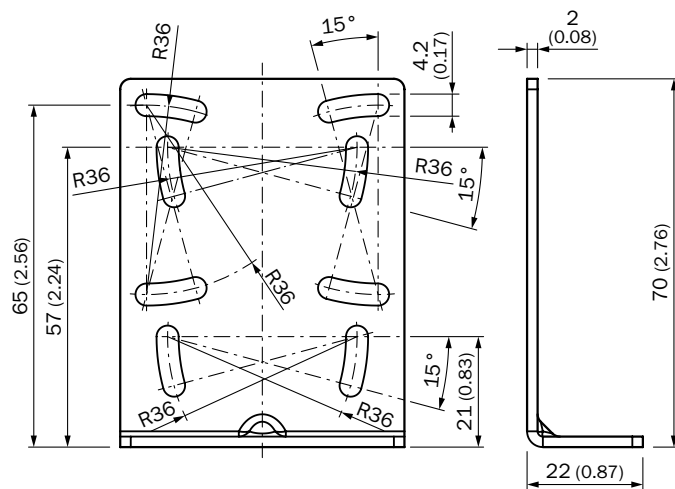
Figure	Connection type head A	Connection type head B	Model name	Part no.	GTX10 DC	GTX10 AC/DC	GL10 (G) DC	GL10 (G) AC/DC	GSE10 DC	GSE10 AC/DC
	Male connector, M12, 4-pin, straight	-	STE-1204-G	6009932	●	-	●	-	●	-
	Male connector, M12, 4-pin, angled	-	STE-1204-W	6022084	●	-	●	-	●	-

