

G2S

THE VERSATILE SENSOR
THAT FITS ANYWHERE

Miniature photoelectric sensors

SICK
Sensor Intelligence.

G2S MINIATURE PHOTOELECTRIC SENSOR: OUTSTANDING PERFORMANCE IN A MINIATURE HOUSING



PinPoint-LED

- Reliable detection of dark objects as well as objects with poor reflection, thanks to extremely bright PinPoint LED
- Easy commissioning thanks to the clearly visible, ultra-bright light spot



Variant with reflector (GL2S)

- Space-saving integration for switching distances of up to 3,000 mm
- Powerful PinPoint LED with high light intensity levels; only requires a small area of the reflector



Integrated potentiometer (GTB2S)

- Switching distance of up to 120 mm, which can be precisely adjusted thanks to a user-friendly 3-stage potentiometer
- Quick and easy operation









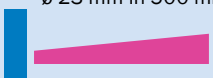
Angled cable outlet

- The 45° tilted cable entry saves space
- Maximum flexibility and ruggedness thanks to soft rubber bearings on the cable





Rugged housing

- Secure mounting, regardless of vibrations, thanks to cast metal mounting holes
- Impact-resistant housing that is able to stand up to shock and vibration. For excellent reliability and a short downtime in high-speed production plants

	Product variant	Type	Light beam geometry	Discription
	GTB2S sensor with background suppression	Up to 120 mm, can be set using 3-stage potentiometer	\varnothing 3,5 mm in 40 mm 	<ul style="list-style-type: none"> - Can be precisely adjusted - For standard applications - Reliable detection of all types of objects
	GTB2S sensor with background suppression	Permanently set sensing range, max. 36 mm	\varnothing 3 mm in 15 mm 	<ul style="list-style-type: none"> - Precise switching point with high accuracy and repeatability - Detection of reflective and transparent objects
		Permanently set sensing range, max. 18 mm	\varnothing 2 mm in 8 mm 	
	GL2S photoelectric retro-reflective sensor	Permanent setting, max. 3,0 m	\varnothing 11 mm in 250 mm 	<ul style="list-style-type: none"> - Reliable detection of highly reflective objects
	GSE2S photoelectric through-beam sensor	Permanent setting, max. 2,0 m	\varnothing 23 mm in 500 mm 	<ul style="list-style-type: none"> - Minimum interference in narrow mounting conditions

NO SPACE IS TOO SMALL





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Product description

Machines and systems are becoming more compact while the space available for sensors is shrinking. Sub-miniature sensors in the G2S product family feature a rugged, compact housing that can

be integrated into various applications with limited space. These sensors feature a long sensing range with reliable object detection.

At a glance

- Complete product family of photoelectric sensors in a tried-and-tested sensor design
- Adjustable BGS photoelectric proximity sensor with an operating distance up to 130 mm
- Optical performance data that exceeds market standards for operating distance and housing design
- Reliable detection of jet-black, poorly reflective and highly reflective objects
- PinPoint LED ensures high operating distances and reliable object detection

Your benefits

- Reliable object detection in confined environments helps cut costs and save space
- Sub-miniature housing enables seamless integration and creates space for new machine designs
- Tried-and-tested, rugged housing design can be easily integrated into compact machines and systems
- Complete, ultra-small product family with operating functions for every application
- The 45-degree tilted cable entry offers maximum installation flexibility with additional soft rubber bearings to absorb vibrations and tensile loads

→ www.mysick.com/en/G2S

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

	GTB2S fix	GTB2S adjustable	GL2S	GSE2S
Sensor principle	Photoelectric proximity sensor		Photoelectric retro-reflective sensor	Through-beam photoelectric sensor
Detection principle	Background suppression		Standard optics	-
Dimensions (W x H x D)	7.7 mm x 21.8 mm x 13.5 mm	7.7 mm x 27.5 mm x 13.5 mm	7.7 mm x 21.8 mm x 13.5 mm	
Housing design (light emission)	Rectangular			
Sensing range max.	1 mm ... 18 mm ¹⁾ 1 mm ... 36 mm ¹⁾ (depending on type)	2 mm ... 120 mm ¹⁾	0.02 m ... 3 m ²⁾	0 m ... 2 m
Sensing range	4 mm ... 13 mm ³⁾ 5 mm ... 28 mm ³⁾ (depending on type)	20 mm ... 120 mm ¹⁾	0.03 m ... 2.5 m ²⁾	0 m ... 1.5 m
Background suppression typ. from	20 mm / 38 mm (depending on type)	-		
Type of light	Visible red light			
Light source ⁴⁾	PinPoint LED			
Wave length	640 nm			
Adjustment	-	Potentiometer, 3 turns	-	

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

²⁾ PL40A.

³⁾ Object with 6 % remission.

⁴⁾ Average service life of 100,000 h at T_A = +25 °C .

Mechanics/electronics

	GTB2S fix	GTB2S adjustable	GL2S	GSE2S
Supply voltage ¹⁾	10 V DC ... 30 V DC			
Ripple	≤ 5 V _{ss}			
Power consumption ²⁾	≤ 20 mA			
Output type	PNP / NPN (depending on type)			
Switching mode	Light switching / Dark-switching (depending on type)			
Output current I_{max.}	< 50 mA			
Response time ³⁾	< 0.6 ms			
Switching frequency ⁴⁾	800 Hz			
Connection type	Cable, 2 m ⁵⁾ / Cable with connector, M8, 200 mm ⁵⁾ (depending on type)			
Circuit protection	A ⁶⁾ , C ⁷⁾ , D ⁸⁾			
Polarisation filter	-		✓	-
Housing material	ABS			
Optics material	PMMA			
Enclosure rating	IP 67			
Ambient operating temperature	-20 °C ... +50 °C			
Ambient storage temperature	-40 °C ... +75 °C			

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

²⁾ Without load.

