



GR18

RELIABLE. ECONOMICAL. VERSATILE.

Cylindrical photoelectric sensor

SICK
Sensor Intelligence.

THE GR18 PRODUCT FAMILY: RELIABLE AND EXTREMELY VERSATILE

Thanks to their versatility, the cylindrical photoelectric sensors from the GR18 product family cover a very wide range of applications. With their seven different housing types, they are ideally suited for both space-saving and flexible mounting solutions.

One product family for all applications

GR18 cylindrical photoelectric sensors in the cylindrical M18 housing are outstanding in both the short length version (GR18S) and the standard length version (GR18), and offer an optimal price-performance ratio.

These sensors can be used universally in many applications thanks to the seven different housing designs:

- Photoelectric proximity sensors
- Photoelectric retro-reflective sensors
- Through-beam photoelectric sensors
- Photoelectric retro-reflective sensors for transparent objects

THE GR18 PRODUCT FAMILY

GR18S (SHORT HOUSING)

GR18 (LONG HOUSING)

NEW

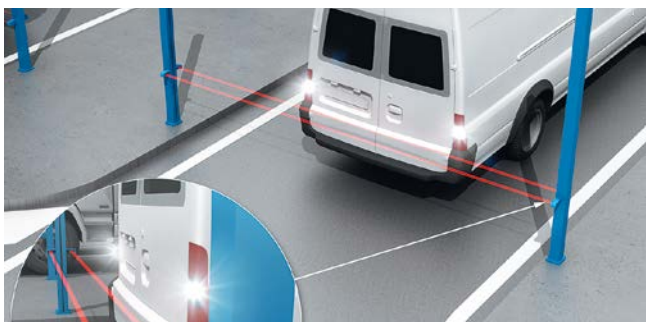
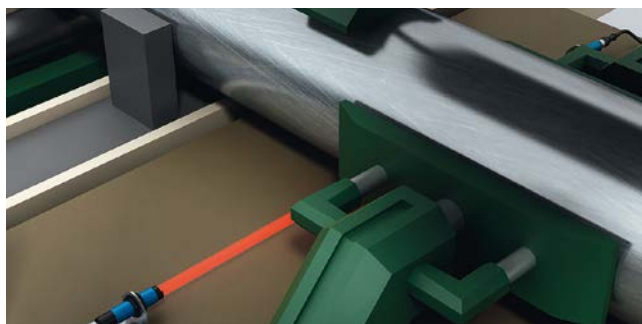


At a glance

- Cylindrical M18 sensor with greater cost-effectivity
- Seven different housing designs
- Plastic or metal versions with straight or right angle optics
- Very bright and highly visible PinPoint LED
- Highly visible status indicator
- Rugged and reliable due to proven SICK technology
- Enclosure rating IP 67
- Special "fully flush" metal variant (GR18S)

Ideal for a broad range of applications

SICK's reliable photoelectric sensors are perfectly suited for numerous applications in the field of logistics: From mechanical engineering, through the automotive and electronics industries, right up to the packaging and shipping of goods of all varieties. This is because in any area in which material flows are automated or where sorting and warehousing processes are to be optimized, photoelectric sensors from SICK can guarantee maximum reliability and efficiency. Thanks to the simple hole mounting system of the standard M18 housing, the sensors can be flexibly integrated into automated environments.



THE GR18 CYLINDRICAL PHOTOELECTRIC SENSOR: OPTIMALLY DESIGNED DOWN TO THE SMALLEST DETAIL



Housing material for every application

The housing for the GR18 cylindrical photoelectric sensors is available in plastic and metal variants. This allows you to choose the right variant for every application and cost situation.

Metal and plastic housing

Optimal installation, even where space is limited

The GR18S housing is very short and therefore requires little installation space. Additional space can be saved through the use of housing versions with an angled radial design. These are ideal conditions for applications where there is very little space available for installation.

Straight and right angle optics (GR18S only)

For smooth processes

The front is flush with the installation area:

In this way the flush mounting kits of the GR18S cylindrical photoelectric sensors provide superior solutions for all challenges in which it is essential that the objects to be captured can pass without a hindrance.

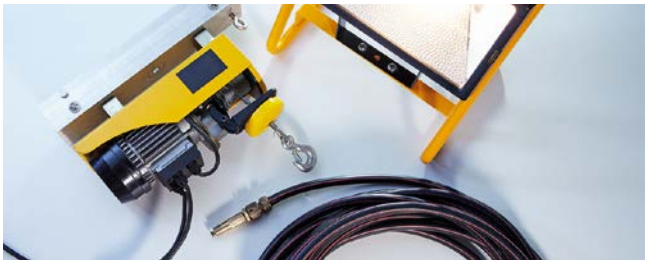
Special "fully flush" designs



Rugged design

Photoelectric sensors from the GR18 product family run absolutely flawlessly, and are not sensitive to ambient light, dirt, moisture, or electrical interference. This makes these photoelectric sensors the ideal solution for every application.

Sensor technology from SICK



Maximum detection reliability

PinPoint technology from SICK, with its highly visible light spot, will facilitate commissioning, and increase the sensing range within the red emitted light area, without the need for any protective measures against lasers.

PinPoint technology from SICK



Comfortable: status indicator visible from any direction

Each GR18 cylindrical photoelectric sensor is equipped with a very bright LED status indicator. The current operational status can be recognized at a glance even from great distances. As a result, sensor commissioning and maintenance times are significantly reduced.

Highly visible status indicator



Sensing range: Quick and easy to adjust

The sensing range of the GR18 cylindrical photoelectric sensors can be quickly and easily adjusted using a standard Phillips-head screwdriver. No special tools are required.

Easy adjustment



A RANGE OF OPTIONS: THE RIGHT SENSOR FOR EVERY SITUATION

Cylindrical photoelectric sensors			 Housing					 Optics/Technology			
			Material		Enclosure rating	Housing design		Type of light/Light sender			
		 M18									
		Example installation	Plastic	Metal	IP 67	Cylindrical, axial	Cylindrical, radial	LED, infrared light	LED, red light	PinPoint LED, red light	
GR18	 NEW										
	 NEW										
GR18S											
											
											
											
											

	 Sensor principle	 Special applications			
	 Maximum sensing range				
					
	Photoelectric proximity sensors (energetic)  3 mm ... 115 mm  5 mm ... 550 mm  5 mm ... 1000 mm	Photoelectric retro-reflective sensor (dual lens)  0.03 m ... 7.2 m	Through-beam photoelectric sensors  0 m ... 15 m	Detecting transparent objects	Detecting small objects
	Side				
10	12	13			
11	12	13			
23	26	32			
24	27	32			
24	27	33			
25	28	33			
26	29	34			

ROUND, ECONOMICAL STANDARD



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Product description

The GR18 photoelectric sensor family in a cylindrical M18-housing offers an optimal price/performance ratio. It can be used universally in many applications thanks to its standard M18 housing size.

At a glance

- Standard length M18 low-cost cylindrical sensor
- Two different housing styles
- Variety of plastic and metal housing styles, with straight optics

Your benefits

- Flexible mounting options due to versatile housing styles
- Easy installation and precise detection due to PinPoint LED
- Reduced maintenance costs due to easy M18 hole mounting option so no special bracket is needed

PinPoint LEDs, plastic and metal housing versions as well as status indicators that are easily visible from all angles complete the sensor's features.

- Bright and highly visible PinPoint-LED
- Highly visible signal indicator LED
- IP 67 rating

- Rugged and reliable with proven SICK technology
- Highly visible signal indicator LED saves maintenance and commissioning time

→ www.mysick.com/en/GR18

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

	GRTE18	GRL18	GRSE18
Sensor principle	Photoelectric proximity sensor	Photoelectric retro-reflective sensor	Through-beam photoelectric sensor
Detection principle	Energetic	Standard optics	–
Housing design (light emission)	Cylindrical, straight		
Sensing range max.	3 mm ... 115 mm ¹⁾ 5 mm ... 550 mm ¹⁾ 5 mm ... 1.000 mm ¹⁾ (typabhängig)	0.03 m ... 7.2 m ²⁾	0 m ... 15 m
Sensing range	5 mm 100 mm ¹⁾ 10 mm 400 mm ¹⁾ 10 mm 800 mm ¹⁾ (typabhängig)	0.06 m ... 6 m ²⁾	0 m ... 10 m
Type of light	Visible red light		Visible red light / Infrared light (depending on type)
Light source	PinPoint LED ³⁾ LED ³⁾ (depending on type)	PinPoint LED ³⁾	PinPoint LED ³⁾ LED ³⁾ (depending on type)
Light spot size (distance)	Ø 8 mm (100 mm) Ø 9 mm (400 mm) Ø 45 mm (800 mm) (depending on type)	Ø 175 mm (7 m)	Ø 250 mm (10 m) Ø 420 mm (10 m) (depending on type)
Adjustment	Potentiometer, 270 °		

¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033)²⁾ PL80A.³⁾ Average service life of 100,000 h at T_A = +25 °C.

Mechanics/electronics

	GRTE18	GRL18	GRSE18
Supply voltage ¹⁾	10 V DC ... 30 V DC		
Ripple ²⁾	± 5 V _{pp}		
Power consumption	≤ 30 mA		
Output type	NPN / PNP (depending on type)		
Output function	Complementary		
Switching mode	Light/dark switching		
Signal voltage	PNP HIGH/LOW NPN HIGH/LOW		
	V _S - (≤ 3 V) / approx. 0 V Approx. V _S / ≤ 3 V		
Output current I _{max.} ³⁾	100 mA		
Response time ⁴⁾	< 1,000 µs	< 500 µs	
Switching frequency ⁵⁾	500 Hz	1,000 Hz	
Connection type	Cable, 2 m ⁶⁾ Male connector, M12 (depending on type)		
Circuit protection	A ⁷⁾ B ⁸⁾ D ⁹⁾		
Protection class	III		
Polarisation filter	–	✓	–
Enclosure rating	IP 67		
Items supplied	Fastening nuts (2 x)		Fastening nuts (4 x)

	GRTE18	GRL18	GRSE18
EMC	EN 60947-5-2		
Test input	–		Sender OFF at "Test" 0 V
Ambient operating temperature ¹⁰⁾	–25 °C ... +55 °C		
Ambient storage temperature	–40 °C ... +70 °C		

¹⁾ Limit values, operation in short-circuit protected network max. 8 A.

²⁾ May not exceed or fall short of V_S tolerances.

³⁾ At $V_S > 24$ V or ambient temperature > 49 °C, I_A max = 50 mA.

⁴⁾ Signal transit time with resistive load.

⁵⁾ With light/dark ratio 1:1.

⁶⁾ Do not bend below 0 °C.

⁷⁾ A = V_S connections reverse-polarity protected.

⁸⁾ B = inputs and output reverse-polarity protected.

⁹⁾ D = outputs overcurrent and short-circuit protected.

¹⁰⁾ At $U_V \leq 24$ V and $I_A < 50$ mA.

Ordering information

Other models → www.mysick.com/en/GR18

GRTE18, Metal

- **Sensor principle:** Photoelectric proximity sensor
- **Detection principle:** energetic
- **Housing design:** axial
- **Type of light:** visible red light
- **Switching mode:** Light/dark switching
- **Adjustment:** potentiometer, 270 °

Sensing range max. ¹⁾	Sensing range ¹⁾	Light spot size (distance)	Light source	Output type	Connection	Connection diagram	Model name	Part no.
3 mm ... 115 mm	5 mm 100 mm	Ø 8 mm (100 mm)	PinPoint LED	NPN	Cable, 4-wire, 2 m, PVC	Cd-094	GRTE18-N1112	1066541
				PNP	Cable, 4-wire, 2 m, PVC	Cd-094	GRTE18-P1112	1066542
				NPN	Connector M12, 4-pin	Cd-084	GRTE18-N2412	1067972
				PNP	Connector M12, 4-pin	Cd-084	GRTE18-P2412	1066543
5 mm ... 550 mm	10 mm 400 mm	Ø 9 mm (400 mm)	PinPoint LED	NPN	Cable, 4-wire, 2 m, PVC	Cd-094	GRTE18-N1142	1066547
				PNP	Cable, 4-wire, 2 m, PVC	Cd-094	GRTE18-P1142	1066548
				NPN	Connector M12, 4-pin	Cd-084	GRTE18-N2442	1064243
				PNP	Connector M12, 4-pin	Cd-084	GRTE18-P2442	1066549
5 mm ... 1,000 mm	10 mm 800 mm	Ø 45 mm (800 mm)	LED	NPN	Cable, 4-wire, 2 m, PVC	Cd-094	GRTE18-N1162	1066551
				PNP	Cable, 4-wire, 2 m, PVC	Cd-094	GRTE18-P1162	1067976
				NPN	Connector M12, 4-pin	Cd-084	GRTE18-N2462	1067978
				PNP	Connector M12, 4-pin	Cd-084	GRTE18-P2462	1066552

¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033)

GRTE18, Plastic

- **Sensor principle:** Photoelectric proximity sensor
- **Detection principle:** energetic
- **Housing design:** axial
- **Type of light:** visible red light
- **Switching mode:** Light/dark switching
- **Adjustment:** potentiometer, 270 °

Sensing range max. ¹⁾	Sensing range ¹⁾	Light spot size (distance)	Light source	Output type	Connection	Connection diagram	Model name	Part no.
3 mm ... 115 mm	5 mm 100 mm	Ø 8 mm (100 mm)	PinPoint LED	NPN	Cable, 4-wire, 2 m, PVC	Cd-094	GRTE18-N1117	1066539
				PNP	Cable, 4-wire, 2 m, PVC	Cd-094	GRTE18-P1117	1066540
				NPN	Connector M12, 4-pin	Cd-084	GRTE18-N2417	1067971
				PNP	Connector M12, 4-pin	Cd-084	GRTE18-P2417	1064923
5 mm ... 550 mm	10 mm 400 mm	Ø 9 mm (400 mm)	PinPoint LED	NPN	Cable, 4-wire, 2 m, PVC	Cd-094	GRTE18-N1147	1066544
				PNP	Cable, 4-wire, 2 m, PVC	Cd-094	GRTE18-P1147	1066545
				NPN	Connector M12, 4-pin	Cd-084	GRTE18-N2447	1067973
				PNP	Connector M12, 4-pin	Cd-084	GRTE18-P2447	1066546
5 mm ... 1,000 mm	10 mm 800 mm	Ø 45 mm (800 mm)	LED	NPN	Cable, 4-wire, 2 m, PVC	Cd-094	GRTE18-N1167	1064925
				PNP	Cable, 4-wire, 2 m, PVC	Cd-094	GRTE18-P1167	1067974
				NPN	Connector M12, 4-pin	Cd-084	GRTE18-N2467	1067975
				PNP	Connector M12, 4-pin	Cd-084	GRTE18-P2467	1066550

¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033)

GRL18, Metal

- **Sensor principle:** Photoelectric retro-reflective sensor
- **Detection principle:** Standard optics
- **Housing design:** axial
- **Sensing range:** 0.06 m 6 m (PL80A.)
- **Type of light:** visible red light
- **Light spot size (distance):** Ø 175 mm (7 m)
- **Light source:** PinPoint LED
- **Switching mode:** Light/dark switching
- **Adjustment:** potentiometer, 270 °

Sensing range max. ¹⁾	Output type	Connection	Connection diagram	Model name	Part no.
0.03 m ... 7.2 m	NPN	Cable, 4-wire, 2 m, PVC	Cd-094	GRL18-N1132	1067980
	PNP	Cable, 4-wire, 2 m, PVC	Cd-094	GRL18-P1132	1066556
	NPN	Connector M12, 4-pin	Cd-084	GRL18-N2432	1067981
	PNP	Connector M12, 4-pin	Cd-084	GRL18-P2432	1066557

¹⁾ PL80A.

GRL18, Plastic

- **Sensor principle:** Photoelectric retro-reflective sensor
- **Detection principle:** Standard optics
- **Housing design:** axial
- **Sensing range:** 0.06 m 6 m (PL80A.)
- **Type of light:** visible red light
- **Light spot size (distance):** Ø 175 mm (7 m)
- **Light source:** PinPoint LED
- **Switching mode:** Light/dark switching
- **Adjustment:** potentiometer, 270 °

Sensing range max. ¹⁾	Output type	Connection	Connection diagram	Model name	Part no.
0.03 m ... 7.2 m	NPN	Cable, 4-wire, 2 m, PVC	Cd-094	GRL18-N1137	1066553
	PNP	Cable, 4-wire, 2 m, PVC	Cd-094	GRL18-P1137	1066554
	NPN	Connector M12, 4-pin	Cd-084	GRL18-N2437	1067979
	PNP	Connector M12, 4-pin	Cd-084	GRL18-P2437	1066555

¹⁾ PL80A.