Dimensional drawings Mounting brackets/plates

BEF-G10DC01

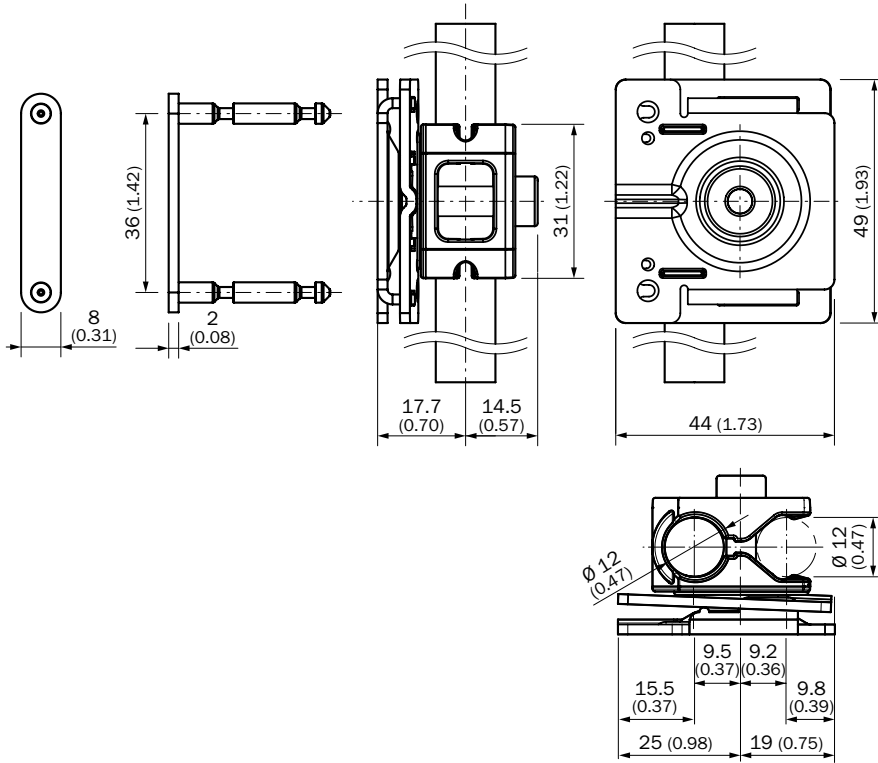


BEF-G10UC01

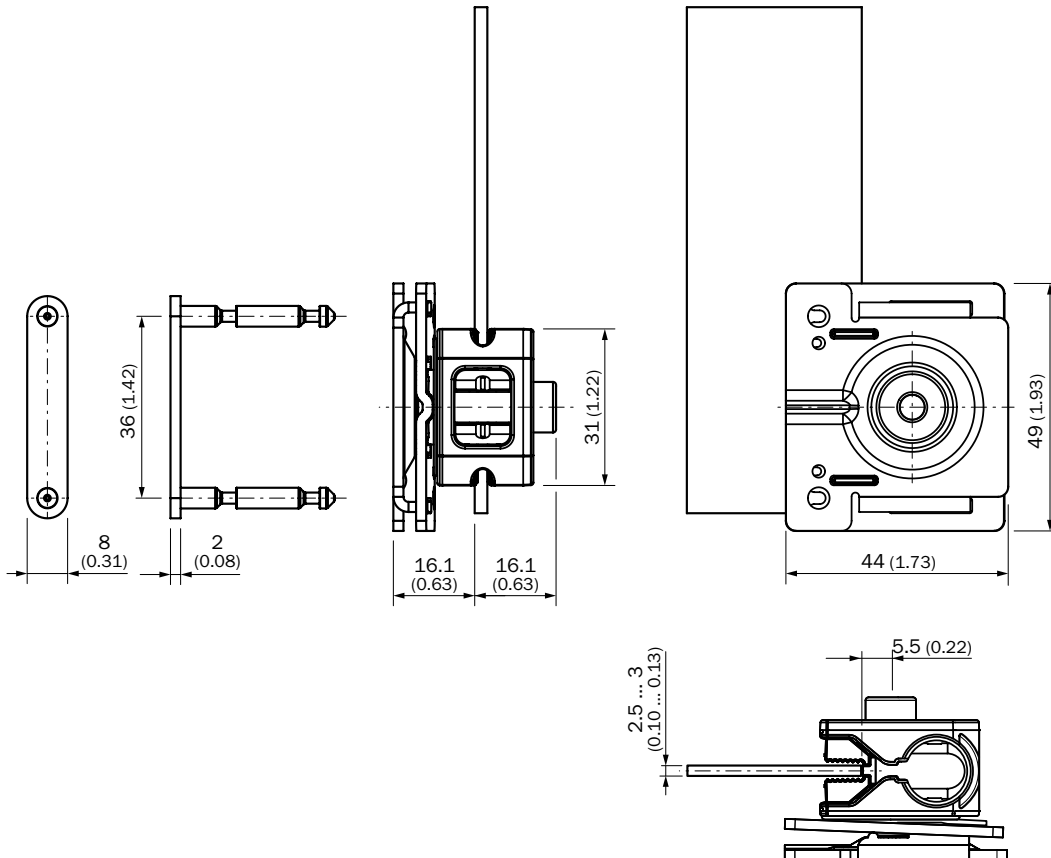


Dimensional drawings Universal bar clamp systems

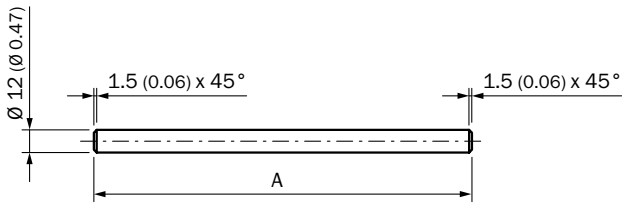
BEF-KHSQ12R01



BEF-KHSQ12ZR01

