

## ROUND, SHORT AND ECONOMICALLY UNBEATABLE



### 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

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→ [www.mysick.com/en/GR18S](http://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
<b>Sensor principle</b>	Photoelectric proximity sensor	Photoelectric retro-reflective sensor		Through-beam photoelectric sensor
<b>Detection principle</b>	Energetic	Standard optics		-
<b>Housing design (light emission)</b>	Cylindrical, straight; cylindrical, straight, fully flush; cylindrical, angled; cylindrical, angled, fully flush; (depending on type)			
<b>Sensing range max.</b>	3 mm ... 115 mm <sup>1)</sup> 5 mm ... 550 mm <sup>1)</sup> 5 mm ... 1.000 mm <sup>1)</sup> (depending on type)	0.03 m ... 7.2 m <sup>2)</sup>		0 m ... 15 m
<b>Sensing range</b>	5 mm ... 100 mm <sup>1)</sup> 10 mm ... 400 mm <sup>1)</sup> 10 mm ... 800 mm <sup>1)</sup> (depending on type)	0.06 m ... 6 m <sup>2)</sup>		0 m ... 10 m
<b>Type of light</b>	Visible red light			Visible red light / Infrared light (depending on type)
<b>Light source</b>	PinPoint LED <sup>3)</sup> LED <sup>3)</sup> (depending on type)	PinPoint LED <sup>3)</sup>		
<b>Light spot size (distance)</b>	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)
<b>Wave length</b>	650 nm			650 nm / 850 nm (depending on type)
<b>Adjustment</b>	Potentiometer, 270 °	-		Potentiometer, 270 °
<b>Special feature</b>	-		For transparent objects <sup>4)</sup>	-

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

<sup>2)</sup> PL80A.

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

<sup>4)</sup> With attenuation along light beam > 20 %.

## Mechanics/electronics

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

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

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

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

<sup>5)</sup> Do not bend below 0 °C.

<sup>6)</sup> A =  $V_S$  connections reverse-polarity protected.

<sup>7)</sup> B = inputs and output reverse-polarity protected.

<sup>8)</sup> D = outputs overcurrent and short-circuit protected.

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

<sup>10)</sup> Temperature stability after adjustment  $\pm 10$  °C.

## Ordering information

Other models → [www.mysick.com/en/GR18S](http://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. <sup>1)</sup>	Sensing range <sup>1)</sup>	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
					NPN	Connector M12, 3-pin	Cd-045	GRTE18S-N2312	1059408
			Light/dark switching	PinPoint LED	NPN	Cable, 4-wire, 2 m, PVC	Cd-094	GRTE18S-N1112	1069584
					PNP	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
					NPN	Connector M12, 3-pin	Cd-045	GRTE18S-N2342	1059482
					PNP	Connector M12, 3-pin	Cd-045	GRTE18S-P2342	1058200
			Light/dark switching	PinPoint LED	NPN	Cable, 4-wire, 2 m, PVC	Cd-094	GRTE18S-N1142	1069580
					PNP	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
					NPN	Connector M12, 3-pin	Cd-045	GRTE18S-N2362	1069501
			Light/dark switching	LED	NPN	Cable, 4-wire, 2 m, PVC	Cd-094	GRTE18S-N1162	1069578

<sup>1)</sup> 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. <sup>1)</sup>	Sensing range <sup>1)</sup>	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

<sup>1)</sup> 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. <sup>1)</sup>	Sensing range <sup>1)</sup>	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

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

Sensing range max. <sup>1)</sup>	Sensing range <sup>1)</sup>	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

<sup>1)</sup> 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. <sup>1)</sup>	Sensing range <sup>1)</sup>	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
					PNP	Connector M12, 3-pin	Cd-045	GRTE18S-N2347	1059441
			Light switching	PinPoint LED	PNP	Connector M12, 3-pin	Cd-045	GRTE18S-P2347	1058193
					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
					PNP	Connector M12, 3-pin	Cd-045	GRTE18S-N2367	1069495
			Light switching	LED	PNP	Connector M12, 3-pin	Cd-045	GRTE18S-P2367	1069497
					PNP	Connector M12, 4-pin	Cd-084	GRTE18S-P2467	1069122

<sup>1)</sup> 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. <sup>1)</sup>	Sensing range <sup>1)</sup>	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

<sup>1)</sup> 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. <sup>1)</sup>	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

<sup>1)</sup> 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. <sup>1)</sup>	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

<sup>1)</sup> 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. <sup>1)</sup>	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

<sup>1)</sup> 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. <sup>1)</sup>	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

<sup>1)</sup> 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. <sup>1)</sup>	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

<sup>1)</sup> 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. <sup>1)</sup>	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

<sup>1)</sup> 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. <sup>1)</sup>	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

<sup>1)</sup> 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. <sup>1)</sup>	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

<sup>1)</sup> 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. <sup>1)</sup>	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

<sup>1)</sup> 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. <sup>1)</sup>	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

<sup>1)</sup> 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
			Light/dark switching	NPN	Potentiometer, 270 °	Cable, 4-wire, 2 m, PVC	Cd-088	GRSE18S-N1142
	PNP	Potentiometer, 270 °		Cable, 4-wire, 2 m, PVC	Cd-088	GRSE18S-P1142	1069629	
	Infrared light	Light/dark switching	NPN	Potentiometer, 270 °	Cable, 4-wire, 2 m, PVC	Cd-088	GRSE18S-N1122	1069638
			PNP	Potentiometer, 270 °	Cable, 4-wire, 2 m, PVC	Cd-088	GRSE18S-P1122	1069637
	Visible red light	Light/dark switching	NPN	Potentiometer, 270 °	Connector M12, 4-pin	Cd-072	GRSE18S-N2442	1069628
			PNP	Potentiometer, 270 °	Connector M12, 4-pin	Cd-072	GRSE18S-P2442	1069125
	Infrared light	Light/dark switching	NPN	Potentiometer, 270 °	Connector M12, 4-pin	Cd-072	GRSE18S-N2422	1069635
			PNP	Potentiometer, 270 °	Connector M12, 4-pin	Cd-072	GRSE18S-P2422	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
			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

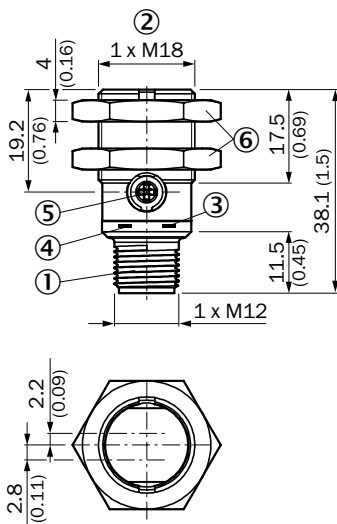
GRSE18S, plastic, radial

- **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

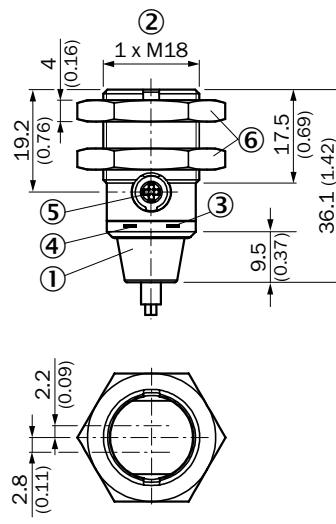
Dimensional drawings (Dimensions in mm (inch))

GR18S, metal, connector, axial, adjustable



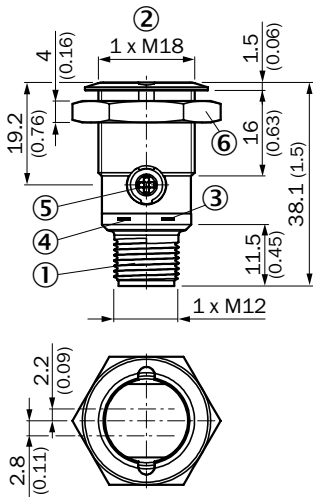
- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ Fastening nuts (2 x); 24 mm hex, metal

GR18S, metal, cable, axial, adjustable



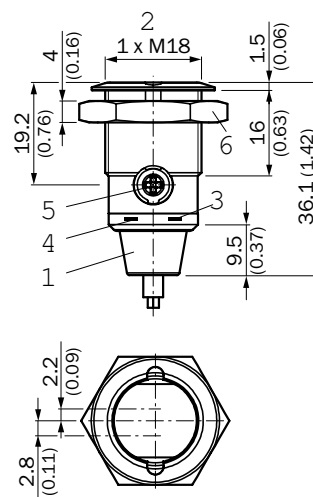
- ① Connection cable 2 m
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ Fastening nuts (2 x); 24 mm hex, metal

