PRODUCT INFORMATION

Miniature photoelectric sensors W4SL-3V and W4SL-3H

Laser technology and stainless steel - a great combination

SICK
Sensor Intelligence.

W4SL-3 Inox and W4SL-3 Inox Hygiene: Laser precision in stainless steel housing

An impressive combination of performance features: SICK laser technology for detecting the minutest details and highly transparent objects, packaged in a stainless steel housing in wash down or hygienic design.

An all around "watertight" design

It's all about using sensors that offer maximum reliability under the harshest of conditions to safeguard productivity! The W4S-3 Inox and W4S-3 Inox Hygiene miniature photoelectric sensors provide material resistance to chemicals and absolute tightness for intensive cleaning and disinfection. These are crucial benefits, in particular for the pharmaceutical industry, but also for the packaging, electronics, solar and food and beverage industries.

Difference between wash down and hygiene design

The essential difference in features between the wash down and hygienic versions is that a hygienically-designed sensor is built for use on the process side, i.e., where it will come into contact with media or in the direct vicinity of food. It conforms to common standards and design guidelines for hygienically-designed products and is constructed from the appropriate materials. Otherwise, the W4S-3 Inox and W4S-3 Inox Hygiene sensors share the same key properties of stainless steel sensors (for more information, see pages 6/7).

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The very latest laser technology for reliable detection down to the last detail

Precision for reliable detection down to the last detail

The very small laser light spot makes the W4S-3 Inox and W4S-3 Inox Hygiene miniature photoelectric sensors ideal not only for precise positioning tasks, but also for position and presence checks. In conjunction with immunity to ambient light, these sensors are ideally equipped to reduce machine downtime and cut maintenance costs. Changing and reflective backgrounds or dead spots no longer pose a problem for the application. This simplifies installation and gives machine designers more freedom.

Duo mode: One sensor for two applications

At the touch of a button, the WL4SLG-3 Inox and WL4SLG-3 Inox Hygiene can switch to operation in detection mode for transparent or non-transparent objects. Thus, one device can be used to detect, for example, not only transparent vials but also wires, thus reducing the variety of sensors and their storage costs.

IO-Link: The world as seen by a sensor

The SICK photoelectric sensor package combines innovative ASIC technology, microcontrollers, and IO-Link. It can be used for initial diagnosis of system performance. Furthermore, IO-Link permits the integration of additional functions such as meters or profile detection directly into the sensor. There is no need for complex control programming.

Not sensitive to optical interference

The reason for the unique optical ruggedness of the W4S-3 Inox and W4S-3 Inox Hygiene miniature photoelectric sensors: the latest generation ASIC from SICK. With opto-electronic intelligence, such as the latest generation ASIC, inside every miniature photoelectric sensor, these sensors offer incredible ruggedness against reflections and other sources of optical interference such as energy-saving lights. The resulting detection reliability prevents incorrect switching and machine downtime - a major benefit for everyday production.

More information about W4S-3 Inox Hygiene:

www.sick.com/en/W4SL-3H

More information about W4SL-3 Inox:

www.sick.com/en/W4SL-3V

W4SL-3 Inox and W4SL-3 Inox Hygiene: Solutions for wet and hygienic applications

Focusing on maximum system availability

- Rust-free stainless steel housing (316L/1.4404) with PMMA front screen featuring a special coating
- Resistant to a variety of common cleaning and disinfection agents
- Will not leak when cleaned at high pressure thanks to a unique patented teach-in pushbutton (welded-on stainless steel membrane) and pin-cast electrical connections
- ECOLAB-certified, tested to IP 66, IP 67, IP 68, IP 69K

High detection quality ensures process reliability

- Precise laser light spot (laser class 1) for highly accurate switching behavior
- Precise laser light spot will detect the tiniest and highly transparent objects
- High optical immunity to background reflections Immunity to ambient light even from modern energy-saving lights thanks to the very latest SICK proprietary ASIC and laser technology with second sender LED

For maximum convenience in operation and easy commissioning

- Easy mounting thanks to the stainless steel complete system: comprising sensor, reflector and bracket in wash down and hygiene design
- Integration of complex control functions in the sensor based on IO-Link
- Clearly visible flush-mounted LEDs

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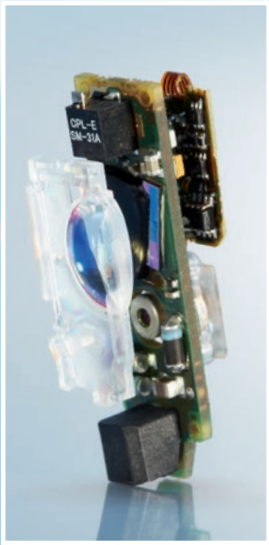
Look no further than SICK for stainless steel housing, laser precision, and the best in clear object glass detection



Every detail of our sensors provides an assurance of user-friendliness

- Maximum degree of freedom in machine design, not affected by background reflections thanks to outstanding background suppression
- No restrictions imposed by the application solution since detection is even possible through small drill holes thanks to autocollimation
- Maintenance-free operation due to automatic adaptation to changing light conditions through adjustment of switching threshold
- Teach-in pushbutton for switching from the detection of transparent object to the detection of minute non-transparent objects

Product type	Housing version	Laser class	Sensing range
WTB4SL-3V	Wash down	1	25 – 300 mm / 25 – 170 mm [1]
WSE4SL-3V	Wash down	1	60 m / 50 m [2]
WL4SLG-3V for detection of transparent objects	Wash down	1	4.5 m / 2 m [3]
WTB4SL-3H	Hygiene	1	25 – 300 mm / 25 – 170 mm [1]
WL4SLG-3H for detection of transparent objects	Hygiene	1	4.5 m / 2 m [3]

[1] On white / on black. [2] Max. / recommended sensing range. [3] Based on REF-AC1000 reflective tape.

Perfection by SICK: Sensors in wash down and hygienic design

SICK stainless steel sensors like the W4S-3 Inox and W4S-3 Inox Hygiene miniature photoelectric sensors must meet five criteria for use in the pharmaceutical and food and beverage industries. With reliable performance and maximum availability, they can prove their worth in wet and hygienic applications in the long run.

1. Chemical resistance

A stainless steel sensor by SICK is absolutely not sensitive to intensive high-pressure cleaning, cleaning with foam or P3 cleaning agents and subsequent rinsing.

The PMMA front screen, the LEDs, the teach-in pushbutton with stainless steel membrane and the PTFE sealing ring are resistant to all cleaning agents typically used in this industry.

2. Design and material

The stainless steel sensors for using in hygienic applications meet the requirements of applicable standards and guidelines for hygienic design. SICK engineers are breaking new ground in hygienic design: thanks to the use of O-rings, the hygiene design stainless steel sensors no longer have drill holes and metallic contact surfaces. The hygienic mounting system developed by SICK has also put an end to all gaps and dead spots, as well as undercuts.