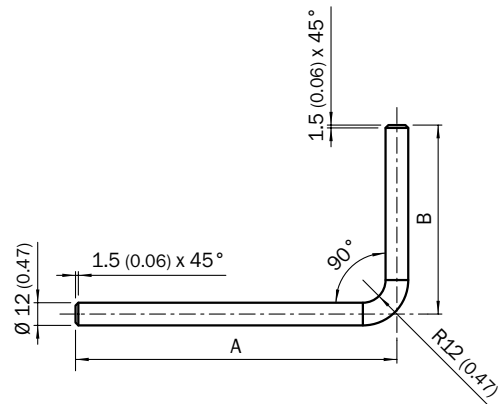


BEF-MS12G-A  
BEF-MS12G-B



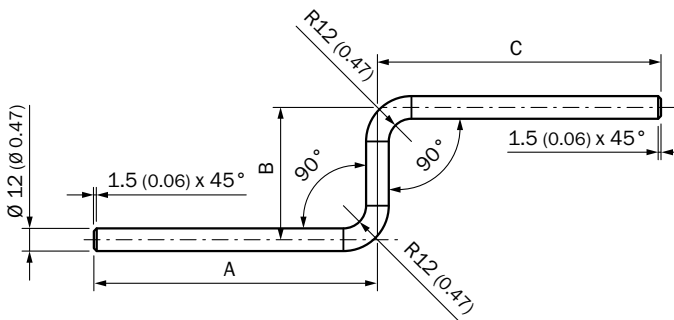
BEF-MS12G-(N)A: A = 200 mm  
BEF-MS12G-(N)B: A = 300 mm

BEF-MS12L-A  
BEF-MS12L-B



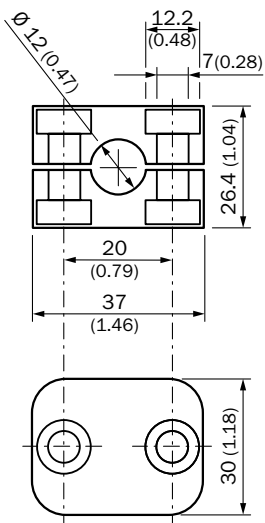
BEF-MS12L-(N)A: A = 200 mm, B = 150 mm  
BEF-MS12L-(N)B: A = 250 mm, B = 250 mm