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



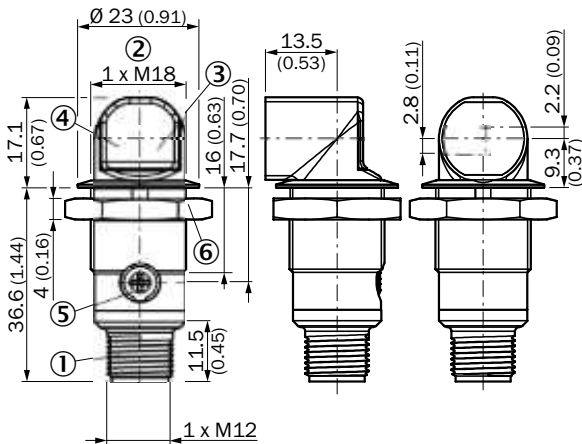
- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ Fastening nut; 24 mm hex, metal

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



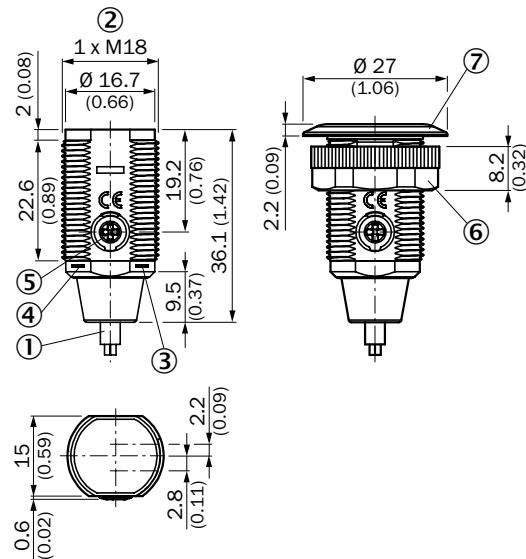
- ① Connection cable 2 m
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ Fastening nut; 24 mm hex, metal

GR18S, 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

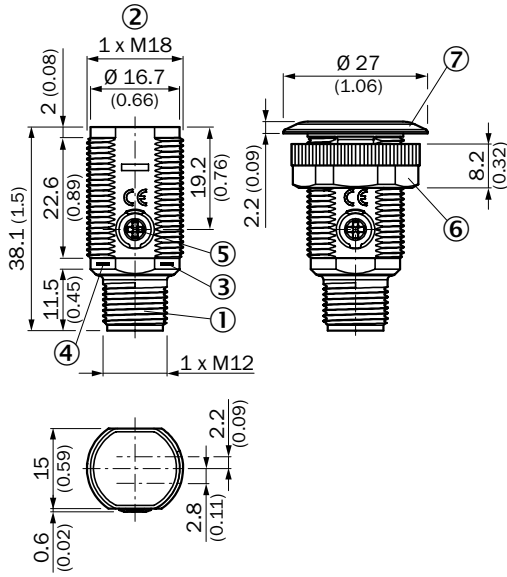
GR18S, plastic, cable, axial, adjustable



- 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

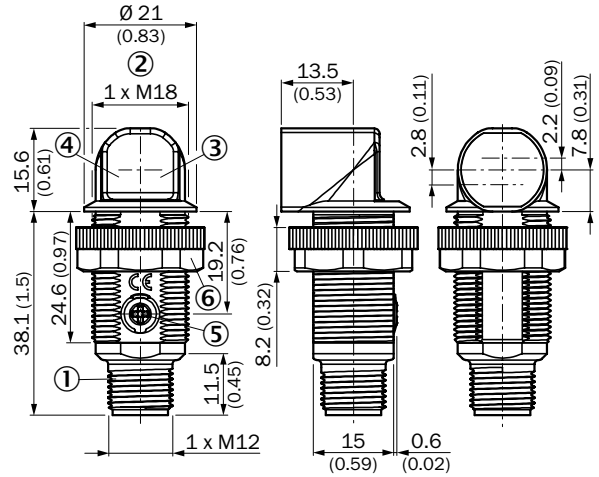


GR18S, plastic, connector, axial, adjustable



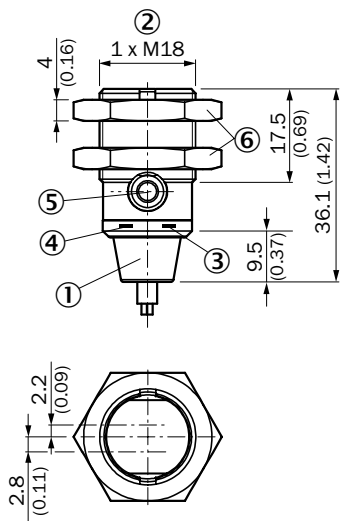
- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ Fastening nut; 22 mm hex, plastic
- ⑦ Mounting ring

GR18S, plastic, connector, radial, adjustable



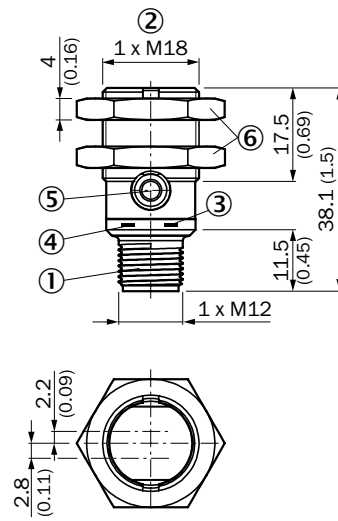
- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control; Potentiometer 270°
- ⑥ Fastening nut; 22 mm hex, plastic

GR18S, metal, cable, axial, no adjustment



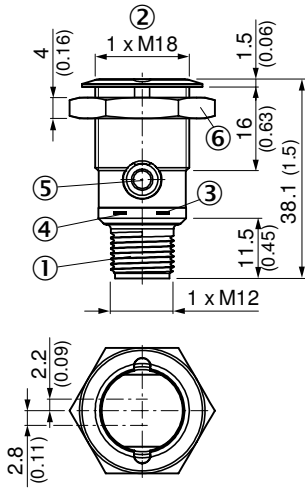
- ① Connection cable 2 m
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Dummy plug
- ⑥ Fastening nuts (2 x); 24 mm hex, metal

GR18S, metal, connector, axial, no adjustment



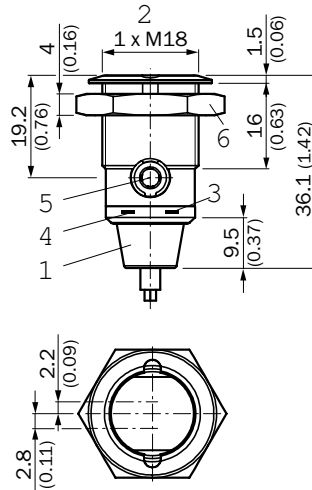
- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Dummy plug
- ⑥ Fastening nuts (2 x); 24 mm hex, metal

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



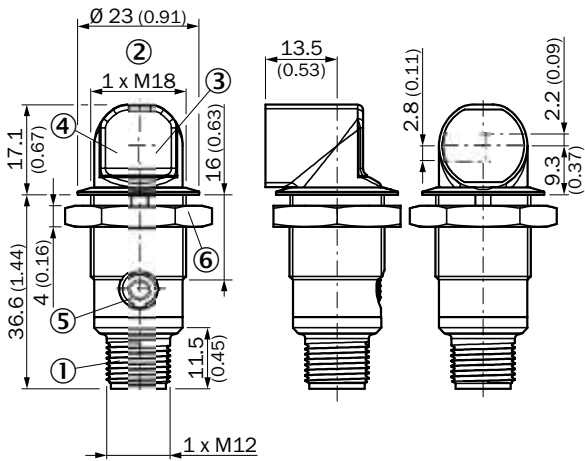
- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Dummy plug
- ⑥ Fastening nut; 24 mm hex, metal

