PRODUCT INFORMATION

W2S-2

NO OBJECT IS TOO DARK OR TOO LIGHT

Miniature photoelectric sensors

SICK
Sensor Intelligence.

SEE NOT ONLY BLACK OBJECTS, BUT ALSO THOSE THAT ARE NEARLY INVISIBLE

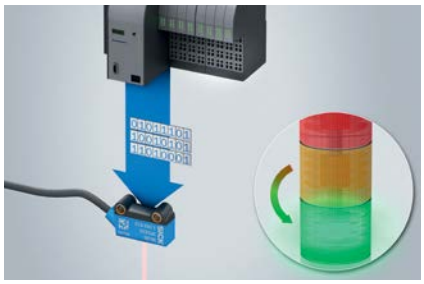
The miniature photoelectric sensors in the new W2S-2 product family, can see even the blackest of black. The blackest of black was discovered in 2002 in the form of the Ulysses Butterfly, which is so black that its light remission is less than 1%. Despite high light absorption, the Butterfly would not fly past the photoelectric proximity sensors of the new W2S-2 product family unnoticed.

In practice, the high optical durability of the W2S-2 product family is of immeasurable value. This is not only due to its ability to identify deep black and reflective objects. The W2S-2 is the first subminiature sensor with autocollimation which is able to detect even transparent objects.
The ability to reliably detect objects of all types and characteristics is opening up entirely new possibilities for machine development.
Combined with minimum space requirements and very wide sensing and scanning ranges, things could not be clearer: W2S-2 is the miniature answer to maximum requirements.

To detect the deepest of blacks, the primary requirement is a significant amount of light. Therefore, we have equipped the W2S-2 product family with the latest generation PinPoint 2.0 LEDs.

The W2S-2 is the first subminiature sensor with a new and powerful PinPoint 2.0 LED:

it emits approximately 2.5 times more light than the first-generation PinPoint LED. As a result, capabilities go beyond detecting ultra-black objects. They guarantee the rugged and reliable detection of objects of all types.
This is just one highlight of the overall innovation package which offers numerous benefits when it comes to object detection.



The first subminiature sensor with IO-Link and Smart Sensor functions:

The sensing range can be set with millimeter precision via the control and IO-Link. The inclusion of Smart Sensor Solutions, such as counter functions, false tripping suppression, and a time-stamp, eases the load on the control software.

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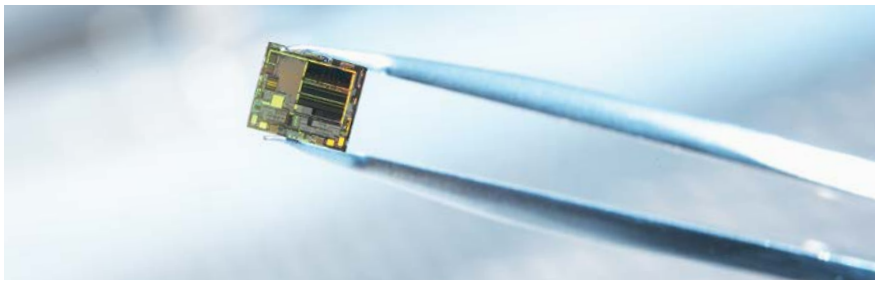
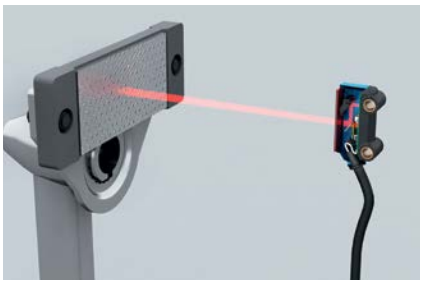
The benefits for you in black and white:

- Rugged detection of ultra-black reflective objects
- Reliable detection of objects that are tilted, angled and of various shapes (work pieces, screw heads, springs, and plastic parts, for example)
- Cost-effective and smart design options, since in many cases there is no longer a need for fiber-optic photoelectric sensors and photoelectric retro-reflective sensors or through-beam photoelectric sensors
- First subminiature sensor that can be configured and read out electronically from the control
- First subminiature sensor that can take over control tasks with Smart Sensor Solutions





The first subminiature sensor with a SIRIC® chipset and a multi-pixel Receiver:

The millimeter precision in the detection of switching distance for high-precision differentiation between background and object to detect parts of all types against near backgrounds such as guide rails, gripper arms, and belts.

The first subminiature sensor with a digital switching power supply:

Providing the necessary power to the PinPoint 2.0 LED with minimum losses with the result that light intensity is high without the housing heating up.

The first subminiature sensor with autocollimation for the detection of transparent objects:

The optical and electronic components inside an ultra-compact housing provide a level of performance that has previously only been associated with much larger sensors. All this plus IO-Link and AutoAdapt, the continuous threshold adaptation function for temperature and soiling compensation.

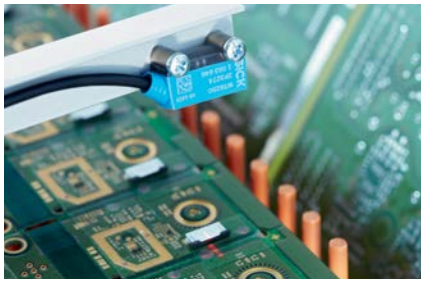
The technological fusion of the new PinPoint 2.0 LED with the new SIRIC® ASIC technology from SICK means: Better technical quality and improved performance yet no increase in size.

SEES SO BLACK THAT EVERYTHING ELSE FADES AWAY

Moving away from unit solutions to a sophisticated system. The W2S-2 product family impresses with a wide range of variants to ensure that a precise solution can be provided for each and every requirement (material handling, robotics, automatic assembly machines, pharmaceutical industry).

The WL2GS-2 photoelectric retro-reflective sensor for transparent objects:

transparent objects such as films and ampules can be detected even when space is at an absolute premium. The WL2GS-2 boasts the smallest housing in the world for applications of this nature. In addition, it achieves maximum performance with minimum reflector surfaces since the intensive and brilliant light spot of the new PinPoint 2.0 LED is sharply concentrated. The WL2GS-2 is also very flexible and suitable for use in a wide range of applications: Operational statuses can be selected via IO-Link e. g. the presence detection of film include AutoAdapt.

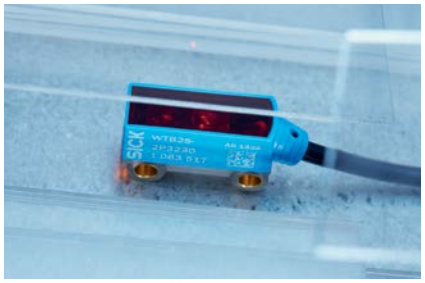


The WTB2S-2 photoelectric proximity sensor with background suppression and linear light spot:

The first photoelectric proximity sensor with linear light spot in an ultra-compact housing supports a wide variety of solutions. The linear light spot combines maximum precision and a highly repeatable switching point to ensure that the switching signal is constant throughout the processing time of an object, even if gaps, grooves, or openings are present.

The WTB2S-2 photoelectric proximity sensor with background suppression and a 3-way potentiometer:

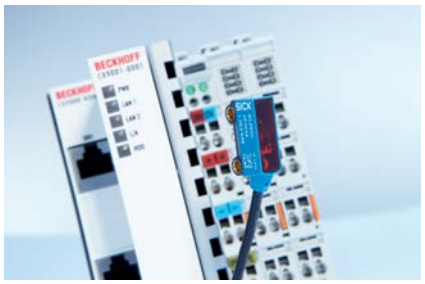
when straightforward and highly accurate setting of the switching distance is required. The photoelectric proximity sensor is ideal for detecting flat objects on belts, for example.



The WTV2S-2 photoelectric proximity sensor with V-optics:

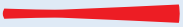
The V-optics support reliable detection even of flat, highly transparent, or glossy objects such as films, display screens, mirrors, or panes measuring up to 20 mm.

www.sick.com/W2S-2



Photoelectric sensors with IO-Link and automation functions:

These photoelectric proximity sensors combine efficient background suppression with diagnostic and remote configuration functions. The switching distance can be set with millimeter precision via the control, for example, and the quality of the setting can be queried. In addition, the sensor is set up to support automation functions such as counter functions, false tripping suppression, and a timestamp.

Housing design	Variant	Sensing range	Light spot type	Light spot size	Page
	WTB2S-2 Background suppression with teach-in via IO-Link or cable. Preset to 45 mm	4 ... 110 mm		ø 3 mm @ 40 mm	10
		4 ... 90 mm		8 mm x 2 mm @ 40 mm	10
	WTB2S-2 Background suppression with fixed sensing ranges	1 ... 15 mm		ø 2 mm @ 8 mm	10
		1 ... 30 mm		ø 2 mm @ 15 mm	10
		3 ... 60 mm		ø 5 mm @ 60 mm	10
	WTV2S-2 V-optics	1 ... 30 mm		ø 2.5 mm @ 20 mm	20
	WL2S-2	0 ... 1200 mm		ø 12 mm @ 250 mm	24
	WL2SG-2	0 ... 1200 mm		ø 12 mm @ 250 mm	28
	WSE2S-2	0 ... 2500 mm		ø 23 mm @ 500 mm	32
	WTB2S-2 Background suppression with a 3-way potentiometer	2 ... 150 mm		ø 3.5 mm @ 50 mm	6

RELIABLE BACKGROUND SUPPRESSION FOR DETECTING THE DARKEST OBJECTS

Product description

The new ultra-compact WTB2S-2 miniature photoelectric sensors detect ultrablack objects that reflect less than 1% of light. They reliably detect deep black, angled and reflective objects, regardless of contour or surface condition.

This helps facilitate new possibilities for machine design, since retro-reflective and through-beam sensors as well as reflective fiber-optic systems can be replaced by WTB2S-2 sensors.

At a glance

- Sensing ranges of up to 150 mm
- Almost no black/white shift up to 60 mm
- Sensor with line-shaped light spot
- Sensor with laser-like focused light spots
- Precise background suppression that is immune to interference/crosstalk
- High-performance PinPoint 2.0 LED

Your benefits

- An ultra-compact design with the performance of large photoelectric proximity sensors offers new space-saving machine construction possibilities.
- Large variety of proximity sensors and operating concepts enable a wide range of application options
- Use in confined spaces: detection of small, flat parts thanks to high-quality background suppression and almost nonexistent black/white shift
- Remote access: models with IO-Link allow data to be easily accessed from the PLC
- High availability and long-term use in grippers thanks to flexible and rugged cable entry

SIRIC® optical ASIC invented by SICK

PinPoint 2.0 by SICK

Additional information

→ www.mysick.com/en/WTB2S-2

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.

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Detailed technical data

Features

	WTB2S-2, potentiometer
Sensor principle	Photoelectric proximity sensor
Detection principle	Background suppression
Dimensions (W x H x D)	7.7 mm x 27.5 mm x 13.5 mm
Housing design (light emission)	Rectangular
Sensing range max. [1]	1 mm ... 150 mm
Sensing range [1]	18 mm ... 110 mm
Type of light	Visible red light
Light source [2]	PinPoint LED
Light spot size (distance)	Ø 3.5 mm (50 mm)
Wave length	640 nm
Adjustment	Potentiometer, 3 turns

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

[2] Average service life of 100,000 h at T_A = +25 °C.

Mechanics/electronics

	WTB2S-2, potentiometer
Supply voltage [1]	10 V DC ... 30 V DC
Ripple [2]	≤ 5 V_{pp}
Power consumption [3]	≤ 20 mA
Output type	PNP / NPN (depending on type)
Switching mode	Light switching, dark switching, light/dark-switching
Output current $I_{max.}$	< 50 mA
Response time [4]	< 0.5 ms
Switching frequency [5]	1,000 Hz
Connection type	Cable, 2 m [6] Cable with connector, 200 mm [6] (depending on type)
Circuit protection	A [7], B [8], D [9]
Housing material	ABS/PC
Optics material	PMMA
Enclosure rating	IP 67
Ambient operating temperature	–25 °C ... +50 °C
Ambient storage temperature	–40 °C ... +75 °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] Without load.

[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 = output reverse-polarity protected.

[9] D = outputs overcurrent and short-circuit protected.