BEF-MS12Z-A  
BEF-MS12Z-B



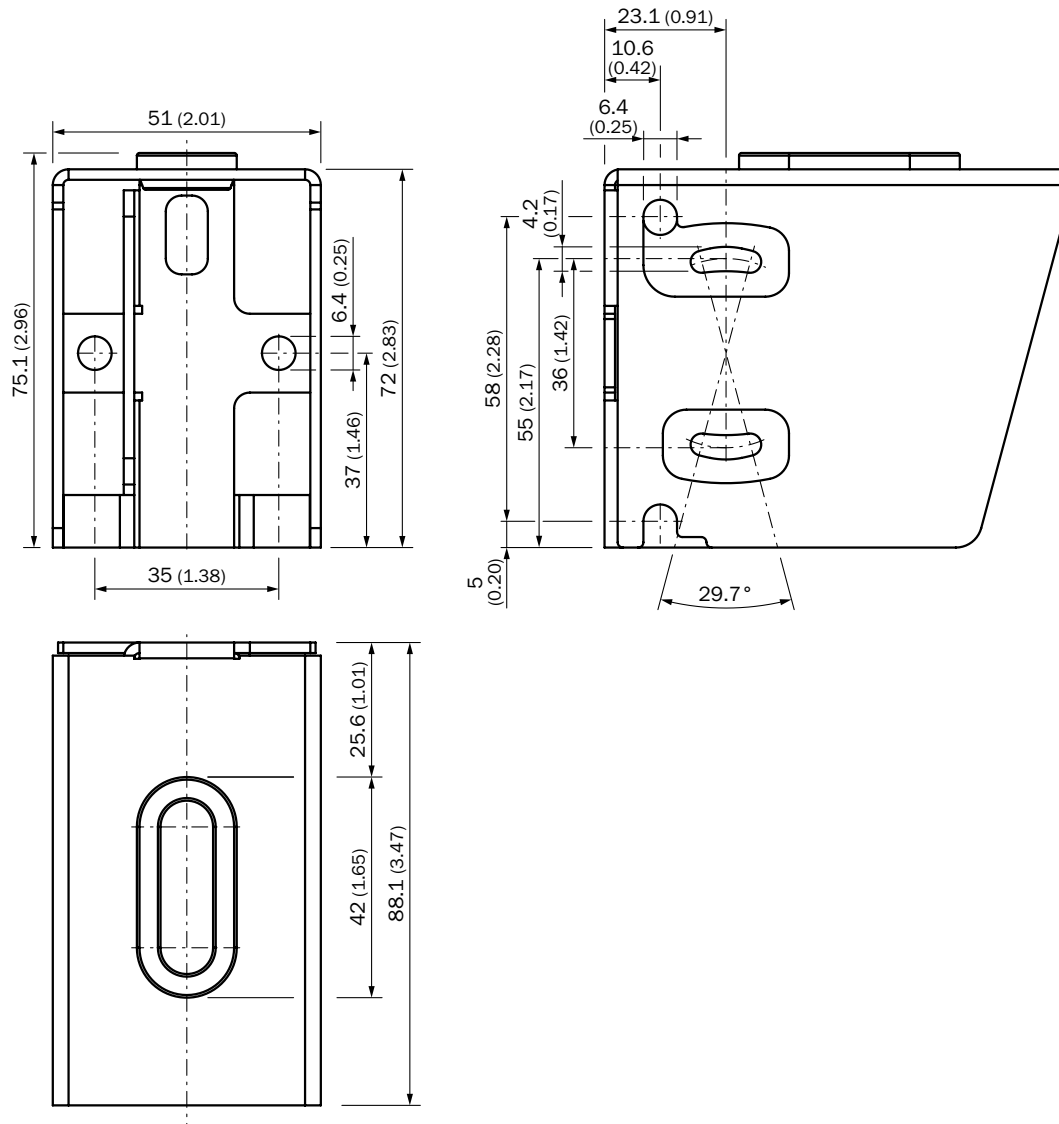
BEF-MS12Z-(N)A: A = 150 mm, B = 70 mm, C = 150 mm  
BEF-MS12Z-(N)B: A = 150 mm, B = 70 mm, C = 250 mm