GRSE18, Metal

- **Sensor principle:** Through-beam photoelectric sensor
- **Housing design:** axial
- **Sensing range:** 0 m 10 m
- **Switching mode:** Light/dark switching
- **Adjustment:** potentiometer, 270 °

Sensing range max.	Type of light	Light spot size (distance)	Light source	Output type	Connection	Connection diagram	Model name	Part no.
0 m ... 15 m	Visible red light	Ø 250 mm (10 m)	PinPoint LED	NPN	Cable, 4-wire, 2 m, PVC	Cd-088	GRSE18-N1142	1066572
				PNP	Cable, 4-wire, 2 m, PVC	Cd-088	GRSE18-P1142	1067984
				NPN	Connector M12, 4-pin	Cd-072	GRSE18-N2442	1067985
				PNP	Connector M12, 4-pin	Cd-072	GRSE18-P2442	1066573
	Infrared light	Ø 420 mm (10 m)	LED	NPN	Cable, 4-wire, 2 m, PVC	Cd-088	GRSE18-N1122	1068334
				PNP	Cable, 4-wire, 2 m, PVC	Cd-088	GRSE18-P1122	1068333
				NPN	Connector M12, 4-pin	Cd-072	GRSE18-N2422	1068335
				PNP	Connector M12, 4-pin	Cd-072	GRSE18-P2422	1068336

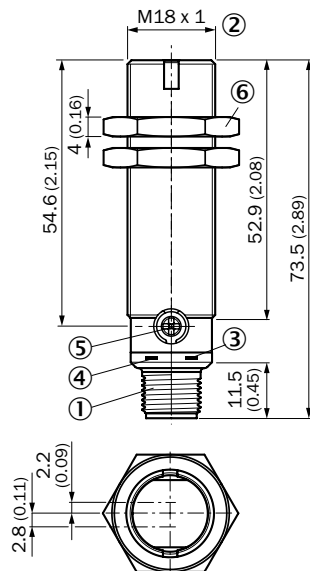
GRSE18, Plastic

- **Sensor principle:** Through-beam photoelectric sensor
- **Housing design:** axial
- **Sensing range:** 0 m 10 m
- **Switching mode:** Light/dark switching
- **Adjustment:** potentiometer, 270 °

Sensing range max.	Type of light	Light spot size (distance)	Light source	Output type	Connection	Connection diagram	Model name	Part no.
0 m ... 15 m	Visible red light	Ø 250 mm (10 m)	PinPoint LED	NPN	Cable, 4-wire, 2 m, PVC	Cd-088	GRSE18-N1147	1066558
				PNP	Cable, 4-wire, 2 m, PVC	Cd-088	GRSE18-P1147	1067982
				NPN	Connector M12, 4-pin	Cd-072	GRSE18-N2447	1067983
				PNP	Connector M12, 4-pin	Cd-072	GRSE18-P2447	1064921
	Infrared light	Ø 420 mm (10 m)	LED	NPN	Cable, 4-wire, 2 m, PVC	Cd-088	GRSE18-N1127	1068331
				PNP	Cable, 4-wire, 2 m, PVC	Cd-088	GRSE18-P1127	1068329
				NPN	Connector M12, 4-pin	Cd-072	GRSE18-N2427	1068332
				PNP	Connector M12, 4-pin	Cd-072	GRSE18-P2427	1064922

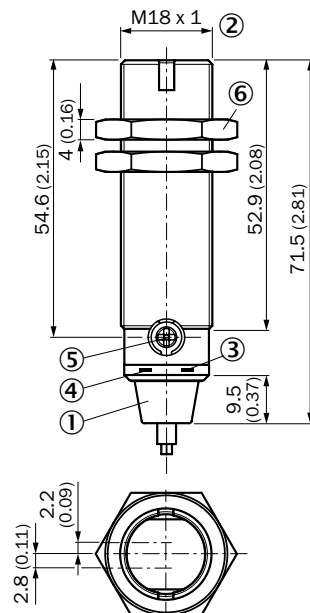
Dimensional drawings (Dimensions in mm (inch))

GR18 metal, connector, axial



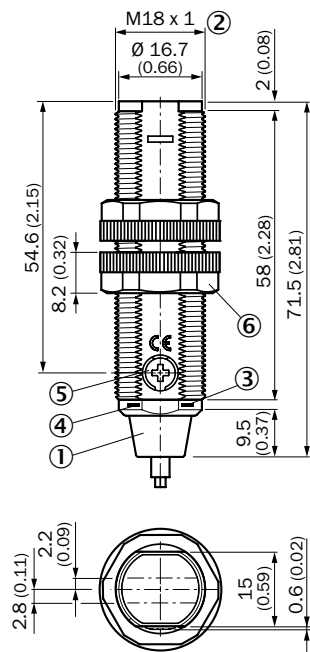
- ① Connector M12, 4-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ Fastening nuts (2 x); 24 mm hex, metal

GR18 metal, cable, axial



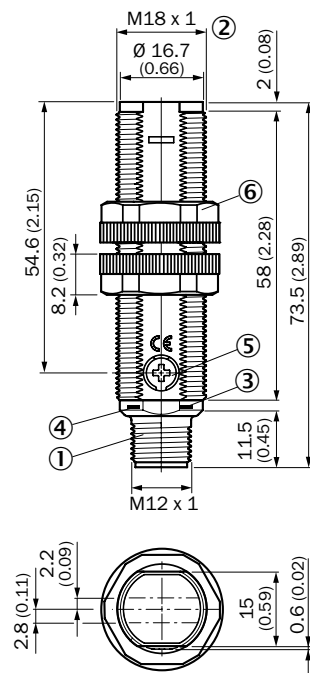
- ① Connection cable 2 m
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ Fastening nuts (2 x); 24 mm hex, metal

GR18, plastic, cable, axial



- 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); width across 22, plastic

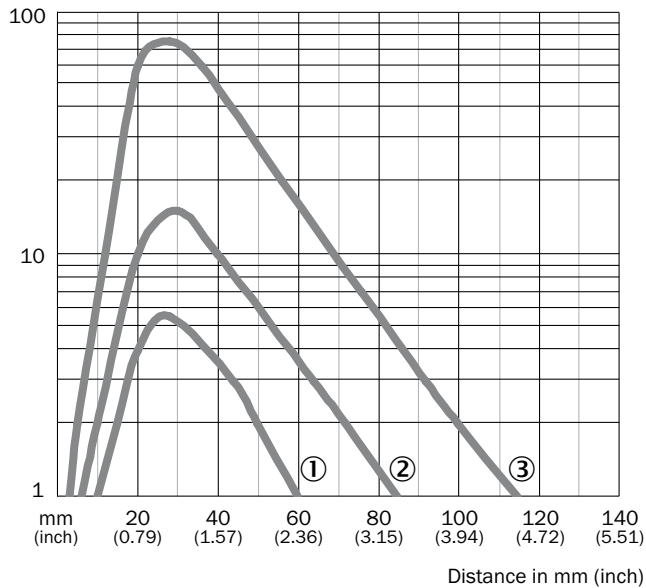
GR18, plastic, connector, axial



- ① Connector M12, 4-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); width across 22, plastic

Characteristic curve**GRTE18, 115 mm**

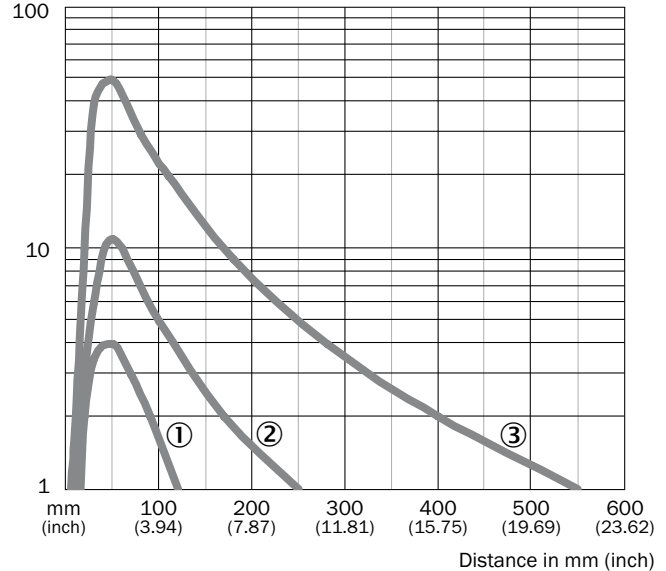
Operating reserve



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

GRTE18, 550 mm

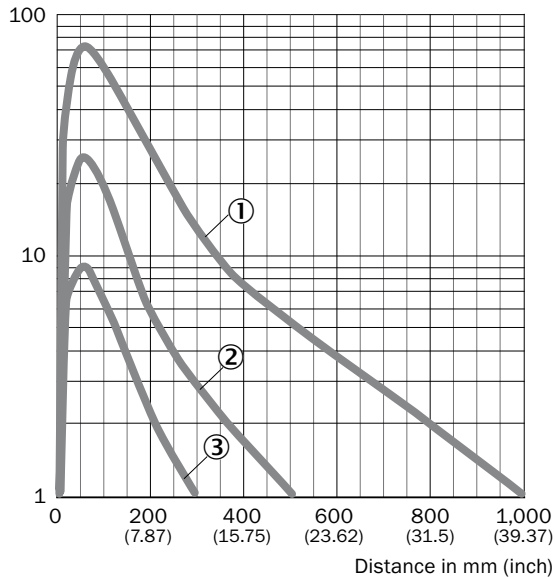
Operating reserve



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

GRTE18, 800 mm

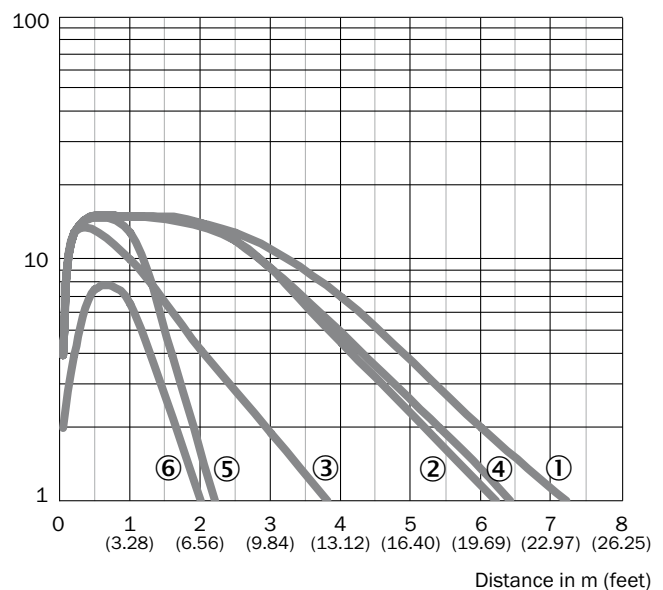
Operating reserve



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

GRL18

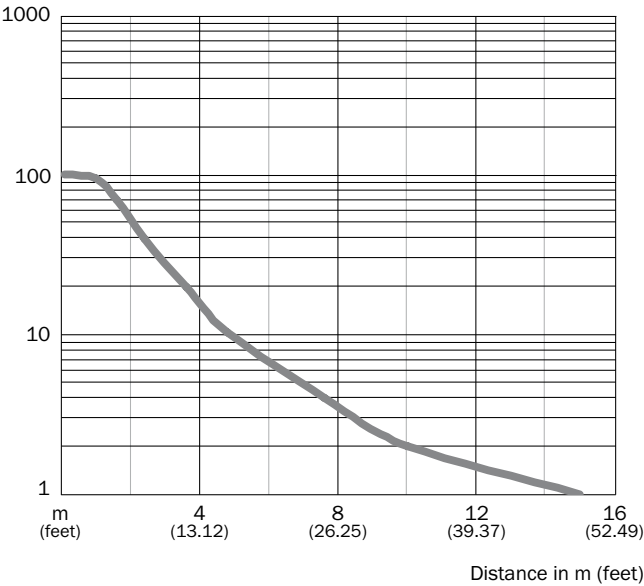
Operating reserve



- ① Reflector type PL80A
- ② Reflector type PL40A
- ③ Reflector type PL20A
- ④ Reflector type P205
- ⑤ Reflector type PL22-2
- ⑥ Reflective tape REF-Plus 3436

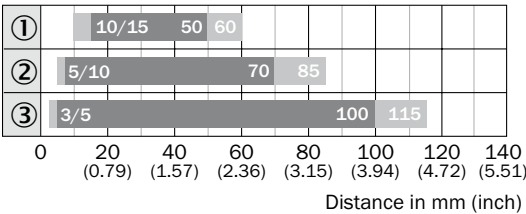
GRSE18

Operating reserve



Sensing range

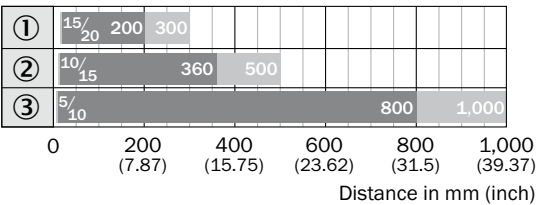
GRTE18, 115 mm



■ Sensing range ■ Sensing range max.

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

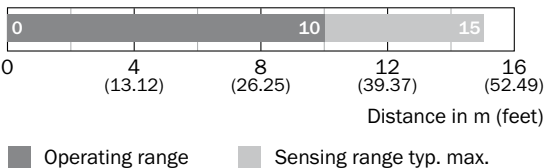
GRTE18, 800 mm



■ Sensing range ■ Sensing range max. typ.

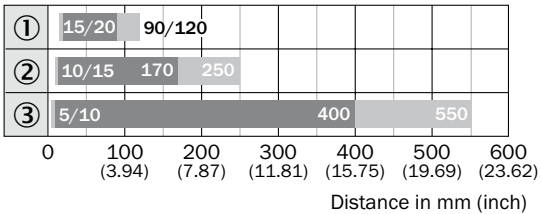
- ① Sensing range on black, 6 % remission
- ② Sensing range on gray, 20 % remission
- ③ Sensing range on white, 90 % remission

GRSE18



■ Operating range ■ Sensing range typ. max.

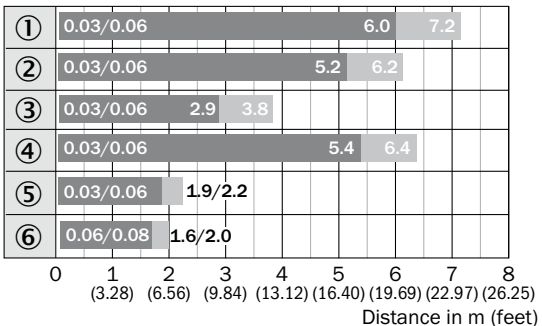
GRTE18, 550 mm



■ Sensing range ■ Sensing range max.

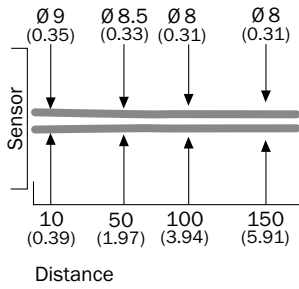
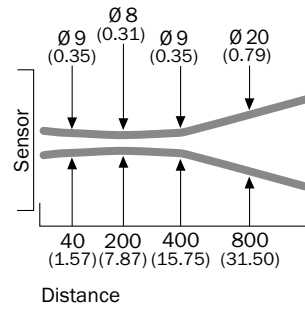
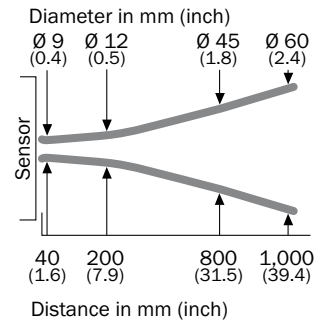
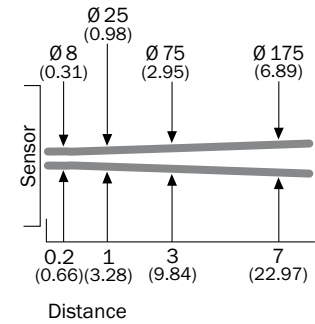
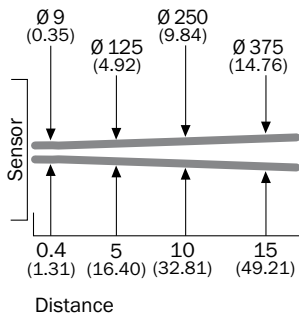
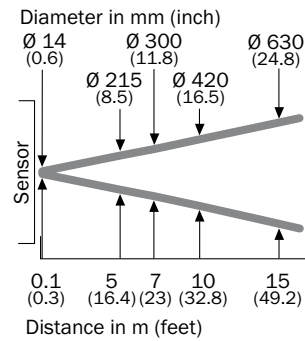
- ① Sensing range on black, 6 % remission
- ② Sensing range on gray, 20 % remission
- ③ Sensing range on white, 90 % remission

GRL18

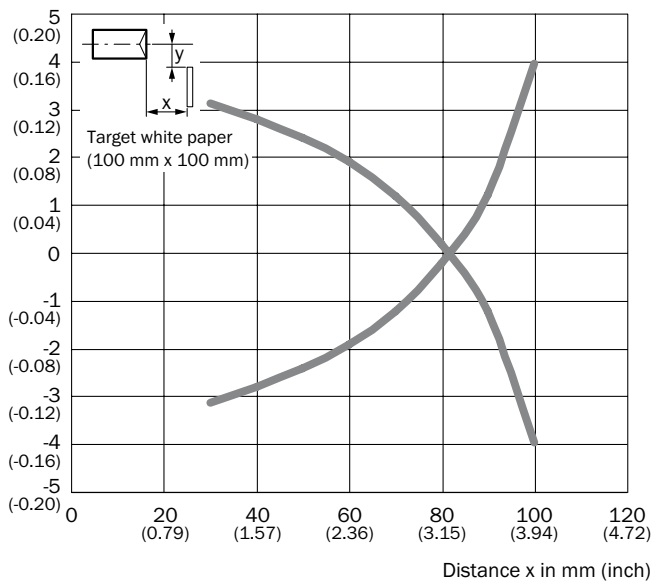


■ Sensing range ■ Sensing range max.