All materials used meet FDA requirements. The surfaces of the stainless steel (316L/1.4404) prevent the adherence of bacteria relevant to foodstuffs.

The SICK test program for chemical resistance

Standard test

10 days of full immersion in low-concentrate acids, lyes, emulsions, cleaning agents, chlorine compounds, etc. All SICK presence detection products undergo this test so that they can offer fundamental resistance to the harsh requirements expected of them in industrial applications.

Wash down and hygiene test

Up to 14 days of full immersion in high-concentrate media such as hydrogen peroxide, alcohol, acids, lyes, hydraulic oil, etc. This specially developed "concentration – temperature – exposure time" combination simulates the harsh requirements of typical applications.

ECOLAB test

The materials used are tested with ECOLAB detergents and the product is certified accordingly.

Long-life test

A cycle of progressively more intense tightness tests and tests to prove chemical resistance Simulates the harsh requirements of a typical wash down.

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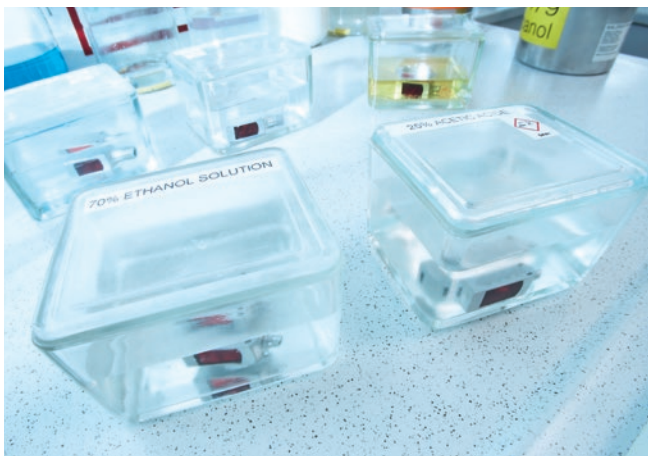
Meeting the most stringent requirements of sensors that come into contact with media and products

3. Tightness

A laser-welded teach-in membrane made from stainless steel, sealed electrical plugs and cables, and display windows and a front screen that are precision-integrated in the housing provide the basis for the tightness of SICK stainless steel sensors which has been proving its worth in practical applications for many years. With a water shock test, tests for protection classes IP 66, IP 67, IP 68, and IP 69K, and a long-life test, tightness is tested in-house on a regular basis.

4. Thermal resistance

Stainless steel sensors must be able to withstand dramatic changes in temperature resulting from cleaning with water at approx. 80 °C in a cold environment at between 5 and 10 °C, for example. Constant changes in temperature cause what is known as the pump effect: the resulting differences in pressure "suck" moisture into the device. The highly resistant plastics, along with the stainless steel, are able to resist the temperatures and the outstanding tightness suppresses the pump effect.

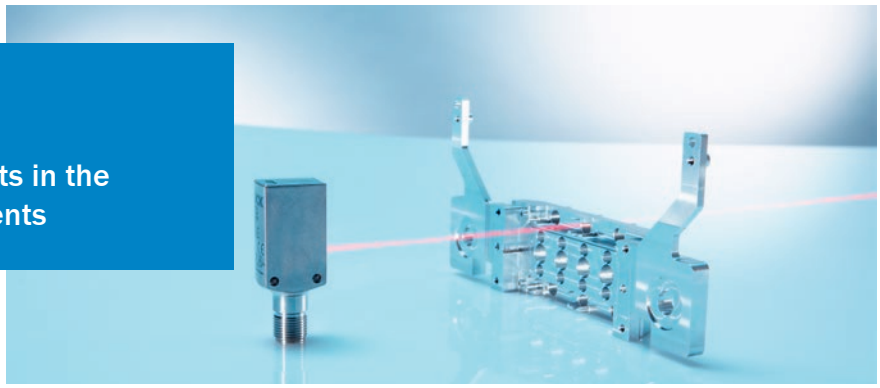


5. Market standards

Thanks to careful material selection and considered design and build, Inox sensors from SICK meet all legal requirements and are aligned with the following standards and directives:

- DIN 10516:2009-05
- DIN EN ISO 14159:2008-07
- DIN EN 1672-2:2005+A1
- Machinery Directive 2006/42/EC
- Directives 1935/2004/EC and 10/2011
- Designed according to EHEDG guidelines
- ECOLAB-certified
- Materials meeting FDA requirements

Precise detection of tiny objects in the harsh-est industrial environments



Stainless Steel

IP 69K ECOLAB

Additional information

Product description

In a stainless steel housing with wash down design, the WTB4SL-3 Inox photoelectric proximity sensor has impressive resistance to cleaning agents and disinfectants. The precise laser light spot detects tiny objects such as syringe needles, wires, and drilled holes, even in a damp or wet environment. Both active and passive sources of interference, such as modern energy-saving lights or background reflections, do not impair detection reliability, meaning that process reliability is not affected. The combination of SICK's latest proprietary laser and ASIC technologies meets the demanding requirements for detection quality, especially in food processing and packaging, and the pharmaceutical and cosmetics industries. The sensing range is between 25 and 300 mm.

At a glance

- Precise laser light spot, laser class 1
- Stainless steel housing with wash down design
- Latest SICK proprietary ASIC and laser technologies for very good background suppression and ambient light immunity
- ECOLAB certified, tested to IP66, IP67, IP68 and IP69K enclosure rating
- State-of-the-art connections through 100 % sealed electronics
- Patented teach-in pushbutton consisting of a stainless steel membrane welded into the housing

Your benefits

- Precise laser light spot for highly accurate switching
- Washable stainless steel housing reduces bacterial contamination
- Innovative wash down design with sealed connections and unique patented membrane teach-in push-button
- High ambient light immunity reduces incorrect switching and ultimately machine downtime, even when modern energy-saving lights are used
- The highest degree of machine design flexibility. Outstanding BGS (background suppression) eliminates the effect of undesired background reflections. Autocollimation permits detection through very small drilled holes.
- IO-Link provides effortless initial diagnostics of system performance

→ **www.mysick.com/en/WTB4SL-3V**

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

Sensor principle	Photoelectric proximity sensor
Detection principle	Background suppression
Dimensions (W x H x D)	12.2 mm x 41.8 mm x 17.3 mm
Housing design [1]	Wash down
Housing design (light emission)	Rectangular / Slim
Mounting hole	M3
Sensing range max. [2]	25 mm ... 300 mm
Sensing range [2]	25 mm ... 300 mm
Type of light	Visible red light
Light source [3]	Laser
Laser class	1 (EN60825-1:2008-05 & IEC 60825-1:2007-03 / CDRH 21 CFR 1040.10 & 1040.11)
Wave length	650 nm
Light spot size (distance)	Ø 1 mm (170 mm)
Sensitivity adjustment	Single teach-in button

[1] The essential difference between a standard/wash down product and a hygiene product is that where the process and contact with the medium (activity in the vicinity of the food) are concerned, the product is designed in accordance with the latest standards and hygiene design guidelines, and materials are selected accordingly.

