



**GR18S**  
**Cylindrical photoelectric sensor**

Round, short and economically unbeatable

## Our GR18S product family: Space-saving and extremely versatile

Due to their versatility, GR18S cylindrical photoelectric sensors can be used across a wide range of applications. Five short housing designs and two flush mounting kits make them ideal universal and space-saving solutions.

### A complete product family

The GR18S product family is in an extremely short cylindrical M18 housing and offers an optimum price to performance ratio. They are available in different options:

- Photoelectric proximity sensor
- Photoelectric retro-reflective sensor, also available as a clear material version
- Through-beam photoelectric sensor

### At a glance

- Shortest, economical M18 cylindrical sensor
- Five different housing designs
- Plastic or metal versions with straight or right angle optics
- Very bright and highly visible PinPoint LED
- Flush installation with mounting ring, metal version has single piece mounting ring
- Highly visible status indicator
- Rugged and reliable due to proven SICK technology
- IP 67 enclosure rating



## Reliable object detection for roller conveyors and conveyor belts

### Customized options

In certain instances, a customized GR18S cylindrical photoelectric sensor will provide the optimal solution for your application. SICK's application engineering team can tailor sensors based on their extensive knowledge and experience, to meet your factory and logistics automation applications. They will deliver an optimal solution in short lead times. Contact us to discuss your specific customization needs.

### Ideal for logistics automation in a variety of industries

Rugged GR18S photoelectric sensors are ideal for many applications in logistics automation such as in automotive, electronics and packaging industries. When it comes to the automation of material flow or optimization of sorting and warehousing processes, GR18S photoelectric sensors from SICK provide the highest level of reliability and efficiency.



## GR18S cylindrical photoelectric sensor: Sophisticated and detail oriented



### Housing material for any application

GR18S cylindrical photoelectric sensors can fit to any application and budget because they can be delivered in plastic or metal versions.

#### **Metal and plastic housing**



### For tight installation spaces

The sensor's housing is the shortest in the industry – even less space is required for right angle versions. The GR18S provides the ideal installation conditions for applications with limited installation space.

#### **Straight and right angle optics**



### Increase productivity with smooth processes

The GR18S sensor can be flush mounted: the sensor will not hit objects on the conveyor, making them a superior solution.

#### **Special fully flush designs**

## Typically for SICK: Variety of options for any application



### Increased throughput with maximum detection reliability

PinPoint technology from SICK, with its highly visible light spot, will reduce sensor alignment and installation time, simplify commissioning and increase the sensing range.

**PinPoint technology from SICK**



### Bright status indicator visible from any direction

Each GR18S is equipped with a very bright LED status indicator. The current operational status can be recognized at a glance even from greater distances. As a result, sensor commissioning and maintenance times are significantly reduced.

**Highly visible status indicator**



### Large potentiometer

Potentiometer is large and easily adjustable using standard tools and reduces sensor setup and installation time. Therefore no special tool is required for sensitivity adjustment.

**Using a screwdriver for adjustments**

## Unique flush mounting: For optimal flow of materials

The highlight of our new GR18S cylindrical photoelectric sensors: Flush mountable housing options ideal for roller conveyors. The fully flush metal version offers high tightening torque for high resistance to shock and vibration, ensuring maximum reliability.



### Extra tough

Considering the rough environment of material handling and warehousing systems in logistics automation, we designed a fully flush metal version. With its high tightening torque, the GR18S handles tough logistics automation applications. The GR18S is resistant to shock and vibration and will survive even hard collisions and contacts without any damage.



### Smooth operation





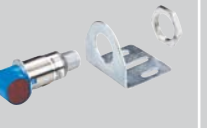
Thanks to their short housing design and flush mounting, GR18S cylindrical photoelectric sensors can be flush-mounted practically anywhere.



### Mounting bracket with minimal space requirement

The mounting bracket with a standard M18 hole serves as a solid base for flush installation of the GR18S photoelectric sensor. It provides shock and vibration-resistant installation in tight spaces.

# Unlimited selection: The right sensor for every application

	Plastic housing, straight	Plastic housing, right angle	Metal housing, straight	Fully flush metal housing, right angle	Fully flush metal housing, straight
					
Example installation					
GRTE18S Photoelectric proximity sensor	page 8	page 8	page 8	page 8	page 8
GRL18S Photoelectric retro-reflective sensor	page 16	page 16	page 16	page 16	page 16
GRL18SG Photoelectric retro-reflective sensor for clear materials	page 22	page 22	page 22	page 22	page 22
GRSE18S Through-beam photoelectric sensor	page 28	page 28	page 28	page 28	Housing not available

Photoelectric proximity sensor - round, short and economically unbeatable



### Product description

The GRTE18S photoelectric proximity sensor in a cylindrical M18-housing has a special shortened design and offers an optimal price/performance ratio. It can be used universally in many applications thanks to five different housing designs. PinPoint LEDs, plastic and metal housing

versions as well as status indicators that are easily visible from all angles round off the sensor's features. One highlight is the fully-flush metal variant, which has been especially designed for use in harsh industrial environments found in handling and warehousing systems.

### At a glance

- Low-cost cylindrical M18 sensor with extra short housing
- Five different housing styles
- Variety of plastic and metal housing styles, with straight or right angle optics
- Bright and highly visible PinPoint-LED
- Flush installation with mounting ring, metal version has single piece mounting ring
- Highly visible signal indicator LED
- IP 67 rating

### Your benefits

- Space-saving solution due to short housing
- Flexible mounting options due to versatile housing styles
- Easy installation and precise detection due to PinPoint LED
- Reduced maintenance costs due to high tightening torque of single piece flush metal housing
- Rugged and reliable with proven SICK technology
- Highly visible signal indicator LED saves maintenance and commissioning time

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→ [www.mysick.com/en/GRTE18S](http://www.mysick.com/en/GRTE18S)  
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

	Sensing range max. 115 mm	Sensing range max. 550 mm
<b>Sensor principle</b>	Photoelectric proximity sensor	
<b>Detection principle</b>	Energetic	
<b>Housing design (light emission)</b>		
	Metal	Straight / Straight, fully flush / Angled, fully flush
	Plastic	Straight / Angled
<b>Optical axis</b>	Axial / Radial	
<b>Sensing range max.</b> <sup>1)</sup>	3 mm ... 115 mm	5 mm ... 550 mm
<b>Sensing range</b> <sup>1)</sup>	5 mm ... 100 mm	10 mm ... 400 mm
<b>Type of light</b>	Visible red light	
<b>Light source</b> <sup>2)</sup>	PinPoint LED	
<b>Light spot (distance)</b>	Ø 8 mm (100 mm)	Ø 9 mm (400 mm)
<b>Wave length</b>	650 nm	
<b>Sensitivity adjustment</b>	Potentiometer, 270°	

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

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

### Mechanics/electronics

<b>Supply voltage</b> <sup>1)</sup>	10 V DC ... 30 V DC
<b>Residual ripple</b> <sup>2)</sup>	± 5 V <sub>pp</sub>
<b>Power consumption</b> <sup>3)</sup>	≤ 30 mA
<b>Switching output</b>	NPN, light switching PNP, light switching NPN, Dark-switching PNP, Dark-switching (depending on type)
<b>Signal voltage</b>	
	PNP (HIGH/LOW) U <sub>v</sub> -(≤ 3 V)/ca. 0 V
	NPN (HIGH/LOW) ca. U <sub>v</sub> /≤ 3 V
<b>Output current I<sub>max</sub></b> <sup>4)</sup>	100 mA
<b>Response time</b> <sup>5)</sup>	< 1,000 µs
<b>Switching frequency max.</b> <sup>6)</sup>	500 Hz
<b>Connection type</b>	Cable, 2 m, PVC <sup>7)</sup> Connector M12, 3-pin (depending on type)
<b>Circuit protection</b>	A <sup>8)</sup> , B <sup>9)</sup> , D <sup>10)</sup>
<b>Protection class</b>	III
<b>Housing material</b>	Metal / Plastic
<b>Enclosure rating</b>	IP 67
<b>Ambient operating temperature</b> <sup>11)</sup>	-25 °C ... +55 °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> May not exceed or fall short of V<sub>S</sub>.

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

<sup>4)</sup> At V<sub>S</sub> > 24 V or ambient temperature > 49 °C, I<sub>A</sub> max = 50 mA.

<sup>5)</sup> Signal transit time with resistive load.

<sup>6)</sup> With light/dark ratio 1:1.

<sup>7)</sup> Do not bend below 0 °C.

<sup>8)</sup> A = V<sub>S</sub> connections reverse-polarity protected.

<sup>9)</sup> B = inputs and output reverse-polarity protected.

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

<sup>11)</sup> At U<sub>v</sub> ≤ 24V and I<sub>A</sub> < 50mA.

## Ordering information

Sensing range max. 115 mm

- **Detection principle:** energetic
- **Sensing range max.:** 3 mm ... 115 mm (Object with 90 % reflectance (referred to standard white DIN 5033).)
- **Adjustment:** adjustable, Potentiometer, 270°

Housing material	Housing design	Switching output	Switching mode	Connection	Model name	Part no.
Metal	Straight	NPN	Light switching	Cable, 3-wire, 2 m, PVC	GRTE18S-N1312	1058201
				Connector M12, 3-pin	GRTE18S-N2312	1059408
		PNP	Light switching	Cable, 3-wire, 2 m, PVC	GRTE18S-P1312	1058203
				Connector M12, 3-pin	GRTE18S-P2312	1058204
	Straight, fully flush	NPN	Light switching	Connector M12, 3-pin	GRTE18S-N231Z	1059432
				Dark-switching	Connector M12, 3-pin	GRTE18S-E231Z
		PNP	Light switching		Connector M12, 3-pin	GRTE18S-P231Z
				Dark-switching	Connector M12, 3-pin	GRTE18S-F231Z
	Angled, fully flush	PNP	Light switching		Connector M12, 3-pin	GRTE18S-P231X
				Dark-switching	Connector M12, 3-pin	GRTE18S-F231X
Plastic	Straight	NPN	Light switching		Cable, 3-wire, 2 m, PVC	GRTE18S-N1317
				Connector M12, 3-pin	GRTE18S-N2317	1059378
		PNP	Light switching	Cable, 3-wire, 2 m, PVC	GRTE18S-P1317	1058195
				Connector M12, 3-pin	GRTE18S-P2317	1058196
	Angled	PNP	Dark-switching	Connector M12, 3-pin	GRTE18S-F2319	1059406
				Light switching	Connector M12, 3-pin	GRTE18S-P2319

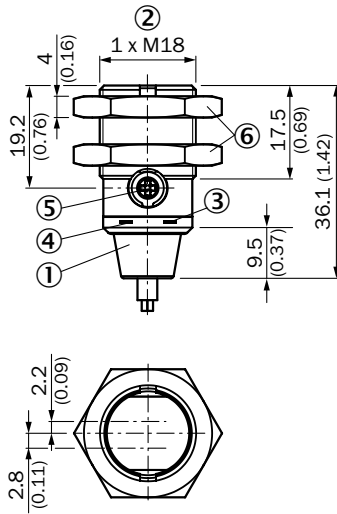
Sensing range max. 550 mm

- **Detection principle:** energetic
- **Sensing range max.:** 5 mm ... 550 mm (Object with 90 % reflectance (referred to standard white DIN 5033).)
- **Adjustment:** adjustable, Potentiometer, 270°

Housing material	Housing design	Switching output	Switching mode	Connection	Model name	Part no.
Metal	Straight	NPN	Light switching	Cable, 3-wire, 2 m, PVC	GRTE18S-N1342	1058202
				Connector M12, 3-pin	GRTE18S-N2342	1059482
		PNP	Light switching	Cable, 3-wire, 2 m, PVC	GRTE18S-P1342	1058205
				Connector M12, 3-pin	GRTE18S-P2342	1058200
	Straight, fully flush	NPN	Light switching	Connector M12, 3-pin	GRTE18S-N234Z	1059484
				Dark-switching	Connector M12, 3-pin	GRTE18S-E234Z
		PNP	Light switching		Connector M12, 3-pin	GRTE18S-P234Z
				Dark-switching	Connector M12, 3-pin	GRTE18S-F234Z
	Angled, fully flush	PNP	Light switching		Connector M12, 3-pin	GRTE18S-P234X
				Dark-switching	Connector M12, 3-pin	GRTE18S-F234X
Plastic	Straight	NPN	Light switching		Cable, 3-wire, 2 m, PVC	GRTE18S-N1347
				Connector M12, 3-pin	GRTE18S-N2347	1059441
		PNP	Light switching	Cable, 3-wire, 2 m, PVC	GRTE18S-P1347	1058197
				Connector M12, 3-pin	GRTE18S-P2347	1058193
	Angled	PNP	Dark-switching	Connector M12, 3-pin	GRTE18S-F2349	1059480
				Light switching	Connector M12, 3-pin	GRTE18S-P2349