³⁾ Signal transit time with resistive load.

⁴⁾ With light/dark ratio 1:1.

⁵⁾ Do not bend below 0 °C.

⁶⁾ A = V_S connections reverse-polarity protected.

⁷⁾ C = interference suppression.

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

Ordering information

Other models available at www.mysick.com/en/G2S

GTB2S

- **Sensor principle:** Photoelectric proximity sensor
- **Detection principle:** Background suppression

Sensing range max. ¹⁾	Light spot size (distance)	Output type	Switching mode	Connection	Connection diagram	Model name	Part no.
1 mm ... 18 mm	Ø 2 mm (8 mm)	PNP	Light switching	Cable, 3-wire, 2 m	Cd-043	GTB2S-P1311	1064345
				Cable with connector M8, 3-pin, 200 mm	Cd-045	GTB2S-P5311	1062872
			Dark-switching	Cable, 3-wire, 2 m	Cd-043	GTB2S-F1311	1064346
		Cable with connector M8, 3-pin, 200 mm		Cd-045	GTB2S-F5311	1064347	
		NPN	Light switching	Cable, 3-wire, 2 m	Cd-043	GTB2S-N1311	1062840
				Cable with connector M8, 3-pin, 200 mm	Cd-045	GTB2S-N5311	1064349
Dark-switching	Cable, 3-wire, 2 m	Cd-043	GTB2S-E1311	1064348			
	1 mm ... 36 mm	PNP	Light switching	Cable, 3-wire, 2 m	Cd-043	GTB2S-P1331	1064351
Cable with connector M8, 3-pin, 200 mm				Cd-045	GTB2S-P5331	1062930	
Dark-switching			Cable with connector M8, 3-pin, 200 mm	Cd-045	GTB2S-F5331	1064353	
		NPN	Light switching	Cable, 3-wire, 2 m	Cd-043	GTB2S-N1331	1062929
Dark-switching				Cable, 3-wire, 2 m	Cd-043	GTB2S-E1331	1064354
		2 mm ... 120 mm	Ø 3.5 mm (50 mm)	PNP	Light switching	Cable, 3-wire, 2 m	Cd-043
Cable with connector M8, 3-pin, 200 mm	Cd-045					GTB2S-P5451	1060204
Dark-switching	Cable with connector M8, 3-pin, 200 mm				Cd-045	GTB2S-F5451	1064341
	NPN			Light switching	Cable, 3-wire, 2 m	Cd-043	GTB2S-N1451
Cable with connector M8, 3-pin, 200 mm					Cd-045	GTB2S-N5451	1064343
Dark-switching				Cable, 3-wire, 2 m	Cd-043	GTB2S-E1451	1064342
	Cable with connector M8, 3-pin, 200 mm	Cd-045	GTB2S-E5451	1064344			

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

GL2S

- **Sensor principle:** Photoelectric retro-reflective sensor
- **Detection principle:** Standard optics
- **Light spot size (distance):** Ø 11 mm (250 mm)

Sensing range max. ¹⁾	Output type	Switching mode	Connection	Connection diagram	Model name	Part no.
0.02 m ... 3 m	PNP	Light switching	Cable with connector M8, 3-pin, 200 mm	Cd-045	GL2S-P5311	1064359
			Cable, 3-wire, 2 m	Cd-043	GL2S-F1311	1064358
		Dark-switching	Cable with connector M8, 3-pin, 200 mm	Cd-045	GL2S-F5311	1063008
	NPN		Light switching	Cable, 3-wire, 2 m	Cd-043	GL2S-N1311
		GL2S-N1312		1064423		
		Dark-switching	GL2S-E1311	1063009		
GL2S-E1312	1064424					

¹⁾ PL40A.