Ordering information

Other models available at www.mysick.com/en/WTB2S-2

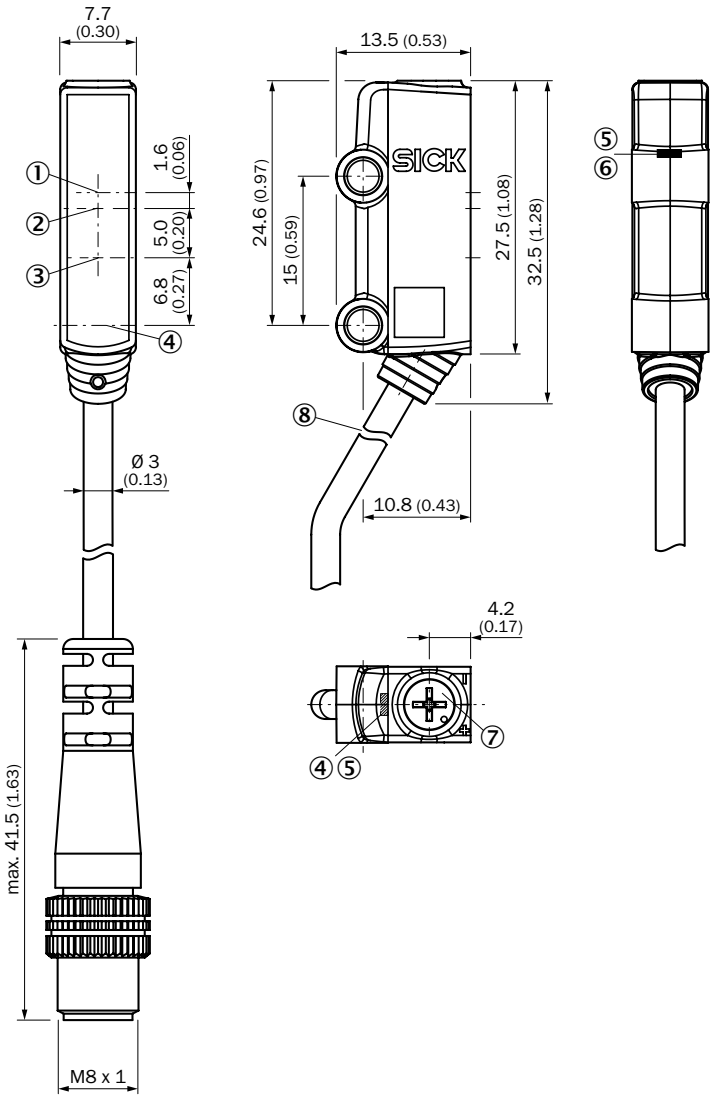
WTB2S-2, adjustable

Sensing range max. [1]	Output type	Switching mode	Connection	Connection diagram	Model name	Part no.
1 mm ... 150 mm	PNP	Light/dark-switching	Cable, 4-wire, 2 m	Cd-095	WTB2S-2P1151	1066110
			Cable with connector M8, 4-pin, 200 mm	Cd-084	WTB2S-2P3251	1066111
		Light switching	Cable with connector M8, 3-pin, 200 mm	Cd-045	WTB2S-2P3151	1067502
			Cable with connector M8, 3-pin, 700 mm	Cd-045	WTB2S-2P3030S22	1069138
		Dark switching	Cable with connector M8, 3-pin, 200 mm	Cd-045	WTB2S-2F3151	1067503
	NPN	Light/dark-switching	Cable, 4-wire, 2 m	Cd-095	WTB2S-2N1151	1066113
			Cable with connector M8, 4-pin, 200 mm	Cd-084	WTB2S-2N3251	1066114

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

Dimensional drawings (Dimensions in mm (inch))

WTB2S-2, 150 mm



① Optical axis, receiver (sensing range min.)
② Optical axis, receiver (sensing range max.)
③ Optical axis, sender
④ Fixing hole ø 3.2 mm
⑤ Status indicator LED green: power on
⑥ Status indicator LED, yellow: Status of received light beam
⑦ Sensing range adjustment: potentiometer, 3 turns
⑧ Connection

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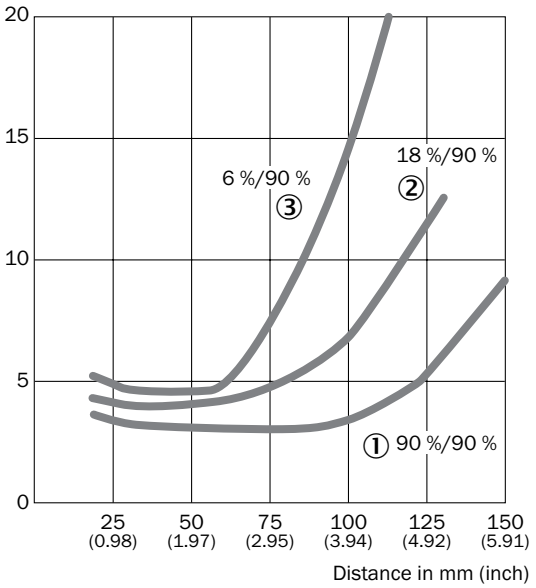
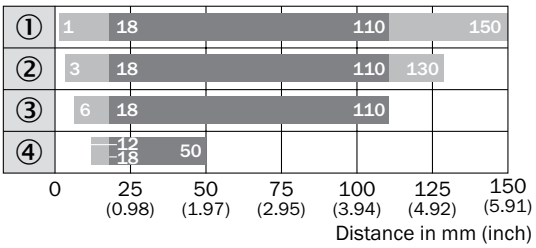
Characteristic curve

% of sensing range



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

Bar diagrams

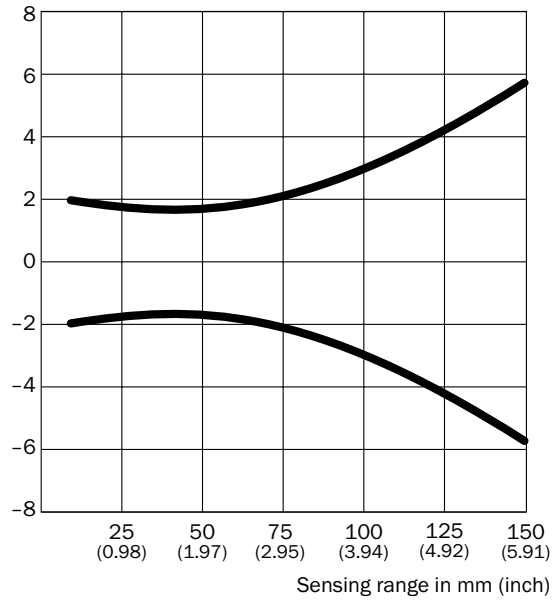


Sensing range Sensing range max.

① Sensing range on white, 90 % remission
② Sensing range on grey, 18 % remission
③ Sensing range on black, 6 % remission
④ Sensing range on ultrablack, 1 % remission

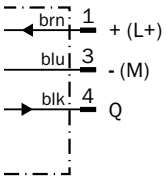
Light spot size

Spot diameter in mm (inch)

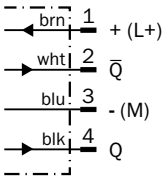


Connection diagram

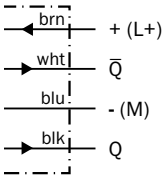
Cd-045



Cd-084



Cd-095



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This helps facilitate new possibilities for machine design, since retro-reflective and through-beam sensors as well as reflective fiber-optic systems can be replaced by WTB2S-2 sensors.

At a glance

- Sensing ranges of up to 150 mm
- Almost no black/white shift up to 60 mm
- Sensor with line-shaped light spot
- Sensor with laser-like focused light spots
- Precise background suppression that is immune to interference/crosstalk
- High-performance PinPoint $^{2.0}$ LED

Your benefits

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- Use in confined spaces: detection of small, flat parts thanks to high-quality background suppression and almost nonexistent black/white shift
- Remote access: models with IO-Link allow data to be easily accessed from the PLC
- High availability and long-term use in grippers thanks to flexible and rugged cable entry

PinPoint 2.0 by SICK

SIRIC® optical ASIC invented by SICK

Additional information

→ www.mysick.com/en/WTB2S-2

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Detailed technical data

Features

	WTB2S-2, fix	WTB2S-2, teach-in	WTB2S-2, teach-in, line-shaped light spot
Sensor principle	Photoelectric proximity sensor		
Detection principle	Background suppression		
Dimensions (W x H x D)	7.7 mm x 21.8 mm x 13.5 mm		
Housing design (light emission)	Rectangular		
Sensing range max. [1]	3 mm ... 66 mm 1 mm ... 36 mm 1 mm ... 18 mm (depending on type)	4 mm ... 110 mm	4 mm ... 90 mm
Sensing range	5 mm ... 60 mm 4 mm ... 30 mm 3 mm ... 15 mm (depending on type)	10 mm ... 90 mm	10 mm ... 70 mm
Type of light	Visible red light		
Light source [2]	PinPoint LED		
Wave length	640 nm		
Adjustment	–	Cable / IO-Link (depending on type)	
Special feature	–		Line-shaped light spot

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

[2] Average service life of 100,000 h at T_A = +25 °C.

Mechanics/electronics

	WTB2S-2, fix	WTB2S-2, teach-in	WTB2S-2, teach-in, line-shaped light spot
Supply voltage [1]	10 V DC ... 30 V DC		
Ripple [2]	≤ 5 V_{pp}		
Power consumption [3]	≤ 20 mA		
Output type	PNP [4]/ NPN (depending on type)		
Switching mode	Light switching Dark switching Light/dark-switching (depending on type)		
Switching mode selector	–	Programmable	
Output current $I_{max.}$	< 50 mA		
Response time			
Switching frequency: 1,000 Hz	< 0.5 ms [5]		
Switching frequency: 1,200 Hz	< 0.4 ms [5]	–	
Connection type	Cable, 2 m [8] Cable with connector, M8, 200 mm [8] (depending on type)		
Circuit protection	A [9], B [10], D [11]		
IO-Link	–	– / ✔ (COM2) (depending on type)	
Housing material	ABS/PC		

	WTB2S-2, fix	WTB2S-2, teach-in	WTB2S-2, teach-in, line-shaped light spot
Optics material	PMMA		
Enclosure rating	IP 67		
Ambient operating temperature	–25 °C ... +50 °C		
Ambient storage temperature	–40 °C ... +75 °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] Without load.
[4] Parametrisable via IO-Link.
[5] Signal transit time with resistive load.
[6] With light/dark ratio 1:1.
[7] With light/dark ratio 1:1 in switching mode. Different values possible in COM2 mode.
[8] Do not bend below 0 °C.
[9] A = V_S connections reverse-polarity protected.
[10] B = output reverse-polarity protected.
[11] D = outputs overcurrent and short-circuit protected.

Ordering information

Other models available at www.mysick.com/en/WTB2S-2

WTB2S-2, Fix

Sensing range max. [1]	Background suppression typ. from	Switching frequency [2]	Light spot size (distance)	Output type	Switching mode	Connection	Connection diagram	Model name	Part no.
1 mm ... 18 mm	20 mm	1,200 Hz	Ø 2 mm (8 mm)	PNP	Light switching	Cable, 3-wire, 2 m	Cd-044	WTB2S-2P1310	1064393
						Cable with connector M8, 3-pin, 200 mm	Cd-045	WTB2S-2P3110	1064395
					Dark-switching	Cable, 3-wire, 2 m	Cd-044	WTB2S-2F1310	1064394
						Cable with connector M8, 3-pin, 200 mm	Cd-045	WTB2S-2F3110	1064396
					Light/dark-switching	Cable with connector M8, 4-pin, 200 mm	Cd-084	WTB2S-2P3210	1063314
				NPN	Light switching	Cable, 3-wire, 2 m	Cd-044	WTB2S-2N1310	1064249
					Light/dark-switching	Cable, 4-wire, 2 m	Cd-095	WTB2S-2N1110	1063516
						Cable with connector M8, 4-pin, 200 mm	Cd-084	WTB2S-2N3210	1064400
1 mm ... 36 mm	38 mm	1,200 Hz	Ø 2 mm (15 mm)	PNP	Light switching	Cable, 3-wire, 2 m	Cd-044	WTB2S-2P1330	1064573
						Cable with connector M8, 3-pin, 200 mm	Cd-045	WTB2S-2P3130	1064575
					Dark-switching	Cable, 3-wire, 2 m	Cd-044	WTB2S-2F1330	1064574
						Cable with connector M8, 3-pin, 200 mm	Cd-045	WTB2S-2F3130	1064576
					Light/dark-switching	Cable with connector M8, 4-pin, 200 mm	Cd-084	WTB2S-2P3230	1063517
				NPN	Light switching	Cable, 3-wire, 2 m	Cd-044	WTB2S-2N1330	1064578
					Dark-switching	Cable, 3-wire, 2 m	Cd-044	WTB2S-2E1330	1064580
					Light/dark-switching	Cable, 4-wire, 2 m	Cd-095	WTB2S-2N1130	1063321
		1,200 Hz, 32 ms Off-delay	Ø 2 mm (15 mm)	PNP	Light switching	Cable, 3-wire, 2 m	Cd-044	WTB2S-2P1330S01	1068960

[1] Object with 90 % reflectance (referred to standard white, DIN 5033)
[2] With light/dark ratio 1:1.

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Sensing range max. [1]	Background suppression typ. from	Switching frequency [2]	Light spot size (distance)	Output type	Switching mode	Connection	Connection diagram	Model name	Part no.
1 mm ... 66 mm	70 mm	1,000 Hz	Ø 4.5 mm (40 mm)	PNP	Light switching	Cable, 3-wire, 2 m	Cd-044	WTB2S-2P1360	1064605
						Cable with connector M8, 3-pin, 200 mm	Cd-045	WTB2S-2P3160	1064607
					Dark-switching	Cable, 3-wire, 2 m	Cd-044	WTB2S-2F1360	1064606
						Cable with connector M8, 3-pin, 200 mm	Cd-045	WTB2S-2F3160	1064608
					Light/dark-switching	Cable with connector M8, 4-pin, 200 mm	Cd-084	WTB2S-2P3260	1063545
				NPN	Light switching	Cable, 3-wire, 2 m	Cd-044	WTB2S-2N1360	1064609

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

[2] With light/dark ratio 1:1.