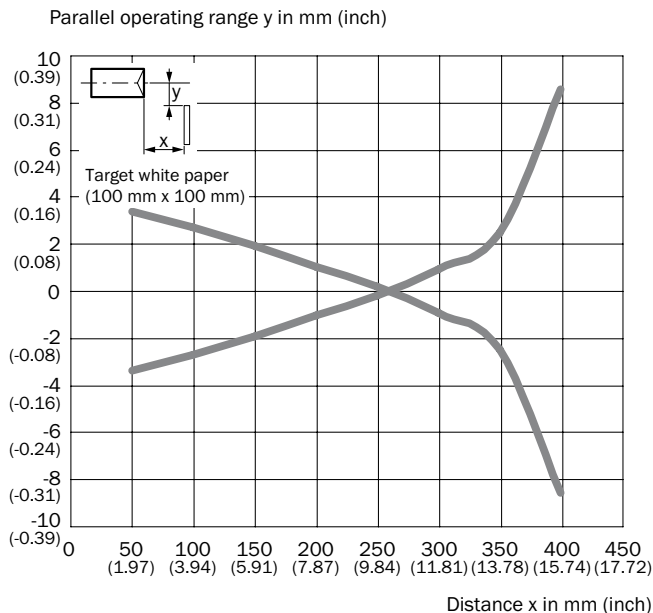
- ① Reflector type PL80A
- ② Reflector type PL40A
- ③ Reflector type PL20A
- ④ Reflector type P205
- ⑤ Reflector type PL22-2
- ⑥ Reflective tape REF-Plus 3436

Light spot diameter**GRTE18, 115 mm****GRTE18, 550 mm****GRTE18, 800 mm****GRL18****GRSE18, visible red light****GRSE18, infrared light****Response curve****GRTE18, 115 mm**

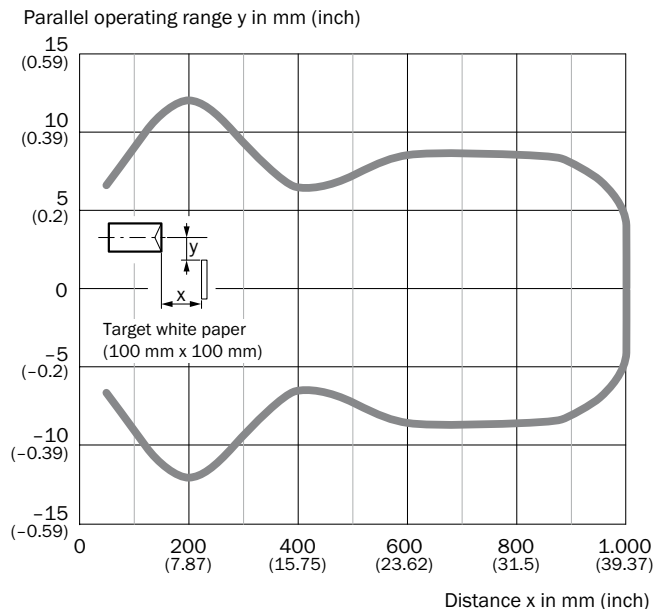
Parallel operating range y in mm (inch)



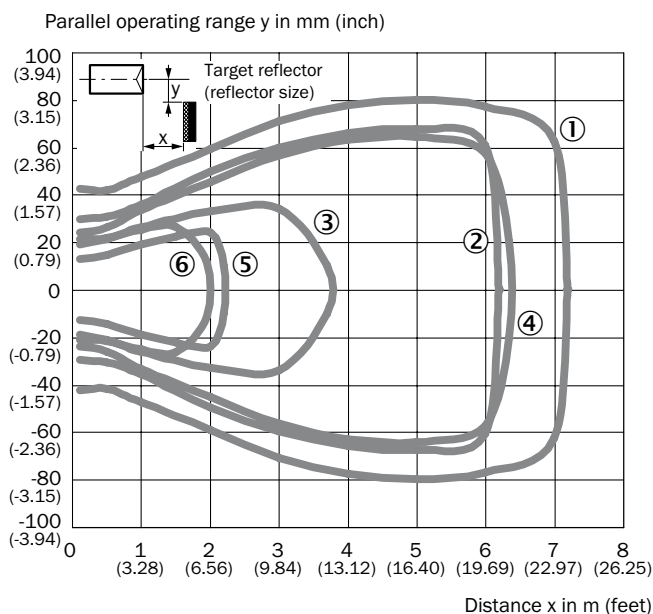
GRTE18, 550 mm



GRTE18, 800 mm

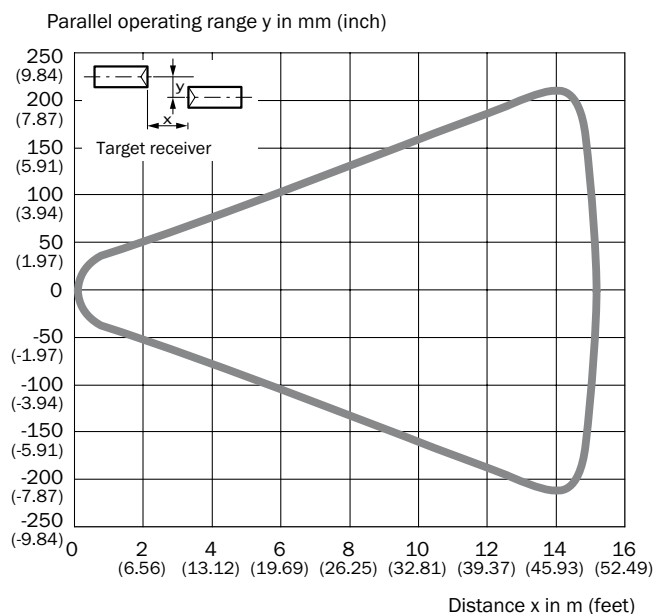


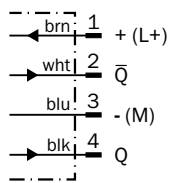
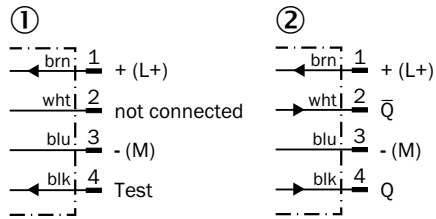
GRL18



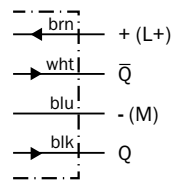
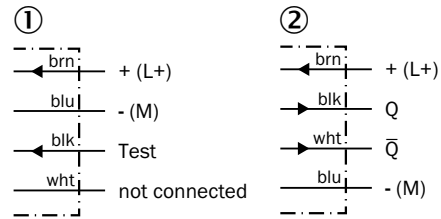
- ① Reflector type PL80A
- ② Reflector type PL40A
- ③ Reflector type PL20A
- ④ Reflector type P205
- ⑤ Reflector type PL22-2
- ⑥ Reflective tape REF-Plus 3436

GRSE18



Connection diagram**Cd-084****Cd-072**

① Sender
 ② Receiver

Cd-094**Cd-088**

① Sender
 ② Receiver

ROUND, SHORT AND ECONOMICALLY UNBEATABLE



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Product description

The GR18S family of photoelectric sensors in cylindrical M18-housings 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 family'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
- Potentiometer for adjustment of switching threshold (depending on type)
- Special flush type, one-piece metal housing
- 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

→ www.mysick.com/en/GR18S

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

	GRTE18S	GRL18S	GRL18SG	GRSE18S
Sensor principle	Photoelectric proximity sensor	Photoelectric retro-reflective sensor		Through-beam photoelectric sensor
Detection principle	Energetic	Standard optics		–
Housing design (light emission)	Cylindrical, straight; cylindrical, straight, fully flush; cylindrical, angled; cylindrical, angled, fully flush; (depending on type)			
Sensing range max.	3 mm ... 115 mm ¹⁾ 5 mm ... 550 mm ¹⁾ 5 mm ... 1.000 mm ¹⁾ (depending on type)	0.03 m ... 7.2 m ²⁾		0 m ... 15 m
Sensing range	5 mm ... 100 mm ¹⁾ 10 mm ... 400 mm ¹⁾ 10 mm ... 800 mm ¹⁾ (depending on type)	0.06 m ... 6 m ²⁾		0 m ... 10 m
Type of light	Visible red light			Visible red light / Infrared light (depending on type)
Light source	PinPoint LED ³⁾ LED ³⁾ (depending on type)	PinPoint LED ³⁾		
Light spot size (distance)	Ø 8 mm (100 mm) Ø 9 mm (400 mm) Ø 45 mm (800 mm) (depending on type)	Ø 175 mm (7 m)		Ø 250 mm (10 m)
Wave length	650 nm			650 nm / 850 nm (depending on type)
Adjustment	Potentiometer, 270 °	–		Potentiometer, 270 °
Special feature	–		For transparent objects ⁴⁾	–

¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033)²⁾ PL80A.³⁾ Average service life of 100,000 h at T_A = +25 °C.⁴⁾ With attenuation along light beam > 20 %.

Mechanics/electronics

		GRTE18S	GRL18S	GRL18SG	GRSE18S
Supply voltage ¹⁾		10 V DC ... 30 V DC			
Ripple ²⁾		± 5 V _{pp}			
Power consumption		≤ 30 mA			
Output type		PNP / NPN (depending on type)			
Output function		Complementary			
Switching mode		Dark switching / Light switching / Light/dark switching (depending on type)			
Signal voltage	PNP HIGH/LOW	V _S - (≤ 3 V) / approx. 0 V Approx. V _S / ≤ 3 V			
	NPN HIGH/LOW				
Output current I _{max.} ³⁾		100 mA			
Response time ⁴⁾		< 1,000 µs	< 500 µs		
Switching frequency		500 Hz	1,000 Hz		

	GRTE18S	GRL18S	GRL18SG	GRSE18S
Connection type	Cable, 2 m ⁵⁾ Male connector, M12 (depending on type)			
Circuit protection	A ⁶⁾ B ⁷⁾ D ⁸⁾			
Protection class	III			
Polarisation filter	–	✓		–
Enclosure rating	IP 67			
Items supplied	Fastening nuts (2 x)	Fastening nuts (2 x), Reflector P250 (depending on type)		Fastening nuts (4 x)
Test input	–			Sender OFF at “Test” 0 V
Ambient operating temperature ⁹⁾	–25 °C ... +55 °C		–25 °C ... +55 °C ¹⁰⁾	–25 °C ... +55 °C
Ambient storage temperature	–40 °C ... +70 °C			

¹⁾ Limit values, operation in short-circuit protected network max. 8 A.

²⁾ May not exceed or fall short of V_S tolerances.

³⁾ At $V_S > 24$ V or ambient temperature > 49 °C, I_A max = 50 mA.

⁴⁾ Signal transit time with resistive load.

⁵⁾ Do not bend below 0 °C.

⁶⁾ A = V_S connections reverse-polarity protected.

⁷⁾ B = inputs and output reverse-polarity protected.

⁸⁾ D = outputs overcurrent and short-circuit protected.

⁹⁾ At $U_V \leq 24$ V and $I_A < 50$ mA.

¹⁰⁾ Temperature stability after adjustment ± 10 °C.

Ordering information

Other models → www.mysick.com/en/GR18S

GRTE18S, metal, axial

- **Sensor principle:** Photoelectric proximity sensor
- **Detection principle:** energetic
- **Type of light:** visible red light
- **Adjustment:** potentiometer, 270 °
- **Items supplied:** fastening nuts (2 x)

Sensing range max. ¹⁾	Sensing range ¹⁾	Light spot size (distance)	Switching mode	Light source	Output type	Connection	Connection diagram	Model name	Part no.
3 mm ... 115 mm	5 mm ... 100 mm	Ø 8 mm (100 mm)	Light switching	PinPoint LED	NPN	Cable, 3-wire, 2 m, PVC	Cd-044	GRTE18S-N1312	1058201
					PNP	Cable, 3-wire, 2 m, PVC	Cd-044	GRTE18S-P1312	1058203
						Connector M12, 3-pin	Cd-045	GRTE18S-P2312	1058204
			Light/dark switching	PinPoint LED	NPN	Connector M12, 3-pin	Cd-045	GRTE18S-N2312	1059408
					PNP	Cable, 4-wire, 2 m, PVC	Cd-094	GRTE18S-N1112	1069584
						Connector M12, 4-pin	Cd-084	GRTE18S-P2412	1069583
5 mm ... 550 mm	10 mm ... 400 mm	Ø 9 mm (400 mm)	Light switching	PinPoint LED	NPN	Cable, 3-wire, 2 m, PVC	Cd-044	GRTE18S-N1342	1058202
					PNP	Cable, 3-wire, 2 m, PVC	Cd-044	GRTE18S-P1342	1058205
						Connector M12, 3-pin	Cd-045	GRTE18S-N2342	1059482
			Light/dark switching	PinPoint LED	PNP	Connector M12, 3-pin	Cd-045	GRTE18S-P2342	1058200
					NPN	Cable, 4-wire, 2 m, PVC	Cd-094	GRTE18S-N1142	1069580
						Connector M12, 4-pin	Cd-084	GRTE18S-P2442	1069579
5 mm ... 1,000 mm	10 mm ... 800 mm	Ø 45 mm (800 mm)	Light switching	LED	NPN	Cable, 3-wire, 2 m, PVC	Cd-044	GRTE18S-N1362	1069500
					PNP	Cable, 3-wire, 2 m, PVC	Cd-044	GRTE18S-P1362	1069503
						Connector M12, 3-pin	Cd-045	GRTE18S-P2362	1069504
			Light/dark switching	LED	NPN	Connector M12, 3-pin	Cd-045	GRTE18S-N2362	1069501
					NPN	Cable, 4-wire, 2 m, PVC	Cd-094	GRTE18S-N1162	1069578

¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033)

GRTE18S, metal, axial, fully flush

- **Sensor principle:** Photoelectric proximity sensor
- **Detection principle:** energetic
- **Type of light:** visible red light
- **Adjustment:** potentiometer, 270 °
- **Items supplied:** fastening nuts (2 x)

Sensing range max. ¹⁾	Sensing range ¹⁾	Light spot size (distance)	Switching mode	Light source	Output type	Connection	Connection diagram	Model name	Part no.
3 mm ... 115 mm	5 mm ... 100 mm	Ø 8 mm (100 mm)	Dark switching	PinPoint LED	NPN	Connector M12, 3-pin	Cd-045	GRTE18S-E231Z	1059409
			Light switching	PinPoint LED	NPN	Connector M12, 3-pin	Cd-045	GRTE18S-N231Z	1059432
			Dark switching	PinPoint LED	PNP	Connector M12, 3-pin	Cd-045	GRTE18S-F231Z	1059435
			Light switching	PinPoint LED	PNP	Connector M12, 3-pin	Cd-045	GRTE18S-P231Z	1059436
5 mm ... 550 mm	10 mm ... 400 mm	Ø 9 mm (400 mm)	Dark switching	PinPoint LED	PNP	Cable, 3-wire, 2 m	Cd-044	GRTE18S-F134Z	1062423
			Light switching	PinPoint LED	PNP	Cable, 3-wire, 2 m	Cd-044	GRTE18S-P134Z	1064171
					NPN	Connector M12, 3-pin	Cd-045	GRTE18S-N234Z	1059484
			Dark switching	PinPoint LED	PNP	Connector M12, 3-pin	Cd-045	GRTE18S-F234Z	1059486
			Light switching	PinPoint LED	PNP	Connector M12, 3-pin	Cd-045	GRTE18S-P234Z	1059487
			Dark switching	PinPoint LED	NPN	Connector M12, 3-pin	Cd-045	GRTE18S-E234Z	1059483
5 mm ... 1,000 mm	10 mm ... 800 mm	Ø 45 mm (800 mm)	Dark switching	LED	NPN	Connector M12, 3-pin	Cd-045	GRTE18S-E236Z	1069554
			Light switching	LED	NPN	Connector M12, 3-pin	Cd-045	GRTE18S-N236Z	1069555
			Dark switching	LED	PNP	Connector M12, 3-pin	Cd-045	GRTE18S-F236Z	1069556
			Light switching	LED	PNP	Connector M12, 3-pin	Cd-045	GRTE18S-P236Z	1069557
			Light/dark switching	LED	PNP	Connector M12, 4-pin	Cd-084	GRTE18S-P246Z	1069123

¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033)

GRTE18S, metal, radial, fully flush

- **Sensor principle:** Photoelectric proximity sensor
- **Detection principle:** energetic
- **Type of light:** visible red light
- **Output type:** PNP
- **Adjustment:** potentiometer, 270 °
- **Connection:** Connector M12, 3-pin
- **Items supplied:** fastening nuts (2 x)

Sensing range max. ¹⁾	Sensing range ¹⁾	Light spot size (distance)	Switching mode	Light source	Connection diagram	Model name	Part no.
3 mm ... 115 mm	5 mm ... 100 mm	Ø 8 mm (100 mm)	Dark switching	PinPoint LED	Cd-045	GRTE18S-F231X	1059438
			Light switching	PinPoint LED	Cd-045	GRTE18S-P231X	1059440
5 mm ... 550 mm	10 mm ... 400 mm	Ø 9 mm (400 mm)	Dark switching	PinPoint LED	Cd-045	GRTE18S-F234X	1059488
			Light switching	PinPoint LED	Cd-045	GRTE18S-P234X	1059489

¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033)

Sensing range max. ¹⁾	Sensing range ¹⁾	Light spot size (distance)	Switching mode	Light source	Connection diagram	Model name	Part no.
5 mm ... 1,000 mm	10 mm ... 800 mm	Ø 45 mm (800 mm)	Dark switching	LED	Cd-045	GRTE18S-F236X	1069558
			Light switching	LED	Cd-045	GRTE18S-P236X	1069559

¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033)

GRTE18S, plastic, axial

- **Sensor principle:** Photoelectric proximity sensor
- **Detection principle:** energetic
- **Type of light:** visible red light
- **Adjustment:** potentiometer, 270 °
- **Items supplied:** fastening nuts (2 x)

Sensing range max. ¹⁾	Sensing range ¹⁾	Light spot size (distance)	Switching mode	Light source	Output type	Connection	Connection diagram	Model name	Part no.
3 mm ... 115 mm	5 mm ... 100 mm	Ø 8 mm (100 mm)	Light switching	PinPoint LED	NPN	Cable, 3-wire, 2 m, PVC	Cd-044	GRTE18S-N1317	1058194
					PNP	Cable, 3-wire, 2 m, PVC	Cd-044	GRTE18S-P1317	1058195
					NPN	Connector M12, 3-pin	Cd-045	GRTE18S-N2317	1059378
					PNP	Connector M12, 3-pin	Cd-045	GRTE18S-P2317	1058196
			Light/dark switching	PinPoint LED	NPN	Cable, 4-wire, 2 m, PVC	Cd-094	GRTE18S-N1117	1069581
					PNP	Connector M12, 4-pin	Cd-084	GRTE18S-P2417	1069582
5 mm ... 550 mm	10 mm ... 400 mm	Ø 9 mm (400 mm)	Light switching	PinPoint LED	NPN	Cable, 3-wire, 2 m, PVC	Cd-044	GRTE18S-N1347	1058393
					PNP	Cable, 3-wire, 2 m, PVC	Cd-044	GRTE18S-P1347	1058197
			Light/dark switching	PinPoint LED	NPN	Cable, 4-wire, 2 m, PVC	Cd-094	GRTE18S-N1147	1062024
			Light switching	PinPoint LED	NPN	Connector M12, 3-pin	Cd-045	GRTE18S-N2347	1059441
					PNP	Connector M12, 3-pin	Cd-045	GRTE18S-P2347	1058193
			Light/dark switching	PinPoint LED	PNP	Connector M12, 4-pin	Cd-084	GRTE18S-P2447	1067073
5 mm ... 1,000 mm	10 mm ... 800 mm	Ø 45 mm (800 mm)	Light switching	LED	NPN	Cable, 3-wire, 2 m, PVC	Cd-044	GRTE18S-N1367	1069494
					PNP	Cable, 3-wire, 2 m, PVC	Cd-044	GRTE18S-P1367	1069496
			Light/dark switching	LED	NPN	Cable, 4-wire, 2 m, PVC	Cd-094	GRTE18S-N1167	1069121
			Light switching	LED	NPN	Connector M12, 3-pin	Cd-045	GRTE18S-N2367	1069495
					PNP	Connector M12, 3-pin	Cd-045	GRTE18S-P2367	1069497
			Light/dark switching	LED	PNP	Connector M12, 4-pin	Cd-084	GRTE18S-P2467	1069122

¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033)

GRTE18S, plastic, radial

- **Sensor principle:** Photoelectric proximity sensor
- **Detection principle:** energetic
- **Type of light:** visible red light
- **Output type:** PNP
- **Adjustment:** potentiometer, 270 °
- **Connection:** Connector M12, 3-pin
- **Items supplied:** fastening nuts (2 x)