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

[3] Average service life 50,000 h at T_a = +25 °C.

Mechanics/electronics

Supply voltage [1]	10 V DC ... 30 V DC
Residual ripple [2]	< 5 V_{pp}
Power consumption [3]	≤ 30 mA
Switching output	PNP, light/dark-switching, complementary [4] NPN, light/dark-switching, complementary [4] (depending on type)
Output current $I_{max.}$	≤ 100 mA
Response time [5]	≤ 0.5 ms
Switching frequency [6]	1,000 Hz
Connection type	Cable with connector, 150 mm, PVC, 0.14 mm² [7] Cable, 2 m, PVC, 0.14 mm² [7] Connector (depending on type)
Circuit protection	A [8] B [9] C [10]
Protection class	III
Weight	
Cable with connector, M12, 4-pin	60 g
Connector, M12, 4-pin	45 g
Connector, M8, 4-pin	40 g
Cable, 4-wire	80 g
Housing material	Stainless steel V4A (1.4404, 316L), average roughness < 0,8 µm
Optics material	PMMA

Enclosure rating	IP 66 IP 67 IP 68 IP 69K [11]
Ambient operating temperature	–10 °C ... +50 °C
Ambient operating temperature extended [12] [13]	–30 °C ... +55 °C
Ambient storage temperature	–30 °C ... +70 °C

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

[2] May not exceed or fall short of V_S.

[3] Without load.

[4] Q = light-switching.

[5] Signal transit time with resistive load.

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

[7] Do not bend below 0 °C.

[8] A = V_S connections reverse-polarity protected.

[9] B = inputs and output reverse-polarity protected.

[10] C = interference suppression.

[11] Only in case of correctly mounted IP 69K connecting cable.

[12] As of T_a = 50 °C, a max. supply voltage $V_{max.}$ = 24 V and a max. load current $I_{max.}$ = 50 mA is permitted.

[13] Using the sensor below T_a = -10 °C is possible, if the sensor is turned on at T_a > -10 °C, then the environment cools down and the sensor is not disconnected from the supply voltage during the whole time. It is not allowed to turn on the sensor below T_a = -10 °C.

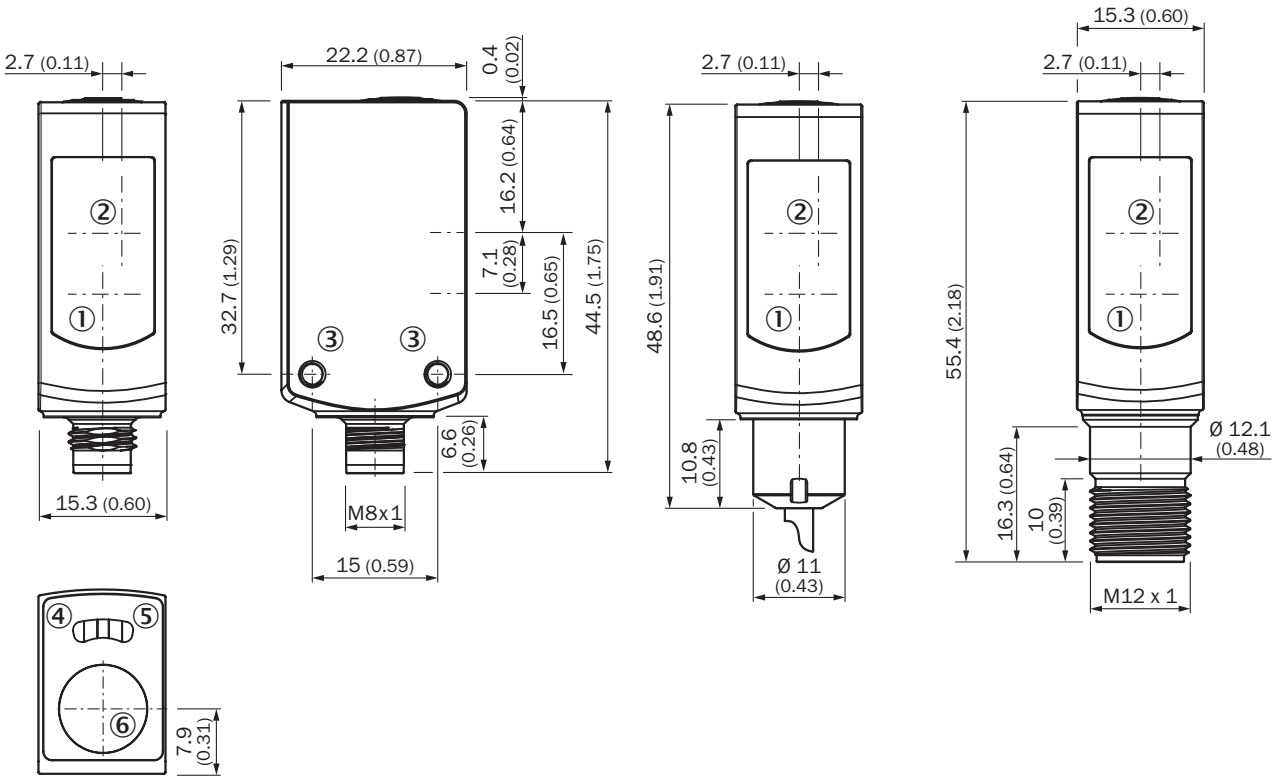
Ordering information

Sensing range max. [1]	Output function	Connection	Model name	Part no.
25 mm ... 300 mm	PNP	Cable, 4-wire, 2 m, PVC	WTB4SL-3P1162V	1058256
		Connector, M8, 4-pin	WTB4SL-3P2262V	1058251
		Connector, M12, 4-pin	WTB4SL-3P2462V	1058253
		Cable with connector, M12, 4-pin, 150 mm, PVC	WTB4SL-3P3462V	1058255
	NPN	Cable, 4-wire, 2 m, PVC	WTB4SL-3N1162V	1058257
		Connector, M12, 4-pin	WTB4SL-3N2462V	1058254
		Connector, M8, 4-pin	WTB4SL-3N2262V	1058252

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

Dimensional drawings

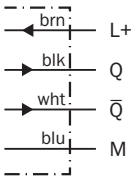
dimensions in mm (inch)



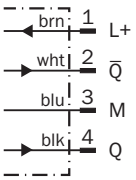
① Center of optical axis, sender
② Center of optical axis, receiver
③ Threaded mounting hole M3
④ Status indicator LED, yellow: Status of received light beam
⑤ Status indicator LED green: power on
⑥ Single teach-in button