## Dimensional drawings

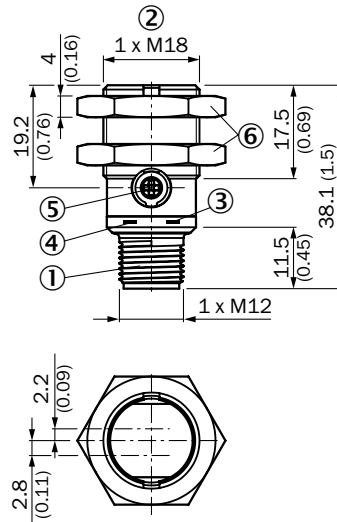
### GRTE18S, metal, cable, straight



All dimensions in mm (inch)

- ① Connection cable 2 m
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ Fastening nuts (2 x); 24 mm hex, metal

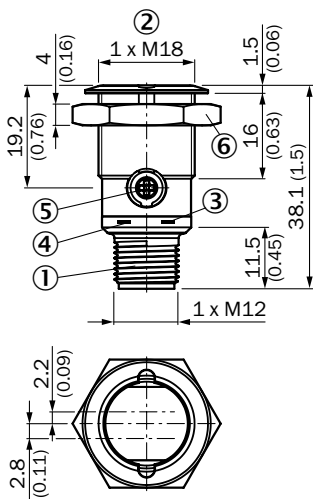
### GRTE18S, metal, plug, straight



All dimensions in mm (inch)

- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ Fastening nuts (2 x); 24 mm hex, metal

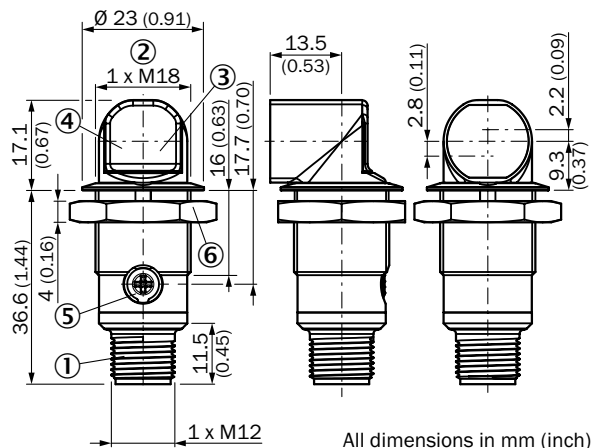
### GRTE18S, metal, plug, straight, fully flush



All dimensions in mm (inch)

- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ Fastening nuts (2 x); 24 mm hex, metal

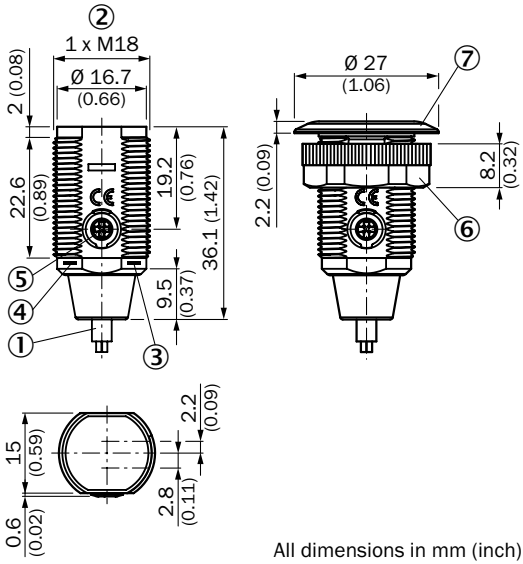
### GRTE18S, metal, plug, angled, fully flush



All dimensions in mm (inch)

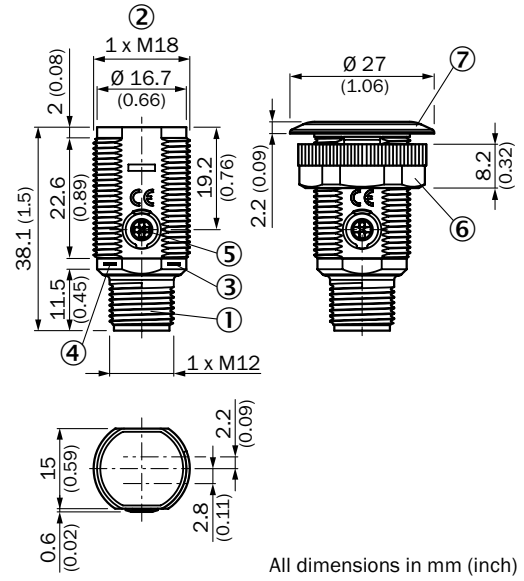
- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ Fastening nut; 24 mm hex, metal

**GRTE18S, plastic, cable, straight**



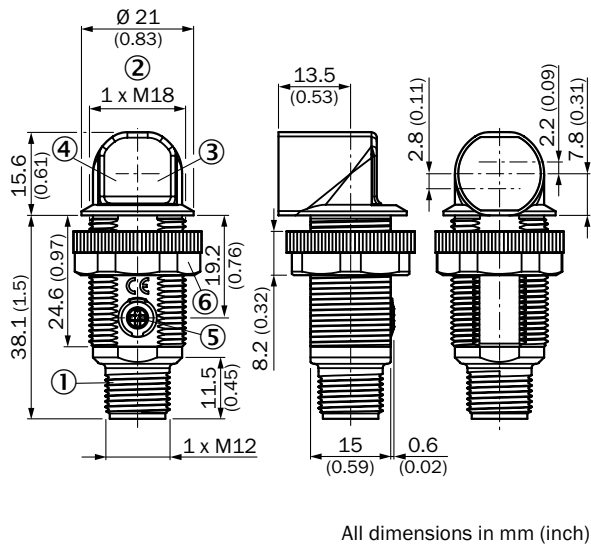
- ① Connection cable 2 m
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ Fastening nut; 22 mm hex, plastic
- ⑦ Mounting ring

**GRTE18S, plastic, plug, straight**



- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ Fastening nut; 22 mm hex, plastic
- ⑦ Mounting ring

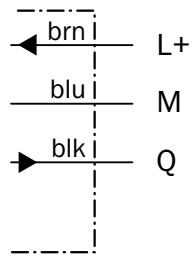
**GRTE18S, plastic, plug, angled**



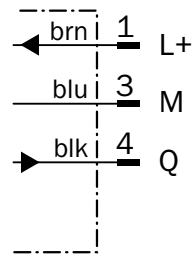
- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ Fastening nut; 22 mm hex, plastic

## Connection diagram

### Cable, 3-wire



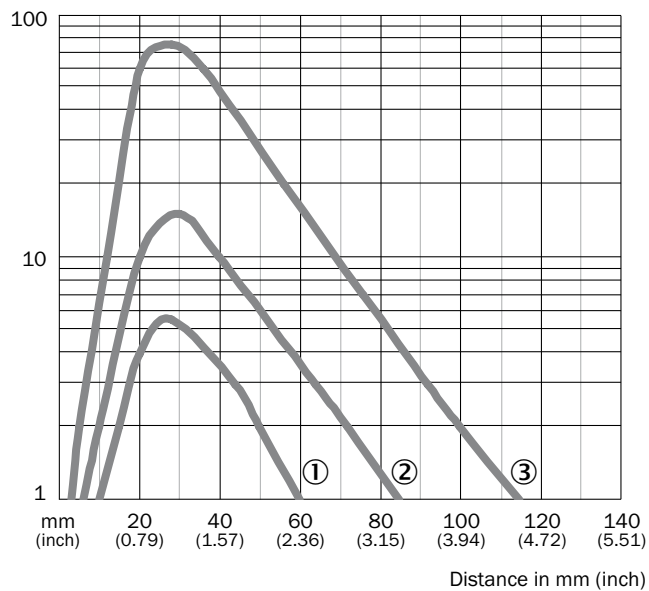
### Connector M12, 3-pin



## Operating reserve

### GRTE18S-xxx1x

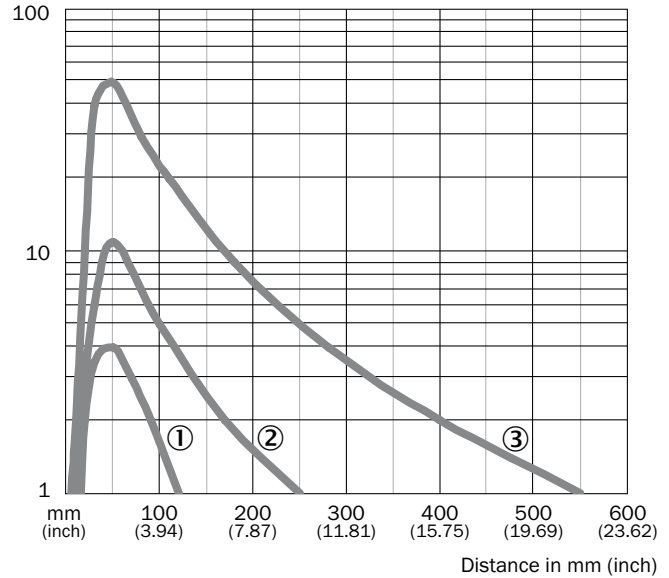
Operating reserve



- ① Sensing range on black, 6 % remission
- ② Sensing range on grey, 20 % remission
- ③ Sensing range on white, 90 % remission

### GRTE18S-xxx4x

Operating reserve

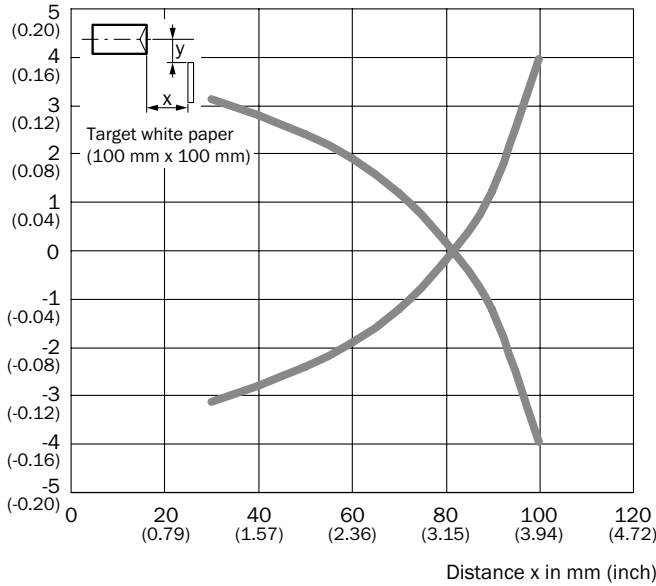


- ① Sensing range on black, 6 % remission
- ② Sensing range on grey, 20 % remission
- ③ Sensing range on white, 90 % remission

### Response curve

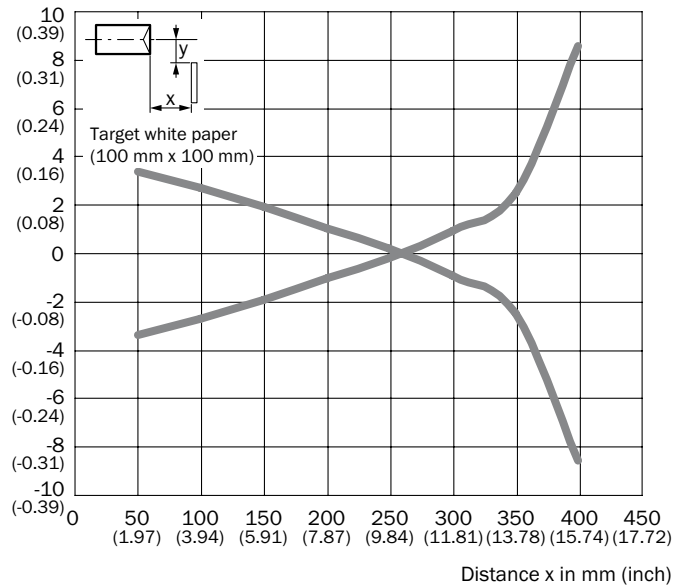
#### GRTE18S-xxx1x

Parallel operating range y in mm (inch)



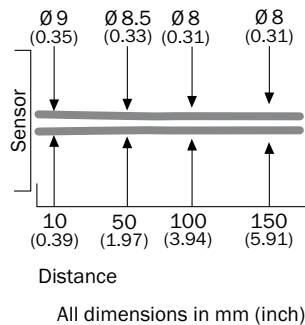
#### GRTE18S-xxx4x

Parallel operating range y in mm (inch)

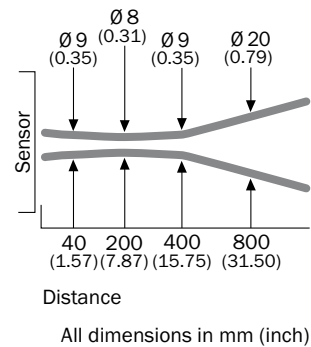


### Light spot diameter

#### GRTE18S-xxx1x

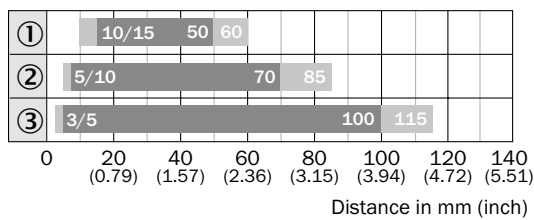


#### GRTE18S-xxx4x



### Sensing range

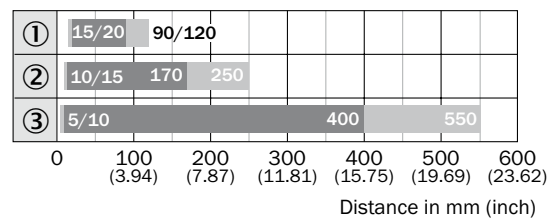
#### GRTE18S-xxx1x



■ Sensing range    ■ Sensing range max.