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



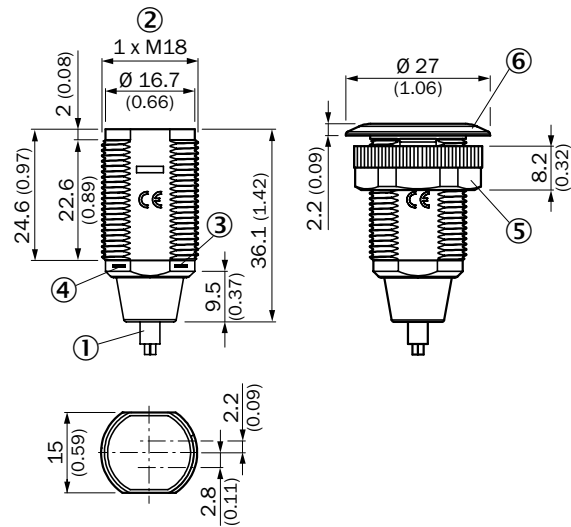
- ① Connection cable 2 m
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Dummy plug
- ⑥ Fastening nut; 24 mm hex, metal

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



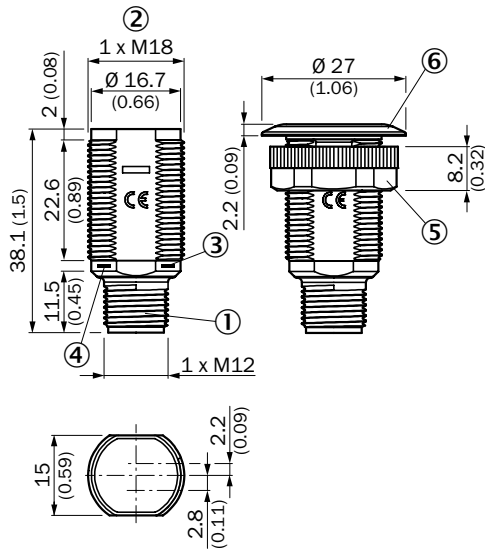
- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Dummy plug
- ⑥ Fastening nut; 24 mm hex, metal

GR18S, plastic, cable, axial, no adjustment



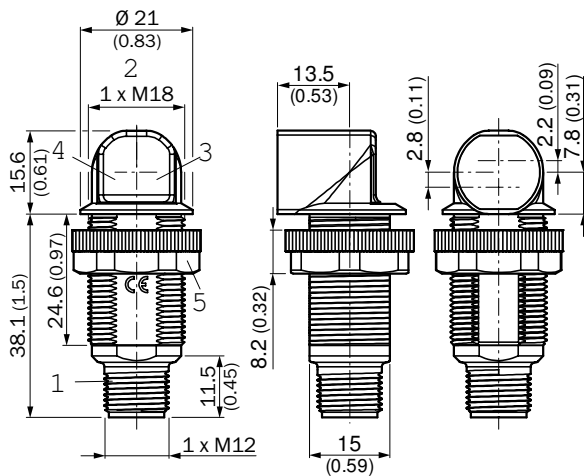
- ① Connection cable 2 m
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Fastening nut; 22 mm hex, plastic
- ⑥ Mounting ring

GR18S, plastic, connector, axial, no adjustment



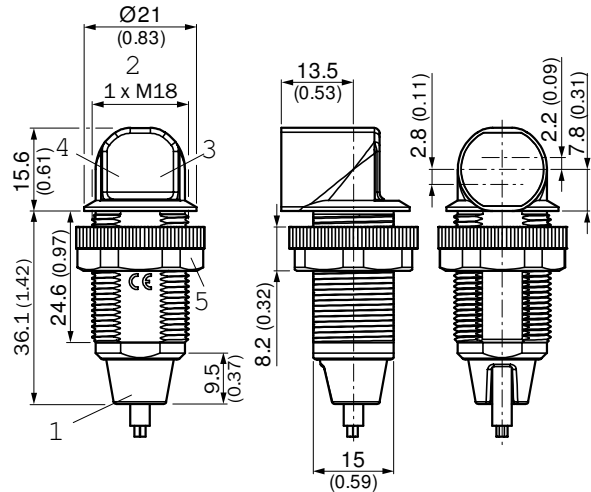
- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Fastening nut; 22 mm hex, plastic
- ⑥ Mounting ring

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

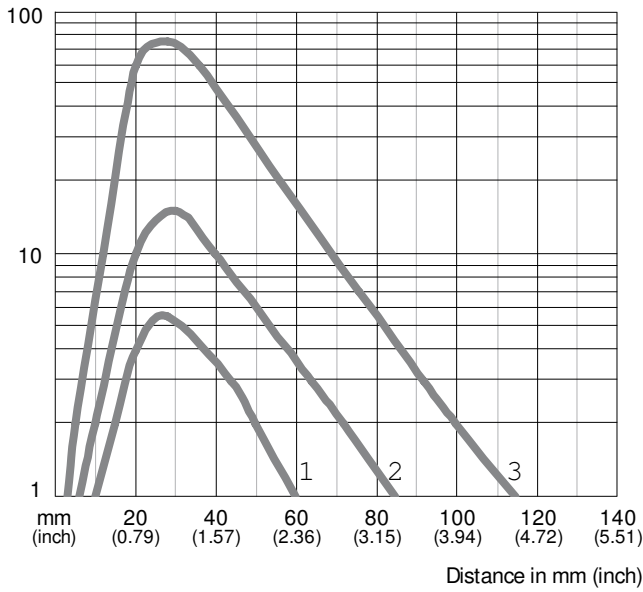


- ① Connection cable 2 m
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Fastening nut; 22 mm hex, plastic