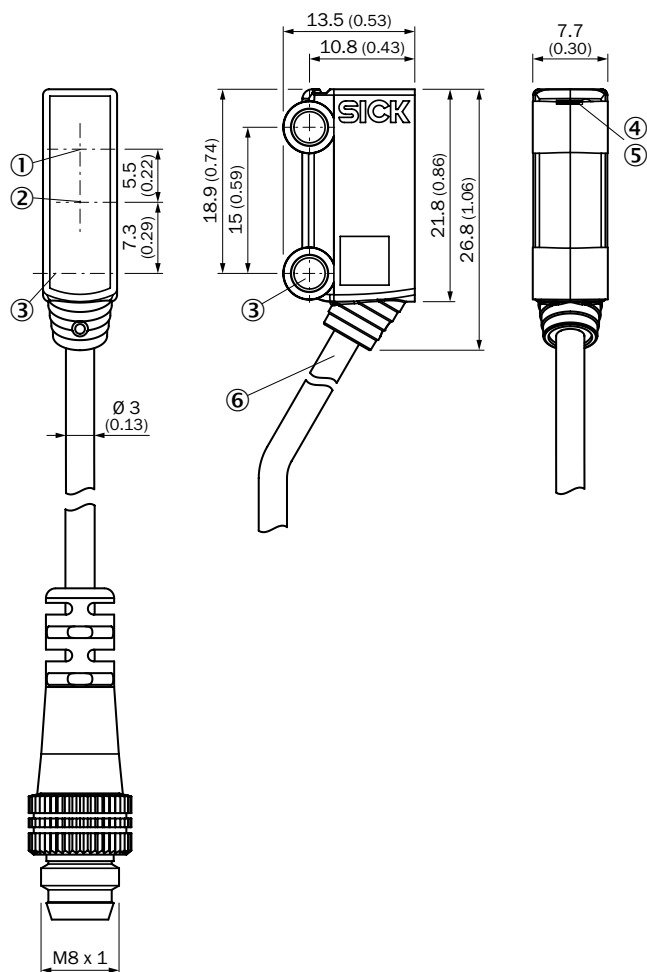
GSE2S

- **Sensor principle:** Through-beam photoelectric sensor
- **Light spot size (distance):** Ø 23 mm (500 mm)

Sensing range max.	Output type	Switching mode	Connection	Connection diagram	Model name	Part no.
0 m ... 2 m	PNP	Light switching	Cable with connector M8, 3-pin, 200 mm	Cd-051	GSE2S-P5311	1064364
		Dark-switching	Cable, 3-wire, 2 m	Cd-049	GSE2S-F1311	1064363
			Cable with connector M8, 3-pin, 200 mm	Cd-051	GSE2S-F5311	1063072
	NPN	Light switching	Cable, 3-wire, 2 m	Cd-049	GSE2S-N1311	1064365
		Dark-switching	Cable, 3-wire, 2 m	Cd-049	GSE2S-E1311	1063070

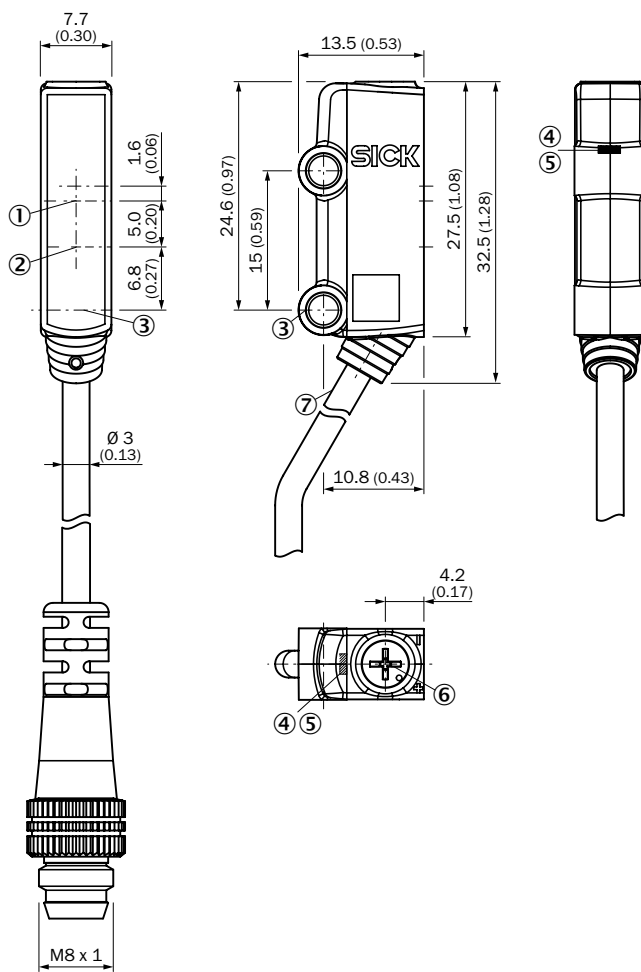
Dimensional drawings (Dimensions in mm (inch))

GTB2S, 15 mm, 30 mm



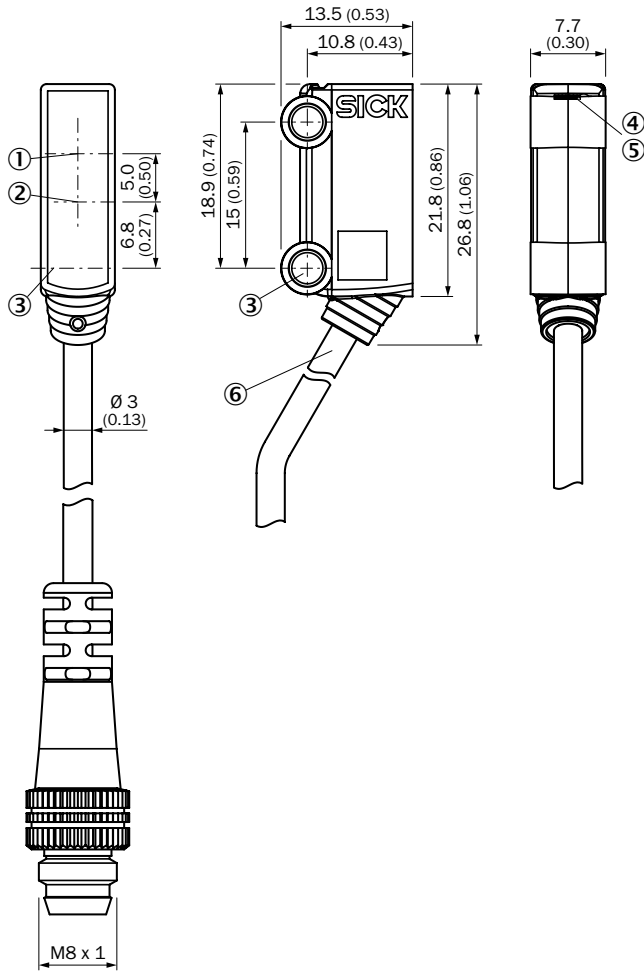
- ① Optical axis receiver
- ② Optical axis sender
- ③ Mounting hole, Ø 3.2 mm
- ④ Status indicator LED green: power on
- ⑤ Status indicator LED, yellow: Status of received light beam
- ⑥ Connection