WTB2S-2, teach-in

- **Switching frequency:** 1,000 Hz (with light/dark ratio 1:1.)
- **Light spot size (distance):** Ø 4.4 mm (60 mm)
- **Output type:** light switching
- **Adjustment:** cable

Sensing range max. [1]	Output type	Connection	Connection diagram	Model name	Part no.
4 mm ... 110 mm	PNP	Cable, 4-wire, 2 m	Cd-093	WTB2S-2P1145	1064614
		Cable with connector M8, 4-pin, 200 mm	Cd-092	WTB2S-2P3245	1064615
	NPN	Cable, 4-wire, 2 m	Cd-093	WTB2S-2N1145	1063552

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

WTB2S-2, teach-in, IO-Link

- **Switching frequency:** 1,000 Hz (with light/dark ratio 1:1 in switching mode. Different values possible in IO-Link mode.)
- **Light spot size (distance):** Ø 4.4 mm (60 mm)
- **Output type:** light switching (parametrisable via IO-Link)

Sensing range max. [1]	Output type	Adjustment	IO-Link	Connection	Connection diagram	Model name	Part no.
4 mm ... 110 mm	PNP	Cable, IO-Link	Standard functions	Cable with connector M8, 4-pin, 200 mm	Cd-098	WTB2SC-2P3244	1063550

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

WTB2S-2, adjustable, IO-Link, line-shaped light spot

- **Switching frequency:** 1,000 Hz (with light/dark ratio 1:1 in switching mode. Different values possible in IO-Link mode.)
- **Light spot size (distance):** 2.2 mm x 9 mm (45 mm)
- **Output type:** light switching (parametrisable via IO-Link)

Sensing range max. [1]	Output type	Adjustment	IO-Link	Connection	Connection diagram	Model name	Part no.
4 mm ... 90 mm	PNP	Cable, IO-Link	Standard functions	Cable with connector M8, 4-pin, 200 mm	Cd-098	WTB2SC-2P3274	1063646

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

WTB2S-2, adjustable, line-shaped light spot

- **Switching frequency:** 1,000 Hz (with light/dark ratio 1:1)
- **Light spot size (distance):** 2.2 mm x 9 mm (45 mm)
- **Output type:** light switching)

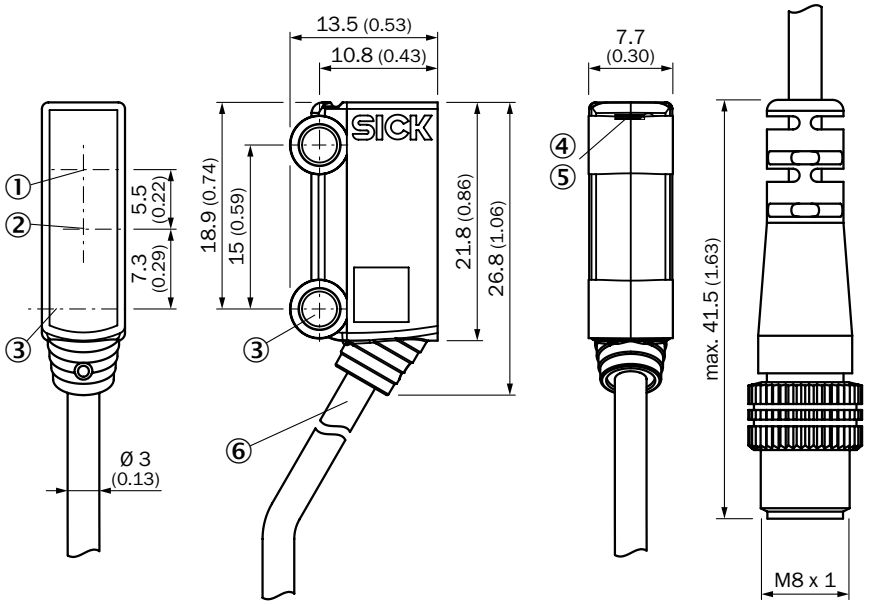
Sensing range max. [1]	Output type	Switching mode	Adjustment	Connection	Connection diagram	Model name	Part no.
4 mm ... 90 mm	NPN	Light switching	Cable	Cable, 4-wire, 2 m	Cd-093	WTB2S-2N1175	1064621
	PNP	Light switching	Cable	Cable with connector M8, 4-pin, 200 mm	Cd-092	WTB2S-2P3275	1064620

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

[2] With light/dark ratio 1:1 in switching mode. Different values possible in COM2 mode.

Dimensional drawings (Dimensions in mm (inch))

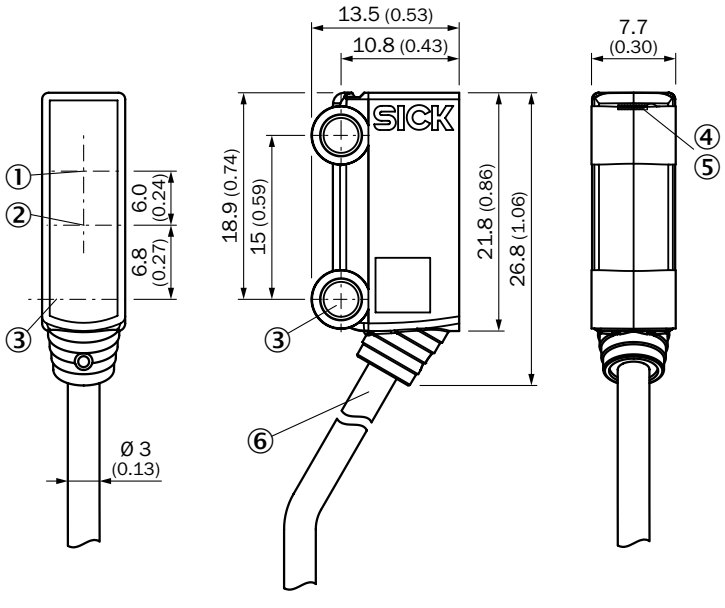
WTB2S-2, 18 mm, 36 mm



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

8016285/2014-09-04
Subject to change without notice

WTB2S-2, 66 mm, 90 mm, 110 mm

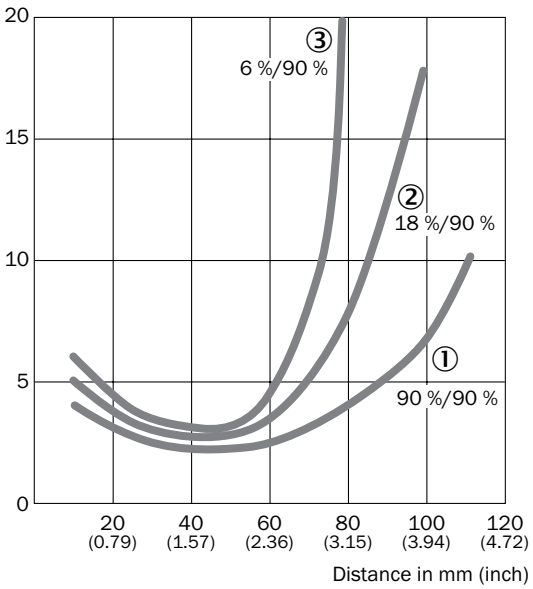


① Optical axis, receiver
② Optical axis, sender
③ Middle axis fixing hole Ø 3.2 mm
④ Status indicator LED green: power on
⑤ Status indicator LED, yellow: Status of received light beam
⑥ Connection

Characteristic curve

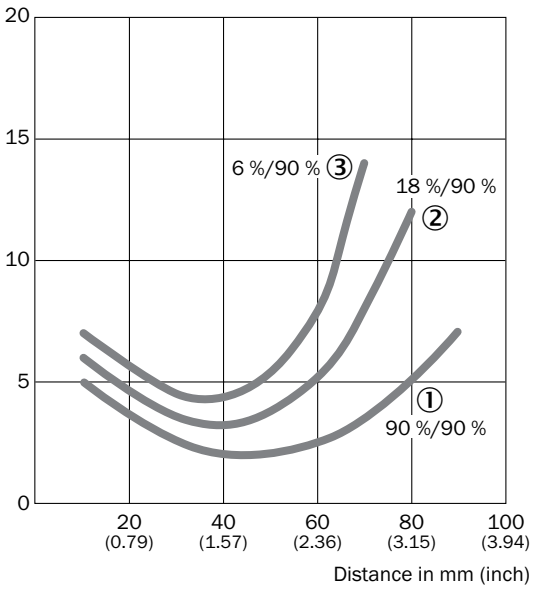
% of sensing range

WTB2S-2, 110 mm



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

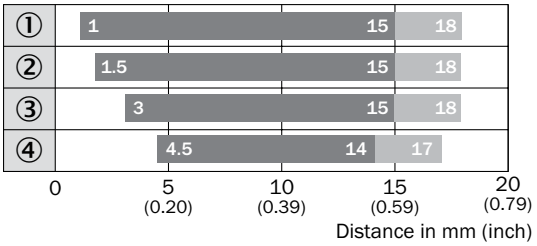
WTB2S-2, 90 mm, line-shaped light spot



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

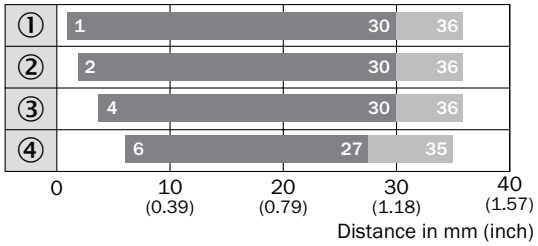
Bar diagrams

WTB2S-2, 18 mm



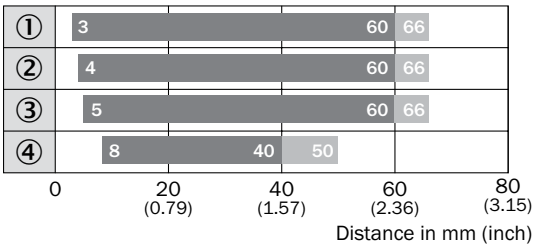
① Sensing range on white, 90 % remission
② Sensing range on grey, 18 % remission
③ Sensing range on black, 6 % remission
④ Sensing range on ultrablack, 1 % remission

WTB2S-2, 36 mm



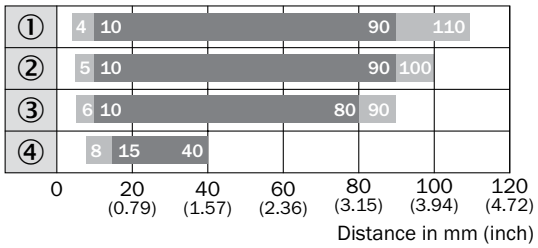
① Sensing range on white, 90 % remission
② Sensing range on grey, 18 % remission
③ Sensing range on black, 6 % remission
④ Sensing range on ultrablack, 1 % remission

WTB2S-2, 66 mm



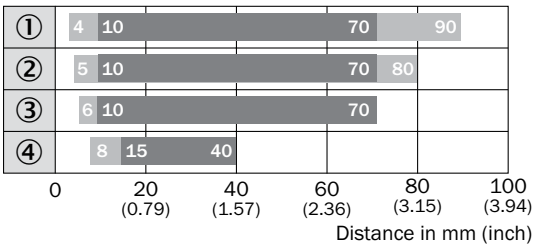
① Sensing range on white, 90 % remission
② Sensing range on grey, 18 % remission
③ Sensing range on black, 6 % remission
④ Sensing range on ultrablack, 1 % remission

WTB2S-2, 110 mm



① Sensing range on white, 90 % remission
② Sensing range on grey, 18 % remission
③ Sensing range on black, 6 % remission
④ Sensing range on ultrablack, 1 % remission

WTB2S-2, 90 mm, line-shaped light spot



① Sensing range on white, 90 % remission
② Sensing range on grey, 18 % remission
③ Sensing range on black, 6 % remission
④ Sensing range on ultrablack, 1 % remission

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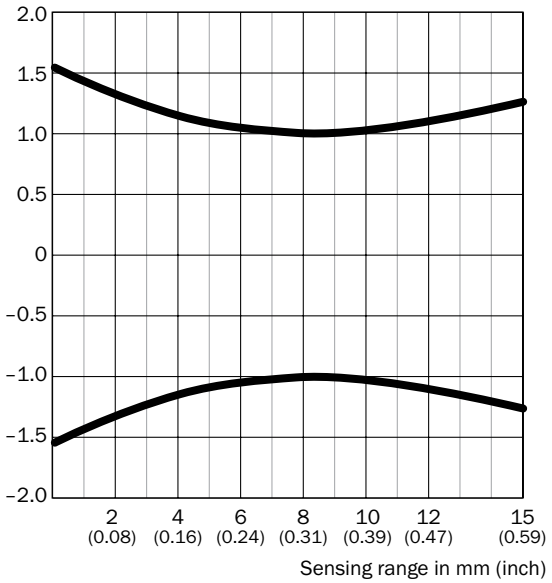
Light spot size

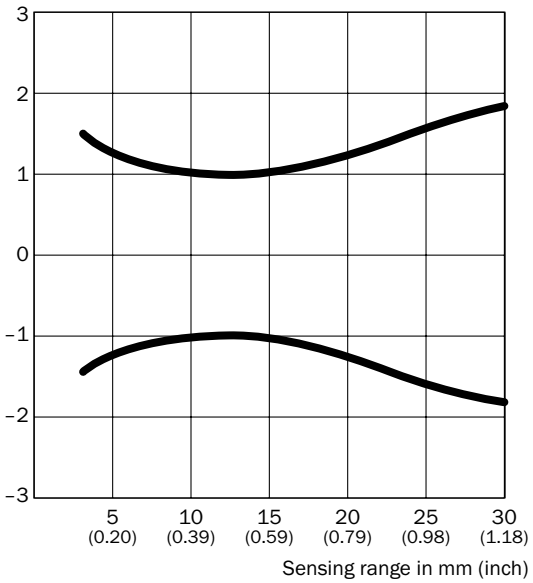
WTB2S-2, 15 mm

Spot diameter in mm (inch)