Characteristic curve

GRTE18S, 115 mm

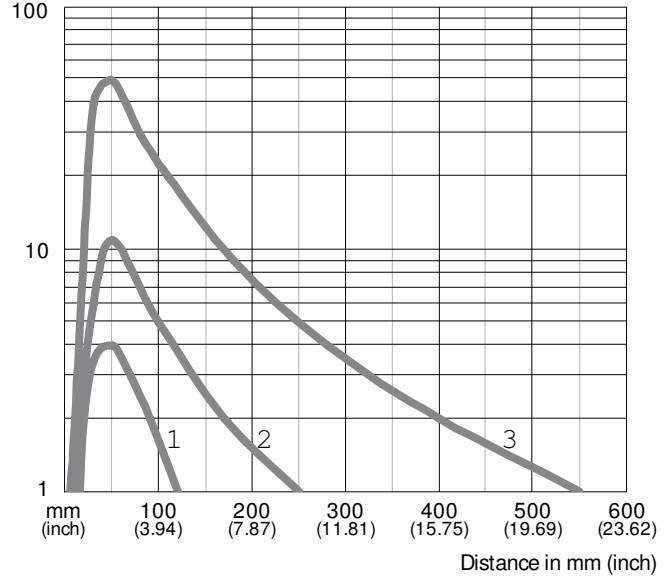
Operating reserve



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

GRTE18S, 550 mm

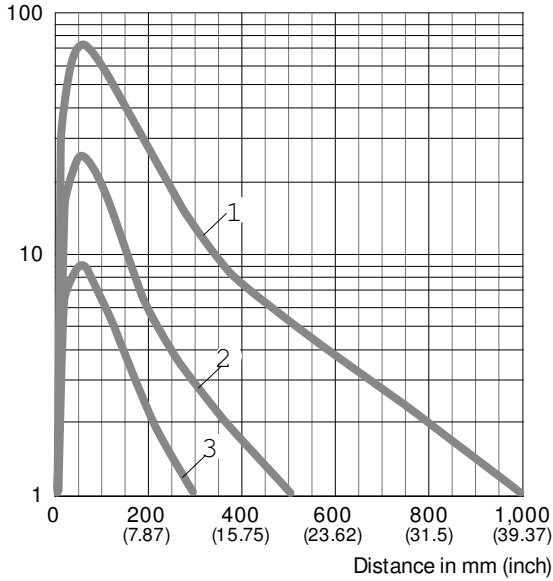
Operating reserve



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

GRTE18, 800 mm

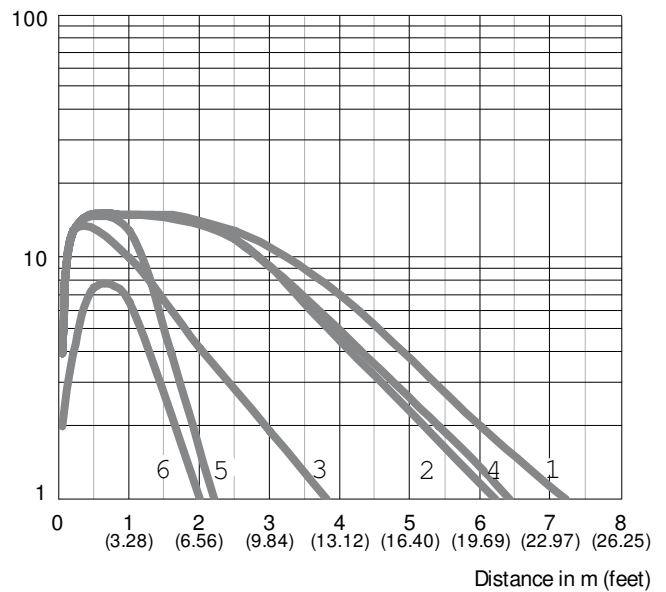
Operating reserve



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

GRL18S

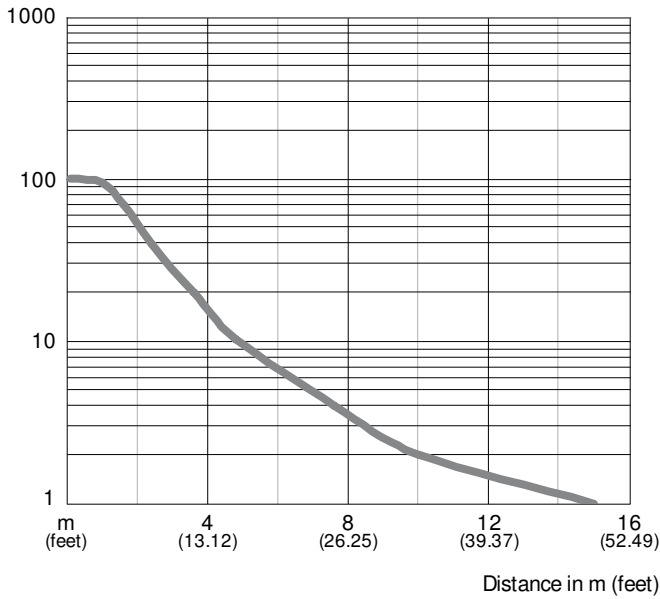
Operating reserve



- 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

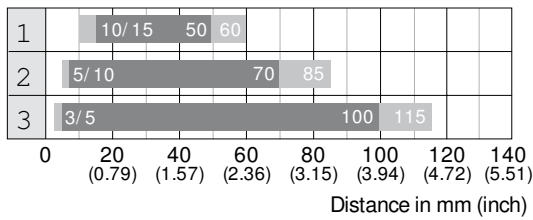
GRSE18S

Operating reserve



Sensing range

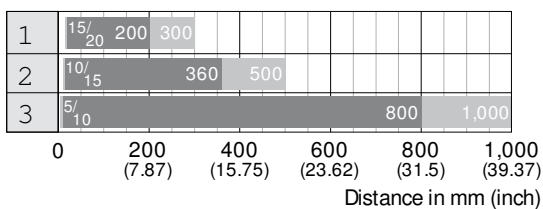
GRTE18S, 115 mm



■ 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

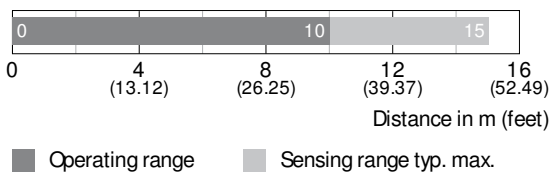
GRTE18, 800 mm



■ Sensing range ■ Sensing range max. typ.

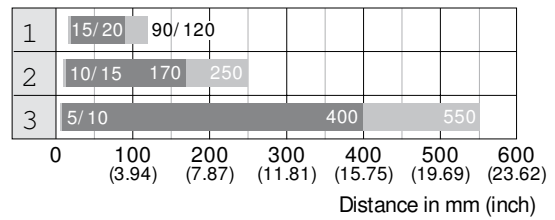
- ① Sensing range on black, 6 % remission
- ② Sensing range on gray, 20 % remission
- ③ Sensing range on white, 90 % remission

GRSE18S



■ Operating range ■ Sensing range typ. max.

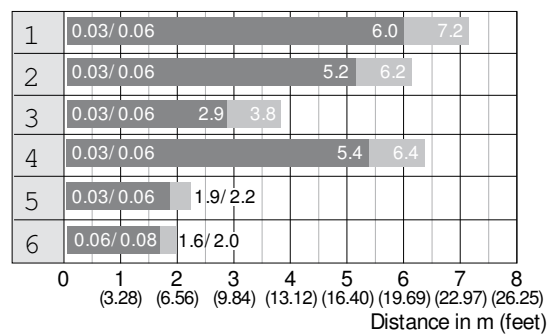
GRTE18S, 550 mm



■ 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

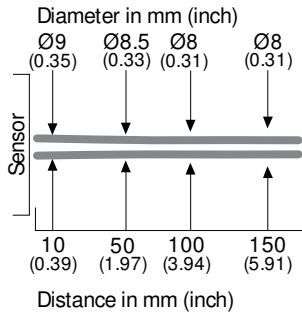


■ Sensing range ■ Sensing range max.

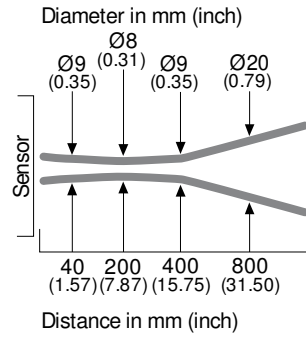
- ① Reflector type PL80A
- ② Reflector type PL40A
- ③ Reflector type PL20A
- ④ Reflector type P205
- ⑤ Reflector type PL22-2
- ⑥ Reflective tape REF-Plus 3436