GTB2S, 120 mm



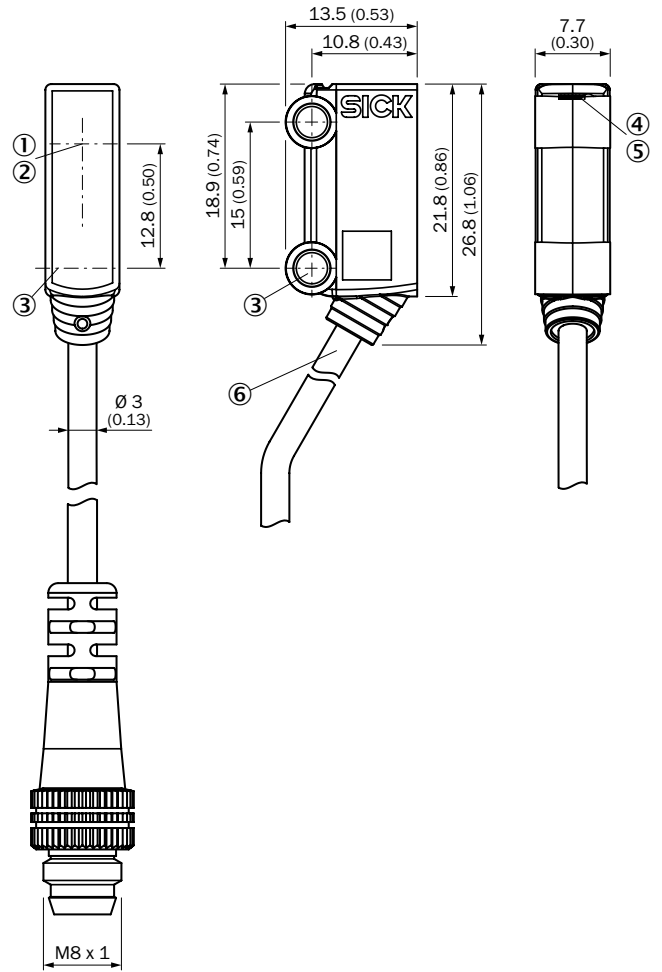
- ① Optical axis receiver
- ② Optical axis sender
- ③ Mounting hole, Ø 3.2 mm
- ④ Status indicator LED green: power on
- ⑤ Status indicator LED, yellow: Status of received light beam
- ⑥ Potentiometer
- ⑦ Connection

GL2S



- ① Optical axis receiver
- ② Optical axis sender
- ③ Mounting hole, \varnothing 3.2 mm
- ④ Status indicator LED green: power on
- ⑤ Status indicator LED, yellow: Status of received light beam
- ⑥ Connection

GSE2S



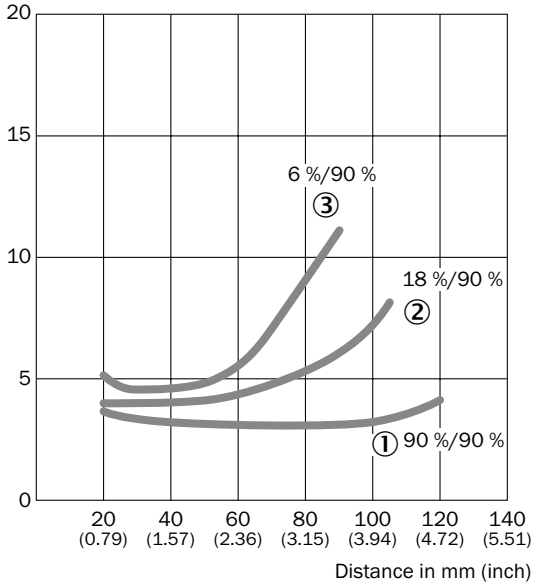
- ① Optical axis receiver
- ② Optical axis sender
- ③ Mounting hole, \varnothing 3.2 mm
- ④ Status indicator LED green: power on
- ⑤ Status indicator LED, yellow: Status of received light beam
- ⑥ Connection