- ① Sensing range on black, 6 % remission
- ② Sensing range on grey, 20 % remission
- ③ Sensing range on white, 90 % remission

#### GRTE18S-xxx4x



■ Sensing range    ■ Sensing range max.

- ① Sensing range on black, 6 % remission
- ② Sensing range on grey, 20 % remission
- ③ Sensing range on white, 90 % remission



Retro-reflective sensor - round, short and economically unbeatable



### Product description

The GRL18S retro-reflective sensor in a cylindrical M18-housing has a special shortened design and offers an optimal price/performance ratio. It can be used universally in many applications thanks to five different housing designs. PinPoint LEDs, plastic and metal housing

versions as well as status indicators that are easily visible from all angles round off the sensor's features. One highlight is the fully-flush metal variant, which has been especially designed for use in harsh industrial environments found in handling and warehousing systems.

### At a glance

- Low-cost cylindrical M18 sensor with extra short housing
- Five different housing styles
- Variety of plastic and metal housing styles, with straight or right angle optics
- Bright and highly visible PinPoint-LED
- Flush installation with mounting ring, metal version has single piece mounting ring
- Highly visible signal indicator LED
- IP 67 rating

### Your benefits

- Space-saving solution due to short housing
- Flexible mounting options due to versatile housing styles
- Easy installation and precise detection due to PinPoint LED
- Reduced maintenance costs due to high tightening torque of single piece flush metal housing
- Rugged and reliable with proven SICK technology
- Highly visible signal indicator LED saves maintenance and commissioning time

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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

<b>Sensor principle</b>	Photoelectric retro-reflective sensor
<b>Detection principle</b>	Standard optics
<b>Housing design (light emission)</b>	
	Metal Straight / Straight, fully flush / Angled, fully flush
	Plastic Straight / Angled
<b>Optical axis</b>	Axial / Radial
<b>Sensing range max. <sup>1)</sup></b>	0.03 m ... 7.2 m
<b>Sensing range <sup>1)</sup></b>	0.06 m ... 6 m
<b>Type of light</b>	Visible red light
<b>Light source <sup>2)</sup></b>	PinPoint LED
<b>Light spot (distance)</b>	Ø 175 mm (7 m)
<b>Wave length</b>	650 nm
<b>Sensitivity adjustment</b>	No adjustment

<sup>1)</sup> PL80A.

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

### Mechanics/electronics

<b>Supply voltage <sup>1)</sup></b>	10 V DC ... 30 V DC
<b>Residual ripple <sup>2)</sup></b>	± 5 V <sub>pp</sub>
<b>Power consumption <sup>3)</sup></b>	≤ 30 mA
<b>Switching output</b>	PNP, light switching PNP, Dark-switching NPN, light switching NPN, Dark-switching (depending on type)
<b>Signal voltage</b>	
	PNP (HIGH/LOW) U <sub>V</sub> -(≤ 3 V)/ca. 0 V
	NPN (HIGH/LOW) ca. U <sub>V</sub> /≤ 3 V
<b>Output current I<sub>max.</sub> <sup>4)</sup></b>	100 mA
<b>Response time <sup>5)</sup></b>	< 500 µs
<b>Switching frequency max. <sup>6)</sup></b>	1,000 Hz
<b>Connection type</b>	Cable, 2 m, PVC <sup>7)</sup> Connector M12, 3-pin (depending on type)
<b>Circuit protection</b>	A <sup>8)</sup> , B <sup>9)</sup> , D <sup>10)</sup>
<b>Protection class</b>	III
<b>Polarisation filter</b>	✓
<b>Housing material</b>	Metal / Plastic
<b>Enclosure rating</b>	IP 67
<b>Ambient operating temperature <sup>11)</sup></b>	-25 °C ... +55 °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> May not exceed or fall short of V<sub>S</sub>.

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

<sup>4)</sup> At V<sub>S</sub> > 24 V or ambient temperature > 49 °C, I<sub>A</sub> max = 50 mA.

<sup>5)</sup> Signal transit time with resistive load.

<sup>6)</sup> With light/dark ratio 1:1.

<sup>7)</sup> Do not bend below 0 °C.

<sup>8)</sup> A = V<sub>S</sub> connections reverse-polarity protected.

<sup>9)</sup> B = inputs and output reverse-polarity protected.

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

<sup>11)</sup> At U<sub>V</sub> ≤ 24V and I<sub>A</sub> < 50mA.

## Ordering information

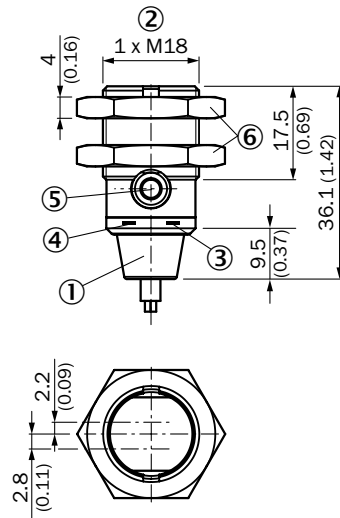
Sensing range max. 7.2 m

- **Detection principle:** Standard optics
- **Sensing range max.:** 0.03 m ... 7.2 m (PL80A.)
- **Adjustment:** no/fix

Housing material	Housing design	Switching output	Switching mode	Connection	Model name	Part no.
Metal	Straight	PNP	Light switching	Cable, 3-wire, 2 m, PVC	GRL18S-P1331	1059542
				Connector M12, 3-pin	GRL18S-P2331	1058199
		Dark-switching	Cable, 3-wire, 2 m, PVC	GRL18S-F1331	1059541	
			Connector M12, 3-pin	GRL18S-F2331	1058198	
	NPN	Light switching	Cable, 3-wire, 2 m, PVC	GRL18S-N1331	1059538	
		Dark-switching	Cable, 3-wire, 2 m, PVC	GRL18S-E1331	1059537	
	Straight, fully flush	PNP	Light switching	Connector M12, 3-pin	GRL18S-P233Y	1058207
			Dark-switching	Connector M12, 3-pin	GRL18S-F233Y	1058206
	Angled, fully flush	PNP	Light switching	Connector M12, 3-pin	GRL18S-P233W	1058210
			Dark-switching	Connector M12, 3-pin	GRL18S-F233W	1058209
Plastic	Straight	PNP	Light switching	Cable, 3-wire, 2 m, PVC	GRL18S-P1336	1059534
				Connector M12, 3-pin	GRL18S-P2336	1058192
		Dark-switching	Cable, 3-wire, 2 m, PVC	GRL18S-F1336	1059532	
			Connector M12, 3-pin	GRL18S-F2336	1059533	
	NPN	Light switching	Cable, 3-wire, 2 m, PVC	GRL18S-N1336	1059531	
		Dark-switching	Cable, 3-wire, 2 m, PVC	GRL18S-E1336	1059530	
	Angled	PNP	Light switching	Cable, 3-wire, 2 m, PVC	GRL18S-P1338	1059536
				Connector M12, 3-pin	GRL18S-P2338	1058212
		Dark-switching	Cable, 3-wire, 2 m, PVC	GRL18S-F1338	1059535	
			Connector M12, 3-pin	GRL18S-F2338	1058211	

## Dimensional drawings

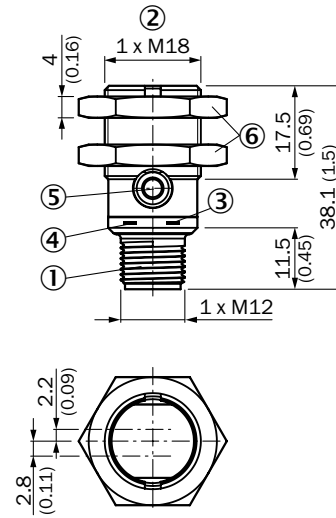
### GRL18S, GRSE18S, metal, cable, straight



All dimensions in mm (inch)

- ① Connection cable 2 m
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Dummy plug
- ⑥ Fastening nuts (2 x); 24 mm hex, metal

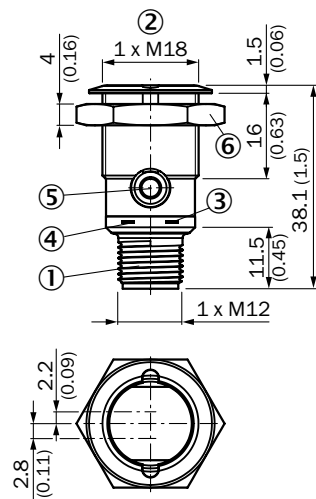
### GRL18S, GRSE18S, metal, plug, straight



All dimensions in mm (inch)

- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Dummy plug
- ⑥ Fastening nuts (2 x); 24 mm hex, metal

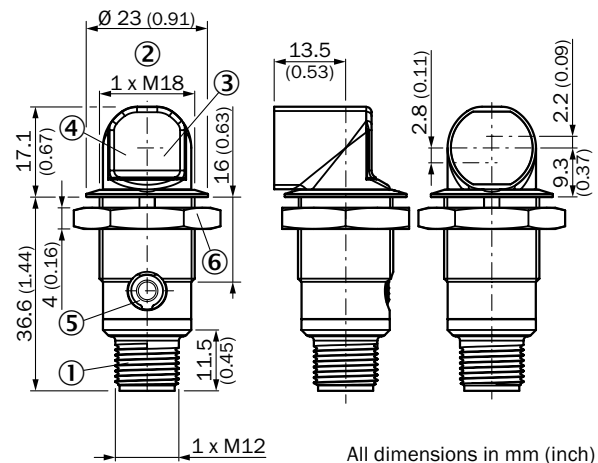
### GRL18S, GRSE18S, metal, plug, straight, fully flush



All dimensions in mm (inch)

- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Dummy plug
- ⑥ Fastening nuts (2 x); 24 mm hex, metal

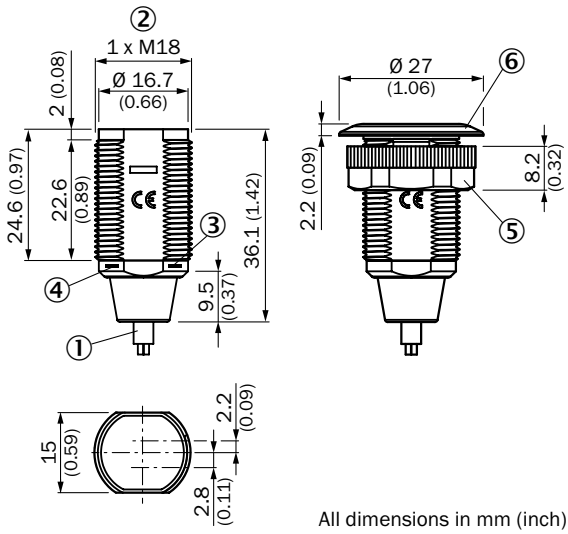
### GRL18S, GRSE18S, metal, plug, angled, fully flush



All dimensions in mm (inch)

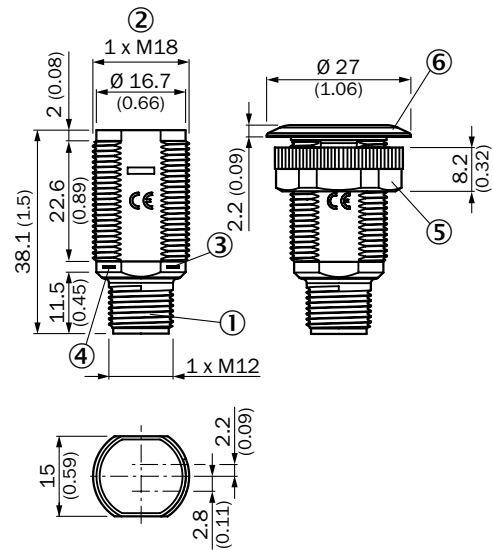
- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Dummy plug
- ⑥ Fastening nut; 24 mm hex, metal