Light spot diameter

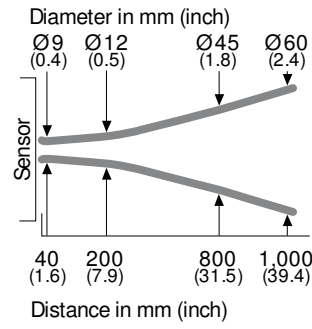
GRTE18S, 115 mm



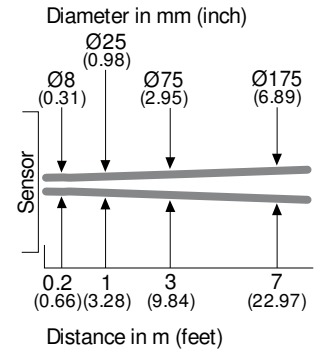
GRTE18S, 550 mm



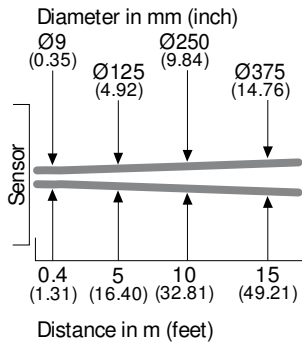
GRTE18, 800 mm



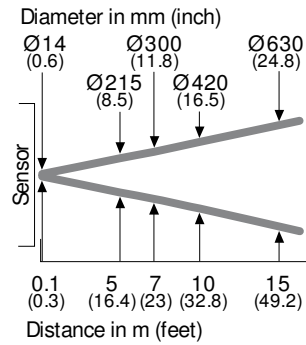
GRL18S



GRSE18, red light



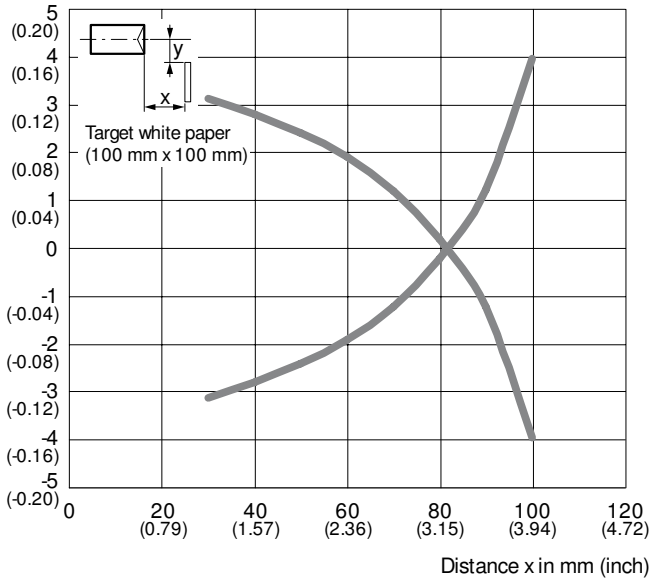
GRSE18, infrared light



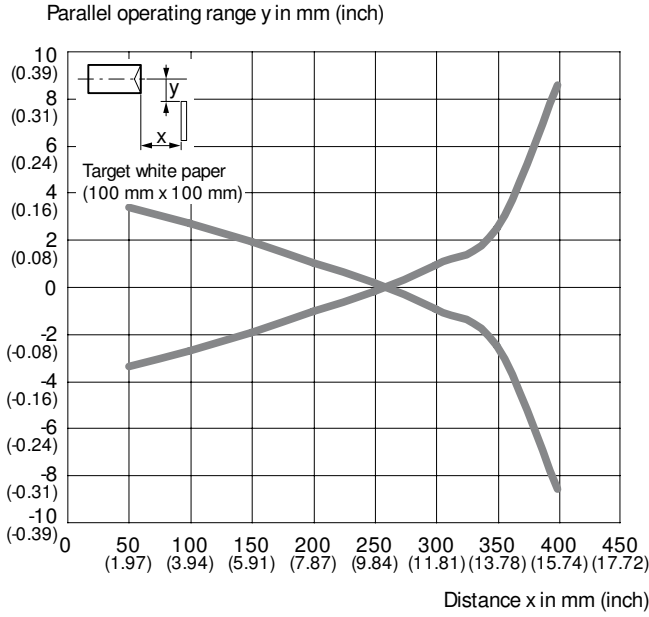
Response curve

GRTE18S, 115 mm

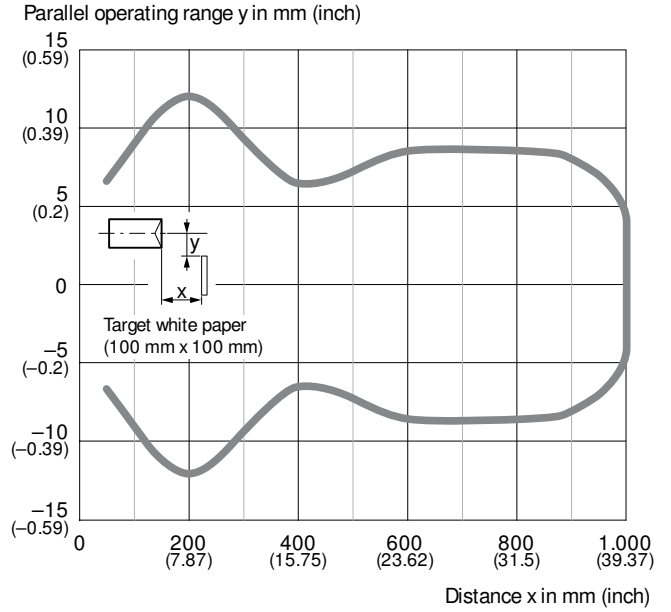
Parallel operating range y in mm (inch)



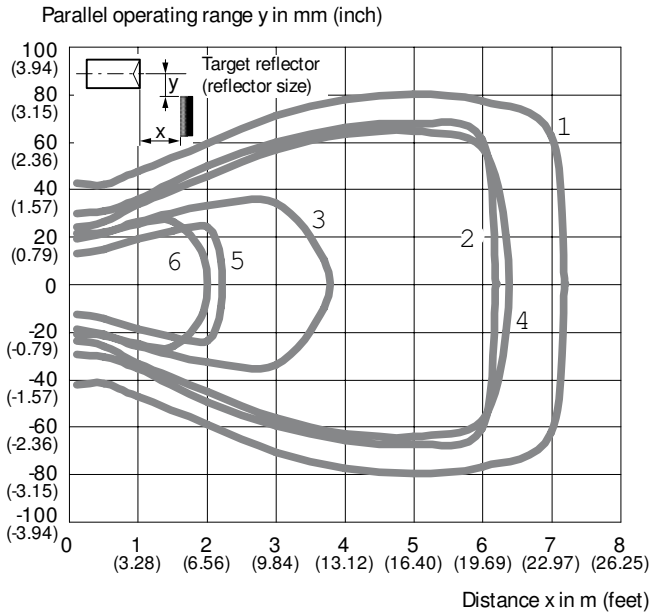
GRTE18S, 550 mm



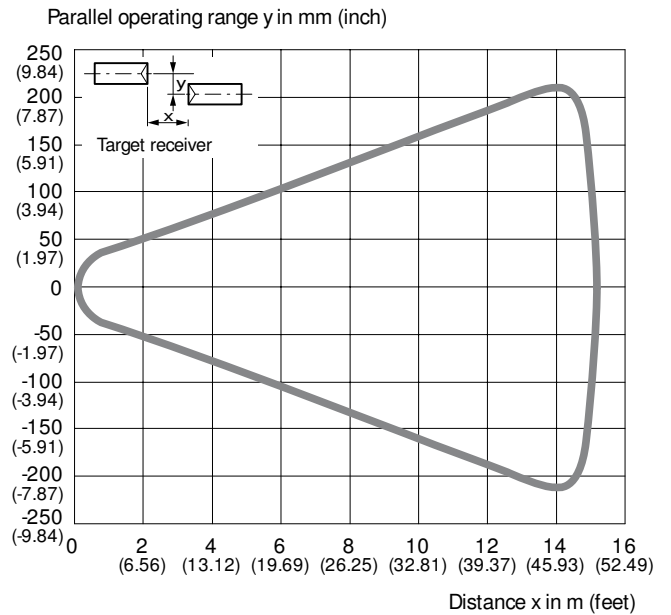
GRTE18, 800 mm



GRL18S



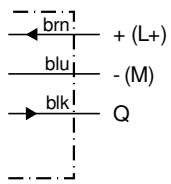
GRSE18S



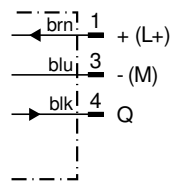
- ① Reflector type PL80A
- ② Reflector type PL40A
- ③ Reflector type PL20A
- ④ Reflector type P205
- ⑤ Reflector type PL22-2
- ⑥ Reflective tape REF-Plus 3436

Connection diagram

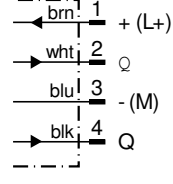
Cd-044



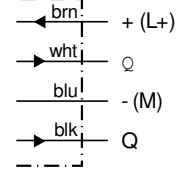
Cd-045



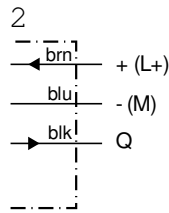
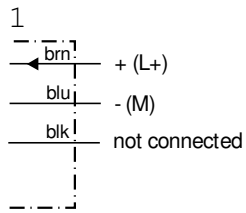
Cd-084



Cd-094

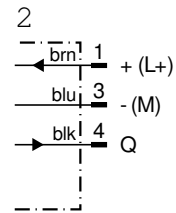
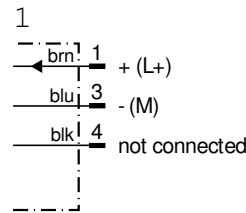


Cd-049



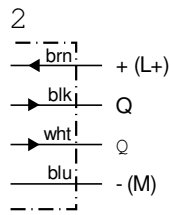
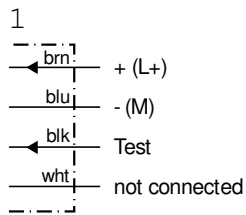
- ① Sender
- ② Receiver

Cd-051



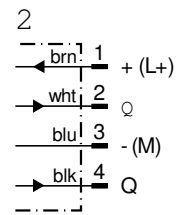
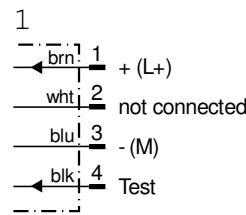
- ① Sender
- ② Receiver

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	●	●	●




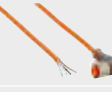

Connecting cables with female connector M12, 4-pin, PVC, hygienic systems

- **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	●	●	●
				IP 65 IP 68	DOL-1204-W05MC	6025904	●	●	●
	Female connector, M12, 4-pin, angled	Cable, open conductor heads	5 m, 4-pole	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	●	●	●
	Steel, zinc coated	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 <sup>1</sup>	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

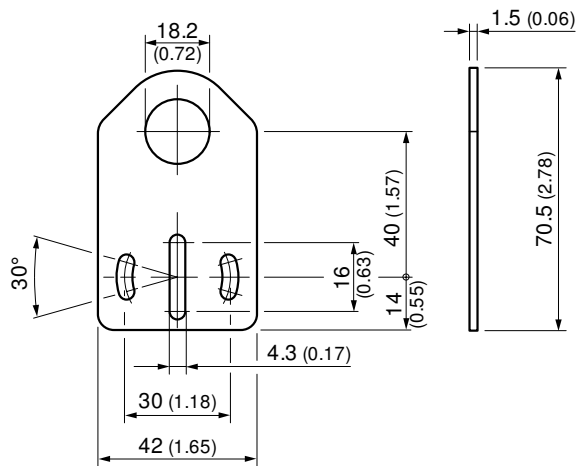
Figure	For product family	Description	Model name	Part no.	GRTE18S	GRL18S(G)	GRSE18S
	GR18S, radial, fully flush	Mounting tool for "fully flush" variants	BEF-TO-GR18S	4072132	●	●	●