Sensing range max. ¹⁾	Sensing range ¹⁾	Light spot size (distance)	Switching mode	Light source	Connection diagram	Model name	Part no.
3 mm ... 115 mm	5 mm ... 100 mm	Ø 8 mm (100 mm)	Dark switching	PinPoint LED	Cd-045	GRTE18S-F2319	1059406
			Light switching	PinPoint LED	Cd-045	GRTE18S-P2319	1059407
5 mm ... 550 mm	10 mm ... 400 mm	Ø 9 mm (400 mm)	Dark switching	PinPoint LED	Cd-045	GRTE18S-F2349	1059480
			Light switching	PinPoint LED	Cd-045	GRTE18S-P2349	1059481
5 mm ... 1,000 mm	10 mm ... 800 mm	Ø 45 mm (800 mm)	Dark switching	LED	Cd-045	GRTE18S-F2369	1069498
			Light switching	LED	Cd-045	GRTE18S-P2369	1069499

¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033)

GRL18S, metal, axial

- **Sensor principle:** Photoelectric retro-reflective sensor
- **Detection principle:** Standard optics
- **Sensing range:** 0.06 m ... 6 m (PL80A.)
- **Type of light:** visible red light
- **Light spot size (distance):** Ø 175 mm (7 m)
- **Light source:** PinPoint LED

Sensing range max. ¹⁾	Switching mode	Output type	Connection	Connection diagram	Items supplied	Model name	Part no.
0.03 m ... 7.2 m	Dark switching	PNP	Cable, 3-wire, 2 m, PVC	Cd-044	Fastening nuts (2 x)	GRL18S-F1331	1059541
		NPN	Cable, 3-wire, 2 m, PVC	Cd-044	Fastening nuts (2 x)	GRL18S-E1331	1059537
	Light switching	PNP	Cable, 3-wire, 2 m, PVC	Cd-044	Fastening nuts (2 x)	GRL18S-P1331	1059542
		NPN	Cable, 3-wire, 2 m, PVC	Cd-044	Fastening nuts (2 x)	GRL18S-N1331	1059538
	Dark switching	NPN	Cable, 3-wire, 2 m, PVC	Cd-044	Fastening nuts (2 x), Reflector P250	GRL18S-E1351	1064153
		PNP	Cable, 3-wire, 2 m, PVC	Cd-044	Fastening nuts (2 x), Reflector P250	GRL18S-F1351	1064155
	Light switching	NPN	Cable, 3-wire, 2 m, PVC	Cd-044	Fastening nuts (2 x), Reflector P250	GRL18S-N1351	1064154
		PNP	Cable, 3-wire, 2 m, PVC	Cd-044	Fastening nuts (2 x), Reflector P250	GRL18S-P1351	1064157
	Dark switching	PNP	Connector M12, 3-pin	Cd-045	Fastening nuts (2 x)	GRL18S-F2331	1058198
	Light switching	PNP	Connector M12, 3-pin	Cd-045	Fastening nuts (2 x)	GRL18S-P2331	1058199
	Dark switching	PNP	Connector M12, 3-pin	Cd-045	Fastening nuts (2 x), Reflector P250	GRL18S-F2351	1064156
	Light switching	PNP	Connector M12, 3-pin	Cd-045	Fastening nuts (2 x), Reflector P250	GRL18S-P2351	1064158
	Light/dark switching	NPN	Cable, 4-wire, 2 m, PVC	Cd-094	Fastening nuts (2 x)	GRL18S-N1131	1069588
		PNP	Connector M12, 4-pin	Cd-084	Fastening nuts (2 x)	GRL18S-P2431	1069586

¹⁾ PL80A.

GRL18S, metal, axial, fully flush

- **Sensor principle:** Photoelectric retro-reflective sensor
- **Detection principle:** Standard optics
- **Sensing range:** 0.06 m ... 6 m (PL80A.)
- **Type of light:** visible red light
- **Light spot size (distance):** Ø 175 mm (7 m)
- **Light source:** PinPoint LED
- **Output type:** PNP
- **Connection:** Connector M12, 3-pin

Sensing range max. ¹⁾	Switching mode	Connection diagram	Items supplied	Model name	Part no.
0.03 m ... 7.2 m	Dark switching	Cd-045	Fastening nuts (2 x)	GRL18S-F233Y	1058206
	Light switching	Cd-045	Fastening nuts (2 x)	GRL18S-P233Y	1058207
	Dark switching	Cd-045	Fastening nuts (2 x), Reflector P250	GRL18S-F235Y	1064159
	Light switching	Cd-045	Fastening nuts (2 x), Reflector P250	GRL18S-P235Y	1064160

¹⁾ PL80A.**GRL18S, metal, radial, fully flush**

- **Sensor principle:** Photoelectric retro-reflective sensor
- **Detection principle:** Standard optics
- **Sensing range:** 0.06 m ... 6 m (PL80A.)
- **Type of light:** visible red light
- **Light spot size (distance):** Ø 175 mm (7 m)
- **Light source:** PinPoint LED
- **Output type:** PNP
- **Connection:** Connector M12, 3-pin

Sensing range max. ¹⁾	Switching mode	Connection diagram	Items supplied	Model name	Part no.
0.03 m ... 7.2 m	Dark switching	Cd-045	Fastening nuts (2 x)	GRL18S-F233W	1058209
	Light switching	Cd-045	Fastening nuts (2 x)	GRL18S-P233W	1058210
	Dark switching	Cd-045	Fastening nuts (2 x), Reflector P250	GRL18S-F235W	1064161
	Light switching	Cd-045	Fastening nuts (2 x), Reflector P250	GRL18S-P235W	1064162

¹⁾ PL80A.

GRL18S, plastic, axial

- **Sensor principle:** Photoelectric retro-reflective sensor
- **Detection principle:** Standard optics
- **Sensing range:** 0.06 m ... 6 m (PL80A.)
- **Type of light:** visible red light
- **Light spot size (distance):** Ø 175 mm (7 m)
- **Light source:** PinPoint LED

Sensing range max. ¹⁾	Switching mode	Output type	Connection	Connection diagram	Items supplied	Model name	Part no.
0.03 m ... 7.2 m	Dark switching	PNP	Cable, 3-wire, 2 m, PVC	Cd-044	Fastening nuts (2 x)	GRL18S-F1336	1059532
		NPN	Cable, 3-wire, 2 m, PVC	Cd-044	Fastening nuts (2 x)	GRL18S-E1336	1059530
	Light switching	PNP	Cable, 3-wire, 2 m, PVC	Cd-044	Fastening nuts (2 x)	GRL18S-P1336	1059534
		NPN	Cable, 3-wire, 2 m, PVC	Cd-044	Fastening nuts (2 x)	GRL18S-N1336	1059531
	Dark switching	NPN	Cable, 3-wire, 2 m, PVC	Cd-044	Fastening nuts (2 x), Reflector P250	GRL18S-E1356	1064143
		PNP	Cable, 3-wire, 2 m, PVC	Cd-044	Fastening nuts (2 x), Reflector P250	GRL18S-F1356	1064145
	Light switching	NPN	Cable, 3-wire, 2 m, PVC	Cd-044	Fastening nuts (2 x), Reflector P250	GRL18S-N1356	1064144
		PNP	Cable, 3-wire, 2 m, PVC	Cd-044	Fastening nuts (2 x), Reflector P250	GRL18S-P1356	1064147
	Dark switching	PNP	Connector M12, 3-pin	Cd-045	Fastening nuts (2 x)	GRL18S-F2336	1059533
	Light switching	PNP	Connector M12, 3-pin	Cd-045	Fastening nuts (2 x)	GRL18S-P2336	1058192
	Dark switching	PNP	Connector M12, 3-pin	Cd-045	Fastening nuts (2 x), Reflector P250	GRL18S-F2356	1064146
	Light switching	PNP	Connector M12, 3-pin	Cd-045	Fastening nuts (2 x), Reflector P250	GRL18S-P2356	1064148
	Light/dark switching	NPN	Cable, 4-wire, 2 m, PVC	Cd-094	Fastening nuts (2 x)	GRL18S-N1136	1069585
		PNP	Connector M12, 4-pin	Cd-084	Fastening nuts (2 x)	GRL18S-P2436	1069072

¹⁾ PL80A.

GRL18S, plastic, radial

- **Sensor principle:** Photoelectric retro-reflective sensor
- **Detection principle:** Standard optics
- **Sensing range:** 0.06 m ... 6 m (PL80A.)
- **Type of light:** visible red light
- **Light spot size (distance):** Ø 175 mm (7 m)
- **Light source:** PinPoint LED
- **Output type:** PNP

Sensing range max. ¹⁾	Switching mode	Connection	Connection diagram	Items supplied	Model name	Part no.
0.03 m ... 7.2 m	Dark switching	Cable, 3-wire, 2 m, PVC	Cd-044	Fastening nuts (2 x)	GRL18S-F1338	1059535
	Light switching	Cable, 3-wire, 2 m, PVC	Cd-044	Fastening nuts (2 x)	GRL18S-P1338	1059536
	Dark switching	Cable, 3-wire, 2 m, PVC	Cd-044	Fastening nuts (2 x), Reflector P250	GRL18S-F1358	1064149
	Light switching	Cable, 3-wire, 2 m, PVC	Cd-044	Fastening nuts (2 x), Reflector P250	GRL18S-P1358	1064151
	Dark switching	Connector M12, 3-pin	Cd-045	Fastening nuts (2 x)	GRL18S-F2338	1058211
	Light switching	Connector M12, 3-pin	Cd-045	Fastening nuts (2 x)	GRL18S-P2338	1058212
	Dark switching	Connector M12, 3-pin	Cd-045	Fastening nuts (2 x), Reflector P250	GRL18S-F2358	1064150
	Light switching	Connector M12, 3-pin	Cd-045	Fastening nuts (2 x), Reflector P250	GRL18S-P2358	1064152

¹⁾ PL80A.

GRL18SG, metal, axial, clear material detection

- **Sensor principle:** Photoelectric retro-reflective sensor
- **Detection principle:** Standard optics
- **Sensing range:** 0.06 m ... 6 m (PL80A.)
- **Type of light:** visible red light
- **Light spot size (distance):** Ø 175 mm (7 m)
- **Light source:** PinPoint LED
- **Output type:** PNP
- **Adjustment:** potentiometer, 270 °
- **Connection:** Connector M12, 3-pin
- **Items supplied:** fastening nuts (2 x)

Sensing range max. ¹⁾	Switching mode	Connection diagram	Model name	Part no.
0.03 m ... 7.2 m	Dark switching	Cd-045	GRL18SG-F2332	1059555
	Light switching	Cd-045	GRL18SG-P2332	1060323

¹⁾ PL80A.

GRL18SG, metal, axial, fully flush, clear material detection

- **Sensor principle:** Photoelectric retro-reflective sensor
- **Detection principle:** Standard optics
- **Sensing range:** 0.06 m ... 6 m (PL80A.)
- **Type of light:** visible red light
- **Light spot size (distance):** Ø 175 mm (7 m)
- **Light source:** PinPoint LED
- **Adjustment:** potentiometer, 270 °
- **Connection:** Connector M12, 3-pin
- **Items supplied:** fastening nuts (2 x)

Sensing range max. ¹⁾	Switching mode	Output type	Connection diagram	Model name	Part no.
0.03 m ... 7.2 m	Dark switching	NPN	Cd-045	GRL18SG-E233Z	1061927
		PNP	Cd-045	GRL18SG-F233Z	1059556
	Light switching	NPN	Cd-045	GRL18SG-N233Z	1061928
		PNP	Cd-045	GRL18SG-P233Z	1068113

¹⁾ PL80A.

GRL18SG, metal, radial, fully flush, clear material detection

- **Sensor principle:** Photoelectric retro-reflective sensor
- **Detection principle:** Standard optics
- **Sensing range:** 0.06 m ... 6 m (PL80A.)
- **Type of light:** visible red light
- **Light spot size (distance):** Ø 175 mm (7 m)
- **Switching mode:** Dark switching
- **Light source:** PinPoint LED
- **Output type:** PNP

Sensing range max. ¹⁾	Adjustment	Connection	Connection diagram	Items supplied	Model name	Part no.
0.03 m ... 7.2 m	Potentiometer, 270 °	Connector M12, 3-pin	Cd-045	Fastening nuts (2 x)	GRL18SG-F233X	1059557

¹⁾ PL80A.

GRL18SG, plastic, axial, clear material detection

- **Sensor principle:** Photoelectric retro-reflective sensor
- **Detection principle:** Standard optics
- **Sensing range:** 0.06 m ... 6 m (PL80A.)
- **Type of light:** visible red light
- **Light spot size (distance):** Ø 175 mm (7 m)
- **Light source:** PinPoint LED
- **Adjustment:** potentiometer, 270 °

Sensing range max. ¹⁾	Switching mode	Output type	Connection	Connection diagram	Items supplied	Model name	Part no.
0.03 m ... 7.2 m	Dark switching	PNP	Cable, 3-wire, 2 m	Cd-044	Fastening nuts (2 x)	GRL18SG-F1337	1062231
			Connector M12, 3-pin	Cd-045	Fastening nuts (2 x)	GRL18SG-F2337	1059553
	Light/dark switching	NPN	Cable, 4-wire, 2 m	Cd-094	Fastening nuts (2 x)	GRL18SG-N1137	1062031
					Fastening nuts (2 x), Reflector P250	GRL18SG-N1157	1068942
		PNP	Cable, 4-wire, 2 m	Cd-094	Fastening nuts (2 x)	GRL18SG-P1137	1066421
					Fastening nuts (2 x), Reflector P250	GRL18SG-P1157	1066940

¹⁾ PL80A.

GRL18SG, plastic, radial, clear material detection

- **Sensor principle:** Photoelectric retro-reflective sensor
- **Detection principle:** Standard optics
- **Sensing range:** 0.06 m ... 6 m (PL80A.)
- **Type of light:** visible red light
- **Light spot size (distance):** Ø 175 mm (7 m)
- **Switching mode:** Dark switching
- **Light source:** PinPoint LED
- **Output type:** PNP

Sensing range max. ¹⁾	Adjustment	Connection	Connection diagram	Items supplied	Model name	Part no.
0.03 m ... 7.2 m	Potentiometer, 270 °	Connector M12, 3-pin	Cd-045	Fastening nuts (2 x)	GRL18SG-F2339	1059554

¹⁾ PL80A.

GRSE18S, metal, axial

- **Sensor principle:** Through-beam photoelectric sensor
- **Sensing range:** 0 m ... 10 m
- **Light spot size (distance):** Ø 250 mm (10 m)
- **Light source:** PinPoint LED
- **Items supplied:** fastening nuts (4 x)

Sensing range max.	Type of light	Switching mode	Output type	Adjustment	Connection	Connection diagram	Model name	Part no.
0 m ... 15 m	Visible red light	Dark switching	NPN	–	Cable, 3-wire, 2 m, PVC	Cd-049	GRSE18S-E1331	1059548
			PNP	–	Connector M12, 3-pin	Cd-051	GRSE18S-F2331	1059549
		Light switching	PNP	–	Connector M12, 3-pin	Cd-051	GRSE18S-P2331	1059550
			NPN	Potentiometer, 270 °	Cable, 4-wire, 2 m, PVC	Cd-088	GRSE18S-N1142	1069630
	Infrared light	Light/dark switching	PNP	Potentiometer, 270 °	Cable, 4-wire, 2 m, PVC	Cd-088	GRSE18S-P1142	1069629
			NPN	Potentiometer, 270 °	Cable, 4-wire, 2 m, PVC	Cd-088	GRSE18S-N1122	1069638
		Light/dark switching	PNP	Potentiometer, 270 °	Cable, 4-wire, 2 m, PVC	Cd-088	GRSE18S-P1122	1069637
			NPN	Potentiometer, 270 °	Connector M12, 4-pin	Cd-072	GRSE18S-N2442	1069628
	Visible red light	Light/dark switching	PNP	Potentiometer, 270 °	Connector M12, 4-pin	Cd-072	GRSE18S-P2442	1069125
			NPN	Potentiometer, 270 °	Connector M12, 4-pin	Cd-072	GRSE18S-N2422	1069635
		Light/dark switching	PNP	Potentiometer, 270 °	Connector M12, 4-pin	Cd-072	GRSE18S-P2422	1069636
			NPN	Potentiometer, 270 °	Connector M12, 4-pin	Cd-072	GRSE18S-N2422	1069636

GRSE18S, metal, radial, fully flush

- **Sensor principle:** Through-beam photoelectric sensor
- **Sensing range:** 0 m ... 10 m
- **Type of light:** visible red light
- **Light spot size (distance):** Ø 250 mm (10 m)
- **Light source:** PinPoint LED
- **Output type:** PNP
- **Connection:** Connector M12, 3-pin
- **Items supplied:** fastening nuts (4 x)

Sensing range max.	Switching mode	Connection diagram	Model name	Part no.
0 m ... 15 m	Dark switching	Cd-051	GRSE18S-F233W	1059551
	Light switching	Cd-051	GRSE18S-P233W	1059552

GRSE18S, metal, axial, fully flush

- **Sensor principle:** Through-beam photoelectric sensor
- **Sensing range:** 0 m ... 10 m
- **Type of light:** visible red light
- **Light spot size (distance):** Ø 250 mm (10 m)
- **Switching mode:** Light switching
- **Light source:** PinPoint LED
- **Output type:** PNP
- **Items supplied:** fastening nuts (4 x)

Sensing range max.	Connection	Connection diagram	Model name	Part no.
0 m ... 15 m	Cable, 3-wire, 2 m	Cd-044	GRSE18S-P133Y	1062422
	Connector M12, 3-pin	Cd-045	GRSE18S-P233Y	1062420

GRSE18S, plastic, axial

- **Sensor principle:** Through-beam photoelectric sensor
- **Sensing range:** 0 m ... 10 m
- **Light spot size (distance):** Ø 250 mm (10 m)
- **Light source:** PinPoint LED
- **Items supplied:** fastening nuts (4 x)