**GRL18S, GRSE18S, plastic, cable, straight**



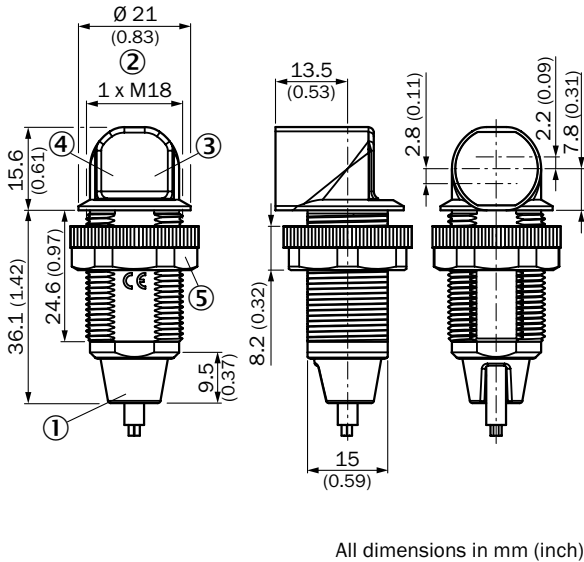
- ① Connection cable 2 m
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Fastening nut; 22 mm hex, plastic
- ⑥ Mounting ring

**GRL18S, GRSE18S, plastic, plug, straight**



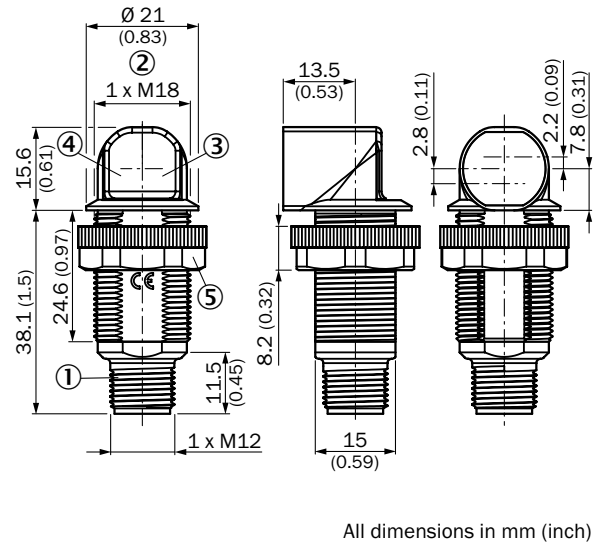
- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Fastening nut; 22 mm hex, plastic
- ⑥ Mounting ring

**GRL18S, GRSE18S, plastic, cable, angled**



- ① Connection cable 2 m
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Fastening nut; 22 mm hex, plastic

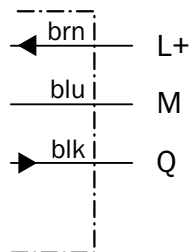
**GRL18S, GRSE18S, plastic, plug, angled**



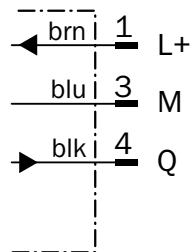
- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Fastening nut; 22 mm hex, plastic

### Connection diagram

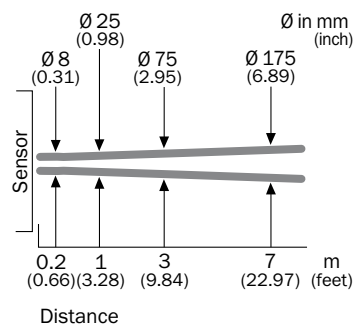
#### Cable, 3-wire



#### Connector M12, 3-pin

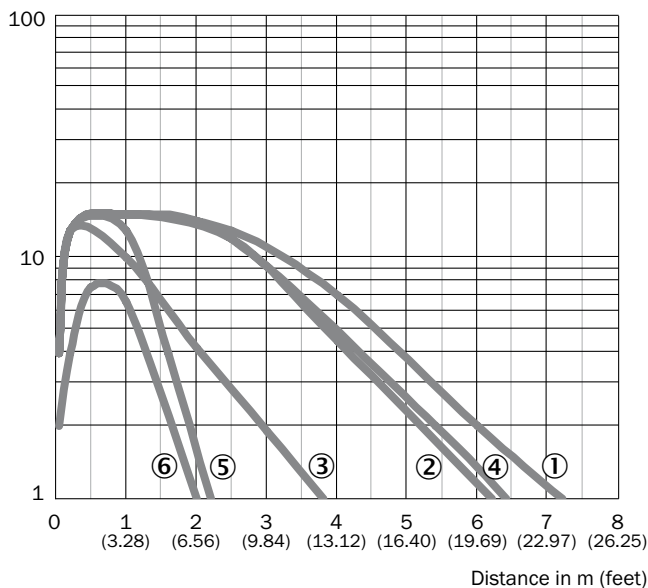


### Light spot diameter



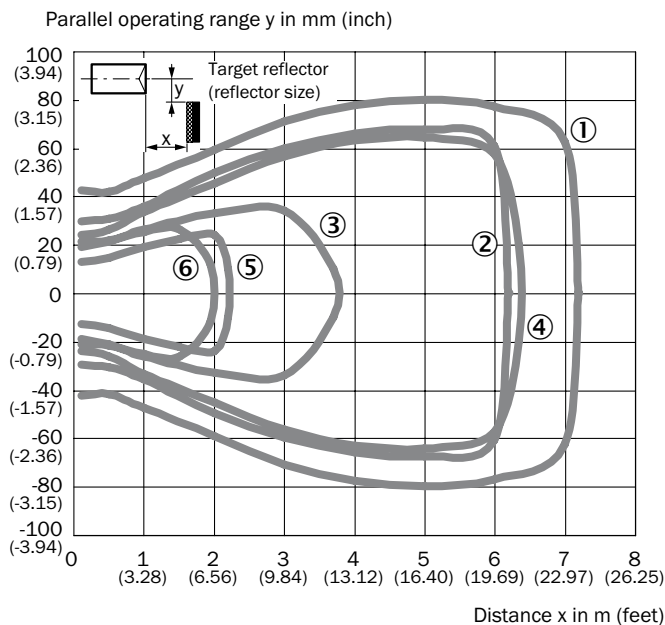
### Operating reserve

#### Operating reserve



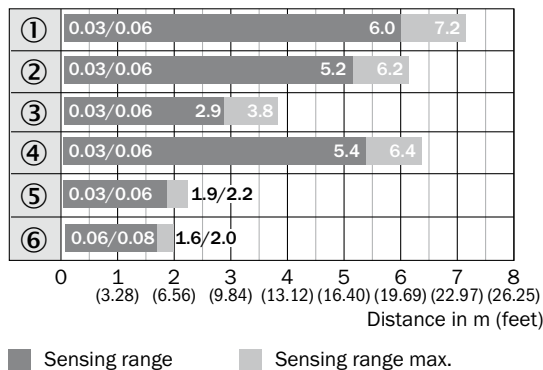
- ① Reflector type PL80A
- ② Reflector type PL40A
- ③ Reflector type PL20A
- ④ Reflector type P250
- ⑤ Reflector type PL22-2
- ⑥ Reflective tape Ref Plus 3436

### Response curve



- ① Reflector type PL80A
- ② Reflector type PL40A
- ③ Reflector type PL20A
- ④ Reflector type P250
- ⑤ Reflector type PL22-2
- ⑥ Reflective tape Ref Plus 3436

### Sensing range



- ① Reflector type PL80A
- ② Reflector type PL40A
- ③ Reflector type PL20A
- ④ Reflector type P250
- ⑤ Reflector type PL22-2
- ⑥ Reflective tape Ref Plus 3436

Retro-reflective sensor for clear material detection - round, short and economically unbeatable

















### Additional information

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### Product description

The GRL18S retro-reflective sensor in a cylindrical M18-housing has a special shortened design and offers an optimal price/performance ratio. It can be used universally in many applications thanks to five different housing designs. PinPoint LEDs, plastic and metal housing versions as well as status indicators that are easily visible from all angles round

off the sensor's features. One highlight is the fully-flush metal variant, which has been especially designed for use in harsh industrial environments found in handling and warehousing systems. The GRL18SG offers an adjustment possibility of switching threshold to detect transparent objects.

### At a glance

- Low-cost cylindrical M18 sensor with extra short housing
  - Potentiometer for adjustment of switching threshold
  - Five different housing styles
  - Variety of plastic and metal housing styles, with straight or right angle optics
- Bright and highly visible PinPoint-LED
  - Flush installation with mounting ring, metal version has single piece mounting ring
  - Highly visible signal indicator LED
  - IP 67 rating

### Your benefits

- Space-saving solution due to short housing
  - Flexible mounting options due to versatile housing styles
  - Potentiometer for adjustment of switching threshold allows detection of transparent objects.
  - Easy installation and precise detection due to PinPoint LED
- Reduced maintenance costs due to high tightening torque of single piece flush metal housing
  - Rugged and reliable with proven SICK technology
  - Highly visible signal indicator LED saves maintenance and commissioning time

→ [www.mysick.com/en/GRL18SG](http://www.mysick.com/en/GRL18SG)

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

<b>Sensor principle</b>	Photoelectric retro-reflective sensor
<b>Detection principle</b>	Standard optics
<b>Housing design (light emission)</b>	
	Metal Straight / Straight, fully flush / Angled, fully flush
	Plastic Straight / Angled
<b>Optical axis</b>	Axial / Radial
<b>Sensing range max. <sup>1)</sup></b>	0.03 m ... 7.2 m
<b>Sensing range <sup>1)</sup></b>	0.06 m ... 6 m
<b>Type of light</b>	Visible red light
<b>Light source <sup>2)</sup></b>	PinPoint LED
<b>Light spot (distance)</b>	Ø 175 mm (7 m)
<b>Wave length</b>	650 nm
<b>Sensitivity adjustment</b>	Potentiometer, 270°
<b>Special design</b>	Clear material detection (with attenuation along light beam >20%)

<sup>1)</sup> PL80A.

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

### Mechanics/electronics

<b>Supply voltage <sup>1)</sup></b>	10 V DC ... 30 V DC
<b>Residual ripple <sup>2)</sup></b>	± 5 V <sub>pp</sub>
<b>Power consumption <sup>3)</sup></b>	≤ 30 mA
<b>Switching output</b>	PNP, Dark-switching
<b>Signal voltage</b>	
	PNP (HIGH/LOW) U <sub>V</sub> -(≤ 3 V)/ca. 0 V
	NPN (HIGH/LOW) ca. U <sub>V</sub> / ≤ 3 V
<b>Output current I<sub>max.</sub> <sup>4)</sup></b>	100 mA
<b>Response time <sup>5)</sup></b>	< 500 µs
<b>Switching frequency max. <sup>6)</sup></b>	1,000 Hz
<b>Connection type</b>	Connector M12, 3-pin
<b>Circuit protection</b>	A <sup>7)</sup> , B <sup>8)</sup> , D <sup>9)</sup>
<b>Protection class</b>	III
<b>Polarisation filter</b>	✓
<b>Housing material</b>	Metal / Plastic
<b>Enclosure rating</b>	IP 67
<b>Ambient operating temperature <sup>10) 11)</sup></b>	-25 °C ... +55 °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> May not exceed or fall short of V<sub>S</sub>.

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

<sup>4)</sup> At V<sub>S</sub> > 24 V or ambient temperature > 49 °C, I<sub>A</sub> max = 50 mA.

<sup>5)</sup> Signal transit time with resistive load.

<sup>6)</sup> With light/dark ratio 11.

<sup>7)</sup> A = V<sub>S</sub> connections reverse-polarity protected.

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

<sup>9)</sup> D = outputs overcurrent and short-circuit protected.

<sup>10)</sup> At U<sub>V</sub> <= 24V and I<sub>A</sub> < 50mA.

<sup>11)</sup> Temperature stability after adjustment +/-10 °C.