Connection diagram

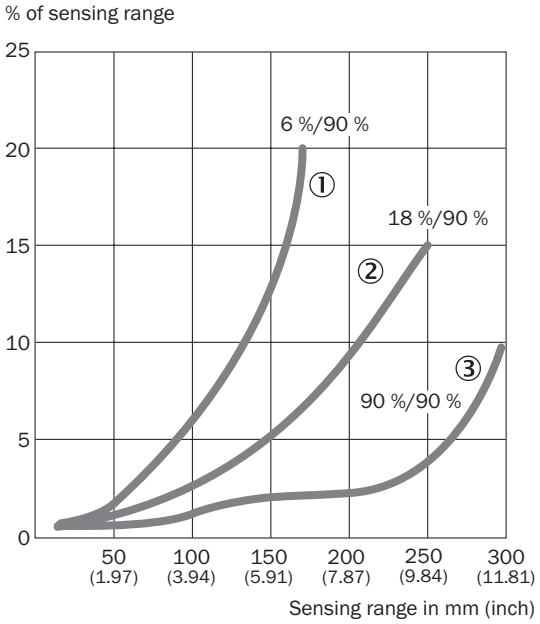
WTB4SL-3x11xxV
Cable



WTB4SL-3x2xxxV
WTB4SL-3x3xxxV
(Cable with) connector

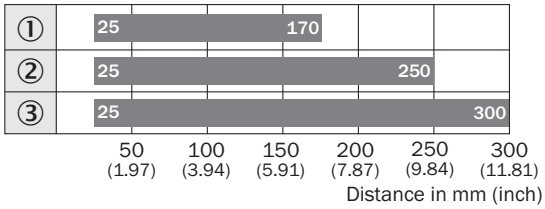


Black/white shift



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

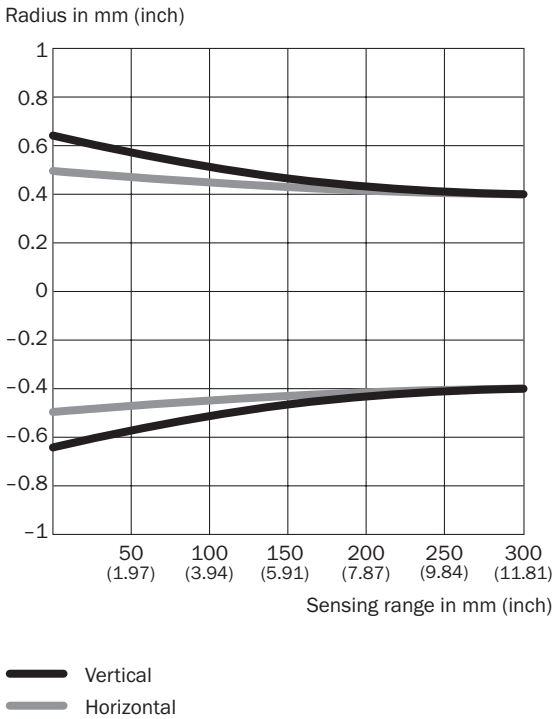
Sensing range



Sensing range typ. max.

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

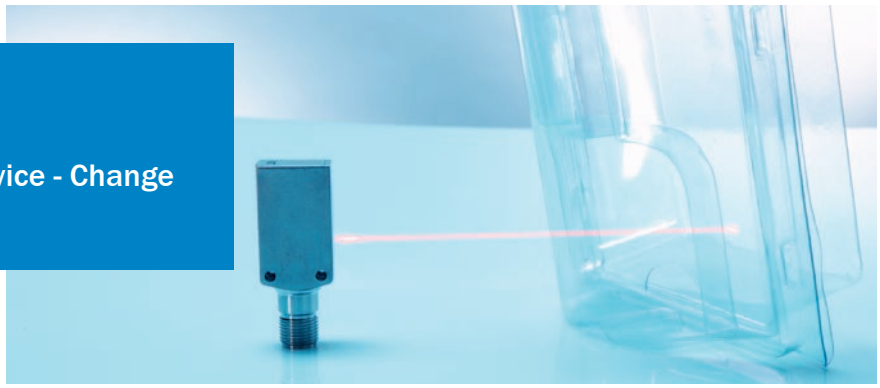
Light spot size



Dimensions in mm (inch)

Sensing range	Vertical	Horizontal
50 mm (1.97)	1.2 (0.05)	1.0 (0.04)
100 mm (3.94)	1.1 (0.04)	1.0 (0.04)
200 mm (7.87)	0.9 (0.04)	0.9 (0.04)
300 mm (11.81)	0.8 (0.03)	0.8 (0.03)

Detect all objects with one device - Change mode via teach button



Stainless Steel

IP 69K ECOLAB

Additional information

Product description

A single press of a button on the WL4SLG-3 Inox allows operation in the detection mode for transparent and/or non-transparent objects. This means that one device can be used to detect transparent vials and PET bottles, but also metallic needles and wires, for example. This reduces the variety of sensors and their storage costs. The precise, highly visible laser light spot with sharp contour ensures a high level of detection quality and facilitates alignment. Autocollimation technology ensures that the sensor reliably detects objects at close range as well as through narrow gaps or small drilled holes. The photoelectric sensors also feature an IO-Link function, so that initial system performance diagnostics can be done independently. Furthermore, IO-Link permits the integration of additional functions such as meters or profile recognition directly into the sensor. There is no need for complex control programming.

At a glance

- Precise laser light spot, laser class 1, no blind spots
- Stainless steel housing with wash down design
- Latest SICK proprietary ASIC and laser technologies for very good background suppression and ambient light immunity
- ECOLAB certified, tested to IP66, IP67, IP68 and IP69K enclosure rating
- Teach-in pushbutton can be switched between detection of transparent and tiny non-transparent objects
- IO-Link (optional)

Your benefits

- Precise laser light spot for highly accurate switching
- Washable stainless steel housing reduces bacterial contamination
- Innovative wash down design with sealed connections and unique patented membrane teach-in push-button
- High ambient light immunity reduces incorrect switching and ultimately machine downtime, even when modern energy-saving lights are used
- The highest degree of machine design flexibility. Outstanding BGS (background suppression) eliminates the effect of undesired background reflections. Autocollimation permits detection through very small drilled holes.
- IO-Link provides effortless initial diagnostics of system performance

→ **www.mysick.com/en/WL4SLG-3V**

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

Sensor principle	Photoelectric retro-reflective sensor
Detection principle	Autocollimation
Dimensions (W x H x D)	12.2 mm x 41.8 mm x 17.3 mm
Housing design [1]	Wash down
Housing design (light emission)	Rectangular / Slim
Mounting hole	M3
Sensing range max. [2][3][4]	0 m ... 4.5 m
Sensing range [2][3][4]	0 m ... 2 m
Type of light	Visible red light
Light source [5]	Laser
Laser class	1 (EN60825-1:2008-05 & IEC 60825-1:2007-03 / CDRH 21 CFR 1040.10 & 1040.11)
Wave length	650 nm
Light spot size (distance)	Ø 1 mm (500 mm)
Sensitivity adjustment	Single teach-in button and teach-in via cable [6] (depending on type)

[1] The essential difference between a standard/wash down product and a hygiene product is that where the process and contact with the medium (activity in the vicinity of the food) are concerned, the product is designed in accordance with the latest standards and hygiene design guidelines, and materials are selected accordingly.