Characteristic curves

Black-white-shift

GTB2S, 120 mm

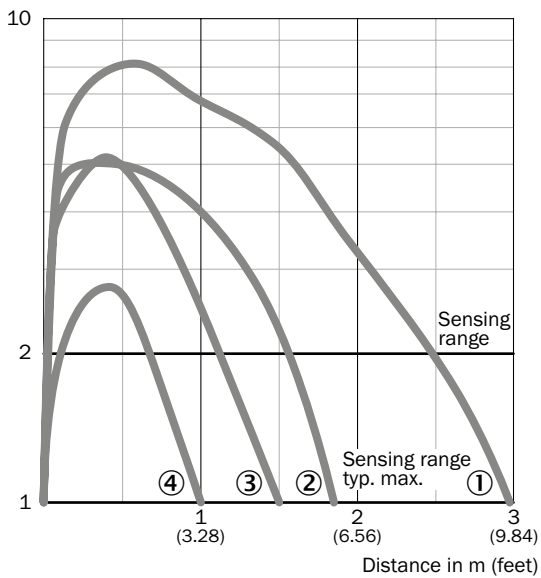
% of sensing range



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

Functional reserve

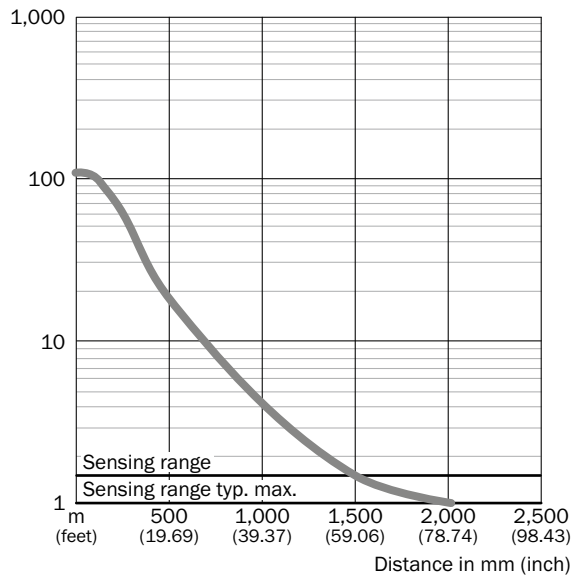
GL2S



- ① PL40A
- ② PL20A
- ③ PL10F
- ④ IREF6000 (REF-IRF-56)

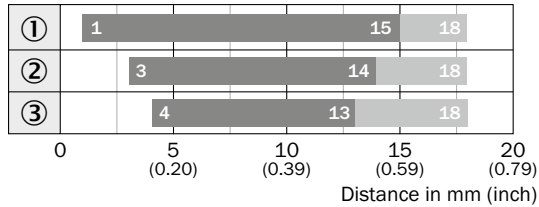
GSE2S

Functional reserve



Bar diagrams

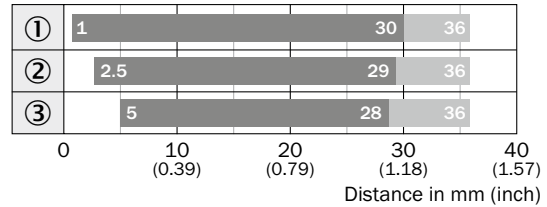
GTB2S, 15 mm



■ Sensing range ■ Sensing range typ. max.

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

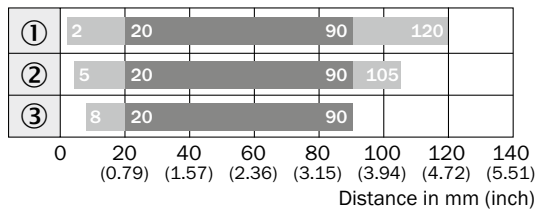
GTB2S, 30 mm



■ Sensing range ■ Sensing range max.

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

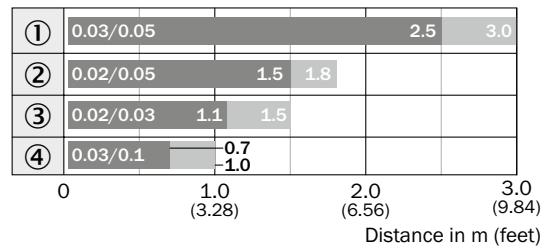
GTB2S, 120 mm



■ Sensing range ■ Sensing range max.

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

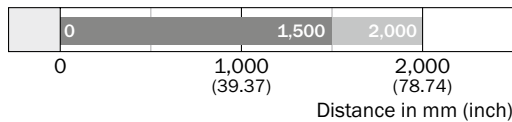
GL2S



■ Sensing range ■ Sensing range typ. max.

- ① PL40A
- ② PL20A
- ③ PL10F
- ④ IREF6000 (REF-IRF-56)

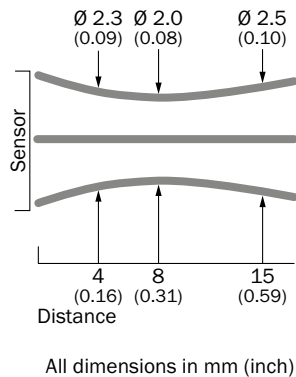
GSE2S



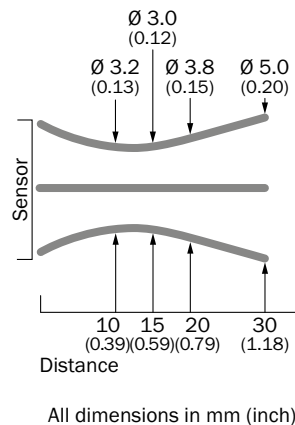
■ Sensing range ■ Sensing range typ. max.