### Ordering information

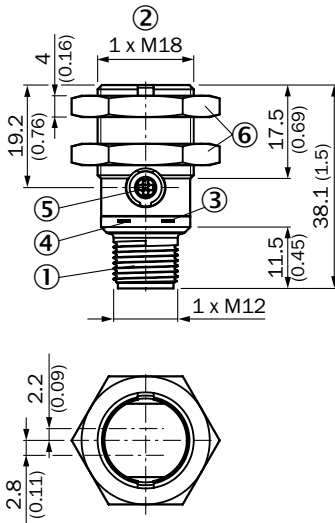
Sensing range max. 7.2 m

- Detection principle: Standard optics
- Sensing range max.: 0.03 m ... 7.2 m (PL80A.)
- Adjustment: Potentiometer, 270°

Housing material	Housing design	Switching output	Switching mode	Connection	Model name	Part no.
Metal	Straight	PNP	Dark-switching	Connector M12, 3-pin	GRL18SG-F2332	1059555
	Straight, fully flush	PNP	Dark-switching	Connector M12, 3-pin	GRL18SG-F233Z	1059556
	Angled, fully flush	PNP	Dark-switching	Connector M12, 3-pin	GRL18SG-F233X	1059557
Plastic	Straight	PNP	Dark-switching	Connector M12, 3-pin	GRL18SG-F2337	1059553
	Angled	PNP	Dark-switching	Connector M12, 3-pin	GRL18SG-F2339	1059554

### Dimensional drawings

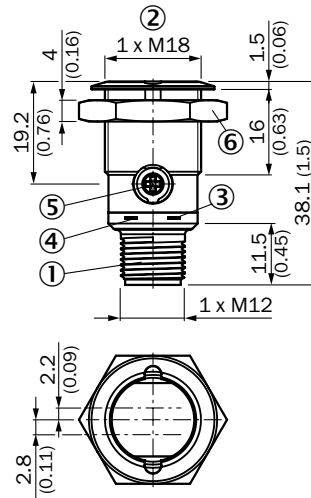
GRTE18S, metal, plug, straight



All dimensions in mm (inch)

- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ Fastening nuts (2 x); 24 mm hex, metal

GRTE18S, metal, plug, straight, fully flush

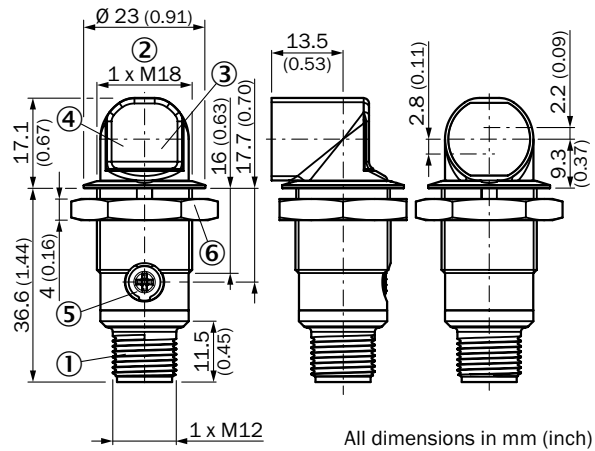


All dimensions in mm (inch)

- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ Fastening nuts (2 x); 24 mm hex, metal

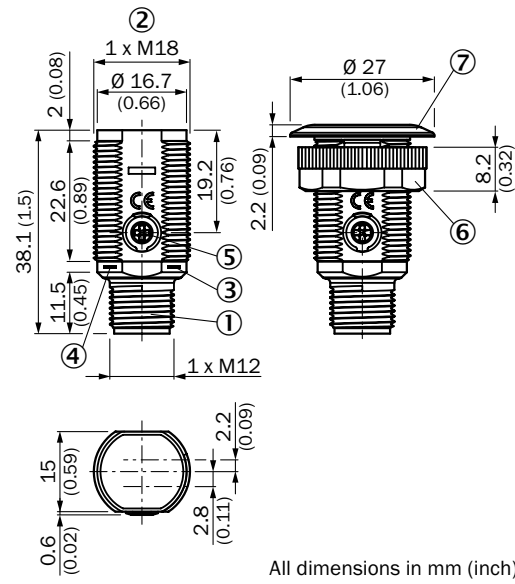


**GRTE18S, metal, plug, angled, fully flush**



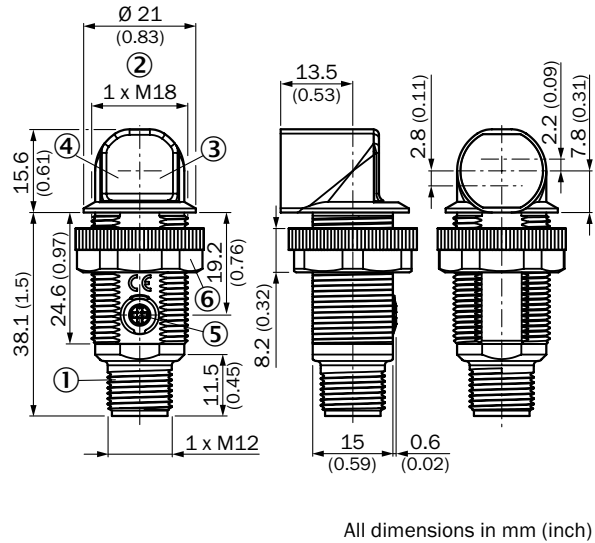
- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ Fastening nut; 24 mm hex, metal

**GRTE18S, plastic, plug, straight**



- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ Fastening nut; 22 mm hex, plastic
- ⑦ Mounting ring

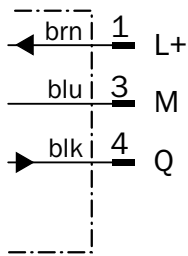
**GRTE18S, plastic, plug, angled**



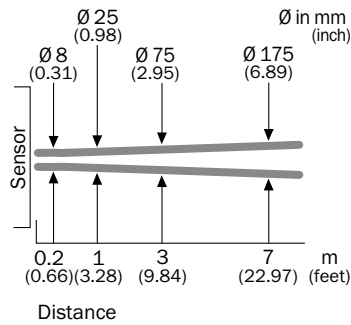
- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ Fastening nut; 22 mm hex, plastic

### Connection diagram

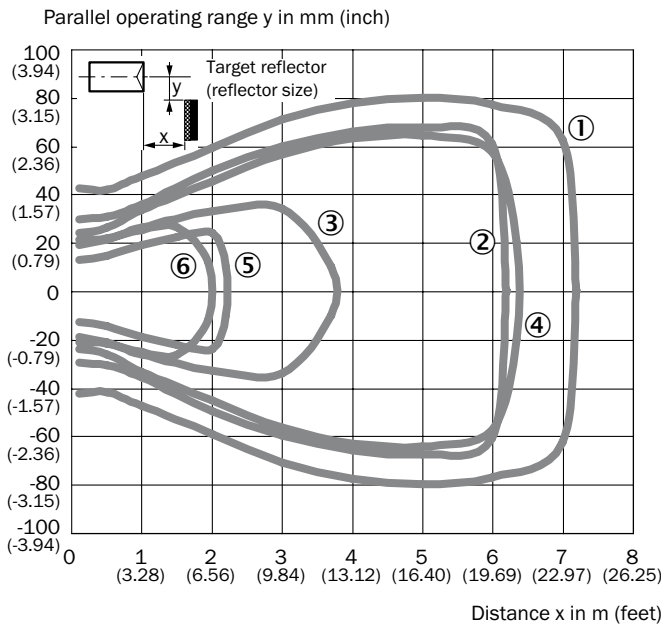
Connector M12, 3-pin



### Light spot diameter



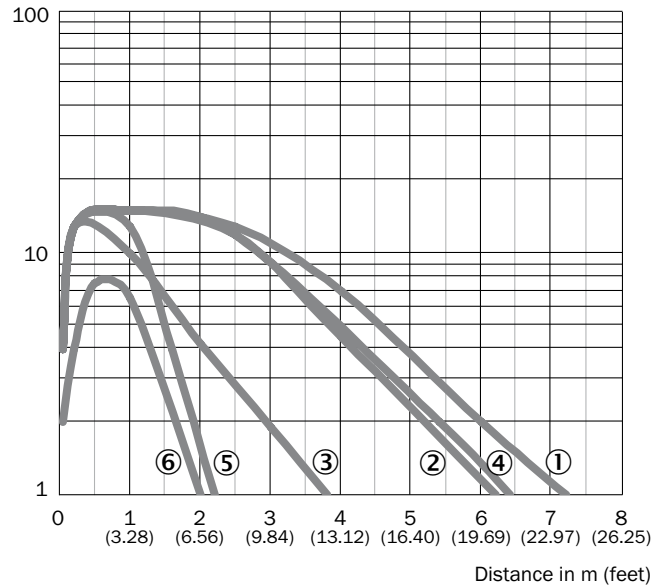
### Response curve



- ① Reflector type PL80A
- ② Reflector type PL40A
- ③ Reflector type PL20A
- ④ Reflector type P250
- ⑤ Reflector type PL22-2
- ⑥ Reflective tape Ref Plus 3436

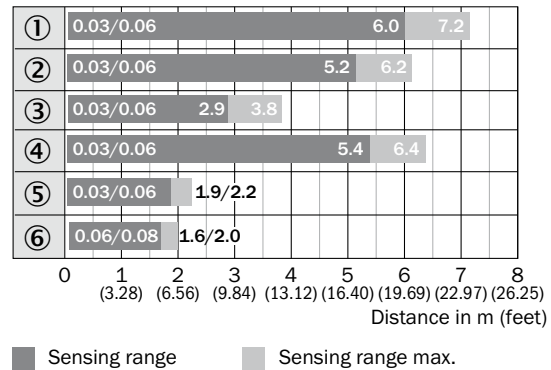
### Operating reserve

Operating reserve



- ① Reflector type PL80A
- ② Reflector type PL40A
- ③ Reflector type PL20A
- ④ Reflector type P250
- ⑤ Reflector type PL22-2
- ⑥ Reflective tape Ref Plus 3436

### Sensing range



- ① Reflector type PL80A
- ② Reflector type PL40A
- ③ Reflector type PL20A
- ④ Reflector type P250
- ⑤ Reflector type PL22-2
- ⑥ Reflective tape Ref Plus 3436



Through-beam photoelectric sensor - round, short and economically unbeatable



### Product description

The GRL18S retro-reflective sensor in a cylindrical M18-housing has a special shortened design and offers an optimal price/performance ratio. It can be used universally in many applications thanks to five different housing designs. PinPoint LEDs, plastic and metal housing

versions as well as status indicators that are easily visible from all angles round off the sensor's features. One highlight is the fully-flush metal variant, which has been especially designed for use in harsh industrial environments found in handling and warehousing systems.

### At a glance

- Low-cost cylindrical M18 sensor with extra short housing
- Five different housing styles
- Variety of plastic and metal housing styles, with straight or right angle optics
- Bright and highly visible PinPoint-LED
- Flush installation with mounting ring, metal version has single piece mounting ring
- Highly visible signal indicator LED
- IP 67 rating

### Your benefits

- Space-saving solution due to short housing
- Flexible mounting options due to versatile housing styles
- Easy installation and precise detection due to PinPoint LED
- Reduced maintenance costs due to high tightening torque of single piece flush metal housing
- Rugged and reliable with proven SICK technology
- Highly visible signal indicator LED saves maintenance and commissioning time

### Additional information

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→ [www.mysick.com/en/GRSE18S](http://www.mysick.com/en/GRSE18S)  
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

<b>Sensor principle</b>	Through-beam photoelectric sensor
<b>Housing design (light emission)</b>	
	Metal Straight / Angled, fully flush
	Plastic Straight / Angled
<b>Optical axis</b>	Axial / Radial
<b>Sensing range max.</b>	0 m ... 15 m
<b>Sensing range</b>	0 m ... 10 m
<b>Type of light</b>	Visible red light
<b>Light source <sup>1)</sup></b>	PinPoint LED
<b>Light spot (distance)</b>	Ø 250 mm (10 m)
<b>Wave length</b>	650 nm
<b>Sensitivity adjustment</b>	No adjustment

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

### Mechanics/electronics

<b>Supply voltage <sup>1)</sup></b>	10 V DC ... 30 V DC
<b>Residual ripple <sup>2)</sup></b>	± 5 V <sub>pp</sub>
<b>Power consumption <sup>3)</sup></b>	≤ 30 mA
<b>Switching output</b>	NPN, Dark-switching PNP, light switching PNP, Dark-switching (depending on type)
<b>Signal voltage</b>	
	PNP (HIGH/LOW) U <sub>v</sub> -(≤ 3 V)/ca. 0 V
	NPN (HIGH/LOW) ca. U <sub>v</sub> /≤ 3 V
<b>Output current I<sub>max.</sub> <sup>4)</sup></b>	100 mA
<b>Response time <sup>5)</sup></b>	< 500 µs
<b>Switching frequency max. <sup>6)</sup></b>	1,000 Hz
<b>Connection type</b>	Cable, 2 m, PVC <sup>7)</sup> Connector M12, 3-pin (depending on type)
<b>Circuit protection</b>	A <sup>8)</sup> , B <sup>9)</sup> , D <sup>10)</sup>
<b>Protection class</b>	III
<b>Housing material</b>	Metal / Plastic
<b>Enclosure rating</b>	IP 67
<b>Ambient operating temperature <sup>11)</sup></b>	-25 °C ... +55 °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> May not exceed or fall short of V<sub>S</sub>.

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

<sup>4)</sup> At V<sub>S</sub> > 24 V or ambient temperature > 49 °C, I<sub>A</sub> max = 50 mA.

<sup>5)</sup> Signal transit time with resistive load.