Sensing range max.	Type of light	Switching mode	Output type	Adjustment	Connection	Connection diagram	Model name	Part no.
0 m ... 15 m	Visible red light	Dark switching	PNP	–	Cable, 3-wire, 2 m, PVC	Cd-049	GRSE18S-F1336	1059544
			NPN	–	Cable, 3-wire, 2 m, PVC	Cd-049	GRSE18S-E1336	1059543
		Light switching	PNP	–	Cable, 3-wire, 2 m, PVC	Cd-049	GRSE18S-P1336	1059545
			NPN	Potentiometer, 270 °	Cable, 4-wire, 2 m, PVC	Cd-088	GRSE18S-N1147	1069124
		Light/dark switching	PNP	Potentiometer, 270 °	Cable, 4-wire, 2 m, PVC	Cd-088	GRSE18S-P1147	1069626
			NPN	–	Cable, 4-wire, 2 m, PVC	Cd-088	GRSE18S-N1136	1062122
	Infrared light	Light/dark switching	NPN	Potentiometer, 270 °	Cable, 4-wire, 2 m, PVC	Cd-088	GRSE18S-N1127	1069634
			PNP	Potentiometer, 270 °	Cable, 4-wire, 2 m, PVC	Cd-088	GRSE18S-P1127	1069632
	Visible red light	Dark switching	PNP	–	Connector M12, 3-pin	Cd-051	GRSE18S-F2336	1058214
		Light switching	PNP	–	Connector M12, 3-pin	Cd-051	GRSE18S-P2336	1058215
		Light/dark switching	NPN	Potentiometer, 270 °	Connector M12, 4-pin	Cd-072	GRSE18S-N2447	1069625
			PNP	Potentiometer, 270 °	Connector M12, 4-pin	Cd-072	GRSE18S-P2447	1069627
	Infrared light	Light/dark switching	NPN	Potentiometer, 270 °	Connector M12, 4-pin	Cd-072	GRSE18S-N2427	1069631
			PNP	Potentiometer, 270 °	Connector M12, 4-pin	Cd-072	GRSE18S-P2427	1069633

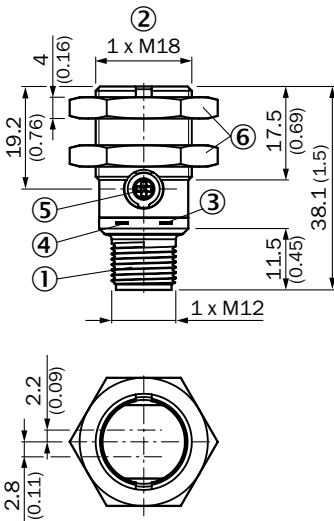
GRSE18S, plastic, radial

- **Sensor principle:** Through-beam photoelectric sensor
- **Sensing range:** 0 m ... 10 m
- **Type of light:** visible red light
- **Light spot size (distance):** Ø 250 mm (10 m)
- **Light source:** PinPoint LED
- **Output type:** PNP
- **Connection:** Connector M12, 3-pin
- **Items supplied:** fastening nuts (4 x)

Sensing range max.	Switching mode	Connection diagram	Model name	Part no.
0 m ... 15 m	Dark switching	Cd-051	GRSE18S-F2338	1059546
	Light switching	Cd-051	GRSE18S-P2338	1059547

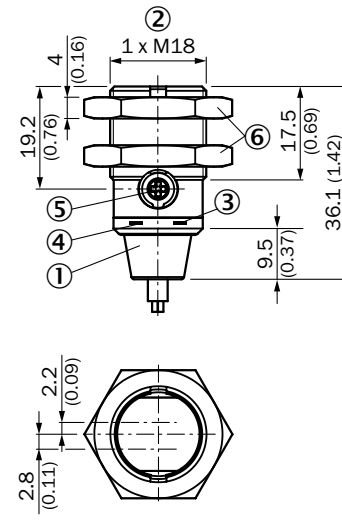
Dimensional drawings (Dimensions in mm (inch))

GR18S, metal, connector, axial, adjustable



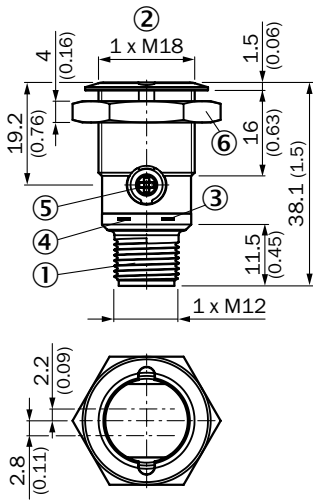
- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ Fastening nuts (2 x); 24 mm hex, metal

GR18S, metal, cable, axial, adjustable



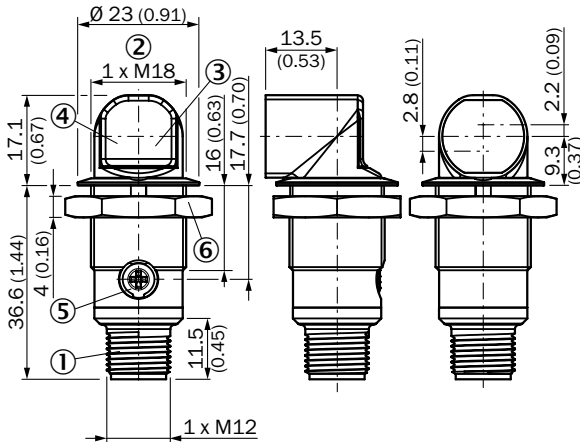
- ① Connection cable 2 m
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ Fastening nuts (2 x); 24 mm hex, metal

GR18S, metal, connector, axial, fully flush, adjustable



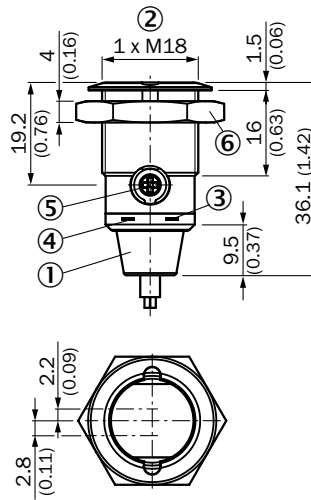
- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ Fastening nut; 24 mm hex, metal

GR18S, metal, connector, radial, fully flush, adjustable



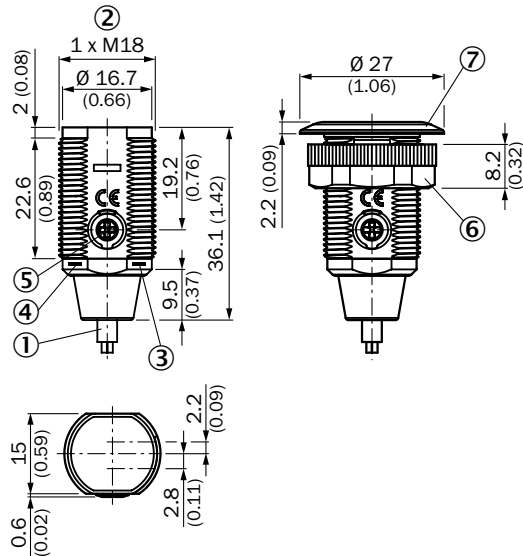
- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ Fastening nut; 24 mm hex, metal

GR18S, metal, cable, axial, fully flush, adjustable



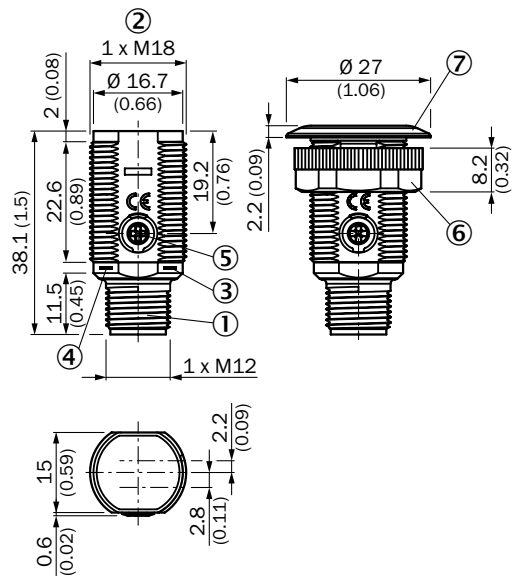
- ① Connection cable 2 m
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ Fastening nut; 24 mm hex, metal

GR18S, plastic, cable, axial, adjustable



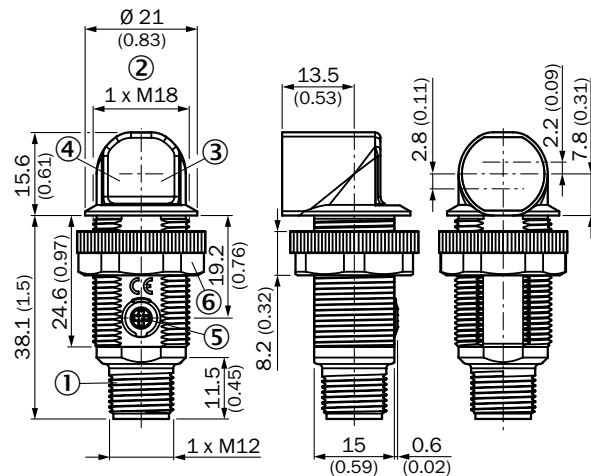
- ① Connection cable 2 m
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ Fastening nut; 22 mm hex, plastic
- ⑦ Mounting ring

GR18S, plastic, connector, axial, adjustable



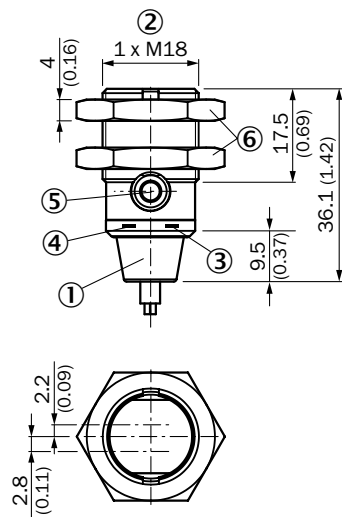
- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ Fastening nut; 22 mm hex, plastic
- ⑦ Mounting ring

GR18S, plastic, connector, radial, adjustable



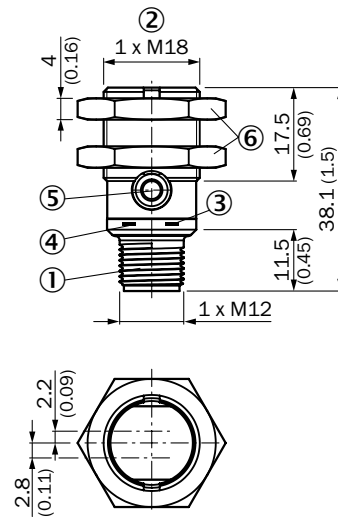
- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ Fastening nut; 22 mm hex, plastic

GR18S, metal, cable, axial, no adjustment



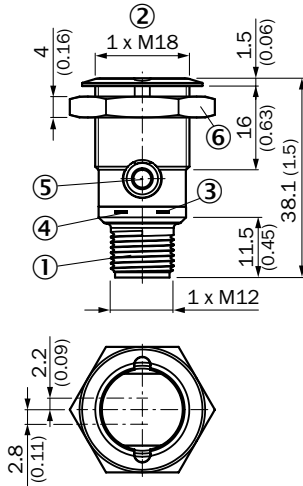
- ① Connection cable 2 m
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Dummy plug
- ⑥ Fastening nuts (2 x); 24 mm hex, metal

GR18S, metal, connector, axial, no adjustment



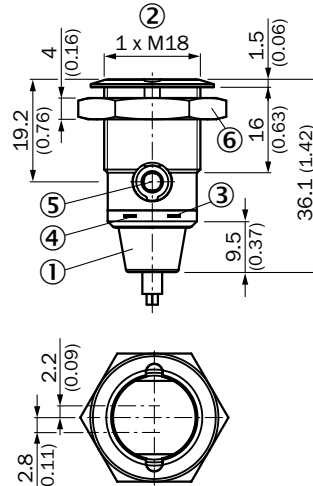
- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Dummy plug
- ⑥ Fastening nuts (2 x); 24 mm hex, metal

GR18S, metal, connector, axial, fully flush, no adjustment



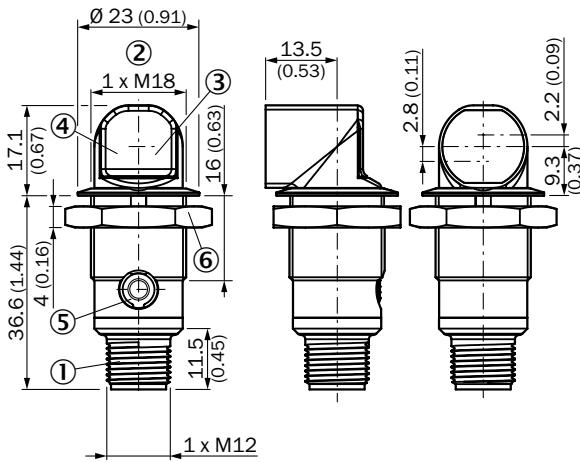
- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Dummy plug
- ⑥ Fastening nut; 24 mm hex, metal

GR18S, metal, cable, axial, fully flush, no adjustment



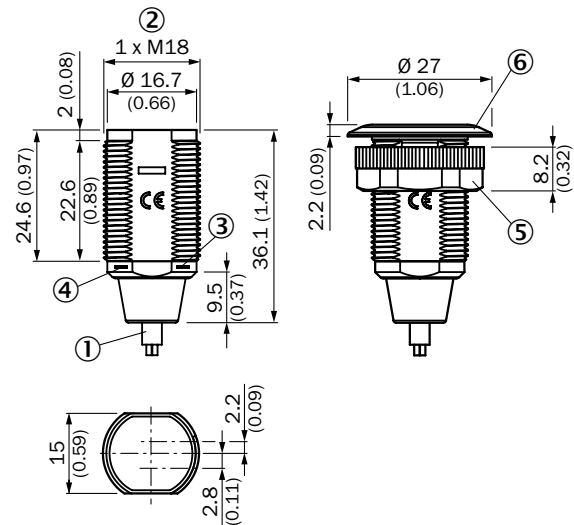
- ① Connection cable 2 m
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Dummy plug
- ⑥ Fastening nut; 24 mm hex, metal

GR18S, metal, connector, radial, fully flush, no adjustment



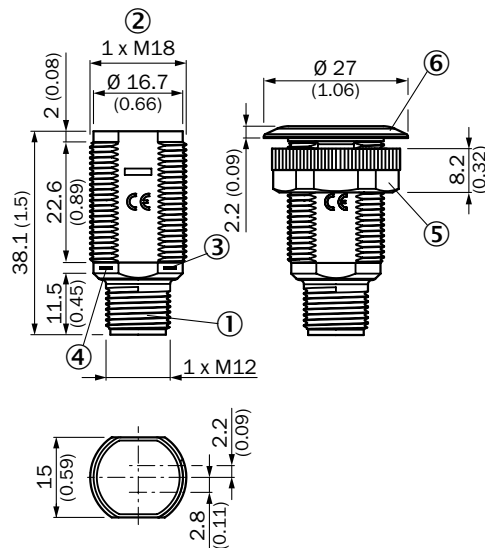
- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Dummy plug
- ⑥ Fastening nut; 24 mm hex, metal

GR18S, plastic, cable, axial, no adjustment



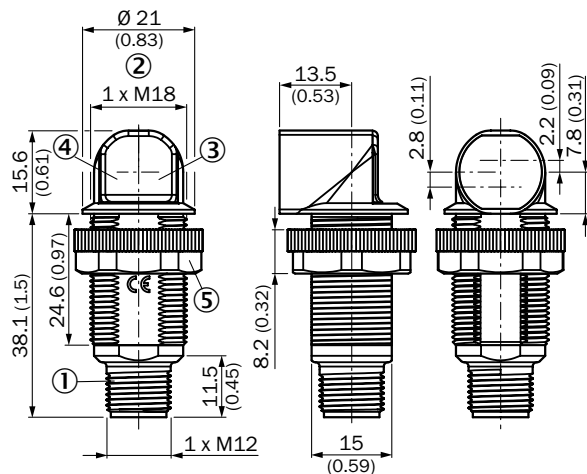
- ① Connection cable 2 m
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Fastening nut; 22 mm hex, plastic
- ⑥ Mounting ring

GR18S, plastic, connector, axial, no adjustment



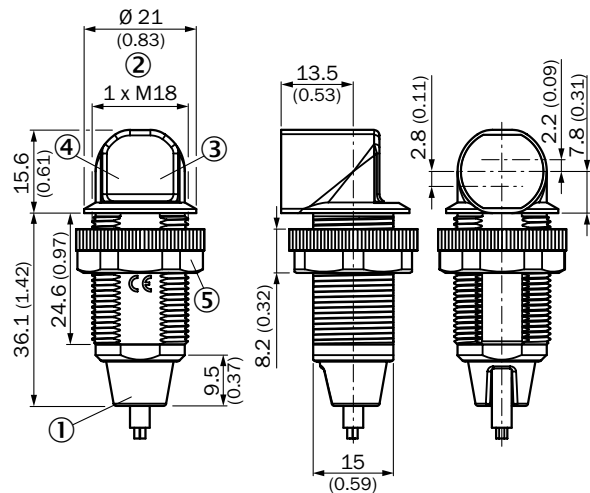
- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Fastening nut; 22 mm hex, plastic
- ⑥ Mounting ring

GR18S, plastic, connector, radial, no adjustment



- 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

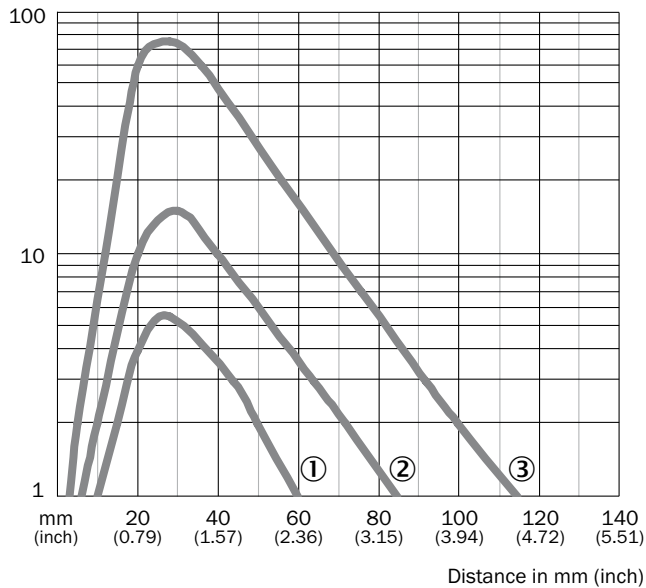
GR18S, plastic, cable, radial, no adjustment