[2] REF-AC1000.

[3] CTA (continuous threshold adaption) allows automatic adaptation to changes in light conditions.

[4] We recommend using reflective tape REF-AC1000 or reflectors based on this reflective tape, like P41F, PLV14-A, PLH25-M12 or PLH25-D12, to ensure reliable operation. Reflectors with larger-scaled triple structures should only be used after application clarification.

[5] Average service life 50,000 h at T_a = +25 °C.

[6] Adjustment via cable (ET): white cable or PIN2 according to the desired sensitivity > 2 ... < 8 s or put > 8 s on L+ (PNP) or on M (NPN)

Mechanics/electronics

Supply voltage [1]	10 V DC ... 30 V DC
Residual ripple [2]	< 5 V_{pp}
Power consumption [3]	≤ 30 mA
Switching output	PNP, light/dark-switching, complementary [4] PNP, light/dark-switching, complementary [5] (depending on type)
Output current $I_{max.}$	≤ 100 mA
Response time [6]	≤ 0.5 ms
Switching frequency [7]	1,000 Hz
Connection type	Cable with connector, 150 mm, PVC, 0.14 mm² [8] Cable, 2 m, PVC, 0.14 mm² [8] Connector (depending on type)
Circuit protection	A [9] B [10] C [11]
Protection class	III
Weight	
Cable with connector, M12, 4-pin	60 g
Connector, M12, 4-pin	45 g
Connector, M8, 4-pin	40 g
Cable, 4-wire	80 g
Polarisation filter	✔

IO-Link	✔ (COM2) (depending on type)
Housing material	Stainless steel V4A (1.4404, 316L), average roughness < 0,8 µm
Optics material	PMMA
Enclosure rating	IP 66 IP 67 IP 68 IP 69K [12]
Ambient operating temperature	–10 °C ... +50 °C
Ambient operating temperature extended [13] [14]	–30 °C ... +55 °C
Ambient storage temperature	–30 °C ... +70 °C

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

[2] May not exceed or fall short of V_S.

[3] Without load.

[4] Q = light-switching.

[5] Q = dark-switching.

[6] Signal transit time with resistive load.

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

[8] Do not bend below 0 °C.

[9] A = V_S connections reverse-polarity protected.

[10] B = inputs and output reverse-polarity protected.

[11] C = interference suppression.

[12] Only in case of correctly mounted IP 69K connecting cable.

[13] As of T_a = 50 °C, a max. supply voltage $V_{max.}$ = 24 V and a max. load current $I_{max.}$ = 50 mA is permitted.

[14] Using the sensor below T_a = -10 °C is possible, if the sensor is turned on at T_a > -10 °C, then the environment cools down and the sensor is not disconnected from the supply voltage during the whole time. It is not allowed to turn on the sensor below T_a = -10 °C.

Ordering information

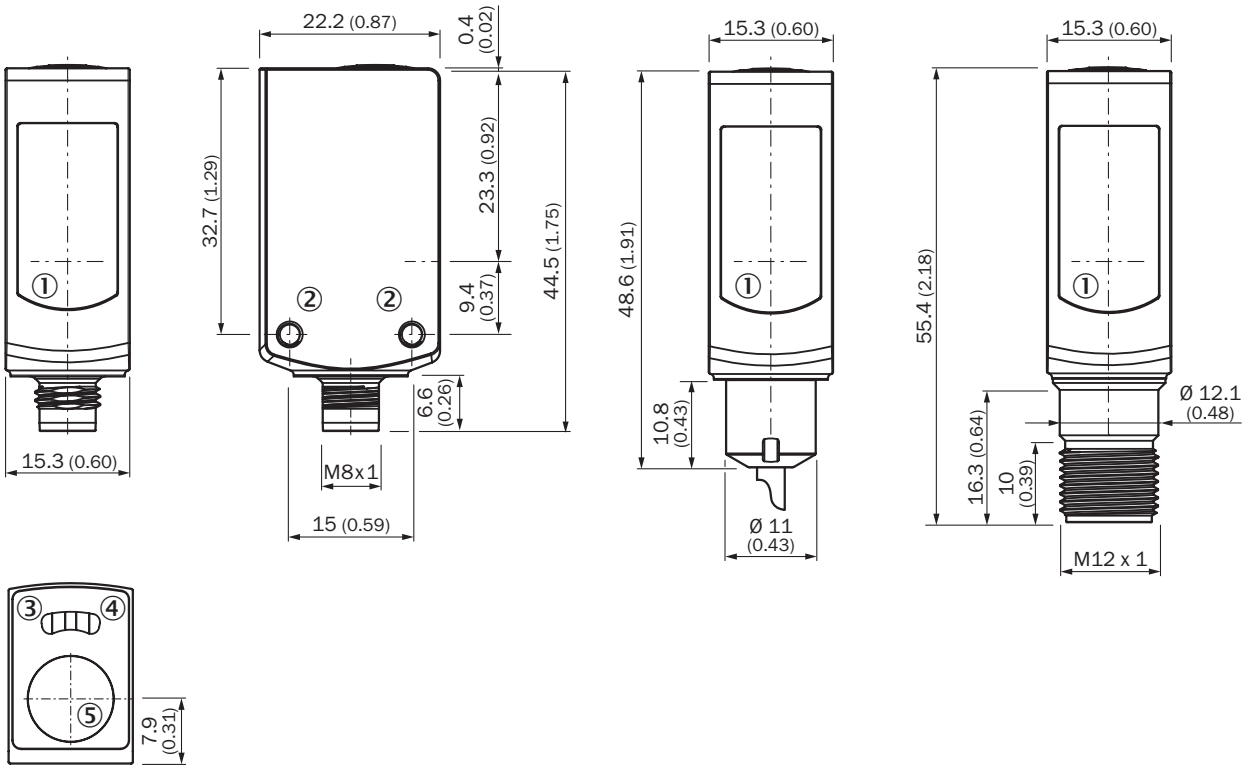
Sensing range max. [1]	Output function	Switching mode	Sensitivity adjustment	IO-Link	Connection	Model name	Part no.
0 m ... 4.5 m	PNP	Light/dark-switching	Single teach-in button	–	Cable, 4-wire, 2 m, PVC	WL4SLG-3P1132V	1058266
					Connector, M8, 4-pin	WL4SLG-3P2232V	1058258
					Connector, M12, 4-pin	WL4SLG-3P2432V	1058261
				COM2	Connector, M12, 4-pin	WL4SLGC-3P2432V	1058262
				–	Cable with connector, M12, 4-pin, 150 mm, PVC	WL4SLG-3P3432V	1058264
			Single teach-in button and teach-in via cable [2]	–	Connector, M12, 4-pin	WL4SLG-3F2434V	1058263
					Connector, M8, 4-pin	WL4SLG-3F2234V	1058260

[1] REF-AC1000.