Light spot diameter

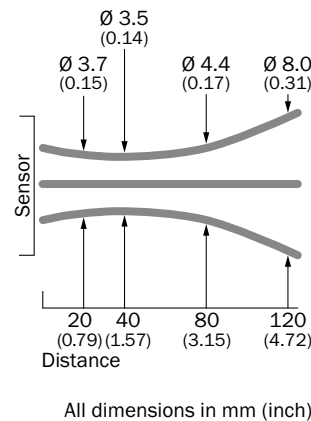
GTB2S, 15 mm



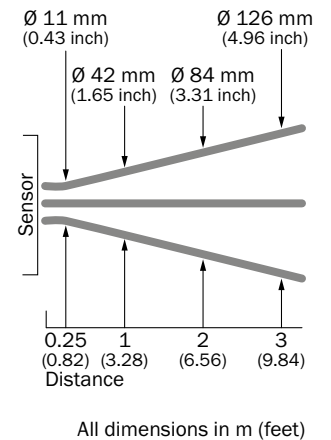
GTB2S, 30 mm



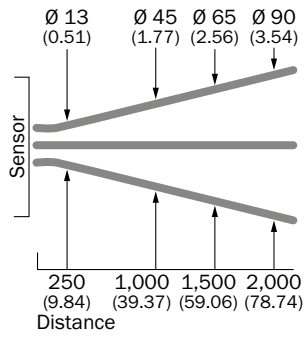
GTB2S, 120 mm



GL2S



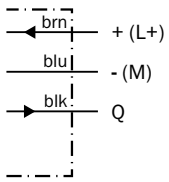
GSE2S



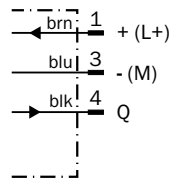
All dimensions in mm (inch)

Connection diagram

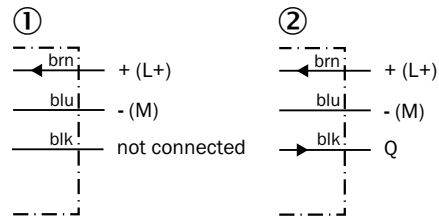
Cd-043



Cd-045

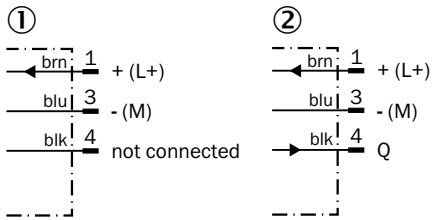


Cd-049



① Sender
② Receiver

Cd-051



① Sender
② Receiver

Recommended accessories

Plug connectors and cables

Connecting cable (female connector-open)

Figure	Connection type head A	Connection type head B	Connecting cable	Cable material	Enclosure rating	Model name	Part no.
	Female connector, M8, 3-pin, straight	Cable, open conductor heads	2 m, 3-pole	PVC	IP 67, IP 69K	DOL-0803-G02M	6010785
				PUR, halogen-free	IP 65, IP 68, IP 69K	DOL-0803-G02MC	6025888
	Female connector, M8, 3-pin, angled	Cable, open conductor heads	2 m, 3-pole	PVC	IP 67, IP 69K	DOL-0803-W02M	6008489
				PUR, halogen-free	IP 65, IP 68, IP 69K	DOL-0803-W02MC	6025891
	Female connector, M8, 4-pin, straight	Cable, open conductor heads	2 m, 4-pole	PVC	IP 67, IP 69K	DOL-0804-G02M	6009870
				PUR, halogen-free	IP 65, IP 68, IP 69K	DOL-0804-G02MC	6025894
	Female connector, M8, 4-pin, angled	Cable, open conductor heads	2 m, 4-pole	PVC	IP 67, IP 69K	DOL-0804-W02M	6009871
				PUR, halogen-free	IP 65, IP 68, IP 69K	DOL-0804-W02MC	6025897

Female connector (ready to assemble)

- **Connector material:** PBT


Figure	Connection type head A	Connection type head B	Locking nut material	Enclosure rating	Model name	Part no.
	Female connector, M8, 3-pin, straight	Screw-type terminals	CuZn	IP 67	DOS-0803-G	7902077
	Female connector, M8, 3-pin, angled	Pin penetration	CuZn	IP 67	DOS-0803-W	7902078

Male connector (ready to assemble)


Figure	Connection type head A	Connection type head B	Connector material	Locking nut material	Enclosure rating	Model name	Part no.
	Connector, M8, 3-pin, straight	Screw-type terminals	PBT	CuZn	IP 67	STE-0803-G	6037322

Reflectors


Angular

Figure	Material	Description	Model name	Part no.
	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, 80 mm x 80 mm	PL80A	1003865


Fine tripel reflector

Figure	Material	Description	Model name	Part no.
	PMMA/ABS	Fine triple, screw connection, suitable for laser sensors, 18 mm x 18 mm	PL10F	5311210

Reflective tape

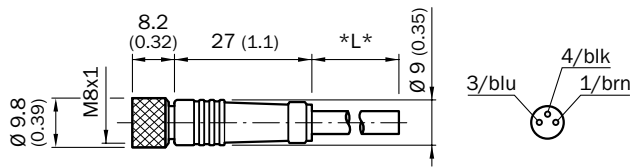
Figure	Description	Model name	Part no.
	Self-adhesive, 50 mm x 60 mm	REF-IRF-56	5314244

Round

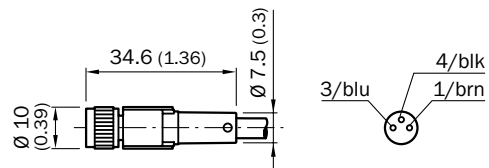
Figure	Material	Description	Model name	Part no.
	PMMA/ABS	Round, plugable for metal plates	PL22-3	1004488