- 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

Characteristic curve**GRTE18S, 115 mm**

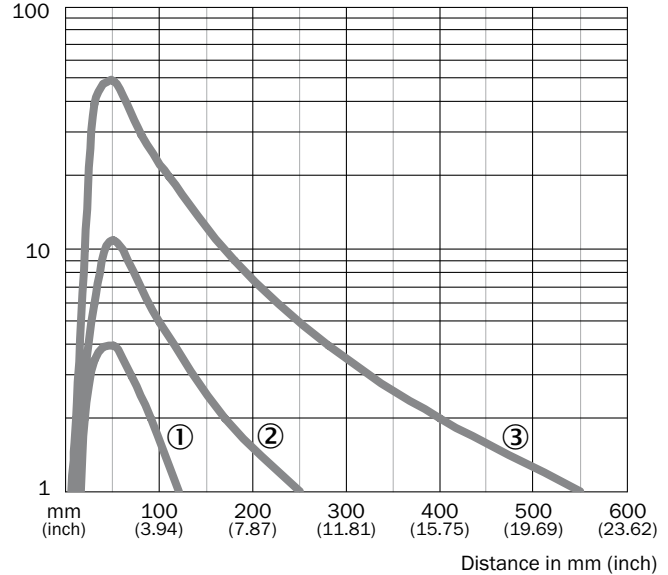
Operating reserve



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

GRTE18S, 550 mm

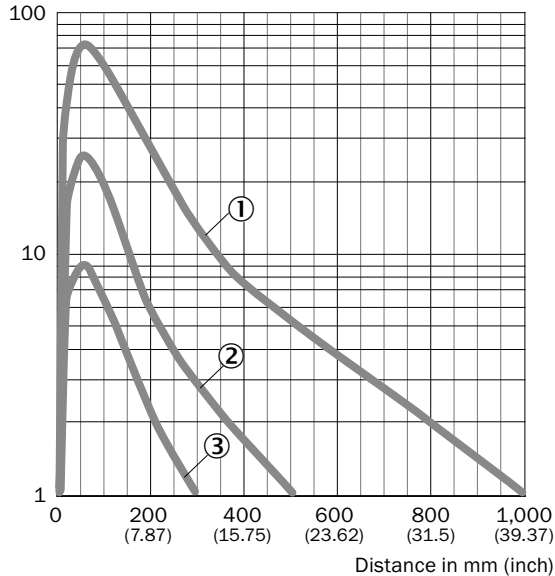
Operating reserve



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

GRTE18, 800 mm

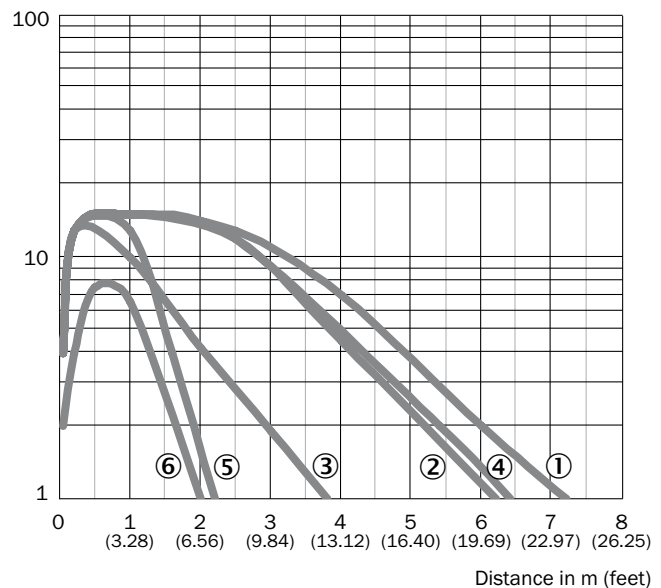
Operating reserve



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

GRL18S

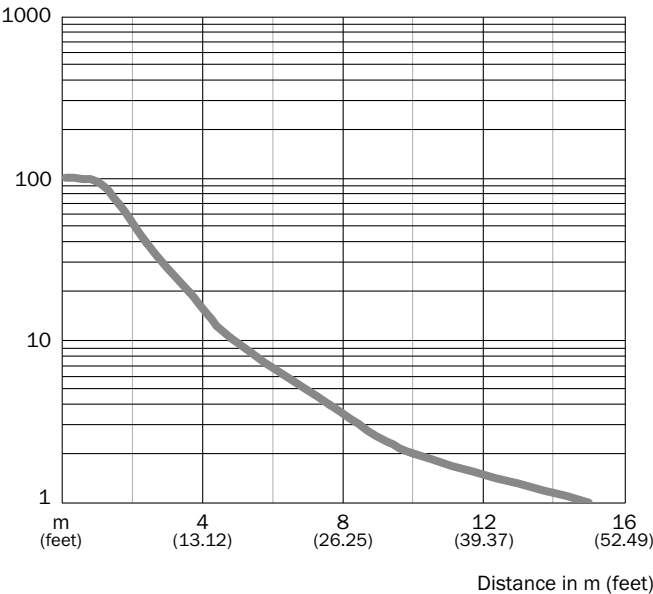
Operating reserve



- ① Reflector type PL80A
- ② Reflector type PL40A
- ③ Reflector type PL20A
- ④ Reflector type P205
- ⑤ Reflector type PL22-2
- ⑥ Reflective tape REF-Plus 3436

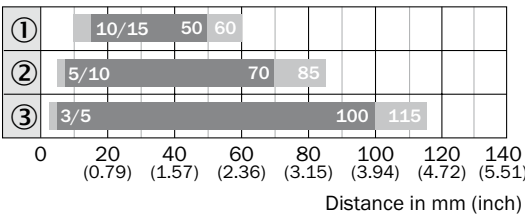
GRSE18S

Operating reserve



Sensing range

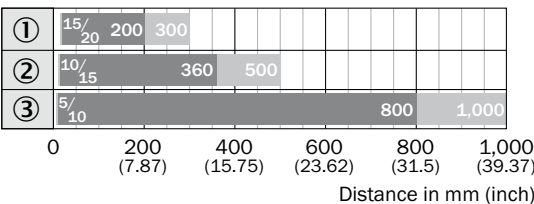
GRTE18S, 115 mm



■ Sensing range ■ Sensing range max.

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

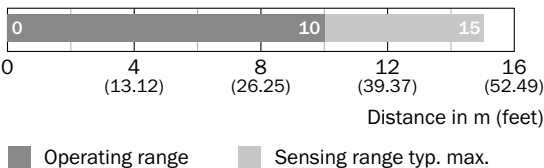
GRTE18, 800 mm



■ Sensing range ■ Sensing range max. typ.

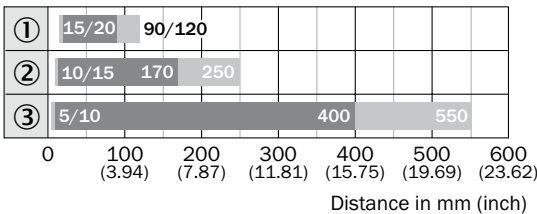
- ① Sensing range on black, 6 % remission
- ② Sensing range on gray, 20 % remission
- ③ Sensing range on white, 90 % remission

GRSE18S



■ Operating range ■ Sensing range typ. max.

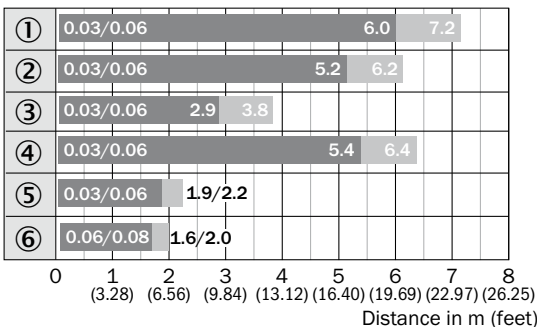
GRTE18S, 550 mm



■ Sensing range ■ Sensing range max.

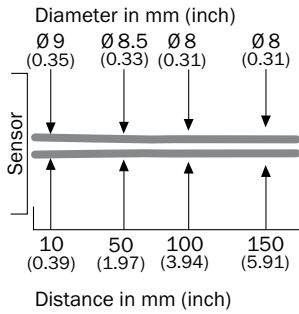
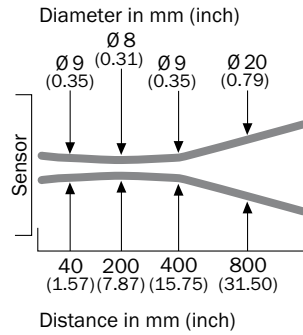
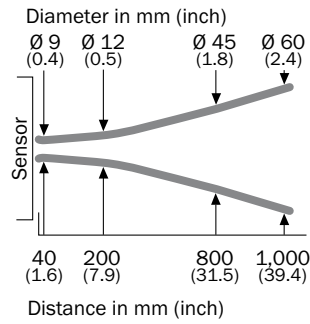
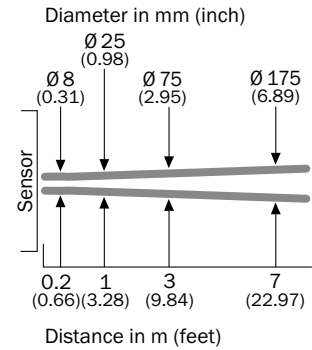
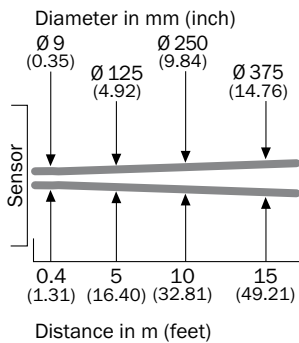
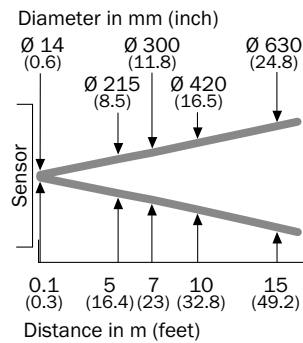
- ① Sensing range on black, 6 % remission
- ② Sensing range on gray, 20 % remission
- ③ Sensing range on white, 90 % remission

GRL18S

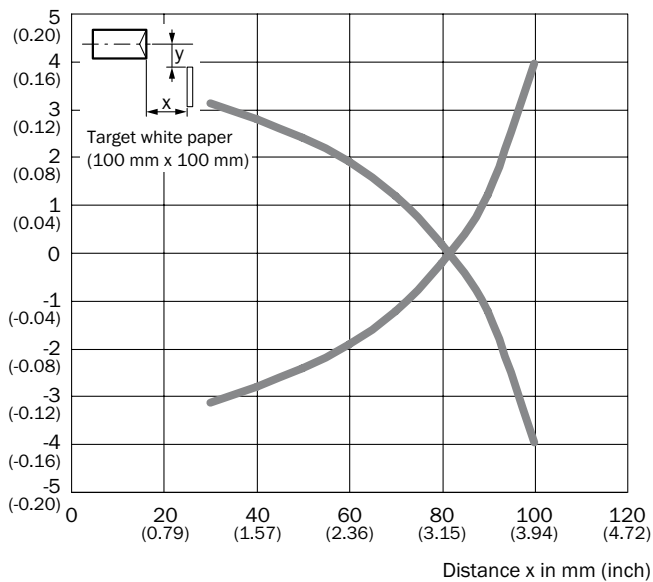


■ Sensing range ■ Sensing range max.

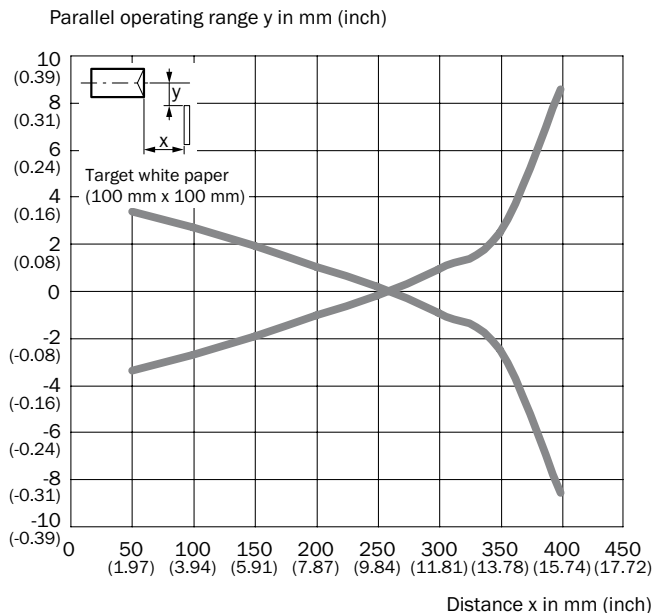
- ① Reflector type PL80A
- ② Reflector type PL40A
- ③ Reflector type PL20A
- ④ Reflector type P205
- ⑤ Reflector type PL22-2
- ⑥ Reflective tape REF-Plus 3436

Light spot diameter**GRTE18S, 115 mm****GRTE18S, 550 mm****GRTE18, 800 mm****GRL18S****GRSE18, red light****GRSE18, infrared light****Response curve****GRTE18S, 115 mm**

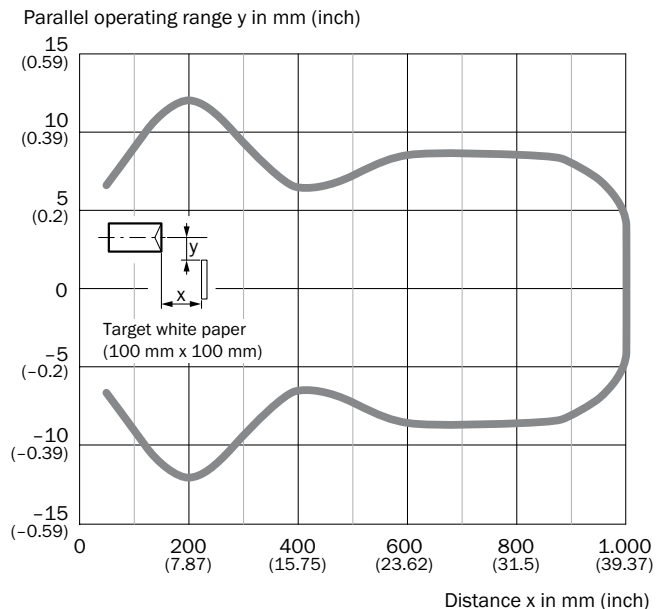
Parallel operating range y in mm (inch)



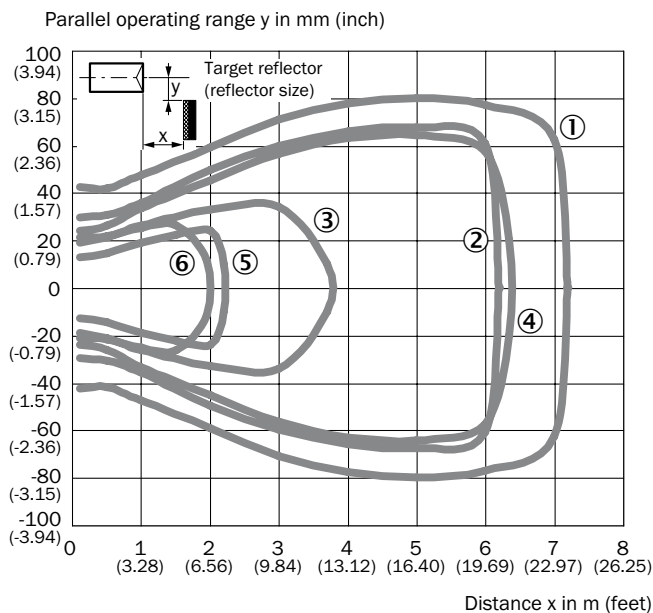
GRTE18S, 550 mm



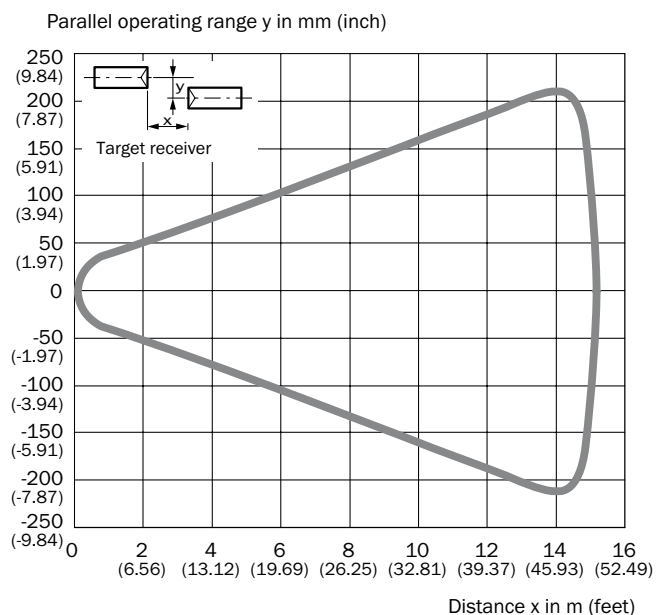
GRTE18, 800 mm



GRL18S



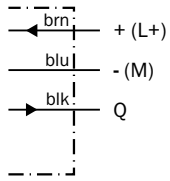
GRSE18S



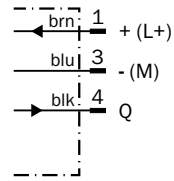
- ① Reflector type PL80A
- ② Reflector type PL40A
- ③ Reflector type PL20A
- ④ Reflector type P205
- ⑤ Reflector type PL22-2
- ⑥ Reflective tape REF-Plus 3436

Connection diagram

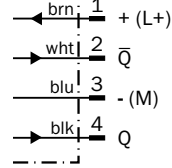
Cd-044



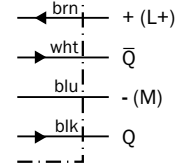
Cd-045



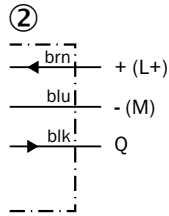
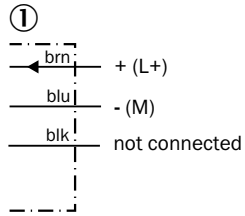
Cd-084



Cd-094

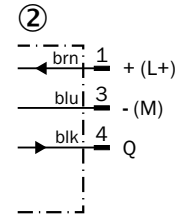
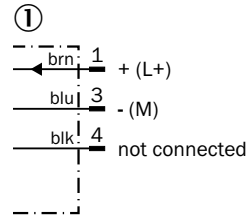


Cd-049



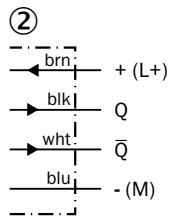
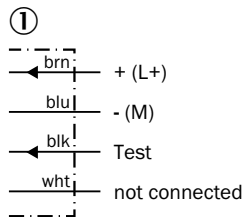
- ① Sender
② Receiver