[2] Adjustment via cable (ET): white cable or PIN2 according to the desired sensitivity > 2 ... < 8 s or put > 8 s on L+ (PNP) or on M (NPN)

Dimensional drawing

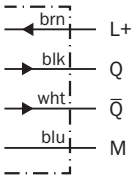
dimensions in mm (inch)



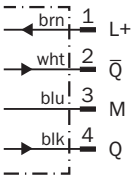
① Center of optical axis
② Threaded mounting hole M3
③ Status indicator LED, yellow: Status of received light beam
④ Status indicator LED green: power on
⑤ Single teach-in button

Connection diagram

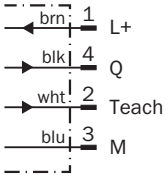
WL4SLG-3x11xxV
Cable



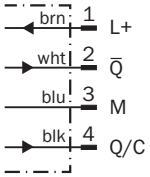
WL4SLG-3x2xx2V
WL4SLG-3x3xx2V
(Cable with) connector



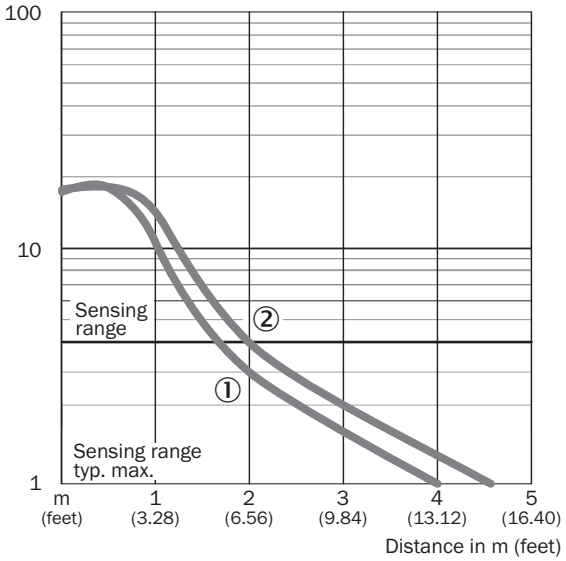
WL4SLG-3x2xx4V
WL4SLG-3x3xx4V
(Cable with) connector



WL4SLGC-3P2432V
(Cable with) connector

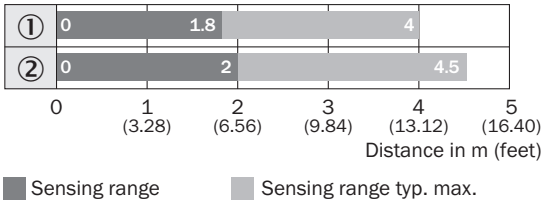


Operating reserve



① PLV14-A/PLH25-M12/PLH25-D12
② P41F/REF-AC1000

Sensing range

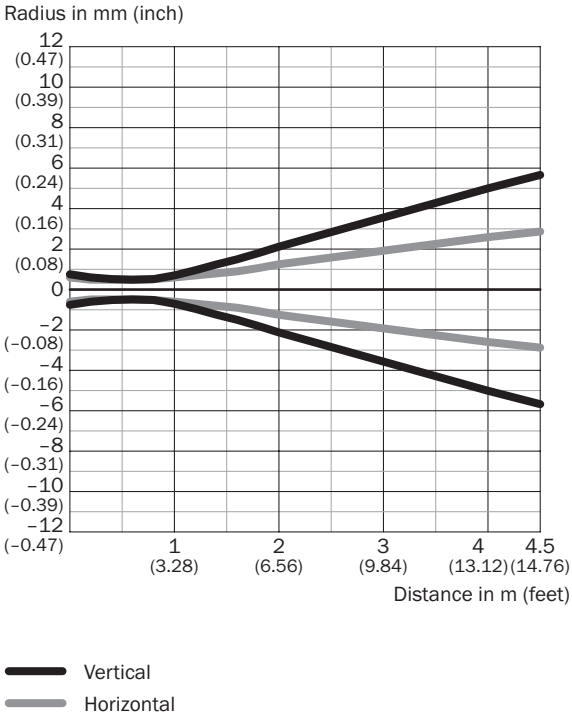


Reflector type

① PLV14-A / PLH25-M12 / PLH25-D12
② P41F / REF-AC1000

Light spot size

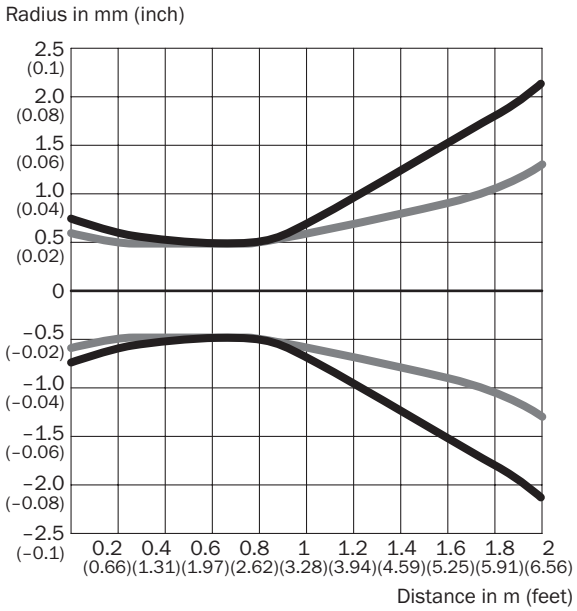
Overview



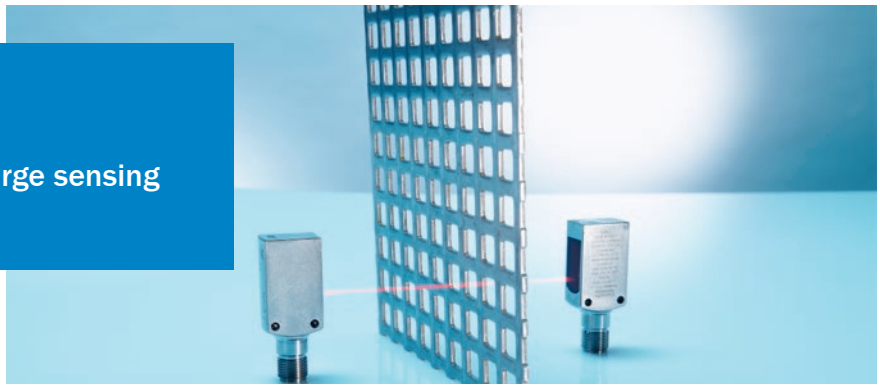
Dimensions in mm (inch)