BEF-RMC-D12



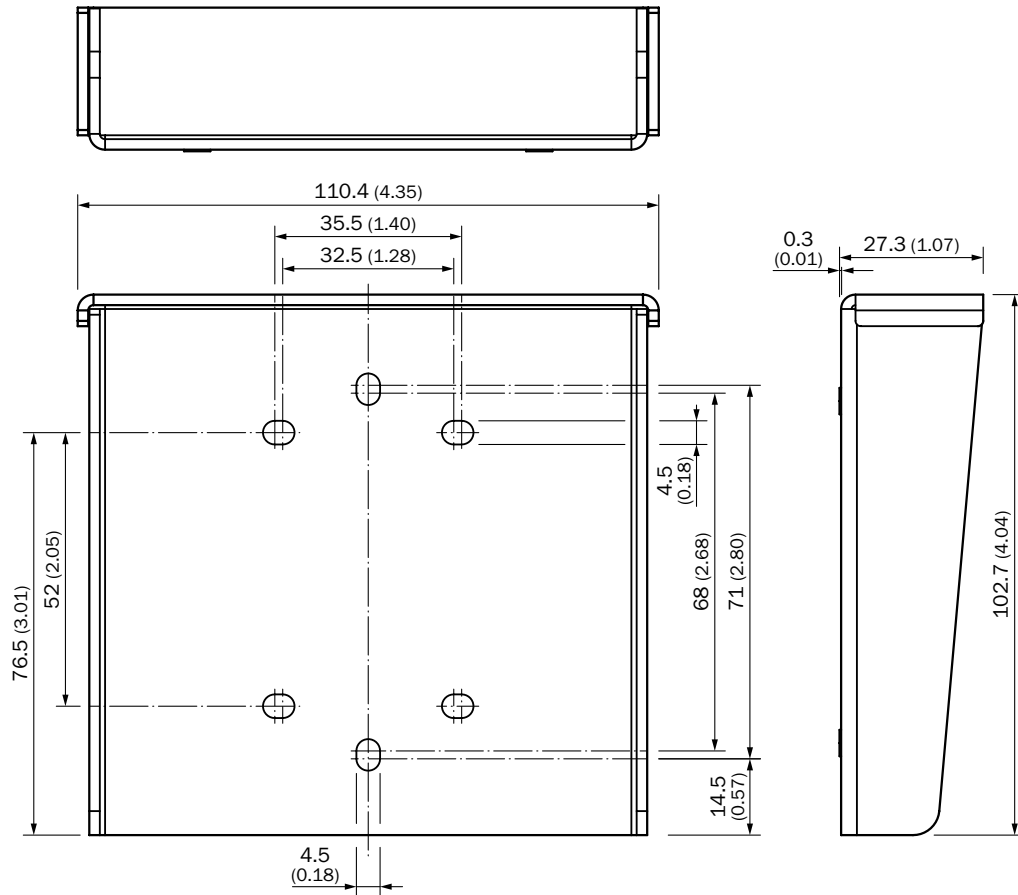
Dimensional drawings Device protection (mechanical)