Cd-051



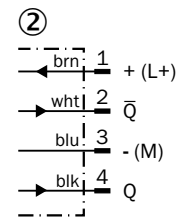
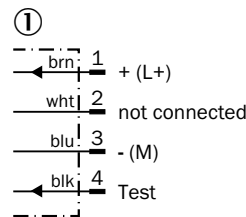
- ① Sender
② Receiver

Cd-088



- ① Sender
② Receiver

Cd-072



- ① Sender
② Receiver

Mounting brackets and mounting plates

Mounting brackets

Figure	Material	Description	Model name	Part no.	GRTE18(S)	GRL18(S)(G)	GRSE18(S)
	Steel, zinc coated	Mounting plate for M18 sensors	BEF-WG-M18	5321870	●	●	●
		Mounting bracket, M18 thread	BEF-WN-M18	5308446	●	●	●

Mounting plates

Figure	Material	Description	Model name	Part no.	GRTE18(S)	GRL18(S)(G)	GRSE18(S)
	Stainless steel	Mounting plate for M18 housing	BEF-WG-M18N	5320948	●	●	●
		Mounting bracket	BEF-WN-M18N	5320947	●	●	●

Plug connectors and cables

Connecting cables with female connector M12, 4-pin, PVC

- **Cable material:** PVC
- **Connector material:** TPU
- **Enclosure rating:** IP 67

Figure	Connection type head A	Connection type head B	Connecting cable	Model name	Part no.	GRTE18(S)	GRL18(S)(G)	GRSE18(S)
	Female connector, M12, 4-pin, straight	Cable, open conductor heads	2 m, 4-pole	DOL-1204-G02M	6009382	●	●	●
			5 m, 4-pole	DOL-1204-G05M	6009866	●	●	●
			10 m, 4-pole	DOL-1204-G10M	6010543	●	●	●
			15 m, 4-pole	DOL-1204-G15M	6010753	●	●	●
	Female connector, M12, 4-pin, angled, with 3 LEDs	Cable, open conductor heads	2 m, 4-pole	DOL-1204-L02M	6027945	●	●	●
			5 m, 4-pole	DOL-1204-L05M	6027944	●	●	●
			10 m, 4-pole	DOL-1204-L10M	6027946	●	●	●
	Female connector, M12, 4-pin, angled	Cable, open conductor heads	2 m, 4-pole	DOL-1204-W02M	6009383	●	●	●
			5 m, 4-pole	DOL-1204-W05M	6009867	●	●	●
			10 m, 4-pole	DOL-1204-W10M	6010541	●	●	●

Connecting cables with female connector M12, 4-pin, PVC, hygienic systems

- **Cable material:** PVC
- **Connector material:** PVC
- **Enclosure rating:** IP 67/IP 69K

Figure	Connection type head A	Connection type head B	Connecting cable	Model name	Part no.	GRTE18(S)	GRL18(S)(G)	GRSE18(S)
	Female connector, M12, 4-pin, straight	Cable, open conductor heads	2 m, 4-pole	DOL-1204-G02MN	6028128	●	●	●
			5 m, 4-pole	DOL-1204-G05MN	6028130	●	●	●
			10 m, 4-pole	DOL-1204-G10MN	6028132	●	●	●
			25 m, 4-pole	DOL-1204-G25MN	6028134	●	●	●
	Female connector, M12, 4-pin, angled, with 3 LEDs	Cable, open conductor heads	2 m, 4-pole	DOL-1204-L02MN	6028136	●	●	●
			5 m, 4-pole	DOL-1204-L05MN	6028137	●	●	●
			10 m, 4-pole	DOL-1204-L10MN	6028138	●	●	●
			25 m, 4-pole	DOL-1204-L25MN	6028139	●	●	●
	Female connector, M12, 4-pin, angled	Cable, open conductor heads	2 m, 4-pole	DOL-1204-W02MN	6028129	●	●	●
			5 m, 4-pole	DOL-1204-W05MN	6028131	●	●	●
			10 m, 4-pole	DOL-1204-W10MN	6028133	●	●	●
			25 m, 4-pole	DOL-1204-W25MN	6028135	●	●	●

Connecting cables with female connector M12, 4-pin, TPU, halogen-free

- **Cable material:** TPU, halogen-free
- **Connector material:** TPU

Figure	Connection type head A	Connection type head B	Connecting cable	Enclosure rating	Model name	Part no.	GRTE18(S)	GRL18(S)(G)	GRSE18(S)
	Female connector, M12, 4-pin, straight	Cable, open conductor heads	2 m, 4-pole	IP 65 IP 68	DOL-1204-G02MC	6025900	●	●	●
			5 m, 4-pole	IP 65 IP 68	DOL-1204-G05MC	6025901	●	●	●
			10 m, 4-pole	IP 65 IP 68	DOL-1204-G10MC	6025902	●	●	●
	Female connector, M12, 4-pin, angled, with 3 LEDs	Cable, open conductor heads	5 m, 4-pole	IP 65 IP 68	DOL-1204-L05MC	6020398	●	●	●
	Female connector, M12, 4-pin, angled	Cable, open conductor heads	2 m, 4-pole	IP 65 IP 68	DOL-1204-W02MC	6025903	●	●	●
			5 m, 4-pole	IP 65 IP 68	DOL-1204-W05MC	6025904	●	●	●
				IP 65 IP 68 IP 69K	DOL-1204-W05MD	6020399	●	●	●
			10 m, 4-pole	IP 65 IP 68	DOL-1204-W10MC	6025905	●	●	●

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

Figure	Connection type head A	Connection type head B	Connector material	Enclosure rating	Model name	Part no.	GRTE18(S)	GRL18(S)(G)	GRSE18(S)
	Female connector, M12, 4-pin, straight	-, screw-type terminals	PA	IP 67	DOS-1204-G	6007302	●	●	●
				IP 67 IP 69K	DOS-1204-GN	6028357	●	●	●
					DOS-1204-GX	6026528	●	●	●
	Female connector, M12, 4-pin, angled	-, screw-type terminals	PBT	IP 67	DOS-1204-W	6007303	●	●	●
				IP 67 IP 69K	DOS-1204-WN	6028358	●	●	●
					DOS-1204-WX	6025570	●	●	●

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

Figure	Connection type head A	Connection type head B	Connector material	Enclosure rating	Model name	Part no.	GRTE18(S)	GRL18(S)(G)	GRSE18(S)
	Male connector, M12, 4-pin, straight	-, screw-type terminals	PA	IP 67	STE-1204-G	6009932	●	●	●
				IP 67 IP 69K	STE-1204-GN	6028359	●	●	●
			PBT	IP 67 IP 69K	STE-1204-TN	6028360	●	●	●
	Male connector, M12, 4-pin, angled	-, screw-type terminals	PBT	IP 67	STE-1204-W	6022084	●	●	●

Universal bar clamp systems

Figure	Material	Description	Model name	Part no.	GRTE18(S)	GRL18(S)(G)	GRSE18(S)
	Zinc diecast	Universal bar clamp for mounting bars with 12 mm diameter	BEF-KHS-KH3	5322626	●	●	●
	Aluminum	Bar clamp for bar diameter of 12 mm (fixing the mounting rod)	BEF-RMC-D12	5321878	●	●	●
	Zinc plated steel (sheet), Diecast zinc (clamp)	Plate N06 for universal clamp bracket	BEF-KHS-N06	2051612	●	●	●
	Stainless steel 1.4571 (sheet), Stainless steel 1.4408 (clamp)	Plate N06N for universal clamp bracket, M18	BEF-KHS-N06N	2051622	●	●	●
	Steel, zinc coated	Mounting bar, straight, 200 mm	BEF-MS12G-A	4056054	●	●	●
		Mounting bar, straight, 300 mm	BEF-MS12G-B	4056055	●	●	●
		Mounting bar, L-shaped, 150 mm x 150 mm	BEF-MS12L-A	4056052	●	●	●
		Mounting bar, L-shaped, 250 x 250 mm	BEF-MS12L-B	4056053	●	●	●

Figure	Material	Description	Model name	Part no.	GRTE18(S)	GRL18(S)(G)	GRSE18(S)
	Steel, zinc coated	Mounting bar, Z-shaped, 150 mm x 70 mm x 150 mm	BEF-MS12Z-A	4056056	●	●	●
		Mounting bar, Z-shaped, 150 mm x 70 mm x 250 mm	BEF-MS12Z-B	4056057	●	●	●

Reflectors

Angular

Figure	Material	Description	Model name	Part no.	GRTE18(S)	GRL18(S)(G)	GRSE18(S)
	PMMA/ABS	Rectangular, screw connection, 47 mm x 47 mm	P250	5304812	-	●	-
		Rectangular, screw connection, 38 mm x 15 mm	PL20A	1012719	-	●	-
		Rectangular, screw connection, 56 mm x 28 mm	PL30A	1002314	-	●	-
		Rectangular, screw connection, 37 mm x 56 mm	PL40A	1012720	-	●	-
		Rectangular, screw connection, wrench size 48 mm	PL50A	1000132	-	●	-
		Rectangular, screw connection, 80 mm x 80 mm	PL80A	1003865	-	●	-

Reflective tape

Figure	Description	Model name	Part no.	GRTE18(S)	GRL18(S)(G)	GRSE18(S)
	Self-adhesive, customizable length by roll, 5 cm x 22.8 m ¹⁾	REF-PLUS-50-K	4051185	-	●	-
	Self-adhesive, roll, 50 mm x 22.8 m	REF-PLUS-R50	5319981	-	●	-
	REF-Plus reflective tape, 100 pieces per pack, suitable for photoelectric retro-reflective sensors with polarisation filter, 34 mm x 36 mm	REF-Plus-3436	5321337	-	●	-

Round

Figure	Material	Description	Model name	Part no.	GRTE18(S)	GRL18(S)(G)	GRSE18(S)
	PMMA/ABS	Round, screw connection	C110A	5304549	-	●	-
		Round, self-adhesive	PL22-2	1003621	-	●	-

Terminal and alignment brackets

Alignment brackets

Figure	For product family	Material	Description	Model name	Part no.	GRTE18(S)	GRL18(S)(G)	GRSE18(S)
	GR18, MH15V, V180-2, V18	Plastic	Mounting bracket with ball-and-socket	BEF-WN-M18-ST02	5312973	●	●	●

Terminal brackets

Figure	For product family	Material	Description	Model name	Part no.	GRTE18(S)	GRL18(S)(G)	GRSE18(S)
	GR18, MH15V, V180-2, V18	Plastic (PA12), glass-fiber reinforced	Clamping block for round sensors M18, without fixed stop	BEF-KH-M18	2051481	●	●	●
			Clamping block for round sensors M18, with fixed stop	BEF-KHF-M18	2051482	●	●	●
	GR18, MH15V	Plastic (PA12)	Integrated adapter	BEF-WN-MH15-1	4039533	●	●	●
	MH15V, V180-2, V18	Stainless steel	Mounting ring	BEF-WN-MH15-2V	4053358	●	●	●

Other mounting accessories

Mounting tool

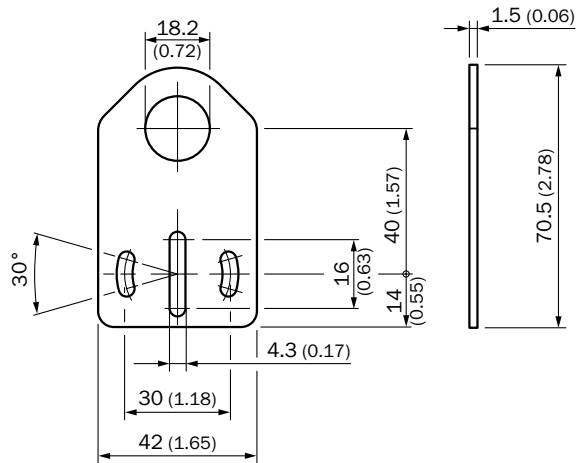
Figure	For product family	Description	Model name	Part no.	GRTE18S	GRL18S(G)	GRSE18S
	GR18S, radial, fully flush	Mounting tool for "fully flush" variants	BEF-TO-GR18S	4072132	●	●	●

Mounting tool

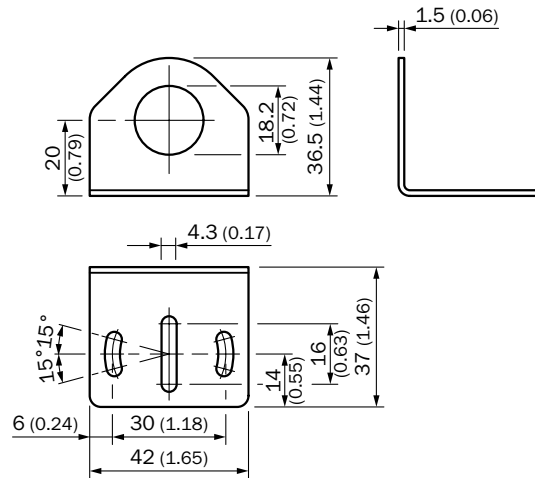
Figure	For product family	Material	Description	Model name	Part no.	GRTE18(S)	GRL18(S)(G)	GRSE18(S)
	GR18, GR18S	Nickel-plated brass, glass	Front window protection designed for M18 cylindrical photoelectric sensors	BEF-M18-GW	2075708	●	●	●

Dimensional drawings Mounting brackets and mounting plates

BEF-WG-M18 (N)

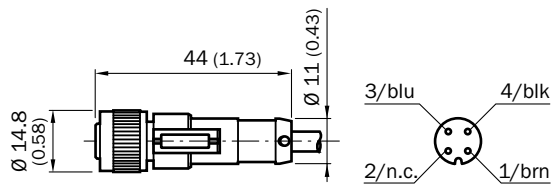


BEF-WN-M18 (N)

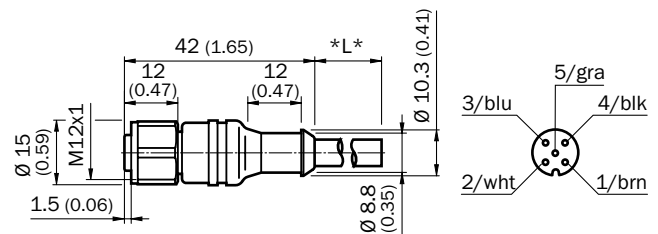


Dimensional drawings Plug connectors and cables

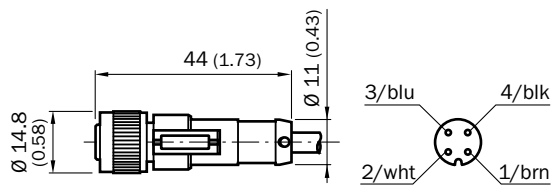
DOL-1204-GxxM, DOL-1204-GxxMC, DOL-1204-GxxMN,