Sensing range	Vertical	Horizontal
0.5 m (1.64 feet)	< 1.0 (0.04)	< 1.0 (0.04)
1 m (3.28 feet)	1.5 (0.06)	1.2 (0.05)
2 m (6.56 feet)	4.3 (0.17)	2.6 (0.10)
4.5 m (14.76 feet)	11.3 (0.44)	5.6 (0.22)

Close up


Radius in mm (inch)
2.5 (0.1)
2.0 (0.08)
1.5 (0.06)
1.0 (0.04)
0.5 (0.02)
0
–0.5 (–0.02)
–1.0 (–0.04)
–1.5 (–0.06)
–2.0 (–0.08)
–2.5 (–0.1)
0.2 (0.66)
0.4 (1.31)
0.6 (1.97)
0.8 (2.62)
1 (3.28)
1.2 (3.94)
1.4 (4.59)
1.6 (5.25)
1.8 (5.91)
2 (6.56)
Distance in m (feet)
Vertical
Horizontal

Wash down design and very large sensing range



Stainless Steel

IP 69K ECOLAB

Additional information

Product description

The WSE4SL-3 Inox through-beam photoelectric sensor with stainless steel housing with wash down design reliably detects objects even at long distances of up to 60 m – even in environments with strong chemical contamination through cleaning agents and disinfectants. The sensor's precise, highly visible laser light spot has a sharp contour, enabling highly accurate switching and facilitating alignment. The high precision of the sensor makes it ideal for use in processing and packaging of food and drinks, and in the pharmaceutical and cosmetics industries.

At a glance

- Precise laser light spot, laser class 1
- Stainless steel housing with wash down design
- Latest SICK proprietary ASIC and laser technologies for very good background suppression and ambient light immunity
- ECOLAB certified, tested to IP66, IP67, IP68 and IP69K enclosure rating
- State-of-the-art connections through 100 % sealed electronics
- Patented teach-in pushbutton consisting of a stainless steel membrane welded into the housing

Your benefits

- Highly visible, even light spot with a sharp contour to facilitate alignment
- Washable stainless steel housing reduces bacterial contamination
- Innovative wash down design with sealed connections and unique patented membrane teach-in pushbutton
- High level of system availability and minimal operating costs even when aggressive cleaners are used, thanks to high-quality manufacturing and inspection
- Long sensing range allows use from up to 60 m
- Sender-receiver system ensures high reliability
- Established and proven housing design for easy installation

→ **www.mysick.com/en/WSE4SL-3V**

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

Sensor principle	Through-beam photoelectric sensor
Dimensions (W x H x D)	12.2 mm x 41.8 mm x 17.3 mm
Housing design [1]	Wash down
Housing design (light emission)	Rectangular / Slim
Mounting hole	M3
Sensing range max.	0 m ... 60 m
Sensing range	0 m ... 50 m
Type of light	Visible red light
Light source [2]	Laser
Laser class	1 (EN60825-1:2008-05 & IEC 60825-1:2007-03 / CDRH 21 CFR 1040.10 & 1040.11)
Wave length	650 nm
Light spot size (distance)	Ø 1 mm (500 mm)
Sensitivity adjustment	Single teach-in button

[1] The essential difference between a standard/wash down product and a hygiene product is that where the process and contact with the medium (activity in the vicinity of the food) are concerned, the product is designed in accordance with the latest standards and hygiene design guidelines, and materials are selected accordingly.

[2] Average service life 50,000 h at T_a = +25 °C.

Mechanics/electronics

Supply voltage [1]	10 V DC ... 30 V DC
Residual ripple [2]	< 5 V_{pp}
Power consumption [3]	≤ 30 mA
Switching output	PNP, light/dark-switching, complementary [4] NPN, light/dark-switching, complementary [4] (depending on type)
Output current $I_{max.}$	≤ 100 mA
Response time [5]	≤ 0.5 ms
Switching frequency [6]	1,000 Hz
Connection type	Cable, 2 m, PVC, 0.14 mm² [7] Connector (depending on type)
Circuit protection	A [8] B [9] C [10]
Protection class	III
Weight	
Connector, M12, 4-pin	45 g
Connector, M8, 4-pin	40 g
Cable, 4-wire	80 g
Housing material	Stainless steel V4A (1.4404, 316L), average roughness < 0,8 µm
Optics material	PMMA
Enclosure rating	IP 66 IP 67 IP 68 IP 69K [11]

Ambient operating temperature	–10 °C ... +50 °C
Ambient operating temperature extended [12) 13)]	–30 °C ... +55 °C
Ambient storage temperature	–30 °C ... +70 °C

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

[2)] May not exceed or fall short of V_S.

[3)] Without load.

[4)] Q = light-switching.

[5)] Signal transit time with resistive load.

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

[7)] Do not bend below 0 °C.

[8)] A = V_S connections reverse-polarity protected.

[9)] B = inputs and output reverse-polarity protected.

[10)] C = interference suppression.

[11)] Only in case of correctly mounted IP 69K connecting cable.

[12)] As of T_a = 50 °C, a max. supply voltage $V_{max.}$ = 24 V and a max. load current $I_{max.}$ = 50 mA is permitted.

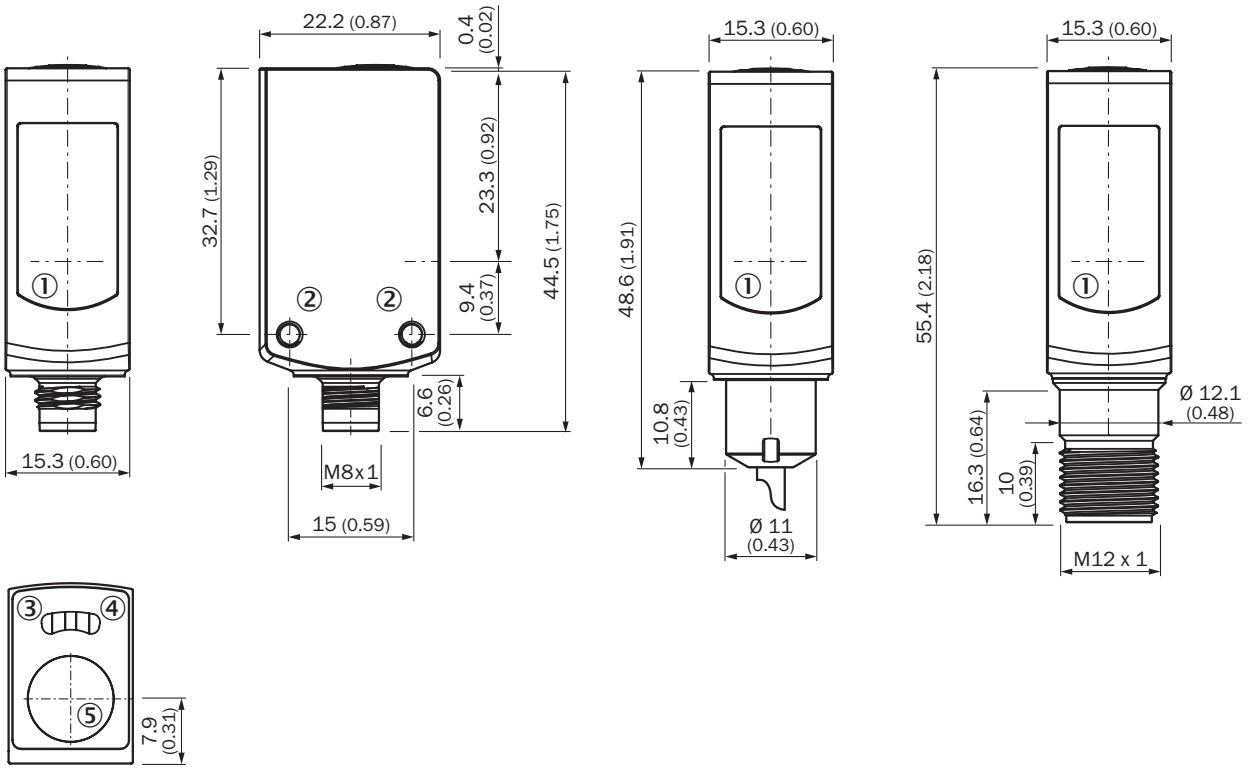
[13)] Using the sensor below T_a = -10 °C is possible, if the sensor is turned on at T_a > -10 °C, then the environment cools down and the sensor is not disconnected from the supply voltage during the whole time. It is not allowed to turn on the sensor below T_a = -10 °C.