Mounting tool

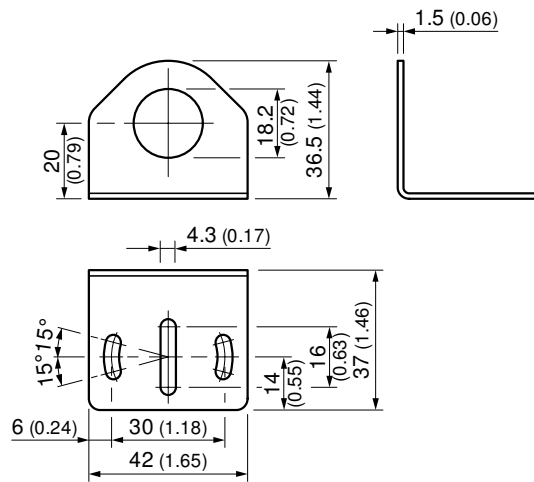
Figure	For product family	Material	Description	Model name	Part no.	GRTE18(S)	GRL18(S)(G)	GRSE18(S)
	GR18, GR18S	Nickel-plated brass, glass	Front window protection designed for M18 cylindrical photoelectric sensors	BEF-M18-GW	2075708	●	●	●

Dimensional drawings Mounting brackets and mounting plates

BEF-WG-M18 (N)

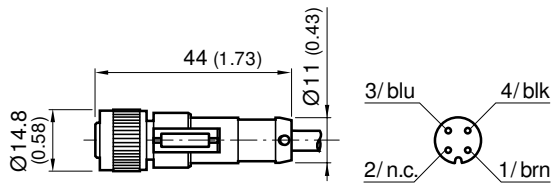


BEF-WN-M18 (N)

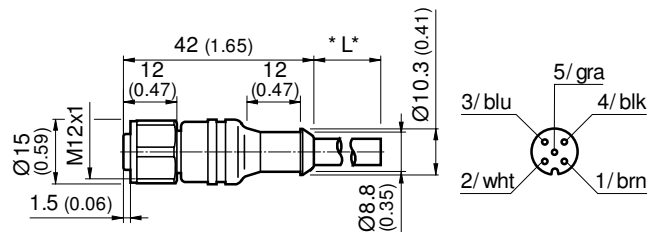


Dimensional drawings Plug connectors and cables

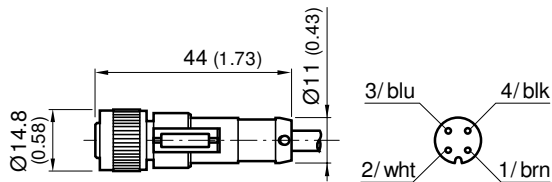
DOL-1204-GxxM, DOL-1204-GxxMC, DOL-1204-GxxMN,