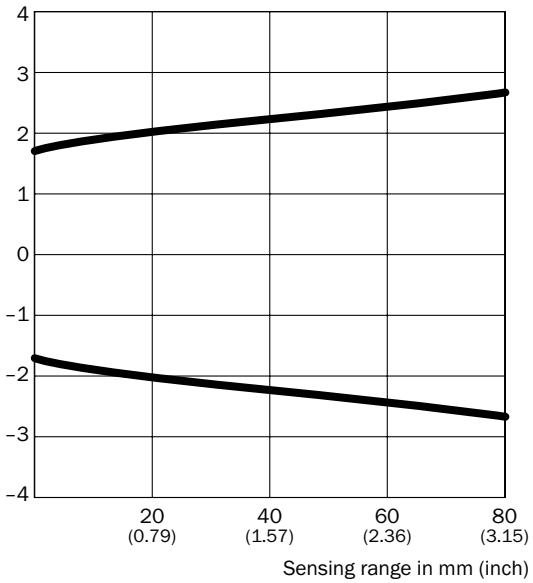
WTB2S-2, 30 mm

Spot diameter in mm (inch)



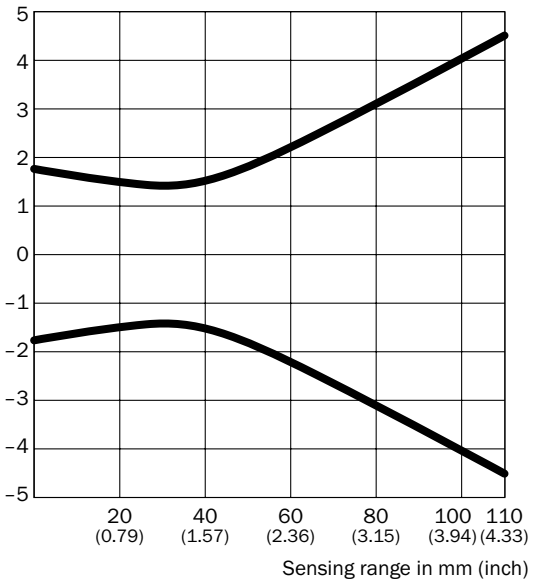
WTB2S-2, 60 mm

Spot diameter in mm (inch)

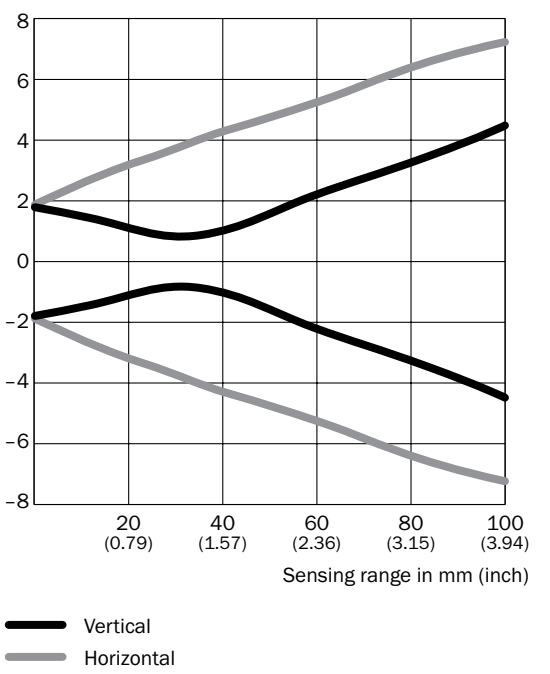


WTB2S-2, 110 mm

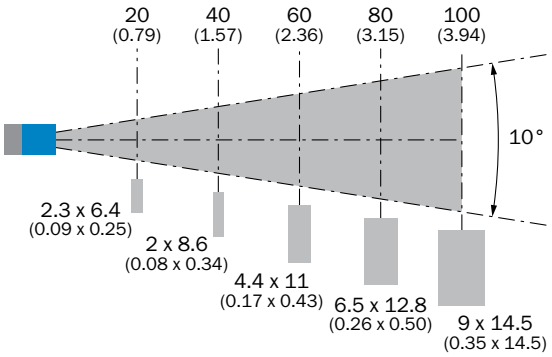
Spot diameter in mm (inch)



WTB2S-2, 70 mm, line shaped light spot



WTB2S-2, 70 mm, line shaped light spot



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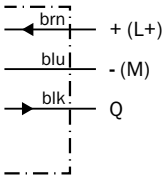
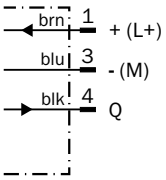
Connection diagram

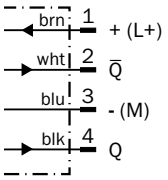
Cd-044



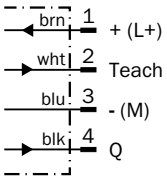
Cd-045



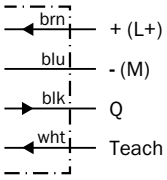
Cd-084



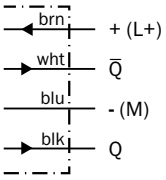
Cd-092



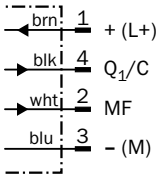
Cd-093



Cd-095



Cd-098



V-OPTICS: DETECTING FLAT, TRANSPARENT AND REFLECTIVE OBJECTS

Product description

Thanks to the combined technology of V-optics, precise background suppression and the power of the PinPoint 2.0 LED, the ultra-compact photoelectric proximity sensor can reliably detect flat, transparent and reflective objects. Designed especially for use in the production of displays as well as in assembly lines and packaging machines, the sensor detects flat glass and plastic plates. Designed especially for use in the production of displays as well as in assembly lines and packaging machines, the sensor detects e. g. flat glass and plastic plates.

At a glance

- Laser-like, clearly visible light spot
- PinPoint 2.0 LED
- Background suppression that is immune to optical interference
- Rugged housing design
- Established and proven housing design

Your benefits

- Reliable detection of flat, transparent and highly-reflective objects without a reflector
- Space-saving integration in compact machines where space is limited
- Increased productivity due to highly repeatable switching points
- Consistent detection of wafers, displays and foil in all production steps
- High reliability and long-term use in grippers thanks to flexible and rugged cable entry

SIRIC® optical ASIC invented by SICK

PinPoint 2.0 by SICK

Additional information

→ www.mysick.com/en/WTV2S-2

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.

8016285/2014-09-04
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Detailed technical data

Features

Sensor principle	Photoelectric proximity sensor
Detection principle	Background suppression
Dimensions (W x H x D)	7.7 mm x 21.8 mm x 13.5 mm
Housing design (light emission)	Rectangular
Sensing range max. [1]	1 mm ... 36 mm
Sensing range [1]	4 mm ... 30 mm
Type of light	Visible red light
Light source [2]	PinPoint LED
Light spot size (distance)	Ø 2 mm (15 mm)
Wave length	640 nm

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

[2] Average service life of 100,000 h at T_A = +25 °C.

Mechanics/electronics

Supply voltage [1]	10 V DC ... 30 V DC
Ripple [2]	≤ 5 V_{pp}
Power consumption [3]	≤ 20 mA
Output type	PNP / NPN (depending on type)
Switching mode	Light switching / Light/dark-switching (depending on type)
Output current $I_{max.}$	< 50 mA
Response time [4]	< 0.5 ms
Switching frequency [5]	1,000 Hz
Connection type	Cable, 2 m [6] Cable with connector, M8, 200 mm [6] (depending on type)
Circuit protection	A [7], B [8], D [9]
Housing material	ABS/PC
Optics material	PMMA
Enclosure rating	IP 67
Ambient operating temperature	–25 °C ... +50 °C
Ambient storage temperature	–40 °C ... +75 °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] Without load.

[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 = output reverse-polarity protected.

[9] D = outputs overcurrent and short-circuit protected.

Ordering information

Other models available at www.mysick.com/en/WTV2S-2

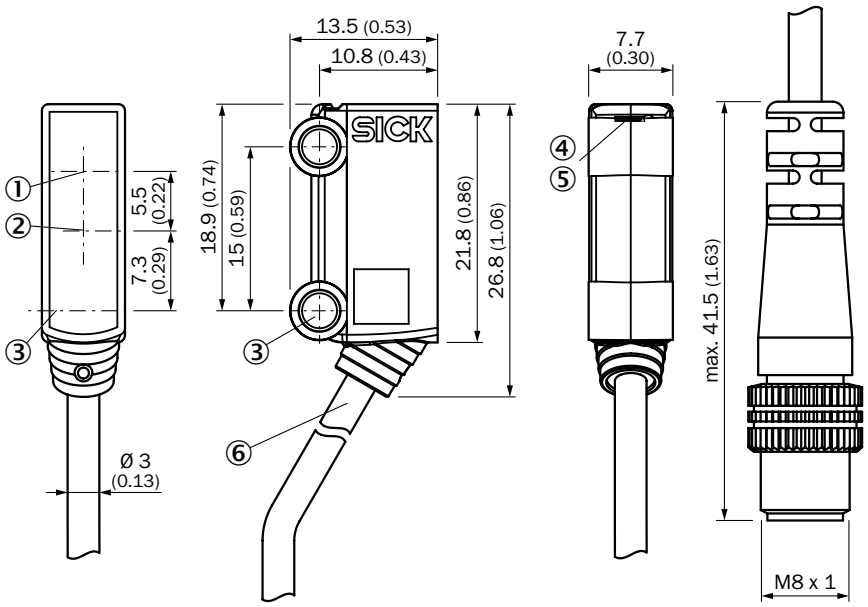
WTV2S-2, V-optics

Sensing range max. [1]	Output type	Switching mode	Connection	Connection diagram	Model name	Part no.
1 mm ... 36 mm	PNP	Light switching	Cable, 3-wire, 2 m	Cd-044	WTV2S-2P1320	1064660
			Cable with connector M8, 3-pin, 200 mm	Cd-045	WTV2S-2P3120	1064662
		Light/dark-switching	Cable with connector M8, 4-pin, 200 mm	Cd-084	WTV2S-2P3220	1064661
	NPN	Light switching	Cable, 3-wire, 2 m	Cd-044	WTV2S-2N1320	1066109

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

Dimensional drawing (Dimensions in mm (inch))

WTB2S-2, 15 mm, 30 mm, WTV2S-2



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

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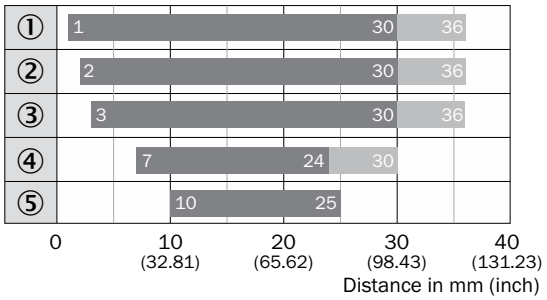
Subject to change without notice

Bar diagrams



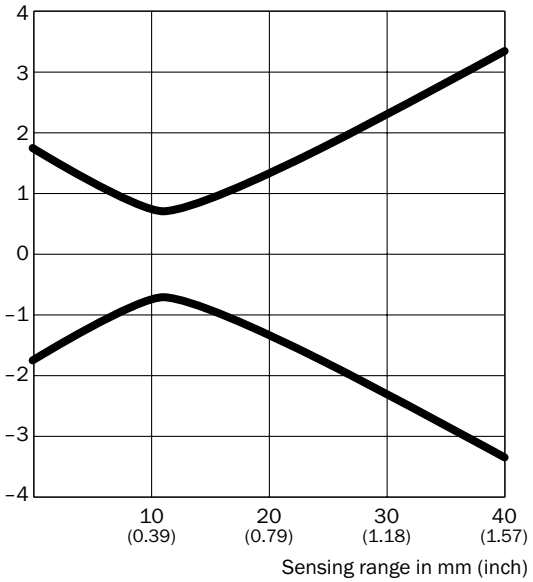
Sensing range Sensing range max. typ.

① Sensing range on white, 90 % remission
② Sensing range on gray, 18 % remission
③ Sensing range on black, 6 % remission
④ Sensing range on ultra black, 1 % remission
⑤ Sensing range on reflective and transparent surfaces[1)]

[1)] Best detection of reflective and transparent surfaces within a tilt angle of < +/–10°

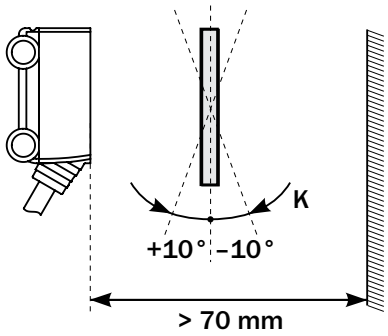
Light spot size

Spot diameter in mm (inch)

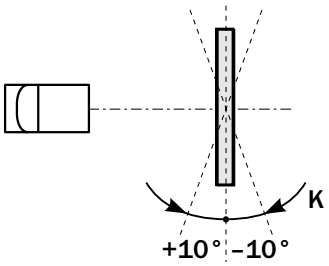


Tilt angle

When detecting highly transparent objects, a distance of > 70 mm to the background should be maintained!