<sup>6)</sup> With light/dark ratio 1:1.

<sup>7)</sup> Do not bend below 0 °C.

<sup>8)</sup> A = V<sub>S</sub> connections reverse-polarity protected.

<sup>9)</sup> B = inputs and output reverse-polarity protected.

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

<sup>11)</sup> At U<sub>v</sub> <= 24V and I<sub>A</sub> < 50mA.

## Ordering information

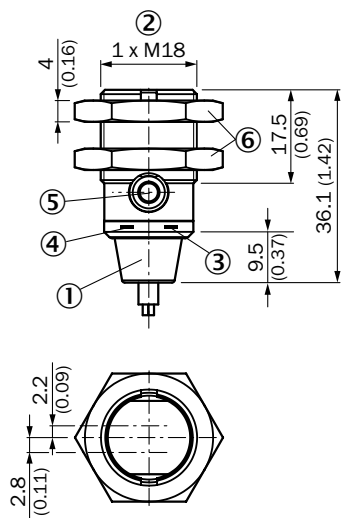
Sensing range max. 15 m

- Sensing range max.: 0 m ... 15 m
- Adjustment: no/fix

Housing material	Housing design	Switching output	Switching mode	Connection	Model name	Part no.
Metal	Straight	NPN	Dark-switching	Cable, 3-wire, 2 m, PVC	GRSE18S-E1331	1059548
		PNP	Light switching	Connector M12, 3-pin	GRSE18S-P2331	1059550
			Dark-switching	Connector M12, 3-pin	GRSE18S-F2331	1059549
	Angled, fully flush	PNP	Light switching	Connector M12, 3-pin	GRSE18S-P233W	1059552
			Dark-switching	Connector M12, 3-pin	GRSE18S-F233W	1059551
Plastic	Straight	NPN	Dark-switching	Cable, 3-wire, 2 m, PVC	GRSE18S-E1336	1059543
			Light switching	Cable, 3-wire, 2 m, PVC	GRSE18S-P1336	1059545
		PNP	Light switching	Connector M12, 3-pin	GRSE18S-P2336	1058215
			Dark-switching	Cable, 3-wire, 2 m, PVC	GRSE18S-F1336	1059544
	Angled	PNP	Light switching	Connector M12, 3-pin	GRSE18S-F2336	1058214
			Dark-switching	Connector M12, 3-pin	GRSE18S-P2338	1059547
		PNP	Light switching	Connector M12, 3-pin	GRSE18S-P2338	1059547
			Dark-switching	Connector M12, 3-pin	GRSE18S-F2338	1059546

## Dimensional drawings

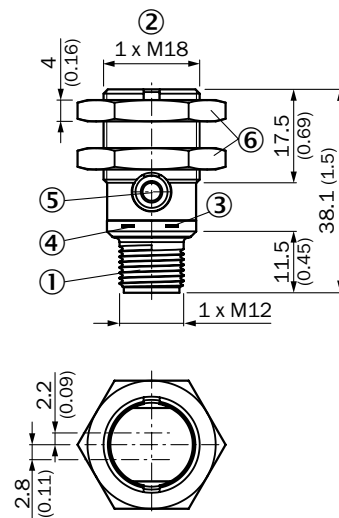
GRL18S, GRSE18S, metal, cable, straight



All dimensions in mm (inch)

- ① Connection cable 2 m
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Dummy plug
- ⑥ Fastening nuts (2 x); 24 mm hex, metal

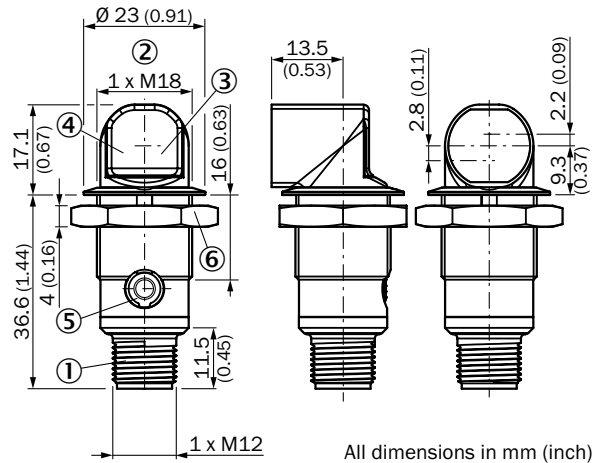
GRL18S, GRSE18S, metal, plug, straight



All dimensions in mm (inch)

- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Dummy plug
- ⑥ Fastening nuts (2 x); 24 mm hex, metal

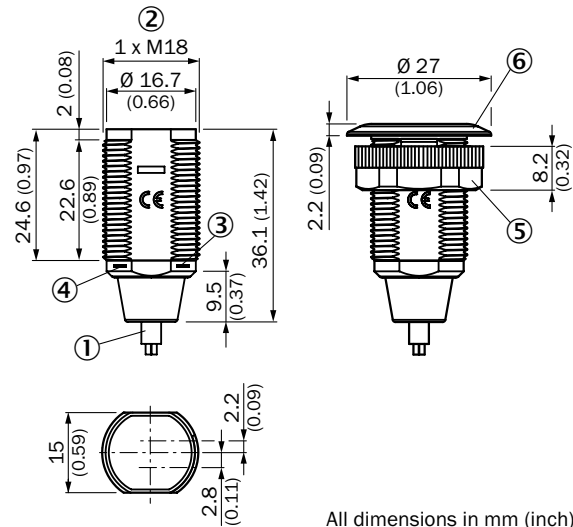
**GRL18S, GRSE18S, metal, plug, angled, fully flush**



All dimensions in mm (inch)

- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Dummy plug
- ⑥ Fastening nut; 24 mm hex, metal

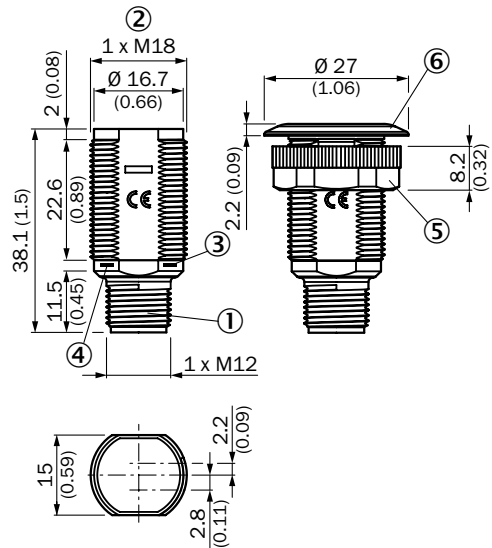
**GRL18S, GRSE18S, plastic, cable, straight**



All dimensions in mm (inch)

- ① Connection cable 2 m
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Fastening nut; 22 mm hex, plastic
- ⑥ Mounting ring

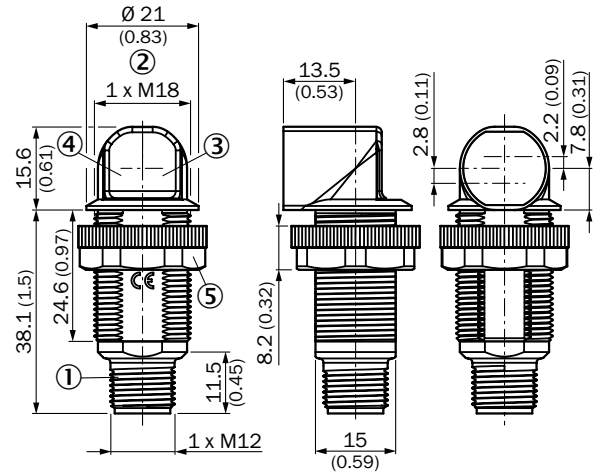
**GRL18S, GRSE18S, plastic, plug, straight**



All dimensions in mm (inch)

- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Fastening nut; 22 mm hex, plastic
- ⑥ Mounting ring

**GRL18S, GRSE18S, plastic, plug, angled**

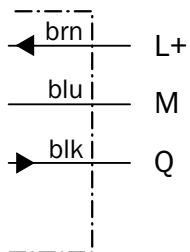


All dimensions in mm (inch)

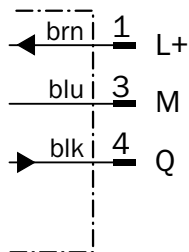
- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Fastening nut; 22 mm hex, plastic

### Connection diagram

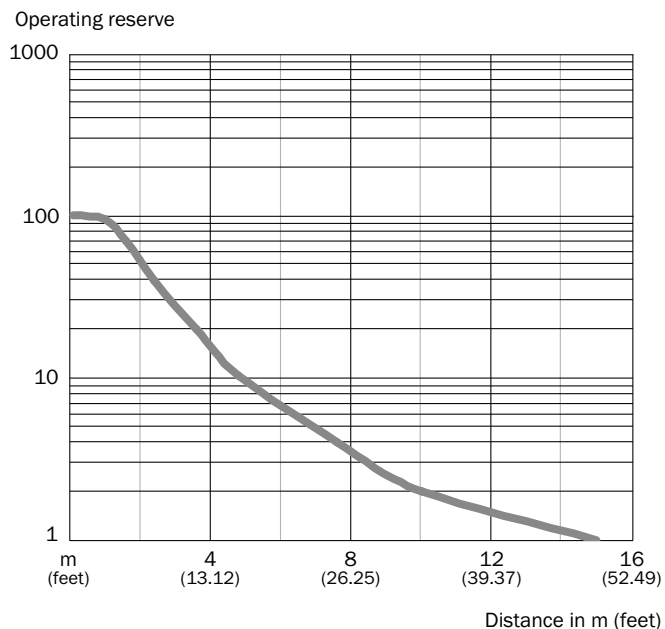
#### Cable, 3-wire



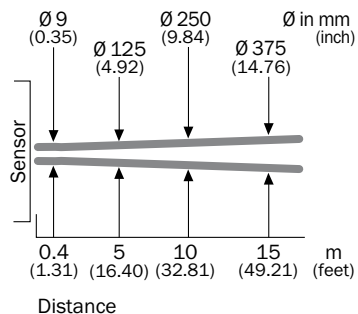
#### Connector M12, 3-pin



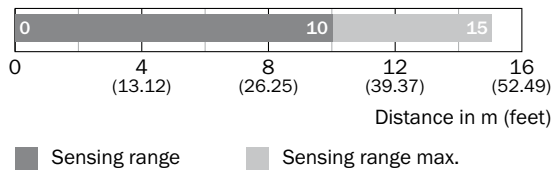
### Operating reserve



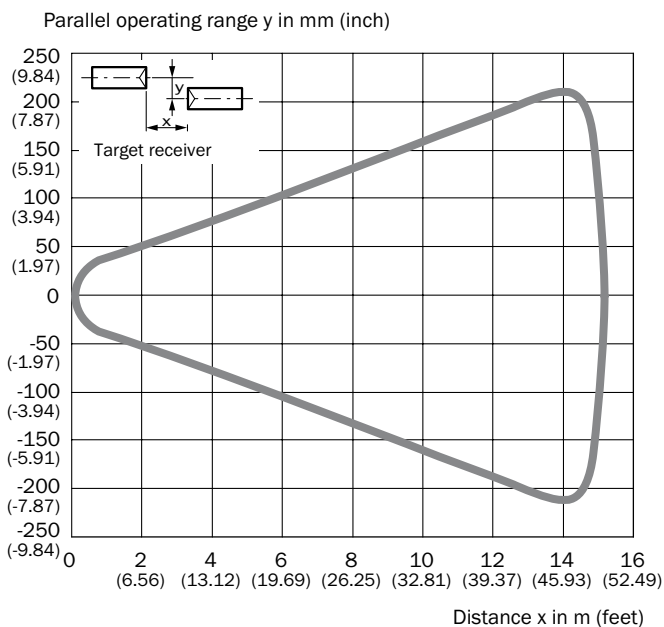
### Light spot diameter



### Sensing range



### Response curve









GR18S

Mounting brackets/plates

- **Accessory type:** Mounting brackets
- **Material:** Steel, zinc coated

Figure	Model name	Part no.	GRTE18S	GRL18S	GRL18SG	GRSE18S
	BEF-WG-M18	5321870	●	●	●	●
	BEF-WN-M18	5308446	●	●	●	●

Other mounting accessories

Figure	Accessory type	Model name	Part no.	GRTE18S	GRL18S	GRL18SG	GRSE18S
	Mounting tool for fully flush variants	BEF-TO-GR18S	4072132	●	●	●	●