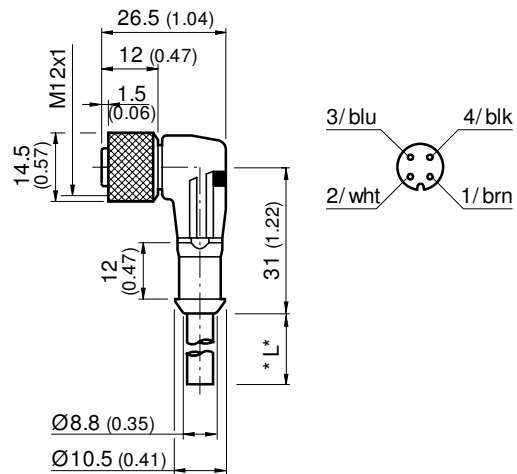
DOL-1204-G02MN



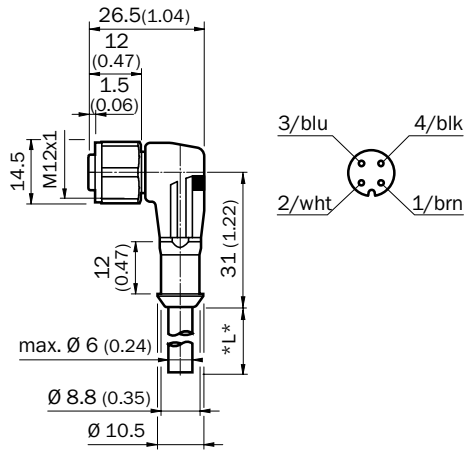
DOL-1204-GxxMC



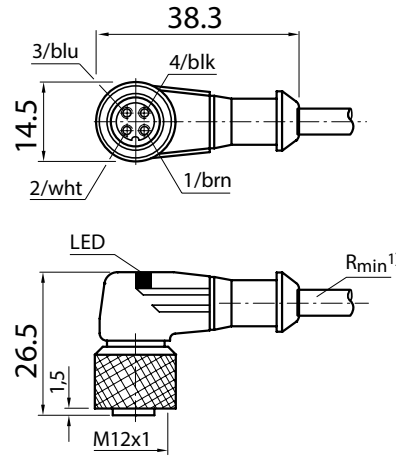
DOL-1204-L02M



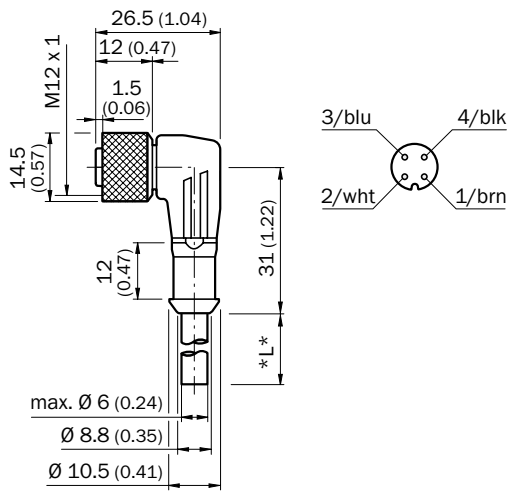
DOL-1204-L02MN



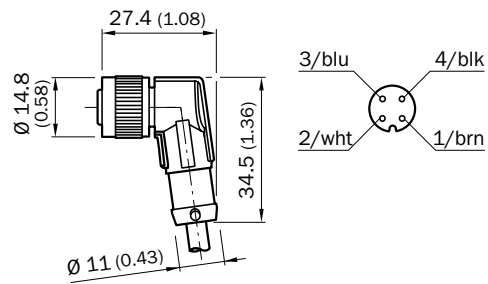
DOL-1204-L05MC



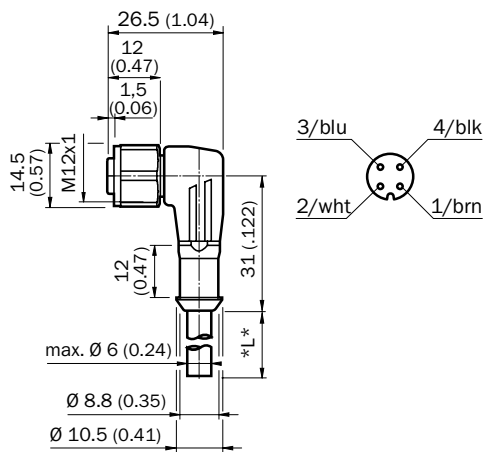
DOL-1204-WxxM



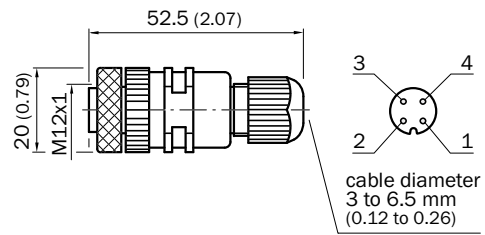
DOL-1204-WxxMC



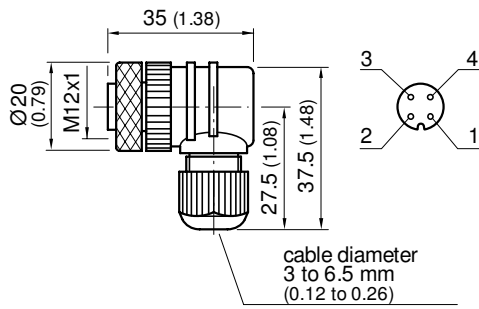
DOL-1204-WxxMN



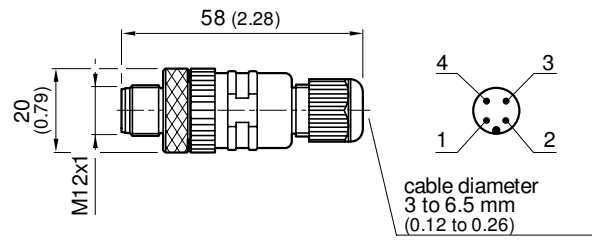
DOS-1204-G



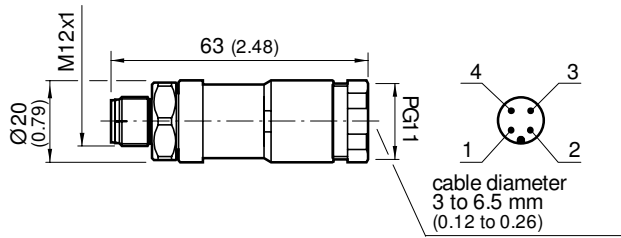
DOS-1204-W



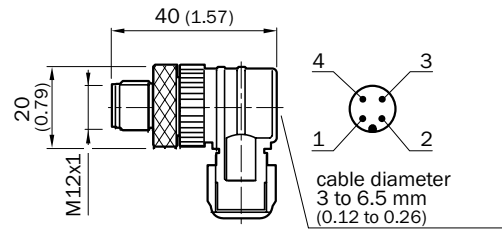
STE-1204-G



STE-1204-TN

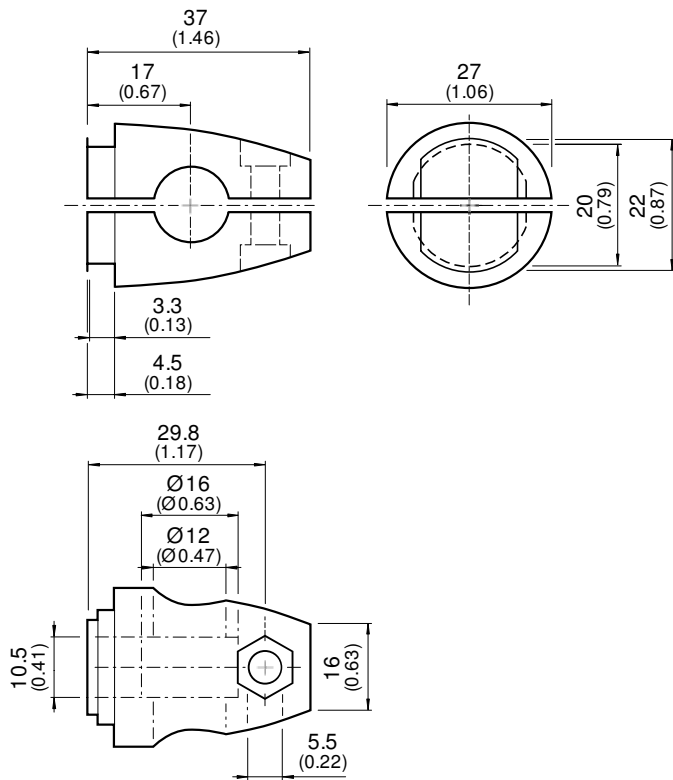


STE-1204-W

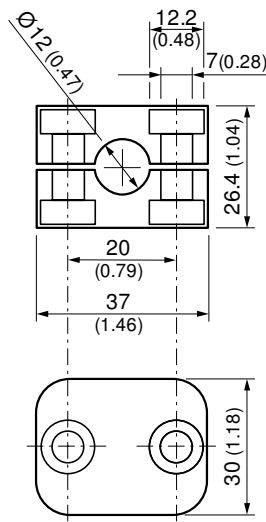


Dimensional drawings Universal bar clamp systems

BEF-KHS-KH3

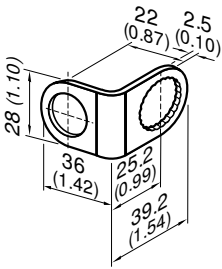


BEF-RMC-D12

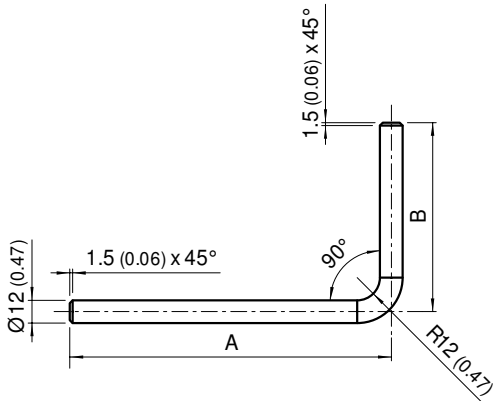




BEF-KHS-N06 (N)



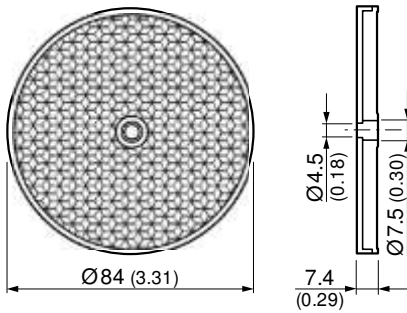
BEF-MS12L-A  
BEF-MS12L-B



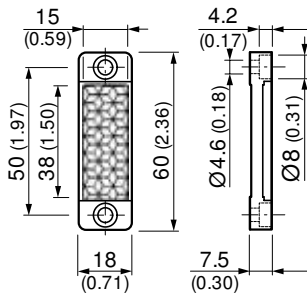
BEF-MS12L-(N)A: A = 200 mm, B = 150 mm  
BEF-MS12L-(N)B: A = 250 mm, B = 250 mm

Dimensional drawings Reflectors

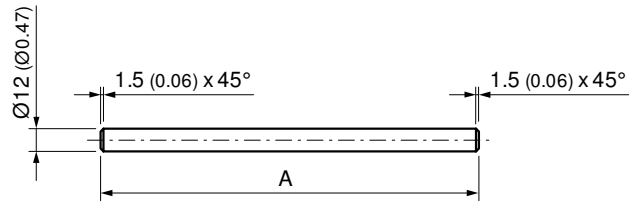
C110A



PL20A

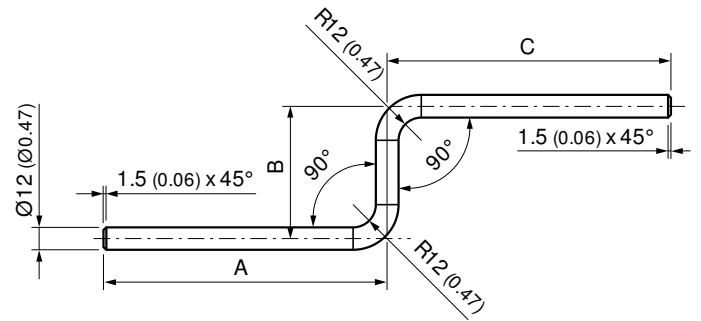


BEF-MS12G-A  
BEF-MS12G-B



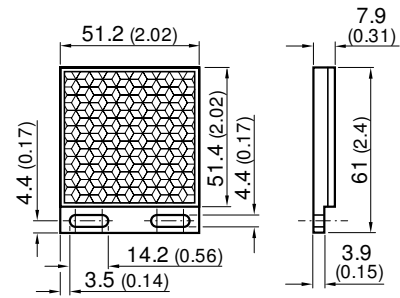
BEF-MS12G-(N)A: A = 200 mm  
BEF-MS12G-(N)B: A = 300 mm

BEF-MS12Z-A  
BEF-MS12Z-B

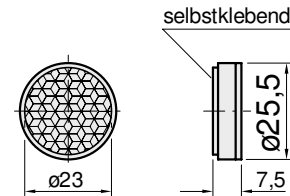


BEF-MS12Z-(N)A: A = 150 mm, B = 70 mm, C = 150 mm  
BEF-MS12Z-(N)B: A = 150 mm, B = 70 mm, C = 250 mm