BEF-G10WSG



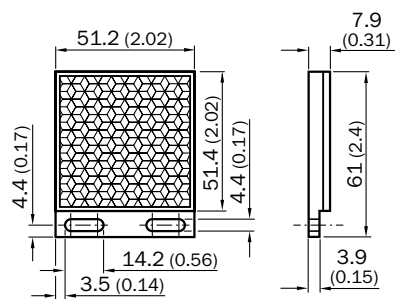


BEF-PL80AWSG

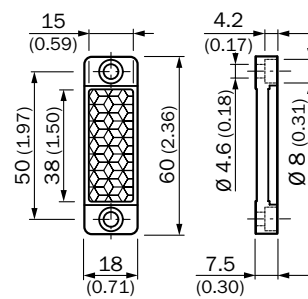


Dimensional drawings Reflectors

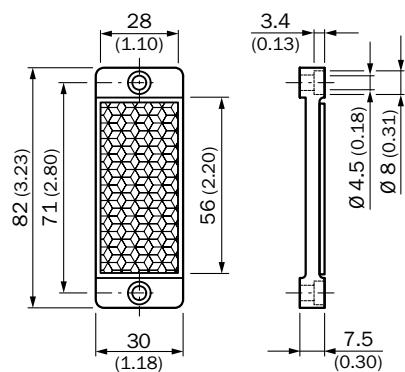
P250



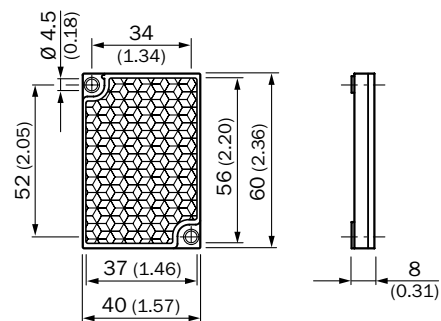
PL20A



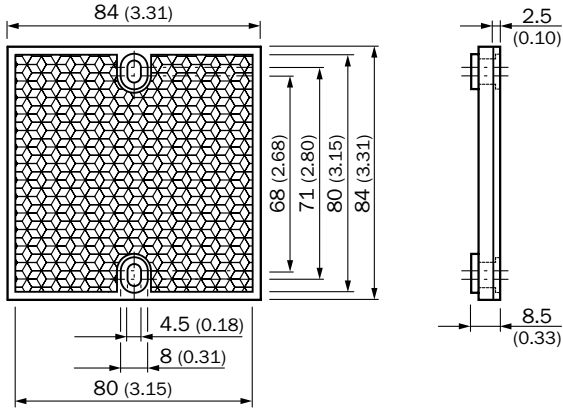
PL30A



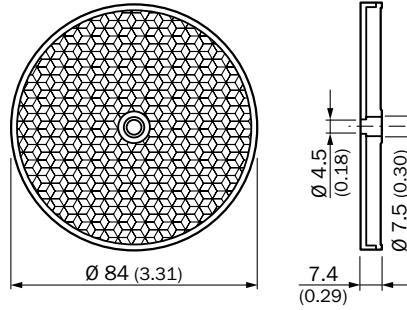
PL40A



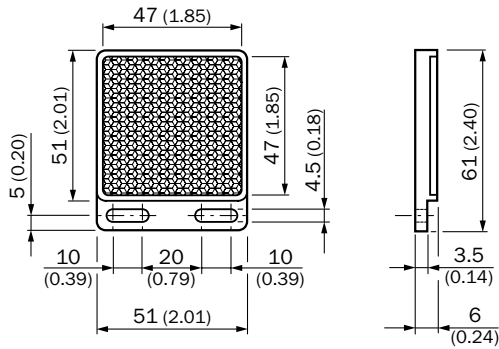
PL80A



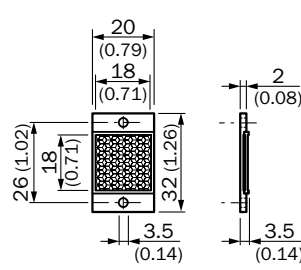
C110A



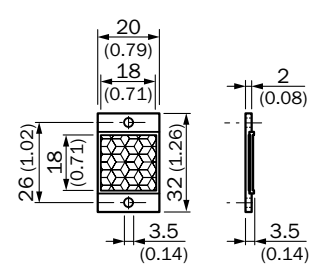
P250F



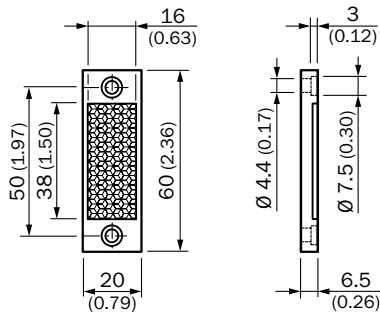