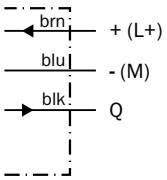


Maximum tilt angle

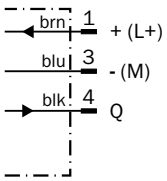


Connection diagram

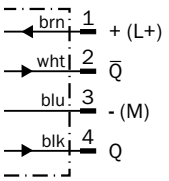
Cd-044



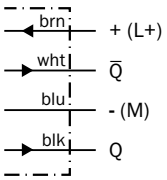
Cd-045



Cd-084



Cd-095



MINIATURE TECHNOLOGY WITH MAXIMUM PERFORMANCE

Product description

New, intelligent application solutions can be implemented with the ultra-compact WL2S-2 photoelectric retro-reflective sensor. The WL2S-2 is the first sensor in its class with an autocollimation function that can be used at a sensing distance of more than one meter. The powerful PinPoint 2.0 LED outputs a small but brilliant light spot, enabling extended sensing ranges with small reflector surfaces and precise switching points with high repeatability

At a glance

- Sensing ranges of up to 1.2 m
- Reliable use on reflective tape with a high operating reserve
- No blind spots even at short distances thanks to autocollimation
- Reliable, universal object detection thanks to polarization filter
- Immune to optical interference

Your benefits

- Space-saving integration and extremely small reflectors in rails, joints and gaps
- Increased productivity due to highly repeatable switching points
- PinPoint 2.0 technology for a bright, small, and precise light spot, enabling quick and easy sensor alignment
- Simple and cost-effective machine design since the sensor can see through small drill holes and reflective tape can be used
- High reliability and long-term use in machines thanks to a rugged housing and a 45° cable outlet

IO-Link

PinPoint 2.0 by SICK

SIRIC® optical ASIC invented by SICK

Additional information

→ www.mysick.com/en/WL2S-2

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.

8016285/2014-09-04
Subject to change without notice

Detailed technical data

Features

Sensor principle	Photoelectric retro-reflective sensor
Detection principle	Autocollimation
Dimensions (W x H x D)	7.7 mm x 21.8 mm x 13.5 mm
Housing design (light emission)	Rectangular
Sensing range max. [1]	0 m ... 1.2 m
Sensing range [1]	0 m ... 0.55 m
Type of light	Visible red light
Light source [2]	PinPoint LED
Light spot size (distance)	Ø 12 mm (250 mm)
Wave length	640 nm

[1] P250F.

[2] Average service life of 100,000 h at T_A = +25 °C.

Mechanics/electronics

Supply voltage [1]	10 V DC ... 30 V DC
Ripple [2]	≤ 5 V_{pp}
Power consumption [3]	≤ 20 mA
Output type	PNP / NPN (depending on type)
Switching mode	Light switching Dark-switching Light/dark-switching (depending on type)
Output current $I_{max.}$	< 50 mA
Response time [4]	< 0.5 ms
Switching frequency [5]	1,000 Hz
Connection type	Cable, 2 m [6] Cable with connector, 200 mm [6] (depending on type)
Circuit protection	A [7], B [8], D [9]
Polarisation filter	✔
Housing material	ABS/PC
Optics material	PMMA
Enclosure rating	IP 67
Ambient operating temperature	–25 °C ... +50 °C
Ambient storage temperature	–40 °C ... +75 °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] Without load.

[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 = output reverse-polarity protected.

[9] D = outputs overcurrent and short-circuit protected.

Ordering information

Other models available at www.mysick.com/en/WL2S-2

WL2S-2

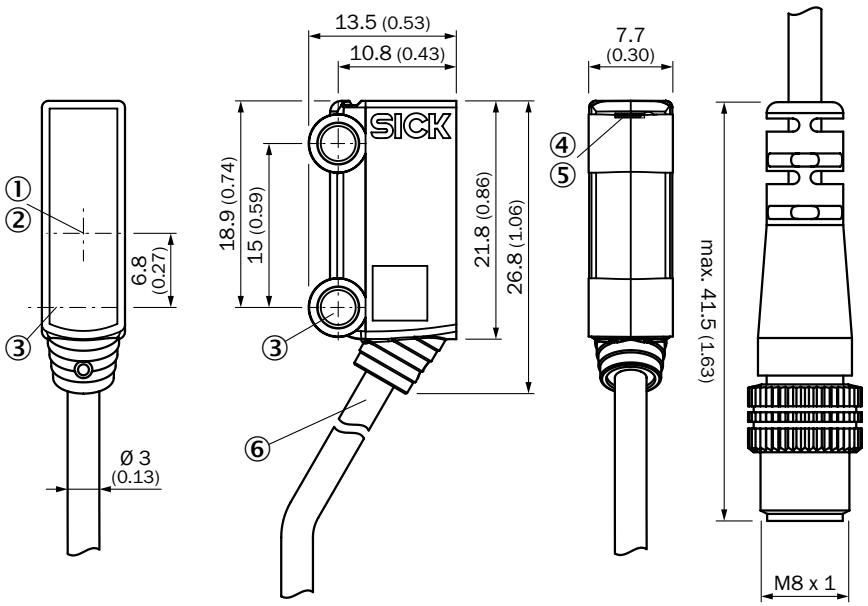
Sensing range max. [1]	Output type	Switching mode	Connection	Connection diagram	Model name	Part no.
0 m ... 1.2 m	PNP	Light switching	Cable, 3-wire, 2 m	Cd-044	WL2S-2P1330	1064590
			Cable with connector M8, 3-pin, 200 mm	Cd-045	WL2S-2P3130	1064592
		Dark-switching	Cable, 3-wire, 2 m	Cd-044	WL2S-2F1330	1064591
			Cable with connector M8, 3-pin, 200 mm	Cd-045	WL2S-2F3130	1064593
		Light/dark-switching	Cable with connector M8, 4-pin, 200 mm	Cd-084	WL2S-2P3230	1063572
				Cd-102	WL2S-2K3230[2]	1064594
	NPN	Light switching	Cable, 3-wire, 2 m	Cd-044	WL2S-2N1330	1064595
		Dark-switching	Cable, 3-wire, 2 m	Cd-044	WL2S-2E1330	1064596
		Light/dark-switching	Cable, 4-wire, 2 m	Cd-095	WL2S-2N1130	1063571

[1] P250F.

[2] Pin 2 and Pin 4 inverse.

Dimensional drawing (Dimensions in mm (inch))

WL2S-2

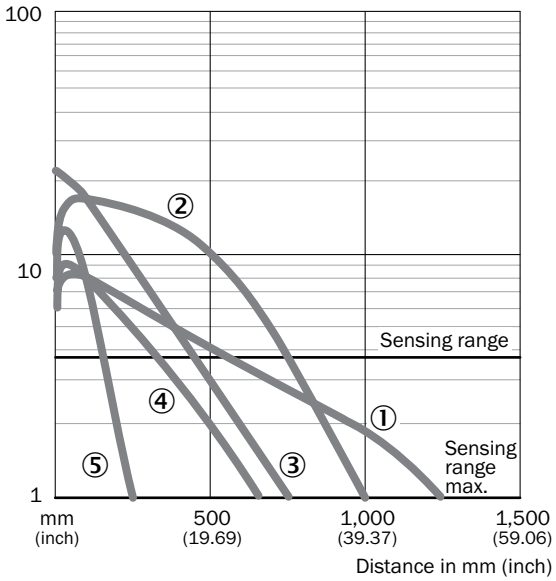


① Optical axis, receiver
② Optical axis, sender
③ Middle axis fixing hole Ø 3.2 mm
④ Status indicator LED green: power on
⑤ Status indicator LED, yellow: Status of received light beam
⑥ Connection

8016285/2014-09-04
Subject to change without notice

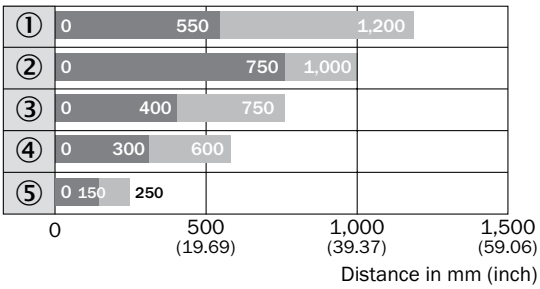
Characteristic curve

Functional reserve



① P250F
② PL20F
③ REF-AC1000
④ PL10F
⑤ PL8FH

Bar diagrams



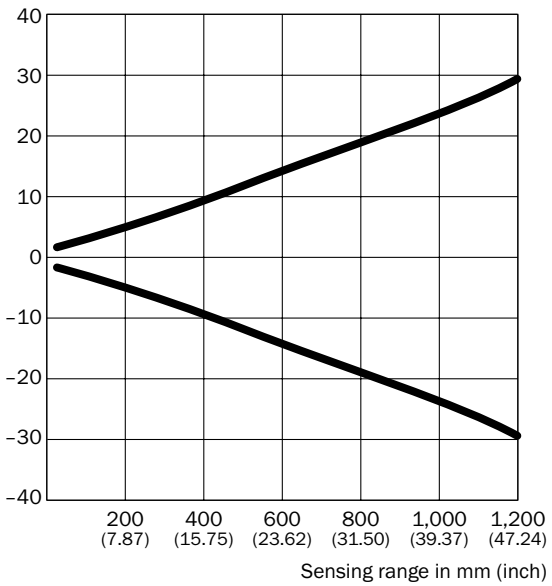
Sensing range
Sensing range max.

① P250F
② PL20F
③ REF-AC1000
④ PL10F
⑤ PL8FH

Light spot size

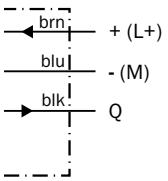
WL2S-2

Spot diameter in mm (inch)

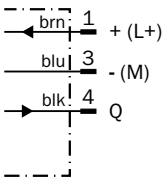


Connection diagram

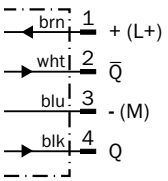
Cd-044



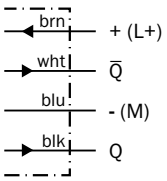
Cd-045



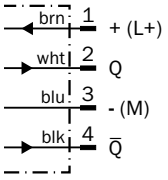
Cd-084



Cd-095



Cd-102



POWERFUL CLEAR MATERIAL DETECTION IN AN ULTRA-COMPACT HOUSING

Product description

New possibilities in machine construction: the ultra-compact WL2SG-2 miniature photoelectric sensor for detecting transparent objects offers features that were previously only available with much larger sensors. Ampules, foil and glass are reliably detected in the most confined of spaces.
The WL2SG-2 is adaptable: dust on the reflector or wear is compensated for in the same way as temperature changes and changes in light intensity. The WL2SG-2 is not only adaptable with regard to harsh industrial environments – settings for the respective application can also be selected via IO-Link.
Special operating modes for gaps in the bottle flow or for foil tear monitoring are available for extreme operating conditions. The W2S-2 offers optimal performance with an ultra-compact design for use in both pharmaceutical or automatic assembly machines.
The newest automation innovation is already on board. Configuration and diagnostics are set via the control in the same way as continuous monitoring.

At a glance

- Extremely high sensor size to sensing distance ratio
- High switching point accuracy
- Teach-in functions enable reliable settings
- Automatic switching threshold adaptation
- Single-lens autocollimation for visibility through apertures and drill holes
- Flexible sensor settings, monitoring, advanced diagnostics, and display thanks to IO-Link

Your benefits

- Machine design flexibility: the ultra-compact sensors offer above-average sensing distances and provide space-saving installation
- Remote setup: sensors installed in confined spaces can be set and monitored remotely via IO-Link.
- High operational reliability and system throughput: all familiar, highly-transparent objects are reliably detected
- Precise switching characteristics and a high detection quality guarantee an universal object detecting
- Universal use: conventional mounting and housing design
- The precise light spot of the PinPoint 2.0 LED enables the use of very small reflectors and reflector surfaces

Additional information

→ www.mysick.com/en/WL2SG-2

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.

8016285/2014-09-04
Subject to change without notice

Detailed technical data

Features

Sensor principle	Photoelectric retro-reflective sensor
Detection principle	Autocollimation
Dimensions (W x H x D)	7.7 mm x 21.8 mm x 13.5 mm
Housing design (light emission)	Rectangular
Sensing range max. [1]	0 m ... 1.2 m
Sensing range [1]	0 m ... 0.55 m
Type of light	Visible red light
Light source [2]	PinPoint LED
Light spot size (distance)	Ø 12 mm (250 mm)
Wave length	640 nm
Adjustment	Cable / IO-Link (depending on type)
Special feature	Clear material detection

[1] P250F.

[2] Average service life of 100,000 h at T_A = +25 °C.