Dimensional drawings plug connecting cable (female connector-open)

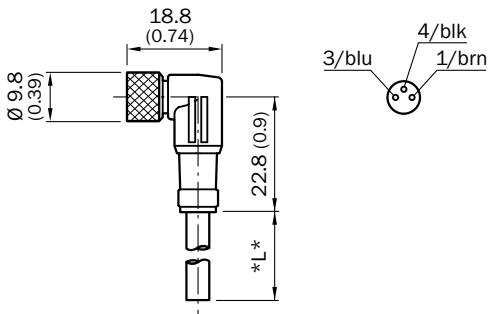
DOL-0803-G02M



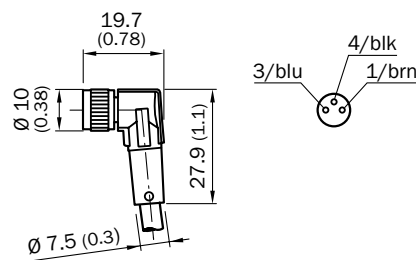
DOL-0803-G02MC



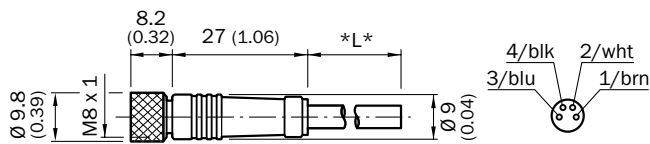
DOL-0803-W02M



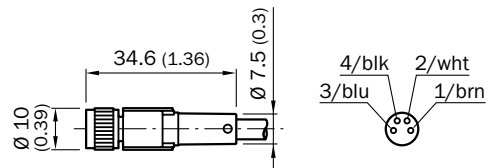
DOL-0803-W02MC



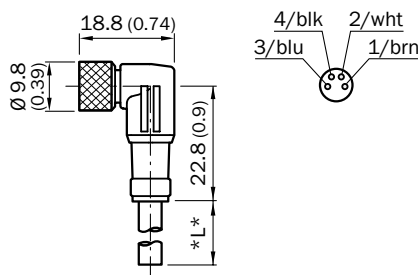
DOL-0804-G02M



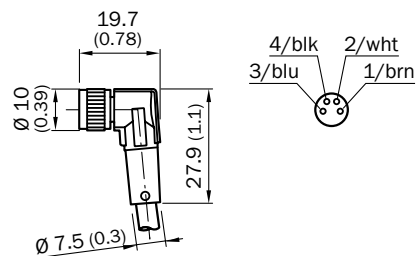
DOL-0804-G02MC



DOL-0804-W02M

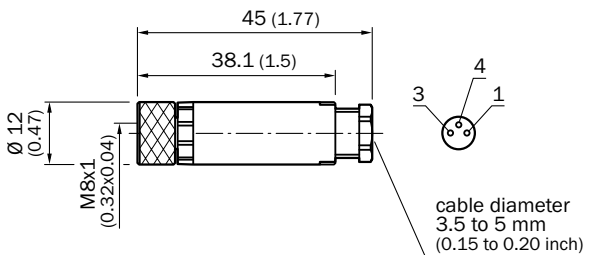


DOL-0804-W02MC

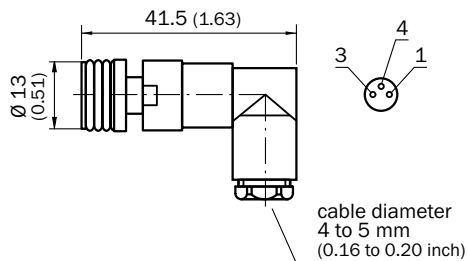


Dimensional drawings female connector (ready to assemble)

DOS-0803-G

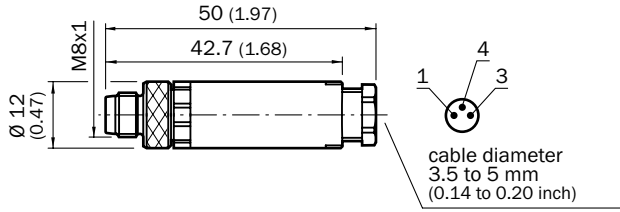


DOS-0803-W



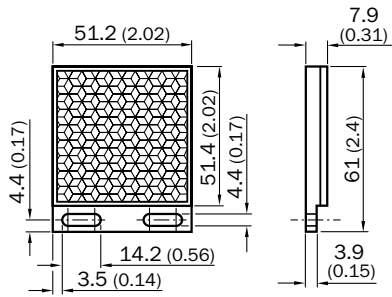
Dimensional drawings male connector (ready to assemble)