PL10F



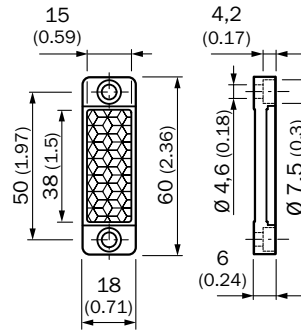
PL10F CHEM



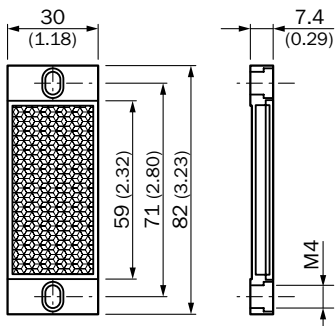
PL20F



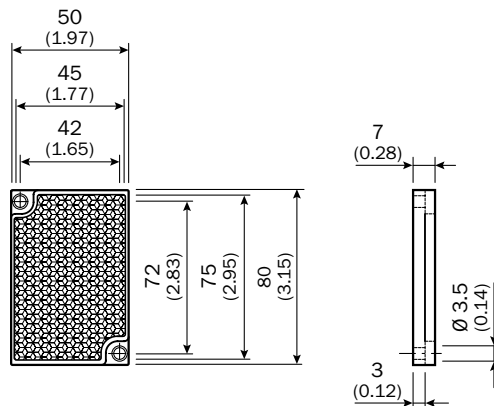
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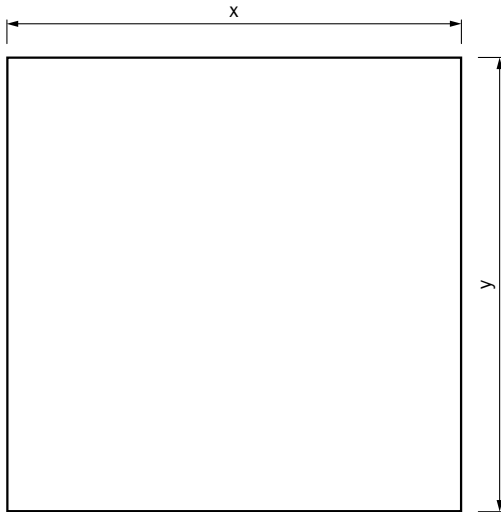
PL30F



PL81-1F

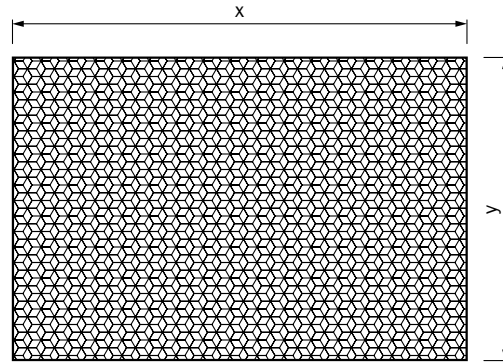


REF-AC1000-56



X = 56.3 mm  
Y = 56.3 mm

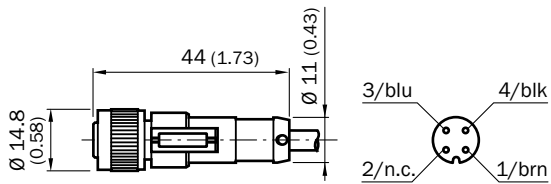
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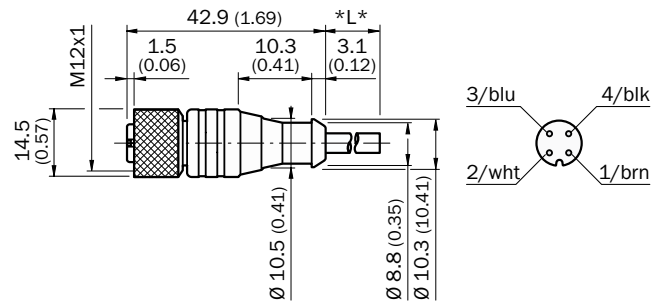
X = 50 mm  
Y = 60 mm