Mechanics/electronics

Supply voltage [1]	10 V DC ... 30 V DC
Ripple [2]	≤ 5 V_{pp}
Power consumption [3]	≤ 20 mA
Output type	PNP / NPN (depending on type)
Switching mode	Light switching Dark-switching Light/dark-switching (depending on type)
Output current $I_{max.}$	< 50 mA
Response time [4]	< 0.5 ms
Switching frequency [5]	1,000 Hz
Connection type	Cable, 2 m [6] Cable with connector, 200 mm [6] (depending on type)
Circuit protection	A [7], B [8], D [9]
Polarisation filter	✔
IO-Link	– / ✔ (COM2) (depending on type)
Housing material	ABS/PC
Optics material	PMMA
Enclosure rating	IP 67
Ambient operating temperature	–25 °C ... +50 °C
Ambient storage temperature	–40 °C ... +75 °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] Without load.

[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 = output reverse-polarity protected.

[9] D = outputs overcurrent and short-circuit protected.

Ordering information

Other models available at www.mysick.com/en/WL2SG-2

WL2SG-2, clear material detection

Sensing range max. [1]	Output type	Switching mode	Adjustment	Connection	Connection diagram	Model name	Part no.
0 m ... 1.2 m	PNP	Light switching	Cable	Cable with connector M8, 4-pin, 200 mm	Cd-092	WL2SG-2P3235	1065929
		Dark-switching	Cable	Cable with connector M8, 4-pin, 200 mm	Cd-092	WL2SG-2F3235	1063647
	NPN	Light switching	Cable	Cable, 4-wire, 2 m	Cd-093	WL2SG-2N1135	1065934
		Dark-switching	Cable	Cable, 4-wire, 2 m	Cd-093	WL2SG-2E1135	1065930

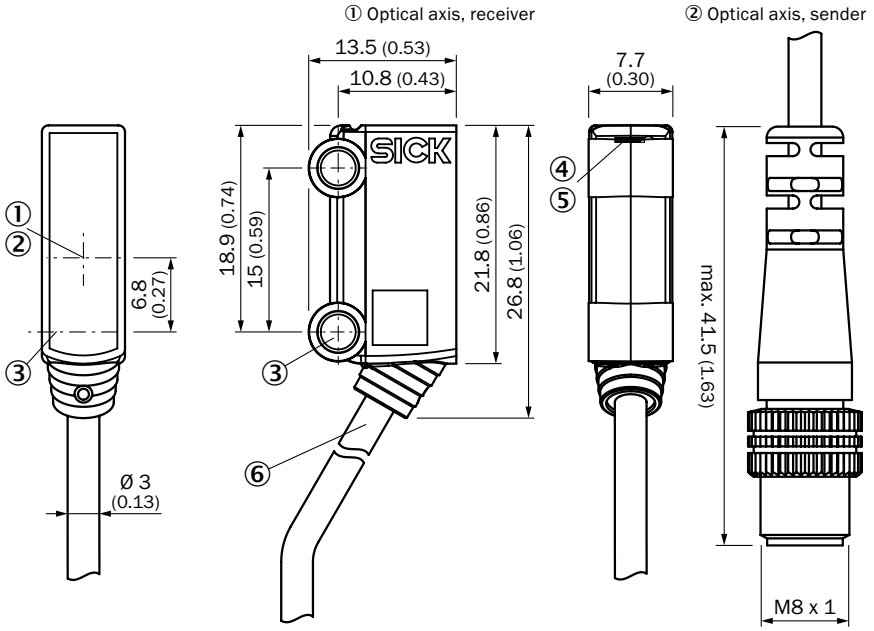
[1] P250F.

WL2SGC-2, clear material detection, IO-Link

Sensing range max. [1]	Output type	Switching mode	Adjustment	IO-Link	Connection	Connection diagram	Model name	Part no.
0 m ... 1.2 m	PNP	Light/dark-switching	Cable, IO-Link	Standard functions	Cable with connector M8, 4-pin, 200 mm	Cd-098	WL2SGC-2P3234	1063648

[1] P250F.

Dimensional drawing (Dimensions in mm (inch))



③ Middle axis fixing hole Ø 3.2 mm
④ Status indicator LED green: power on
⑤ Status indicator LED, yellow: Status of received light beam
⑥ Connection

8016285/2014-09-04
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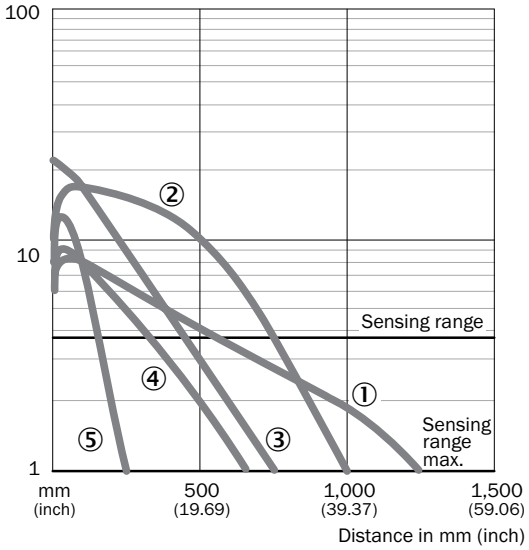
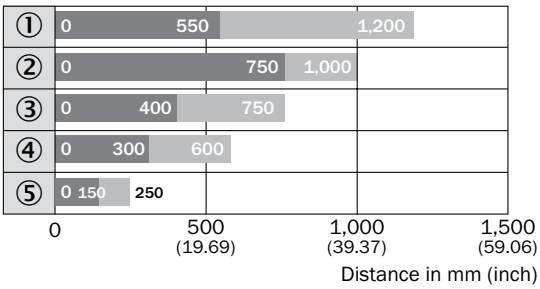
Characteristic curve

Functional reserve



① P250F
② PL20F
③ REF-AC1000
④ PL10F
⑤ PL8FH

Bar diagrams

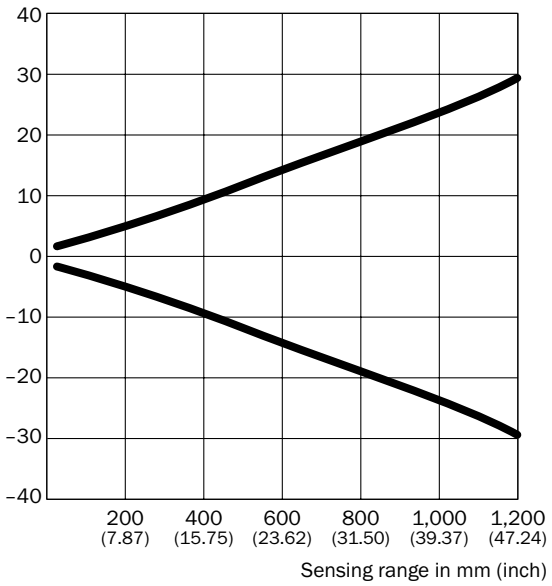


Sensing range Sensing range max.

① P250F
② PL20F
③ REF-AC1000
④ PL10F
⑤ PL8FH

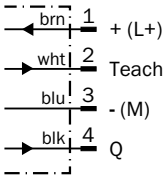
Light spot size

Spot diameter in mm (inch)

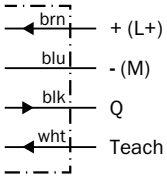


Connection diagram

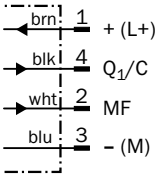
Cd-092



Cd-093



Cd-098



THE ULTRA-COMPACT THROUGH-BEAM FOR LONG RANGES

Product description

The ultra-compact WSE2S-2 through-beam photoelectric sensor precisely and reliably detects objects even at long distances of up to 2.5 m. The precise, clearly visible light spot and well-defined contour ensure accurate switching characteristics and easy alignment. The sensors support space-saving integration in rails, joints and gaps.

At a glance

- Through-beam photoelectric sensor in ultra-compact housing
- Sensing ranges of up to 2.5 m
- Response times of 0.5 ms
- Established and proven housing design

Your benefits

- Application flexibility when mounting in confined spaces due to a 45° cable outlet
- Safe use and high reliability due to immunity to optical interference
- Reliable universal object detection, large sensing ranges and operating reserves thanks to superior SIRIC® chip technology

Additional information

→ www.mysick.com/en/WSE2S-2

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.

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Subject to change without notice

Detailed technical data

Features

Sensor principle	Through-beam photoelectric sensor
Dimensions (W x H x D)	7.7 mm x 21.8 mm x 13.5 mm
Housing design (light emission)	Rectangular
Sensing range max.	0 m ... 2.5 m
Sensing range	0 m ... 2 m
Type of light	Visible red light
Light source [1]	PinPoint LED
Light spot size (distance)	Ø 65 mm (1,500 mm)
Wave length	640 nm

[1] Average service life of 100,000 h at T_A = +25 °C.

Mechanics/electronics

Supply voltage [1]	10 V DC ... 30 V DC
Ripple [2]	≤ 5 V_{pp}
Power consumption [3]	≤ 20 mA
Output type	PNP / NPN (depending on type)
Switching mode	Light switching Dark-switching Light/dark-switching (depending on type)
Output current $I_{max.}$	< 50 mA
Response time [4]	< 0.4 ms
Switching frequency [5]	1,200 Hz
Connection type	Cable, 2 m [6] Cable with connector, 200 mm [6] (depending on type)
Circuit protection	A [7], B [8], D [9]
Housing material	ABS/PC
Optics material	PMMA
Enclosure rating	IP 67
Ambient operating temperature	–25 °C ... +50 °C
Ambient storage temperature	–40 °C ... +75 °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] Without load.
[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 = output reverse-polarity protected.
[9] D = outputs overcurrent and short-circuit protected.

Ordering information

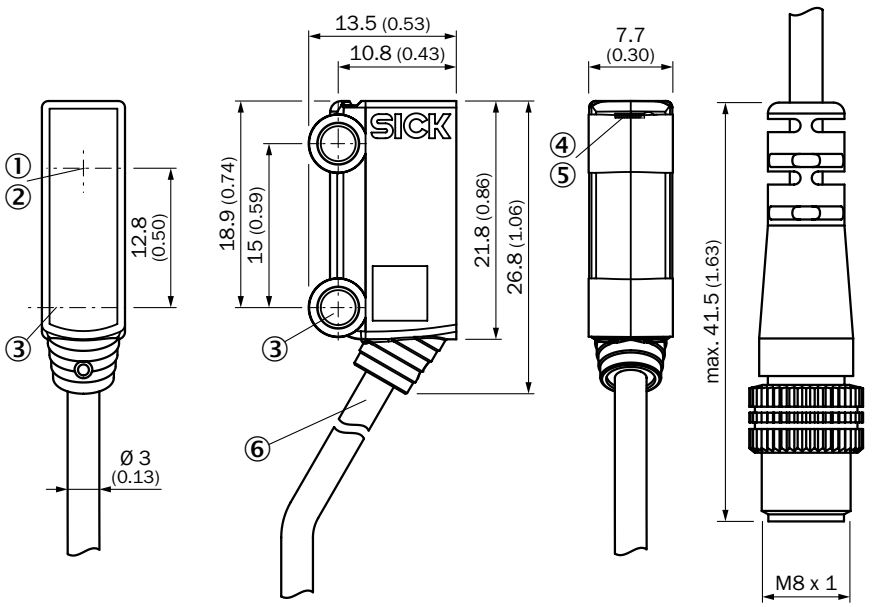
Other models available at www.mysick.com/en/WSE2S-2

WSE2S-2

Sensing range max.	Output type	Switching mode	Connection	Connection diagram	Model name	Part no.
0 m ... 2.5 m	PNP	Light switching	Cable, 3-wire, 2 m	Cd-049	WSE2S-2P1330	1065940
			Cable with connector M8, 3-pin, 200 mm	Cd-051	WSE2S-2P3130	1063521
			Cable with connector M8, 3-pin, 1000 mm	Cd-051	WSE2S-2P3030S02	1069003
		Dark-switching	Cable, 3-wire, 2 m	Cd-049	WSE2S-2F1330	1965941
			Cable with connector M8, 3-pin, 200 mm	Cd-051	WSE2S-2F3130	1063523
			Cable with connector M8, 3-pin, 700 mm	Cd-051	WSE2S-2F3030S01	1068155
		Light/dark-switching	Cable with connector M8, 4-pin, 200 mm	Cd-085	WSE2S-2P3230	1063650
	NPN	Light switching	Cable, 3-wire, 2 m	Cd-049	WSE2S-2N1330	1064584
		Dark-switching	Cable, 3-wire, 2 m	Cd-049	WSE2S-2E1330	1064586
			Cable with connector M8, 3-pin, 200 mm	Cd-051	WSE2S-2E3130	1064588
		Light/dark-switching	Cable, 4-wire, 2 m	Cd-085	WSE2S-2N1130	1063660

[1] With light/dark ratio 1:1.