Plug connectors and cables

- Connector M12, 4-pin













Figure	Connector type	Flying leads	Enclosure rating	Sheath material	Cable length	Model name	Part no.	M12, 3-pin
	Female connector	Straight	IP 67	PVC	2 m	DOL-1204-G02M	6009382	●
					5 m	DOL-1204-G05M	6009866	●
					10 m	DOL-1204-G10M	6010543	●
					15 m	DOL-1204-G15M	6010753	●
			IP 68	PUR halogen free	2 m	DOL-1204-G02MC	6025900	●
					5 m	DOL-1204-G05MC	6025901	●
					10 m	DOL-1204-G10MC	6025902	●
						IP 69K	PVC	2 m
5 m			DOL-1204-G05MN	6028130				●
10 m			DOL-1204-G10MN	6028132				●
25 m			DOL-1204-G25MN	6028134				●
			Angled	IP 68	PVC	2 m	DOL-1204-L02M	6027945
	5 m	DOL-1204-L05M				6027944	●	
	10 m	DOL-1204-L10M				6027946	●	
	IP 69K	PVC				2 m	DOL-1204-L02MN	6028136
				5 m	DOL-1204-L05MN	6028137	●	
				10 m	DOL-1204-L10MN	6028138	●	
				25 m	DOL-1204-L25MN	6028139	●	

Figure	Connector type	Flying leads	Enclosure rating	Sheath material	Cable length	Model name	Part no.	M12, 3-pin
	Female connector	Straight	IP 67	PVC	2 m	DOL-1204-W02M	6009383	●
					5 m	DOL-1204-W05M	6009867	●
					10 m	DOL-1204-W10M	6010541	●
			IP 68	PUR halogen free	2 m	DOL-1204-W02MC	6025903	●
					5 m	DOL-1204-W05MC	6025904	●
					10 m	DOL-1204-W10MC	6025905	●
			IP 69K	PVC	2 m	DOL-1204-W02MN	6028129	●
					5 m	DOL-1204-W05MN	6028131	●
					10 m	DOL-1204-W10MN	6028133	●
					25 m	DOL-1204-W25MN	6028135	●
	IP 67	PVC beam cross-linked	PVC/PUR	5 m	DOL-1204-W05MD	6020399	●	
			PVC/PUR	5 m	DOL-1204-W05ME	6020398	●	
	IP 67	Angled	PBT	-	DOS-1204-G	6007302	●	
				PBT, knurled screw stainless steel	-	DOS-1204-GN	6028357	●
			PBT	-	DOS-1204-W	6007303	●	
				PBT, knurled screw stainless steel	-	DOS1204-WN	6028358	●
	Male connector	Straight	IP 67	PBT	-	STE-1204-G	6009932	●
	Duo-male connector			PBT, knurled screw stainless steel-	-	STE-1204-GN	6028359	●
	Male connector	Angled	IP 67	PBT, knurled screw stainless steel	-	STE-1204-TN	6028360	●
				PBT	-	STE-1204-W	6022084	●

Reflectors


















Figure	Accessory type	Dimensions (L x W x H)	Material	Model name	Part no.	GRTE18S	GRL18S	GFL18SG	GRSE18S
	Round	-	PMMA/ABS	C110A	5304549	-	●	●	-
	Angular	47 mm x 47 mm	PMMA/ABS	P250	5304812	-	●	●	-
		15 mm x 38 mm	PMMA/ABS	PL20A	1012719	-	●	●	-
		Round	-	PMMA/ABS	PL22-2	1003621	-	●	●
	Angular	28 mm x 56 mm	PMMA/ABS	PL30A	1002314	-	●	●	-
		37 mm x 56 mm	PMMA/ABS	PL40A	1012720	-	●	●	-
		-	PMMA/ABS	PL50A	1000132	-	●	●	-

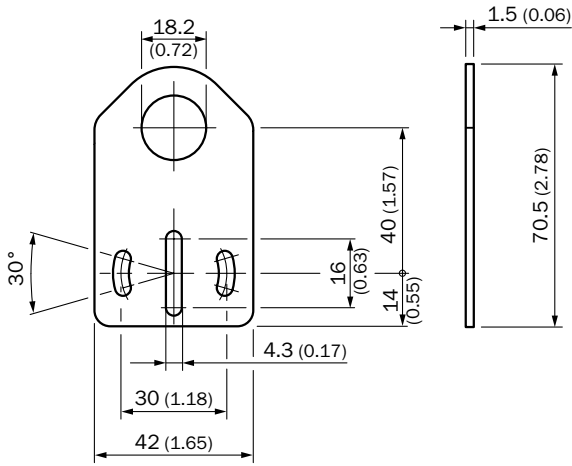
Figure	Accessory type	Dimensions (L x W x H)	Material	Model name	Part no.	GRTE18S	GRL18S	GRL18SG	GRSE18S
	Angular	80 mm x 80 mm	PMMA/ABS	PL80A	1003865	-	●	●	-
	Reflective tape	22.8 m x 5 cm <sup>1</sup>	-	REF-PLUS-50-K	4051185	-	●	●	-
		22.8 m x 50 mm	-	REF-PLUS-R50	5319981	-	●	●	-
		36 mm x 34 mm	-	REF-Plus-3436	5321337	-	●	●	-

### Terminal and alignment brackets

Figure	Accessory type	Material	Model name	Part no.	GRTE18S	GRL18S	GRL18SG	GRSE18S	
	Universal terminal systems	Steel, zinc coated	BEF-KHS-H01	2022465	●	●	●	●	
		Zinc diecast	BEF-KHS-KH3	5322626	●	●	●	●	
		Steel, zinc coated	Steel, zinc coated	BEF-MS12G-A	4056054	●	●	●	●
				BEF-MS12G-B	4056055	●	●	●	●
				BEF-MS12L-A	4056052	●	●	●	●
				BEF-MS12L-B	4056053	●	●	●	●
				BEF-MS12Z-A	4056056	●	●	●	●
	BEF-MS12Z-B	4056057	●	●	●	●			
	Aluminum	Aluminum	BEF-RMC-D12	5321878	●	●	●	●	
	Terminal brackets	Plastic (PA12)	BEF-WN-MH15-1	4039533	●	●	●	●	

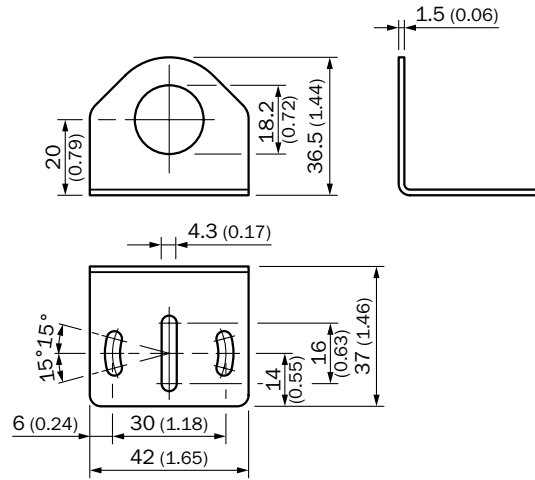
Dimensional drawings Mounting brackets/plates

**BEF-WG-M18**



All dimensions in mm (inch)

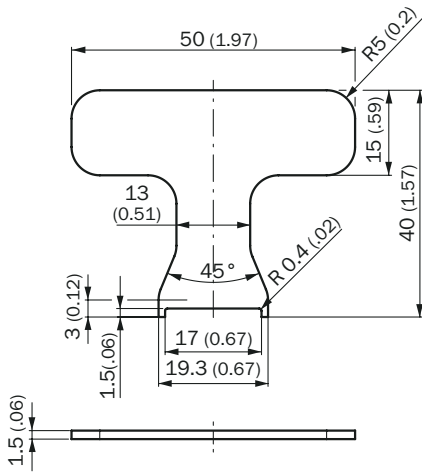
**BEF-WN-M18**



All dimensions in mm (inch)

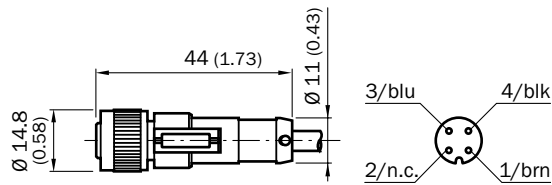
Dimensional drawings Other mounting accessories

**BEF-T0-GR18S**



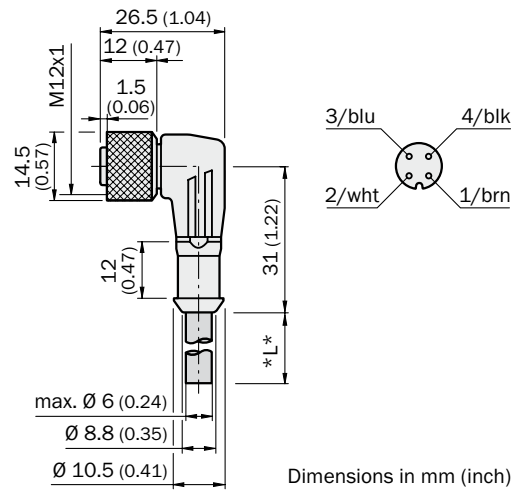
Dimensional drawings Plug connectors and cables

**DOL-1204-GxxM, DOL-1204-G02xx, DOL-1204-GxxMN**



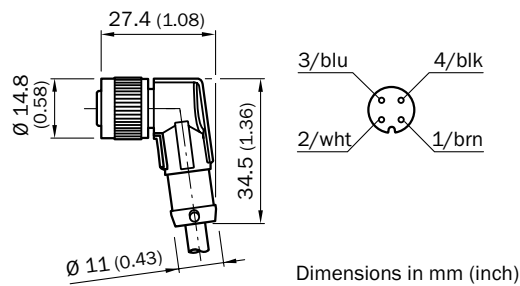
Dimensions in mm (inch)

**DOL-1204-WxxM**



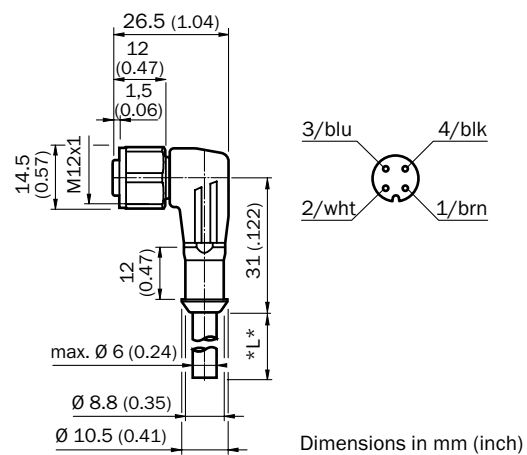
Dimensions in mm (inch)

**DOL-1204-WxxMC**



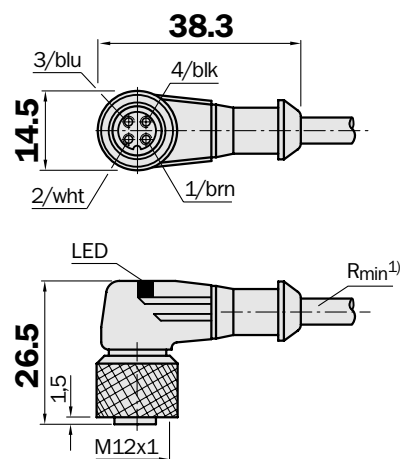
Dimensions in mm (inch)

**DOL-1204-WxxMN**

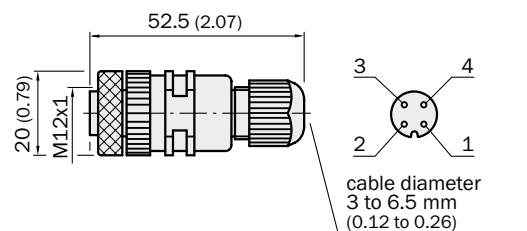


Dimensions in mm (inch)

**DOL-1204-W05ME**

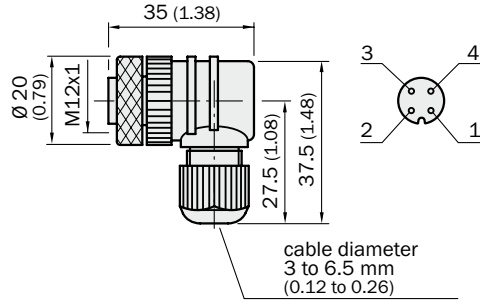


**DOS-1204-G**



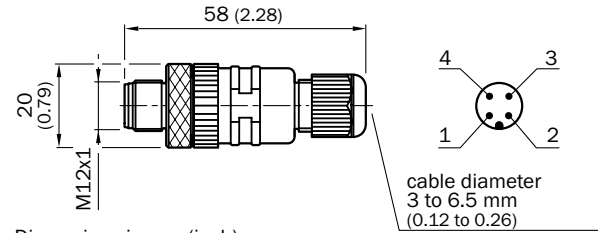
Dimensions in mm (inch)

**DOS-1204-W**



Dimensions in mm (inch)