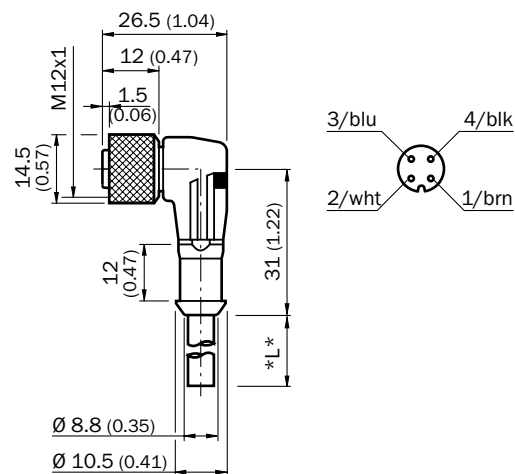
DOL-1204-G02MN



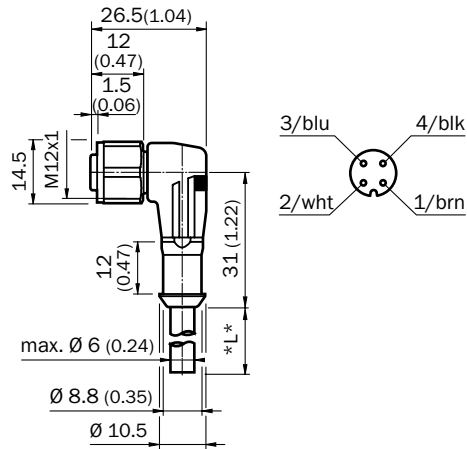
DOL-1204-GxxMC



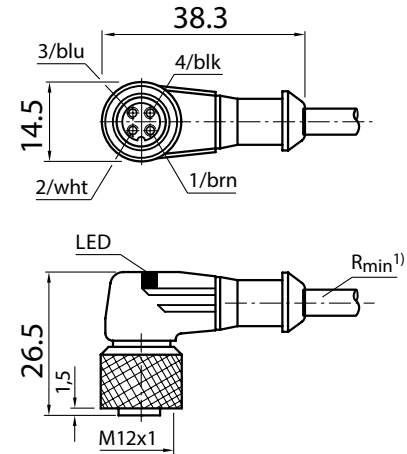
DOL-1204-L02M



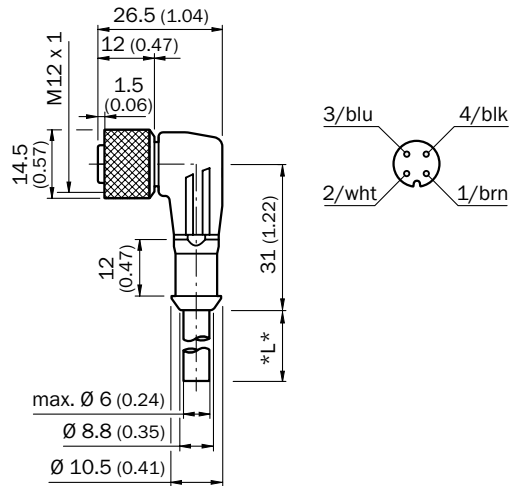
DOL-1204-L02MN



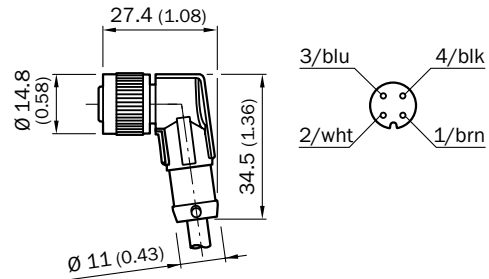
DOL-1204-L05MC



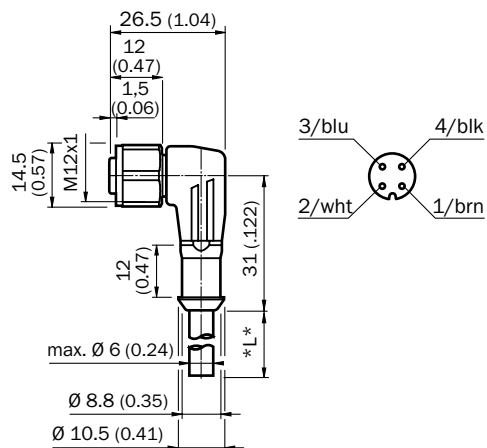
DOL-1204-WxxM



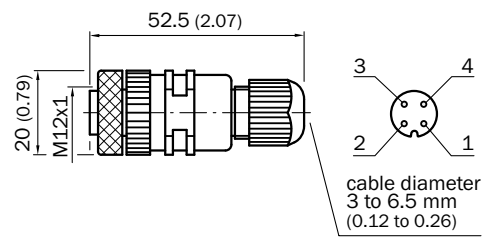
DOL-1204-WxxMC



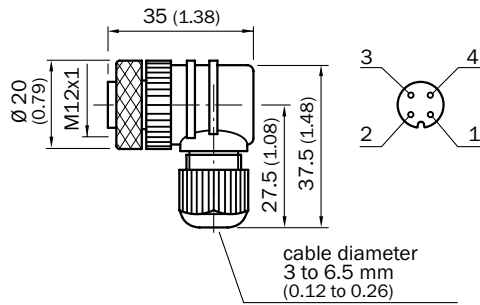
DOL-1204-WxxMN



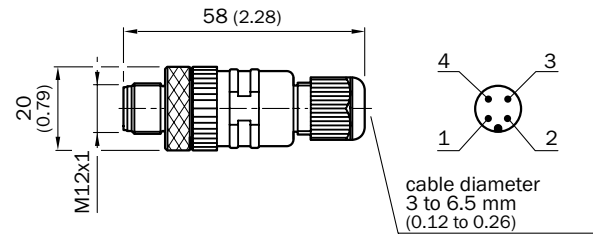
DOS-1204-G



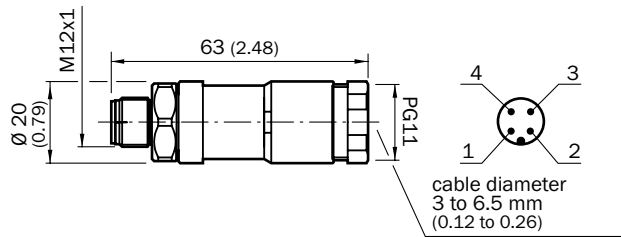
DOS-1204-W



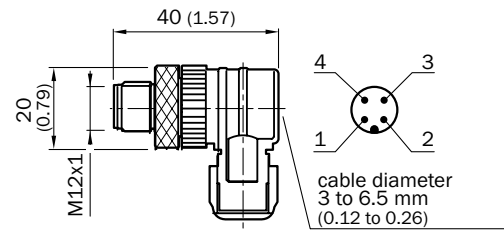
STE-1204-G



STE-1204-TN

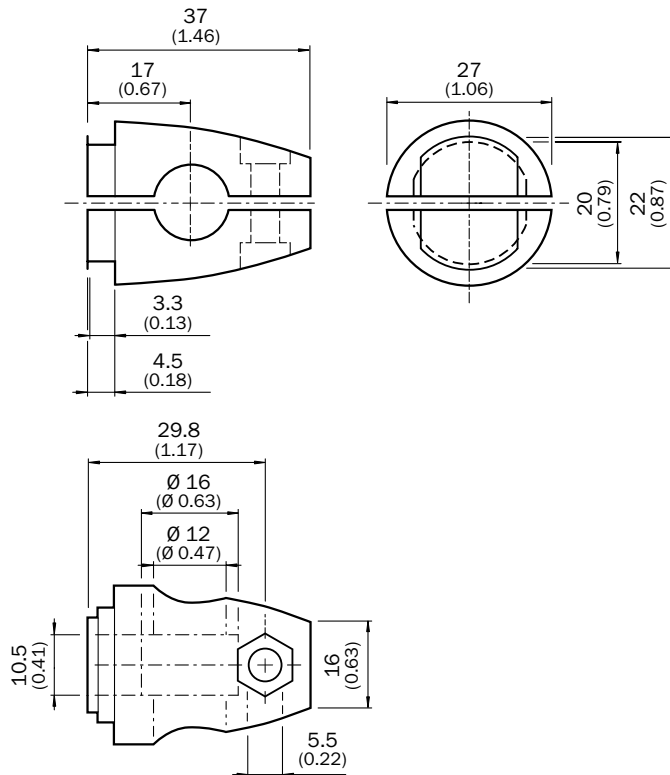


STE-1204-W

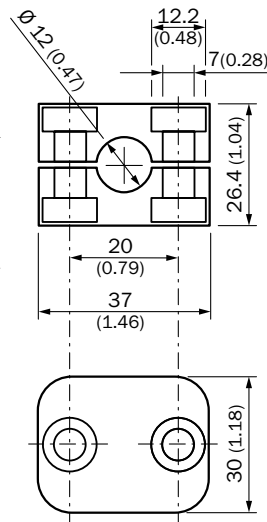


Dimensional drawings Universal bar clamp systems

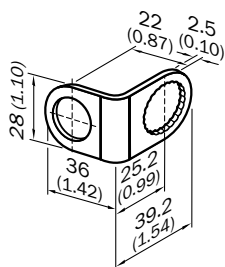
BEF-KHS-KH3



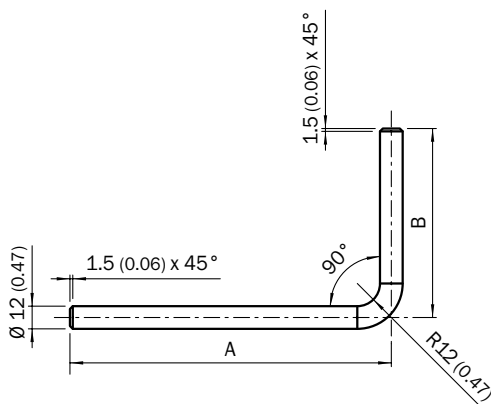
BEF-RMC-D12



BEF-KHS-N06 (N)



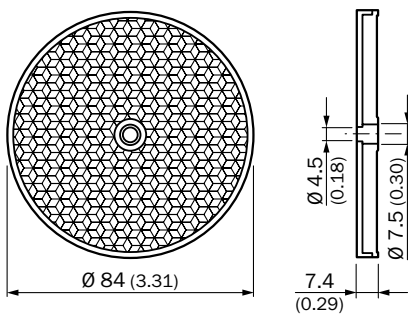
BEF-MS12L-A
BEF-MS12L-B



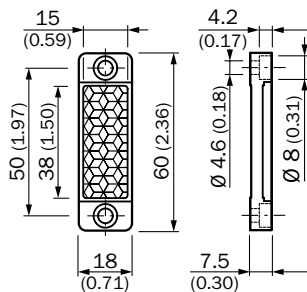
BEF-MS12L-(N)A: A = 200 mm, B = 150 mm
BEF-MS12L-(N)B: A = 250 mm, B = 250 mm

Dimensional drawings Reflectors

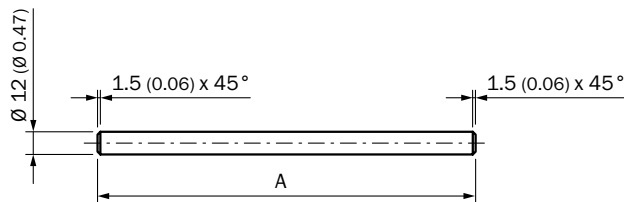
C110A



PL20A

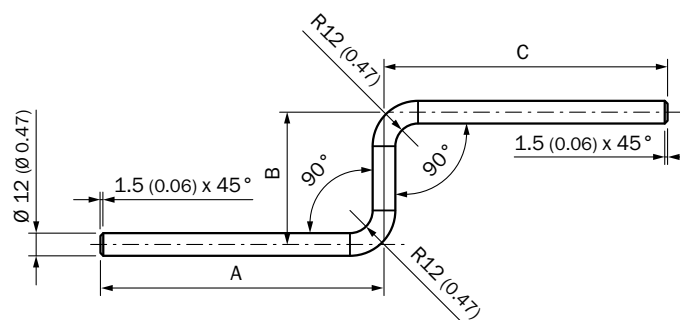


BEF-MS12G-A
BEF-MS12G-B



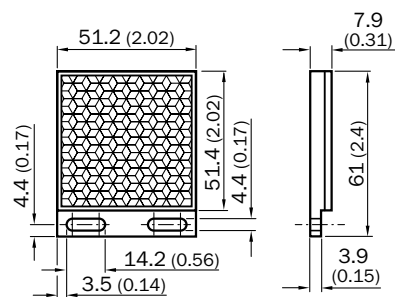
BEF-MS12G-(N)A: A = 200 mm
BEF-MS12G-(N)B: A = 300 mm

BEF-MS12Z-A
BEF-MS12Z-B

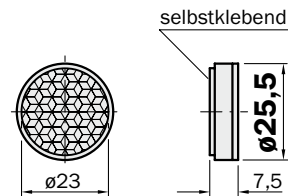


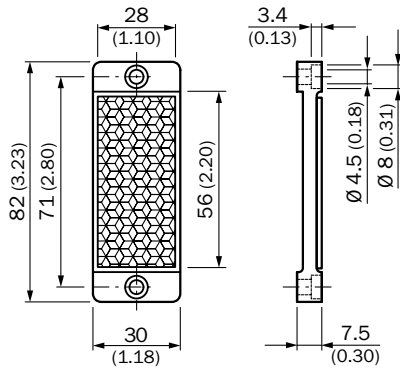
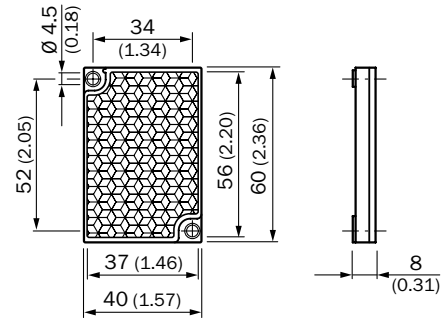
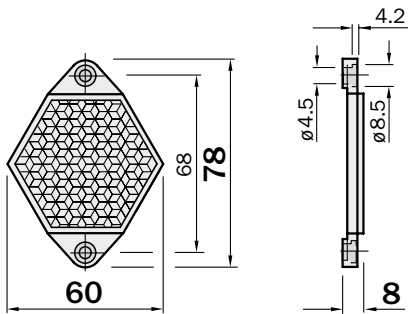
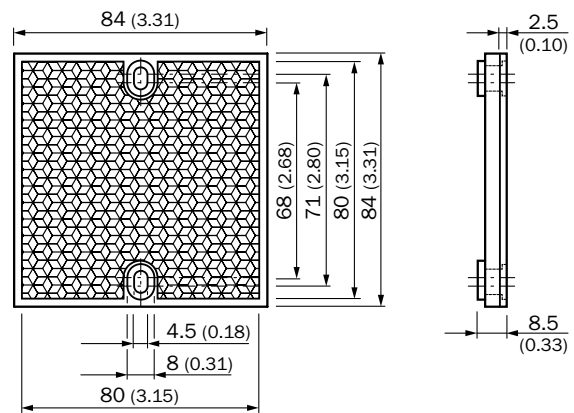
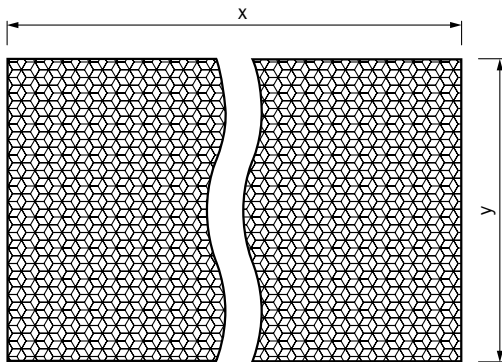
BEF-MS12Z-(N)A: A = 150 mm, B = 70 mm, C = 150 mm
BEF-MS12Z-(N)B: A = 150 mm, B = 70 mm, C = 250 mm

P250

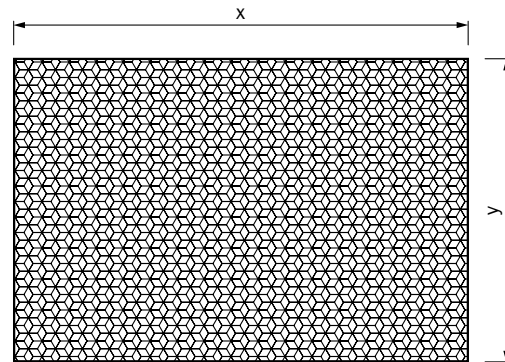


PL22-2



PL30A

PL40A

PL50A

PL80A

REF-PLUS-R50


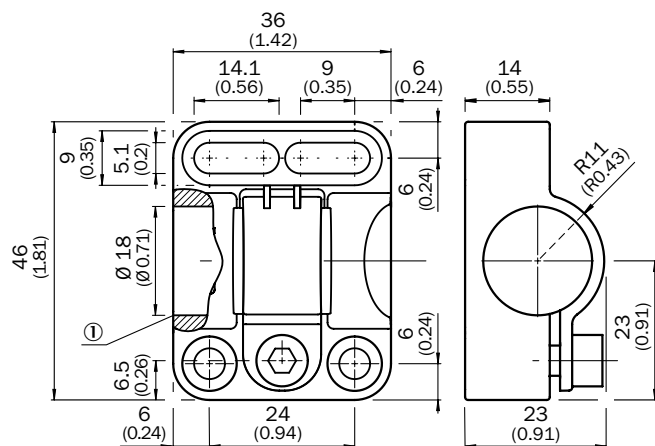
- ① X = 50 mm
- ② Y = 22.8 mm

REF-Plus-3436


- ① X = 34 mm
- ② Y = 36 mm

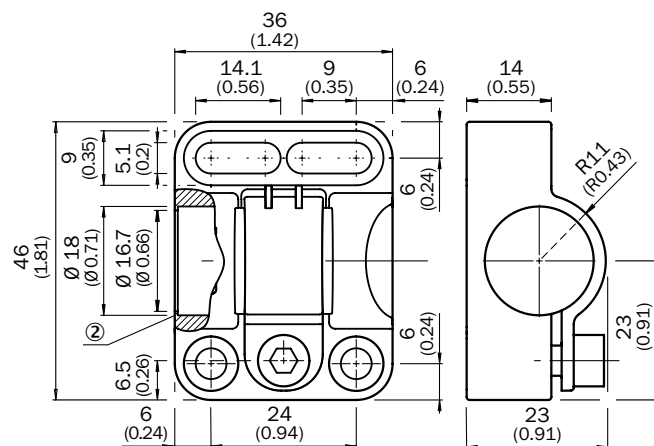
Dimensional drawings Terminal and alignment brackets

BEF-KH-M18



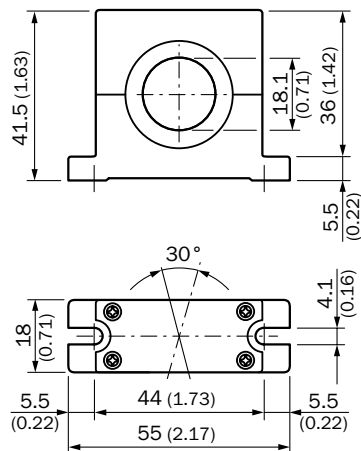
① Without fixed stop

BEF-KHF-M18

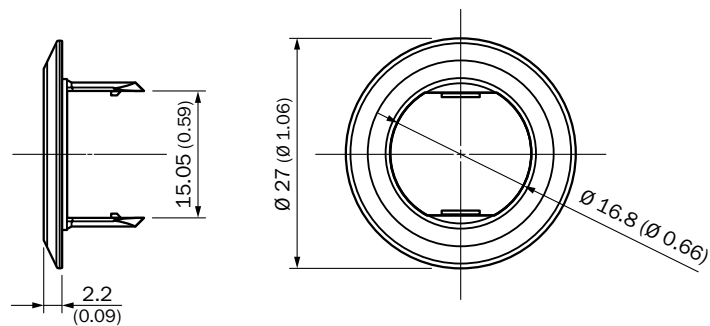


② With fixed stop

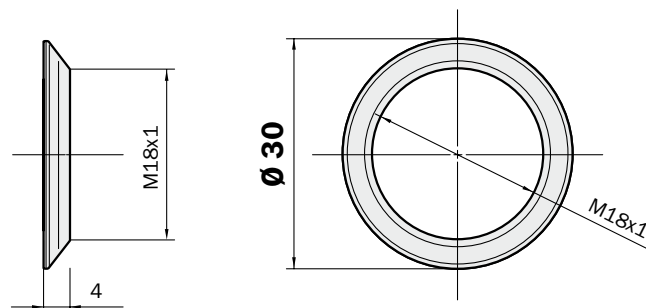
BEF-WN-M18-ST02



BEF-WN-MH15-1

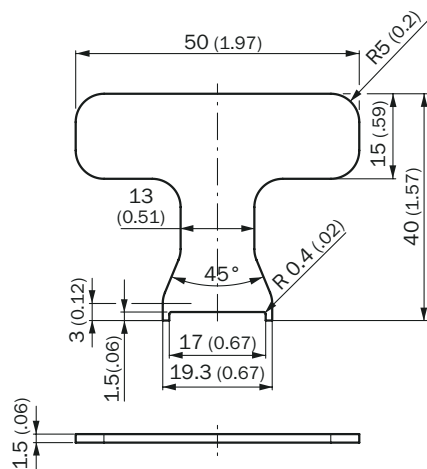


BEF-WN-MH15-2V



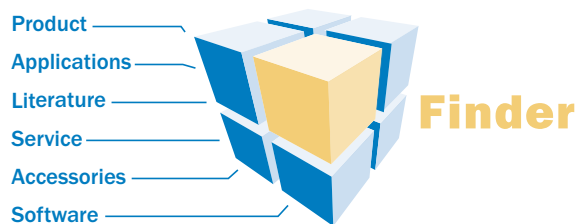
Dimensional drawings Mounting tool

BEF-TO-GR18S



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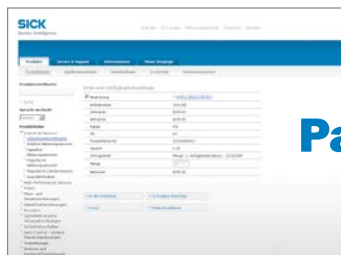
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