Dimensional drawing (Dimensions in mm (inch))



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

8016285/2014-09-04
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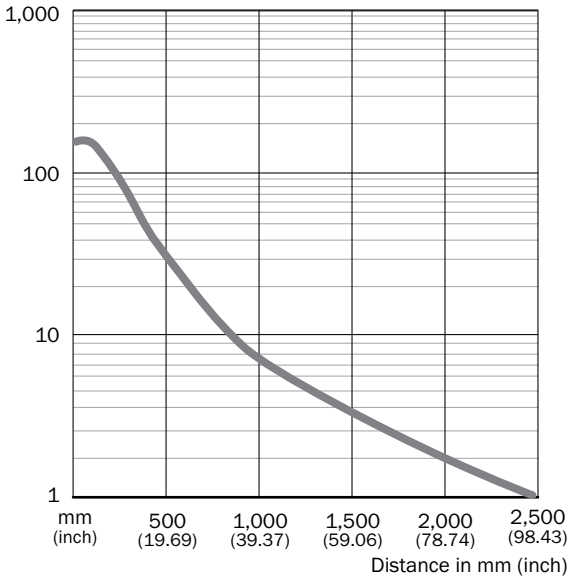
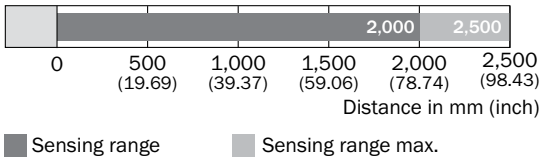
Characteristic curve

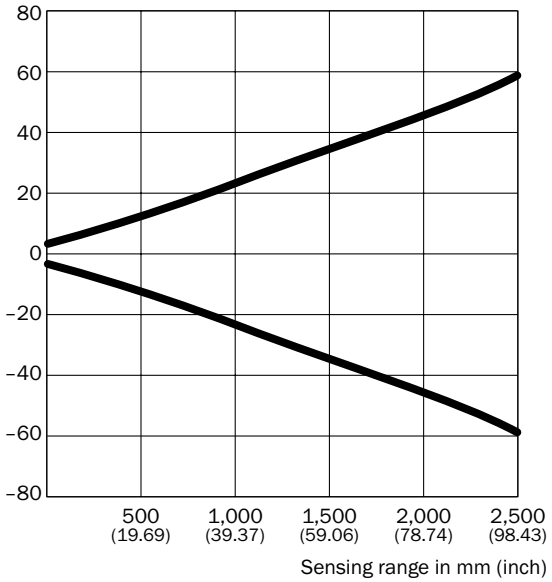


Bar diagrams



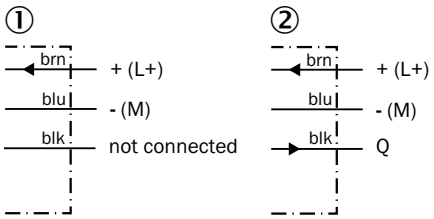
Light spot size

Spot diameter in mm (inch)



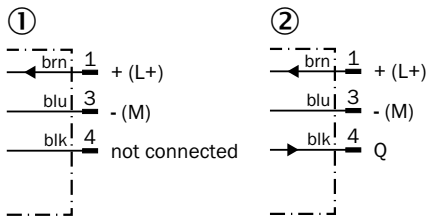
Connection diagram

Cd-049



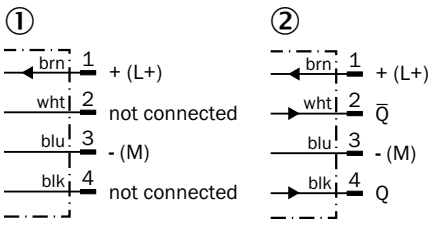
① Sender
② Receiver

Cd-051



① Sender
② Receiver

Cd-085



① Sender
② Receiver

Accessories

Mounting brackets/plates

Figure	Description	Material	Model name	Part no.
	Mounting bracket for floor mounting	Steel, zinc coated	BEF-W2S-A	4034748
	Mounting bracket for wall mounting	Steel, zinc coated	BEF-W2S-B	4034749
	Protective housing for spiral flex hose	Aluminum (mounting bracket), Steel, chrome-plated (coil)	BEF-W2S-C	2033270
	Ball clamp bracket	Plastic	BEF-GH-MINI01	2023160

Plug connectors and cables

Connecting cable (female connector-open)

- **Cable material:** PVC

Figure	Connection type head A	Connection type head B	Enclosure rating	Cable length	Model name	Part no.
	Female connector, M8, 3-pin, straight	Cable	IP 67, IP 69K	2 m	DOL-0803-G02M	6010785
				5 m	DOL-0803-G05M	6022009
				10 m	DOL-0803-G10M	6022011
				15 m	DOL-0803-G15M	6036472
	Female connector, M8, 3-pin, angled	Cable	IP 67, IP 69K	2 m	DOL-0803-W02M	6008489
				5 m	DOL-0803-W05M	6022010
				10 m	DOL-0803-W10M	6022012
				15 m	DOL-0803-W15M	6036473
	Female connector, M8, 4-pin, straight	Cable	IP 67, IP 69K	2 m	DOL-0804-G02M	6009870
				3 m	DOL-0804-G03M	6049342
				5 m	DOL-0804-G05M	6009872
				10 m	DOL-0804-G10M	6010754
	Female connector, M8, 4-pin, angled	Cable	IP 67, IP 69K	2 m	DOL-0804-W02M	6009871
				5 m	DOL-0804-W05M	6009873
				10 m	DOL-0804-W10M	6010755

- **Cable material:** PUR

Figure	Connection type head A	Connection type head B	Enclosure rating	Cable length	Model name	Part no.
	Female connector, M8, 3-pin, straight	Cable	IP 65, IP 67, IP 68	2 m	DOL-0803-G02MC	6025888
				5 m	DOL-0803-G05MC	6025889
	Female connector, M8, 3-pin, angled	Cable	IP 65, IP 67, IP 68	2 m	DOL-0803-W02MC	6025891
				5 m	DOL-0803-W05MC	6025892
	Female connector, M8, 4-pin, straight	Cable	IP 65, IP 67, IP 68	2 m	DOL-0804-G02MC	6025894
				5 m	DOL-0804-G05MC	6025895
	Female connector, M8, 4-pin, angled	Cable	IP 65, IP 67, IP 68	2 m	DOL-0804-W02MC	6025897
				5 m	DOL-0804-W05MC	6025898

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Connection cable (male connector-female connector)

- **Cable material:** PVC
- **For connection of IO-Link sensors to SiLink2 Master**

Figure	Connection type head A	Connection type head B	Cable	Material connector	Model name	Part no.
	Female connector, M8, 4-pin, straight	Male connector M12, 4-pin, straight	0.6 m, 4-wire	PVC	DSL-8204-G0M6	6022571

Modules/Gateways

Figure	Beschreibung	Model name	Part no..
	IO-Link V1.1 Class A port, USB2.0 port, optional external power supply 24V / 1A	SiLink2 Master	1061790
	Power supply 18V to test sensors.With teach-in button to teach sensors with external teach wire, PNP & NPN, with metal and magnet inlays to test cylinder- and magnetic sensors, incl. 2 x 9V batteries	Testbox	6038940

Female connector (ready to assemble)

- **Enclosure rating:** IP 67

Figure	Connection type head A	Model name	Part no.
	Female connector, M8, 3-pin, straight	DOS-0803-G	7902077
	Female connector, M8, 3-pin, angled	DOS-0803-W	7902078
	Female connector, M8, 4-pin, straight	DOS-0804-G	6009974
	Female connector, M8, 4-pin, angled	DOS-0804-W	6009975

Male connector (ready to assemble)

- **Enclosure rating:** IP 67

Figure	Connection type head A	Model name	Part no.
	Male connector, M8, 3-pin, straight	STE-0803-G	6037322
	Male connector, M8, 4-pin, straight	STE-0804-G	6037323

Reflectors

Angular

- **Description:** Rectangular, screw connection

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 triple reflectors

Figure	Material	Description	Dimensions	Model name	Part no.
	PMMA/ABS	Fine triple, not self-adhesive, high temperature up to 99 °C, ø 10 mm, ø Reflexionsfläche 8 mm	ø 10 mm	PL8FH	5328583
		Fine triple, screw connection, suitable for laser sensors	47 mm x 47 mm	P250F	5308843
			18 mm x 18 mm	PL10F	5311210
	PMMA/ABS	Fine triple, screw connection, suitable for laser sensors	38 mm x 16 mm	PL20F	5308844
		Fine triple, screw connection, suitable for laser sensors	56 mm x 28 mm	PL30F	5326523
			76 mm x 45 mm	PL81-1F	5325060
	Plastic	Fine triple, chemically resistant, screw connection	18 mm x 18 mm	PL10F CHEM	5321636
		Fine triple, chemically resistant, screw connection, suitable for laser sensors	16 mm x 38 mm	PL20F-CHEM	5326089

Reflective tape

Figure	Description	Model name	Part no.
	Suitable for laser sensors, self-adhesive, cut, see alignment note, 56.3 mm x 56.3 mm	REF-AC1000-56	4063030
	Self-adhesive, 50 mm x 60 mm	REF-IRF-56	5314244

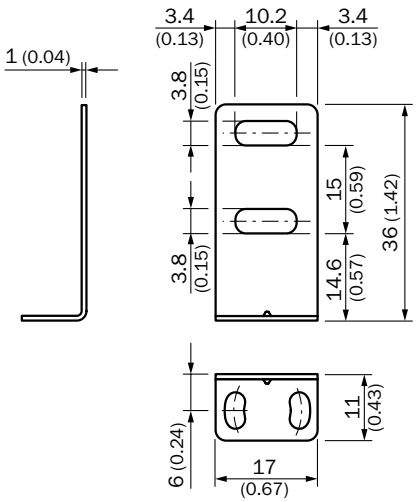
8016285/2014-09-04

Special reflectors

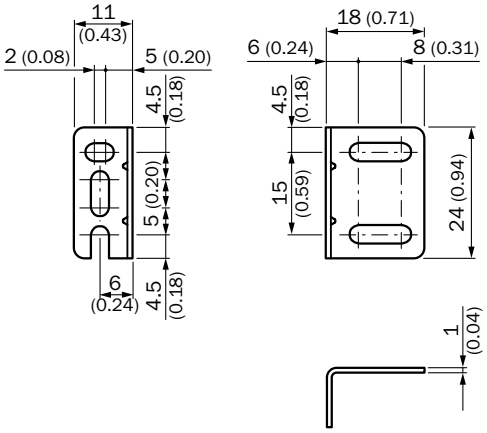
Figure	Material	Description	Model name	Part no.
	Stainless steel V4A (1.4404, 316L)	Stainless steel reflector, hygienic design, chemically resistant, Enclosure rating IP 69K, D12-adapter shaft, 25 mm x 25 mm	PLH25-D12	2063404
		Stainless steel reflector, hygienic design, chemically resistant, Enclosure rating IP 69K, M12-adapter thread, 25 mm x 25 mm	PLH25-M12	2063403
		Stainless steel reflector, wash-down design, chemically resistant, Enclosure rating IP 69K, screw connection, 14 mm x 14 mm	PLV14-A	2063405

Dimensional drawings mounting brackets/plates

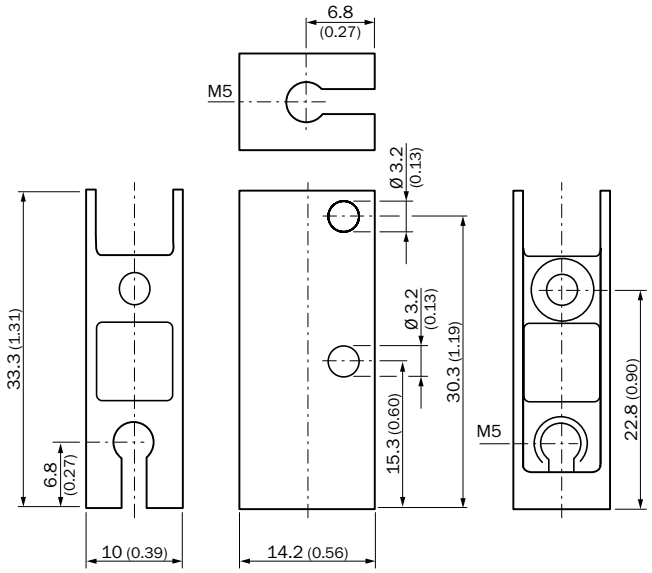
BEF-W2S-A



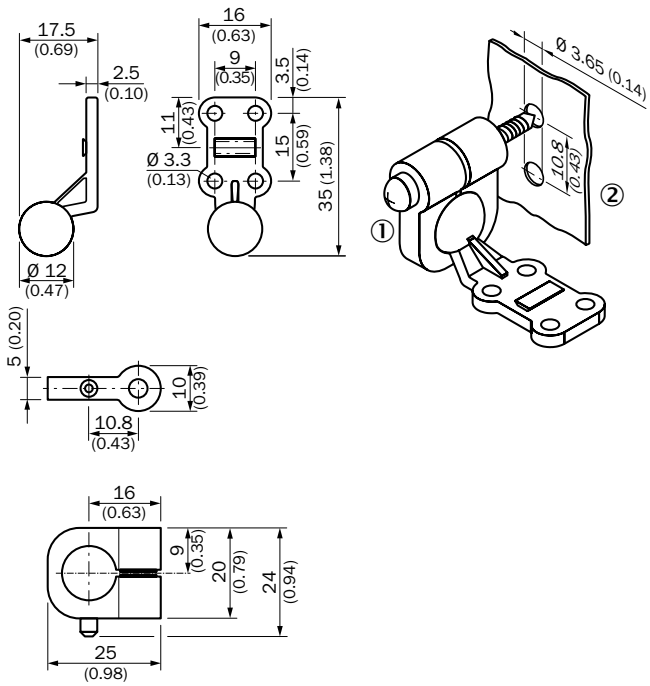
BEF-W2S-B



BEF-W2S-C



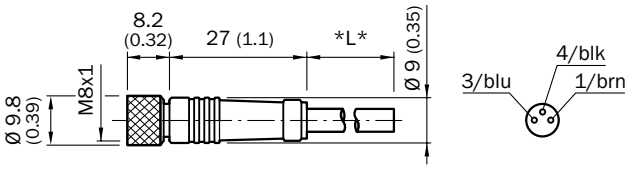
BEF-GH-MINI01



① Self-tapping screw Ø 4mm
② System or machine part

Dimensional drawings plug connectors and cables

DOL-0803-GxxM



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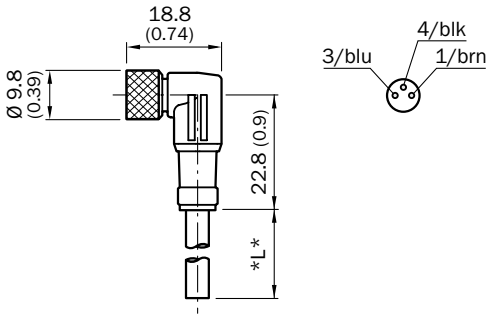