Dimensional drawings Plug connectors and cables

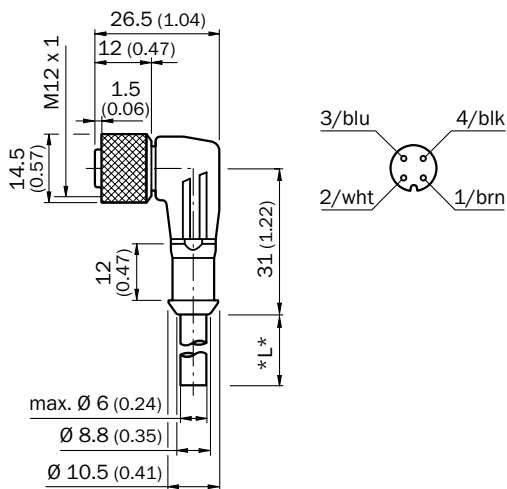
DOL-1204-GxxM



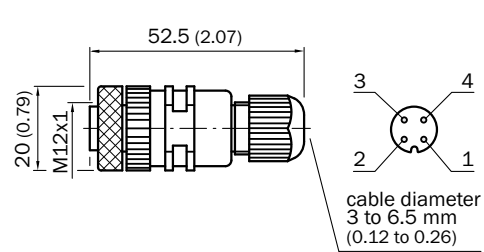
DOL-1204-G20M



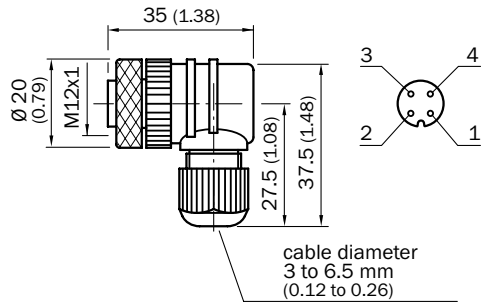
DOL-1204-WxxM



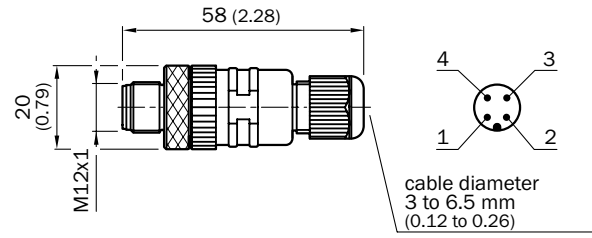
DOS-1204-G



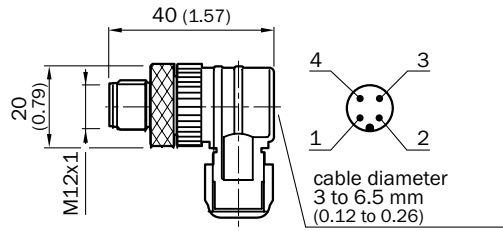
DOS-1204-W



STE-1204-G



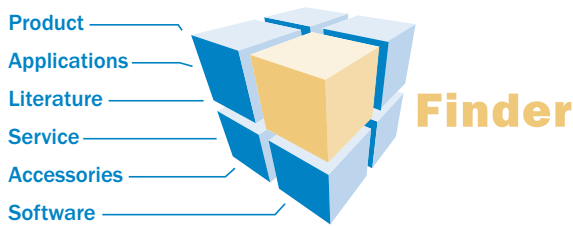
STE-1204-W





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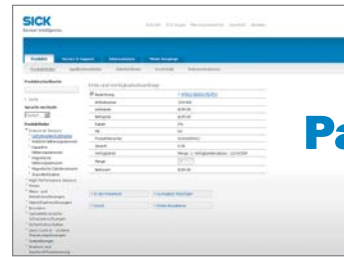


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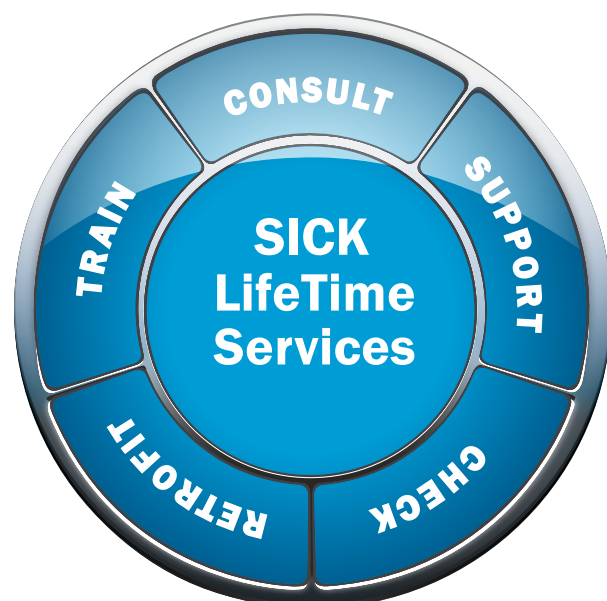
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