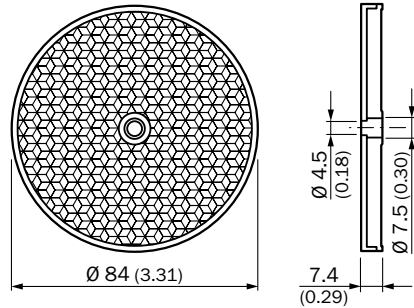
**STE-1204-G**



Dimensions in mm (inch)

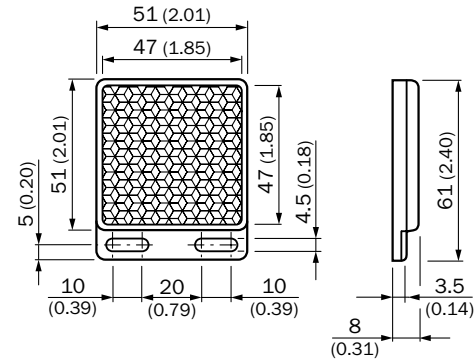
Dimensional drawings Reflectors

**C110A**



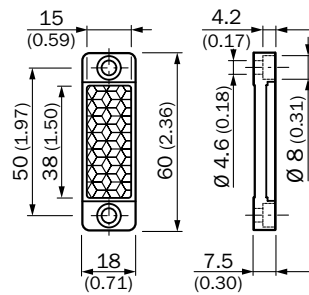
All dimensions in mm (inch)

**P250**



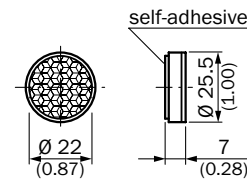
All dimensions in mm (inch)

**PL20A**



All dimensions in mm (inch)

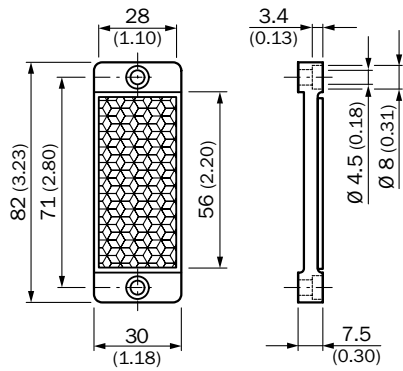
**PL22-2**



All dimensions in mm (inch)

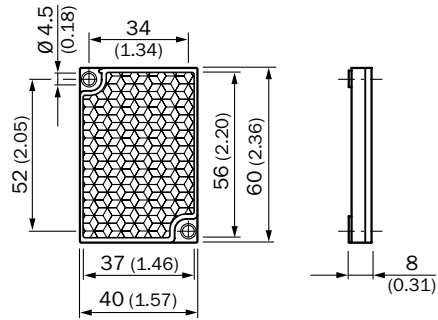


**PL30A**



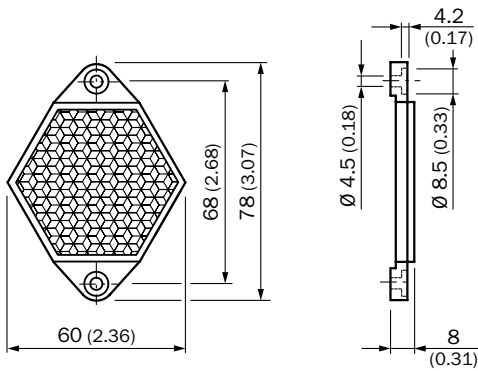
All dimensions in mm (inch)

**PL40A**



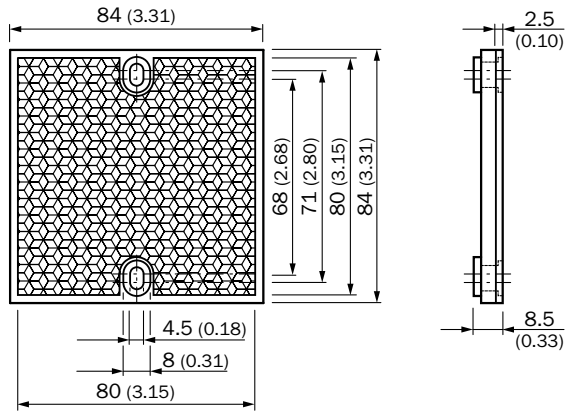
All dimensions in mm (inch)

**PL50A**



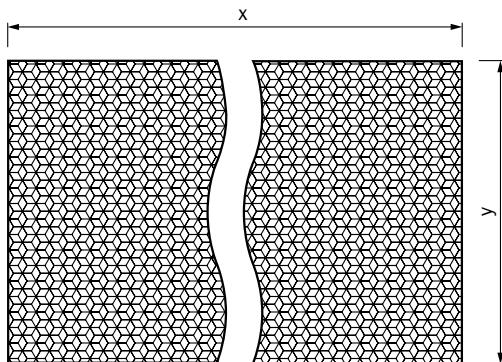
All dimensions in mm (inch)

**PL80A**



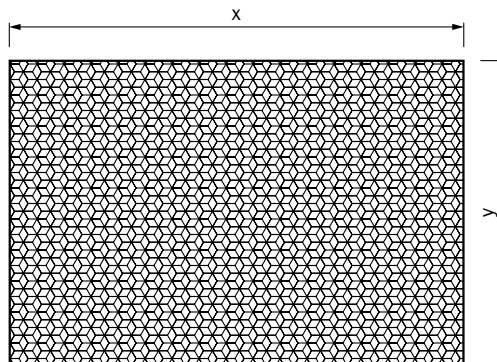
All dimensions in mm (inch)

**REF-PLUS-R50**



x = 50 mm  
y = 22.8 mm

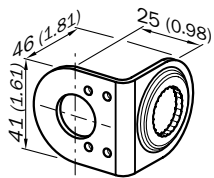
**REF-Plus-3436**



x = 34 mm  
y = 36 mm

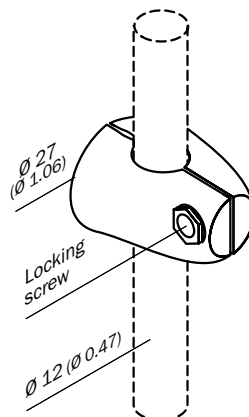
Dimensional drawings Terminal and alignment brackets

**BEF-KHS-H01**



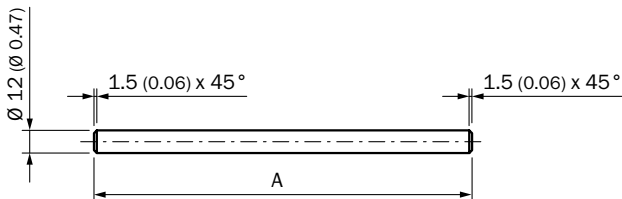
All dimensions in mm (inch)

**BEF-KHS-KH3**



All dimensions in mm (inch)

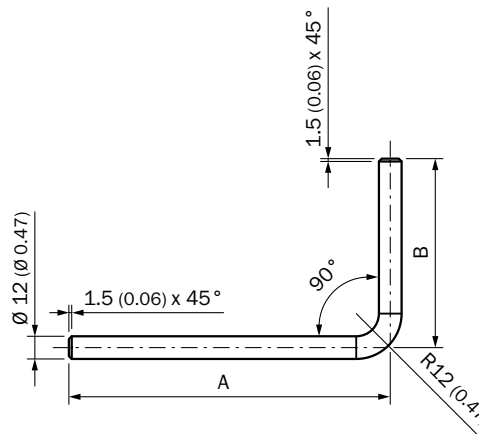
**BEF-MS12G-A**  
**BEF-MS12G-B**



All dimensions in mm (inch)

BEF-MS12G-A: A = 200 mm  
BEF-MS12G-B: A = 300 mm

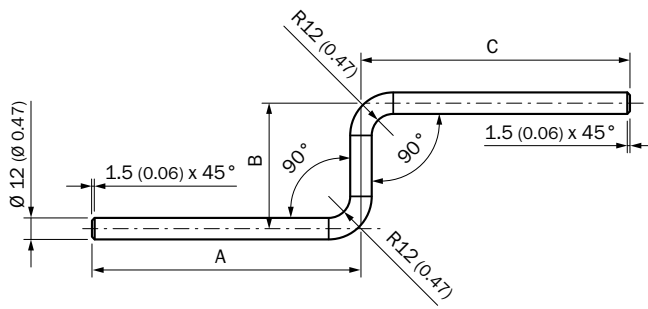
**BEF-MS12L-A**  
**BEF-MS12L-B**



All dimensions in mm (inch)

BEF-MS12L-A: A = 150 mm, B = 150 mm  
BEF-MS12L-B: A = 250 mm, B = 250 mm

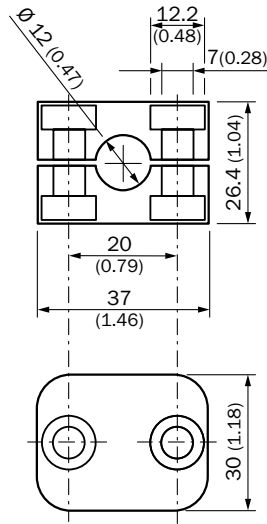
**BEF-MS12Z-A**  
**BEF-MS12Z-B**



All dimensions in mm (inch)

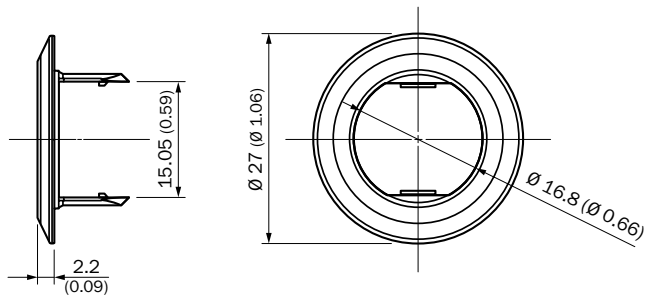
BEF-MS12Z-A: A = 150 mm, B = 70 mm, C = 150 mm  
BEF-MS12Z-B: A = 150 mm, B = 70 mm, C = 250 mm

**BEF-RMC-D12**



All dimensions in mm (inch)

**BEF-WN-MH15-1**



All dimensions in mm (inch)





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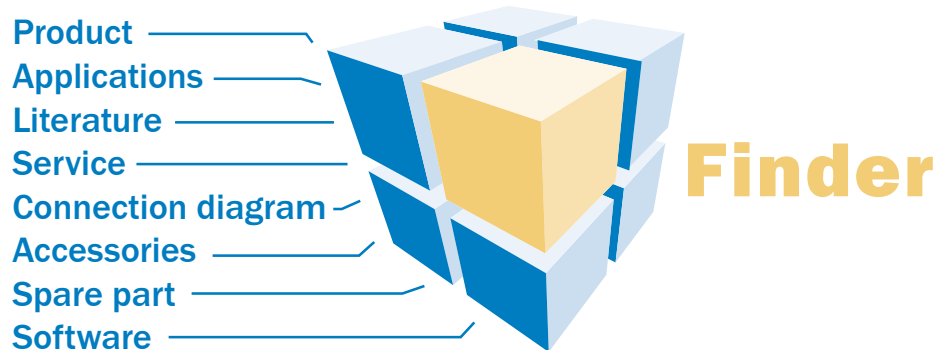
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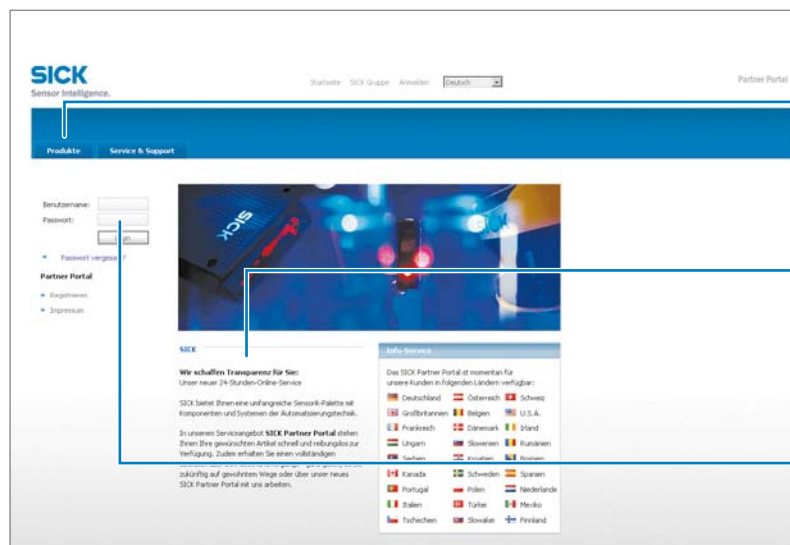
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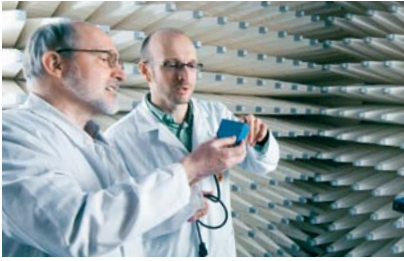
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