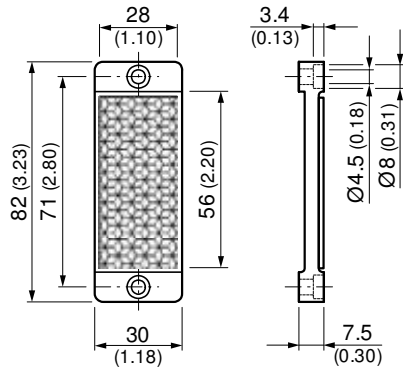
P250



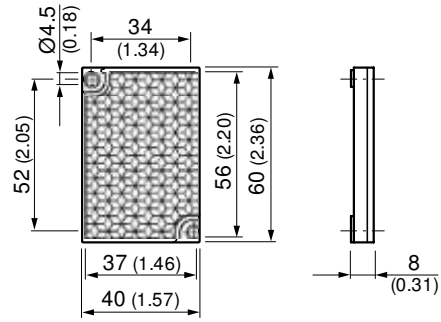
PL22-2



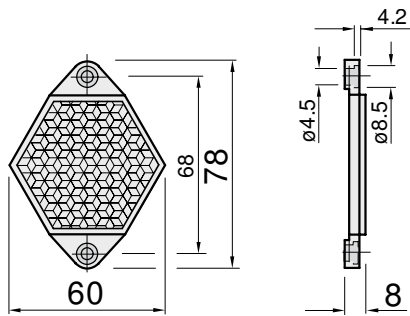
PL30A



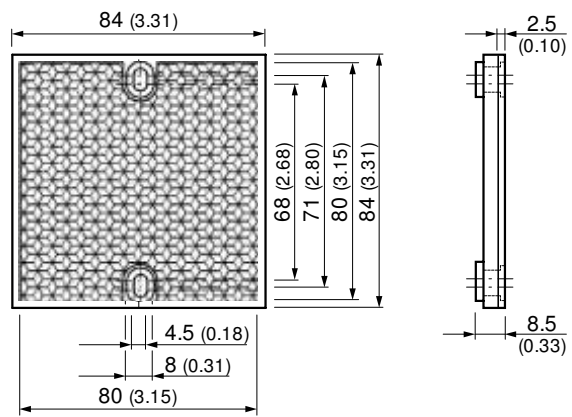
PL40A



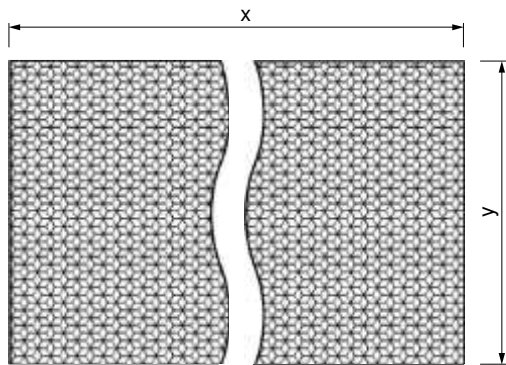
PL50A



PL80A

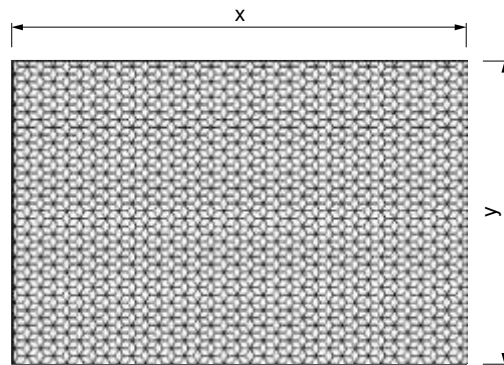


REF-PLUS-R50



- ① X = 50 mm
- ② Y = 22.8 mm

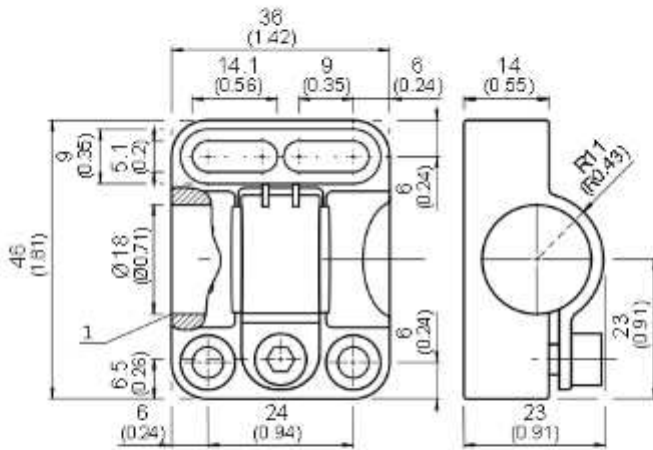
REF-Plus-3436



- ① X = 34 mm
- ② Y = 36 mm

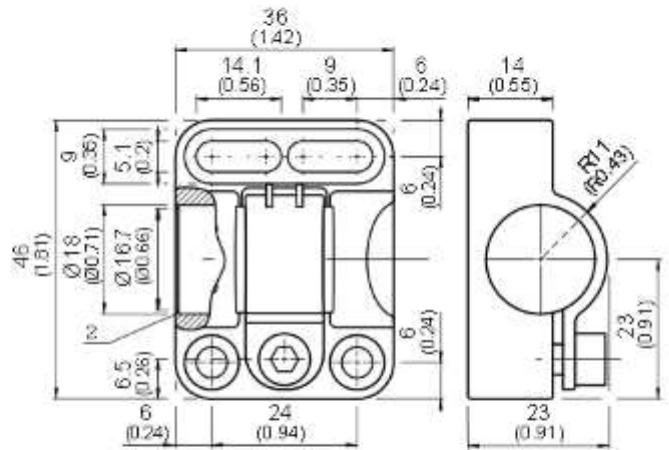
Dimensional drawings Terminal and alignment brackets

BEF-KH-M18



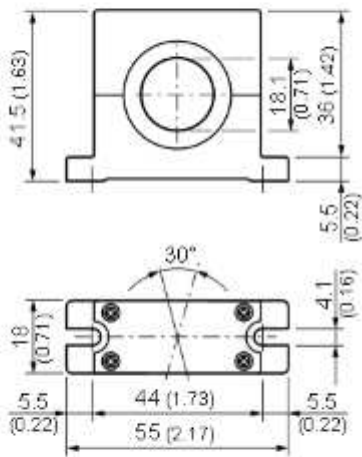
① Without fixed stop

BEF-KHF-M18

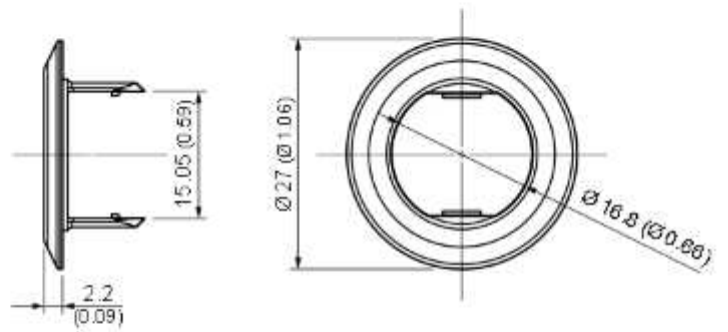


② With fixed stop

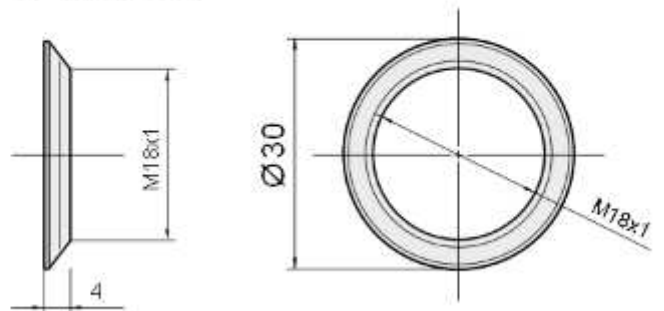
BEF-WN-M18-ST02



BEF-WN-MH15-1

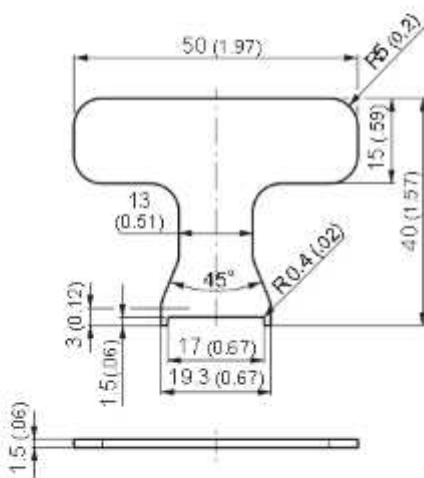


BEF-WN-MH15-2V



Dimensional drawings Mounting tool

BEF-T0-GR18S



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