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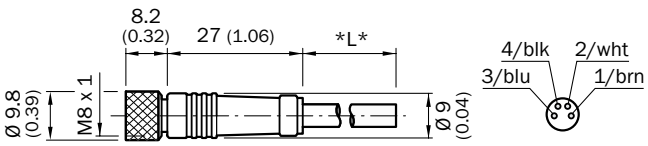

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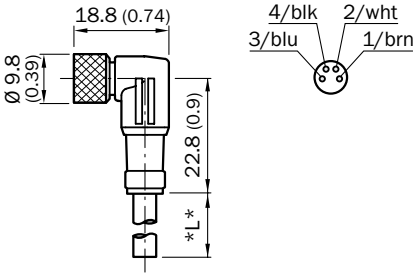

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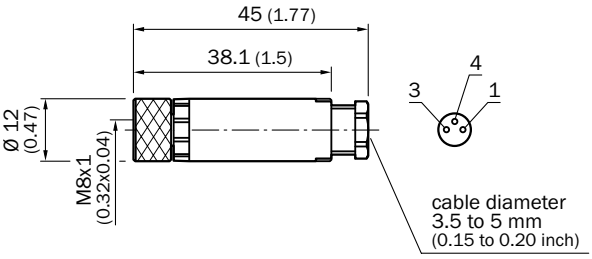

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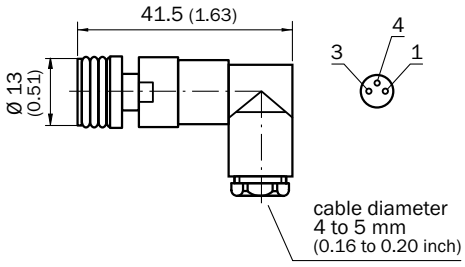

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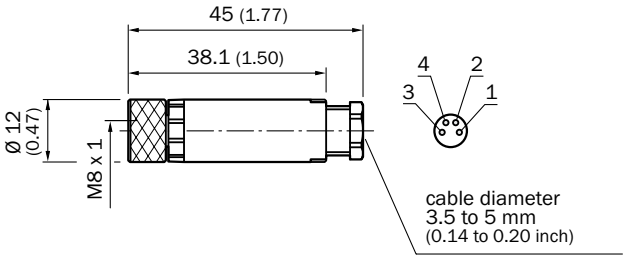

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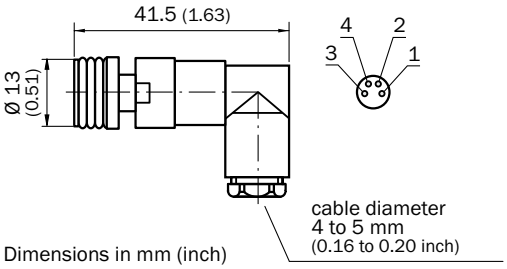
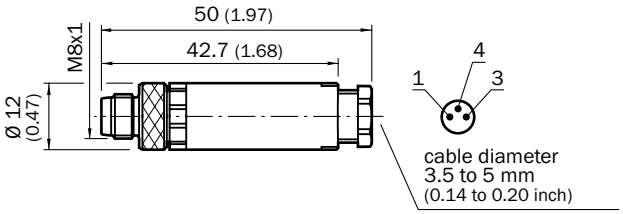


Dimensions in mm (inch)

STE-0803-G



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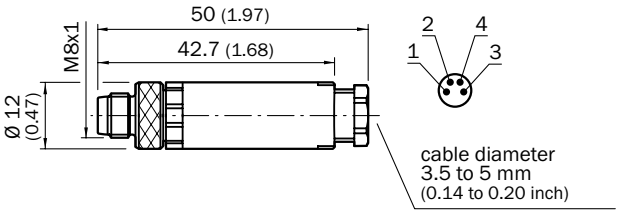

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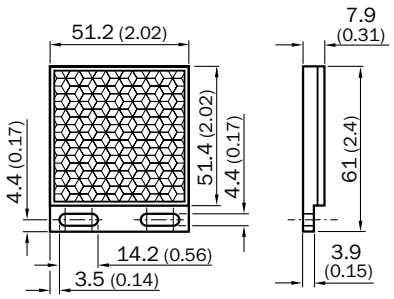
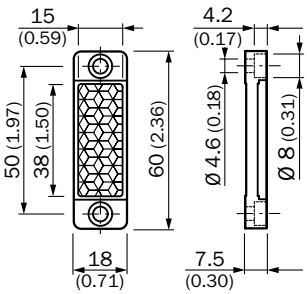
Dimensional drawings reflectors

P250



PL20A



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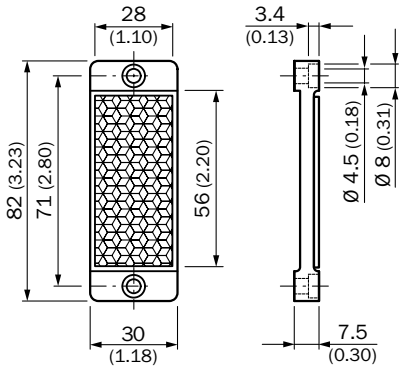

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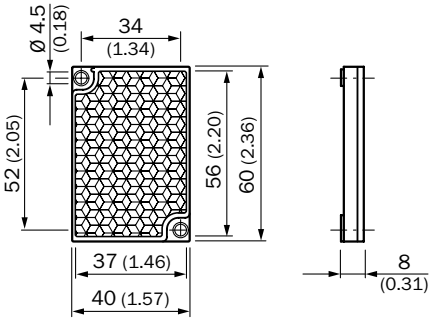

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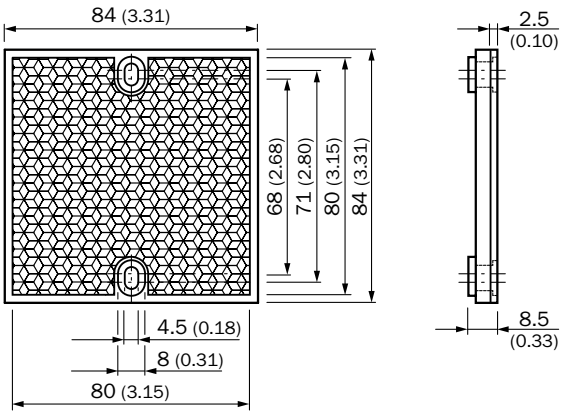

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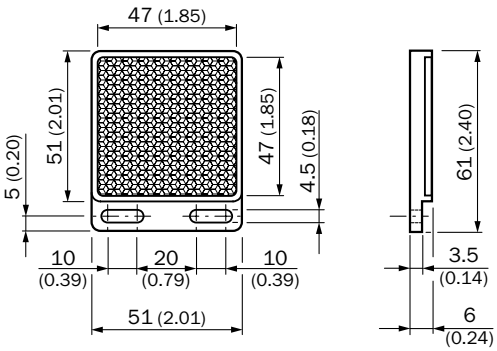

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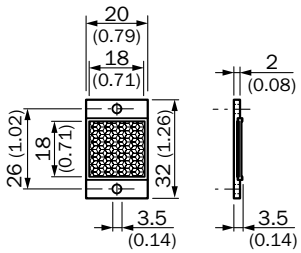

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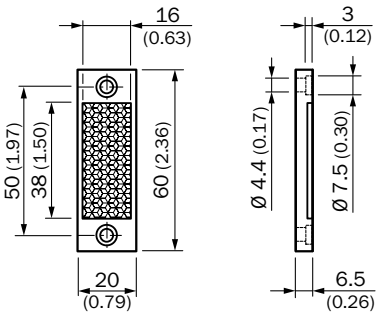

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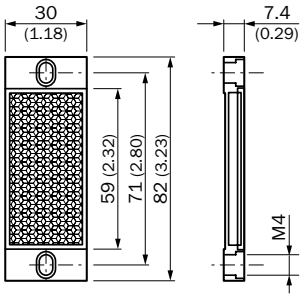
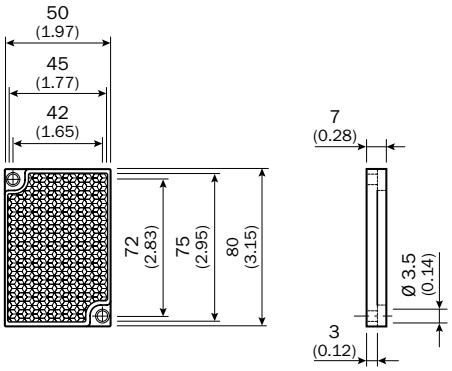


PL81-1F



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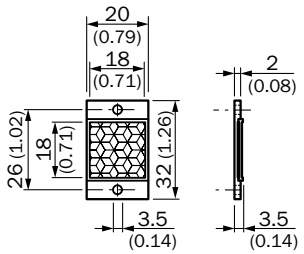

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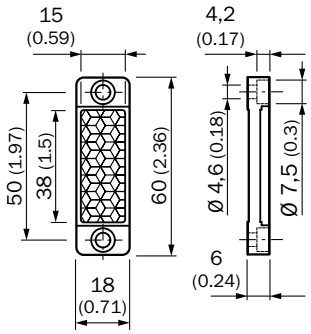

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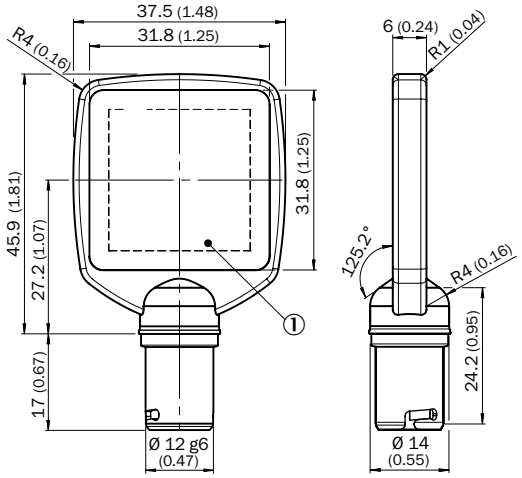

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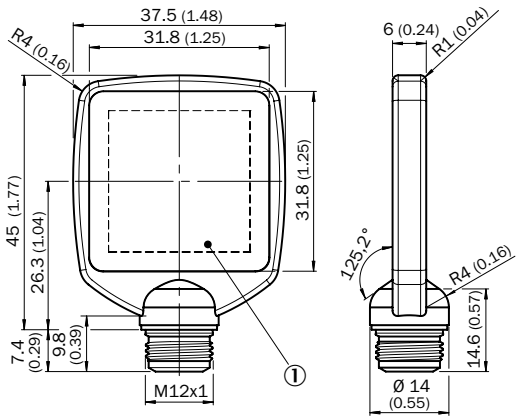

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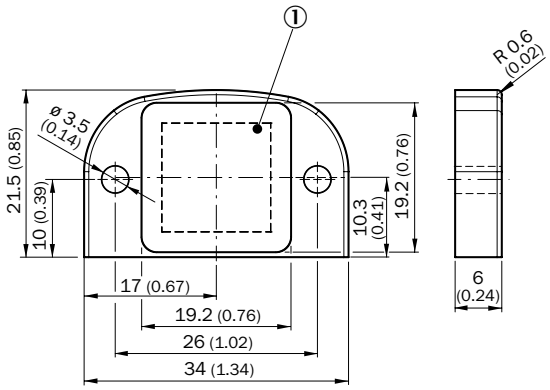

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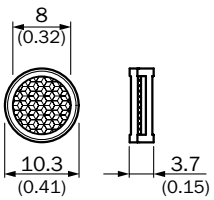

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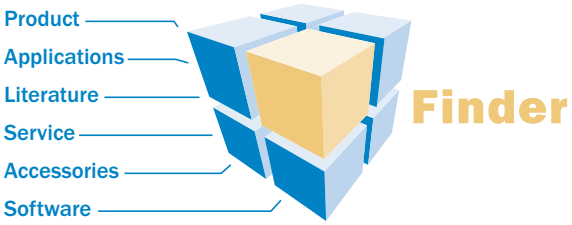

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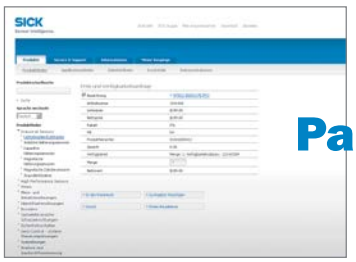

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