STE-0803-G

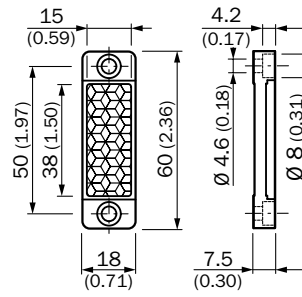


Dimensional drawings angular reflectors

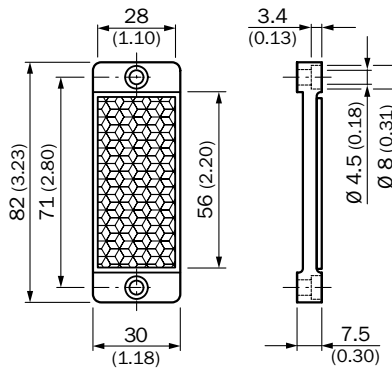
P250



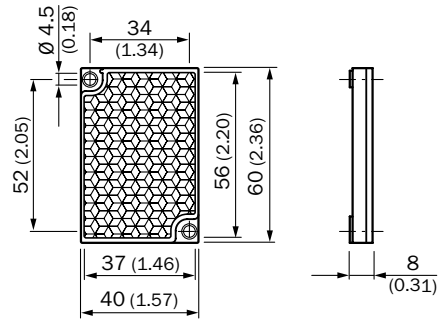
PL20A



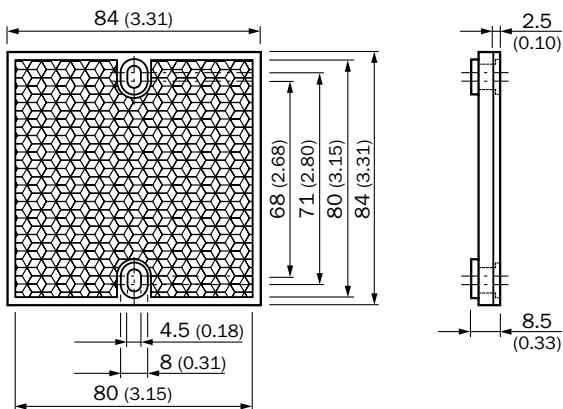
PL30A



PL40A

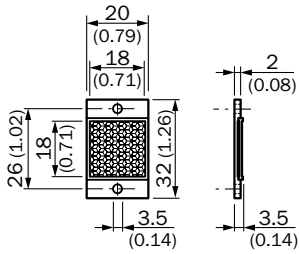


PL80A



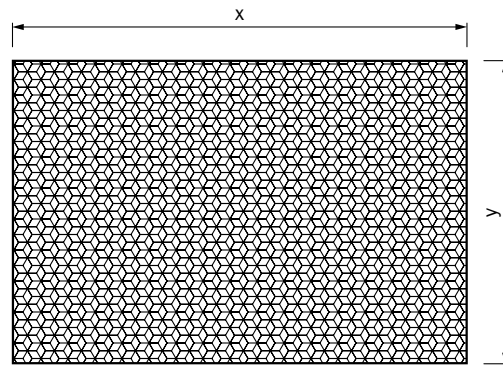
Dimensional drawings fine triple reflectors

PL10F



Dimensional drawings reflective tape

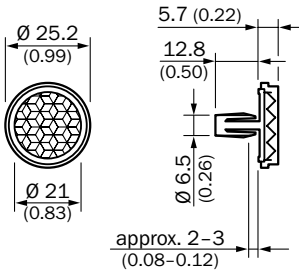
REF-IRF-56



- ① X = 50 mm
- ② Y = 60 mm

Dimensional drawings round reflectors

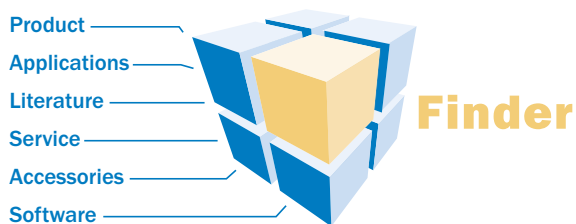
PL22-3



All dimensions in mm (inch)

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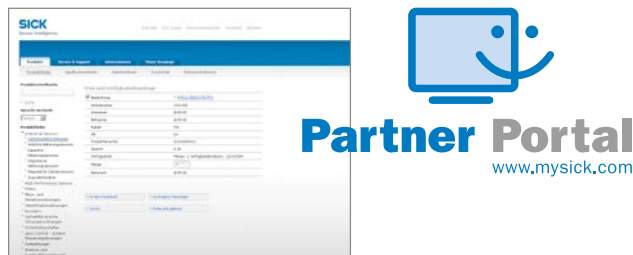


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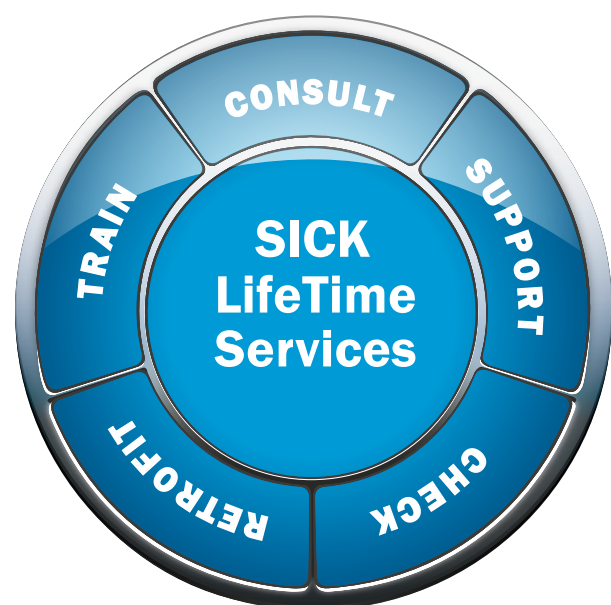
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