Ordering information

Sensing range max.	Output function	Connection	Model name	Part no.
0 m ... 60 m	PNP	Connector, M8, 4-pin	WSE4SL-3P2237V	1058267
		Connector, M12, 4-pin	WSE4SL-3P2437V	1058269
	NPN	Cable, 4-wire, 2 m, PVC	WSE4SL-3N1137V	1058270

Dimensional drawing

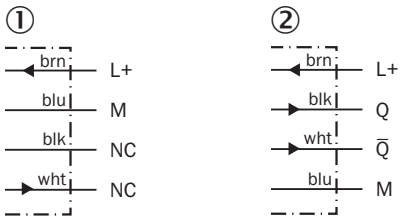
dimensions in mm (inch)



① Center of optical axis
② Threaded mounting hole M3
③ Status indicator LED, yellow: Status of received light beam
④ Status indicator LED green: power on
⑤ Single teach-in button

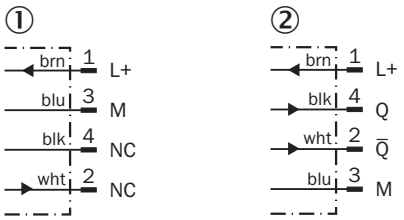
Connection diagram

WSE4SL-3x11xxV
Cable



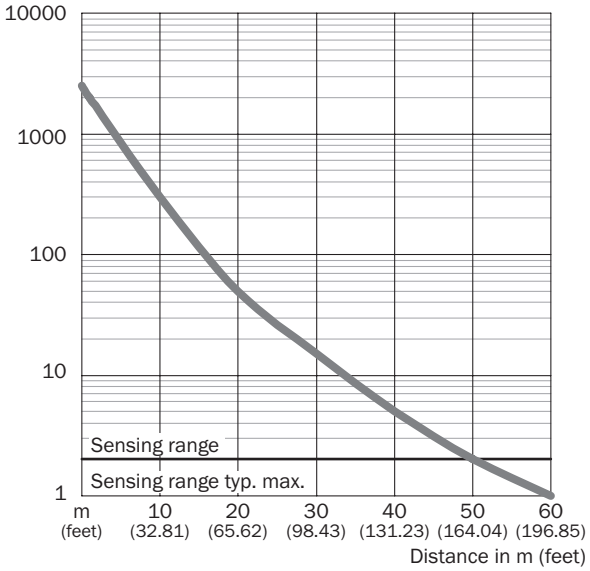
① Sender
② Receiver

WSE4SL-3x2xxxV
Connector

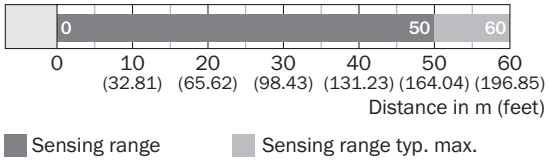


① Sender
② Receiver

Operating reserve

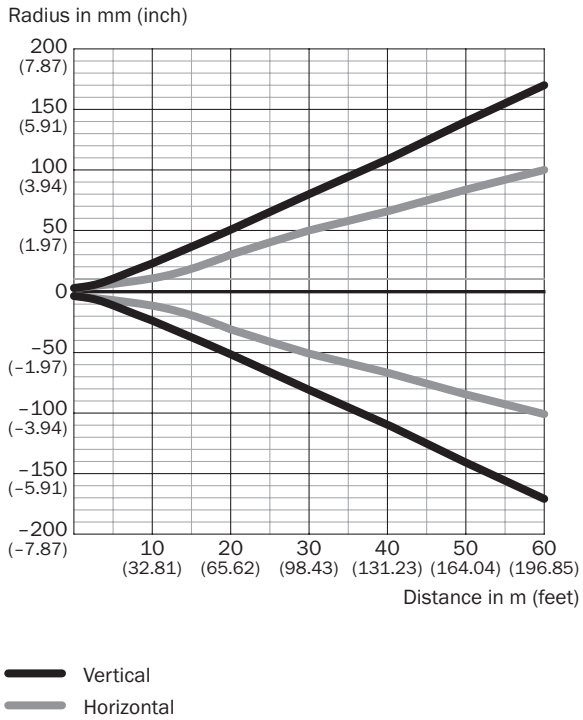


Sensing range



Light spot size

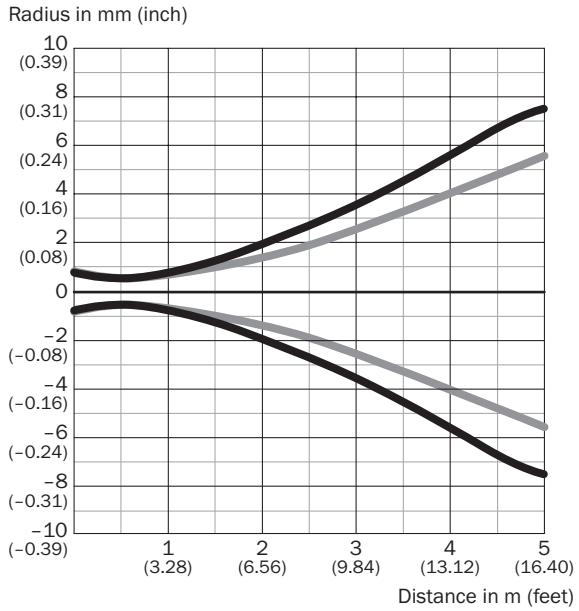
Overview



Dimensions in mm (inch)

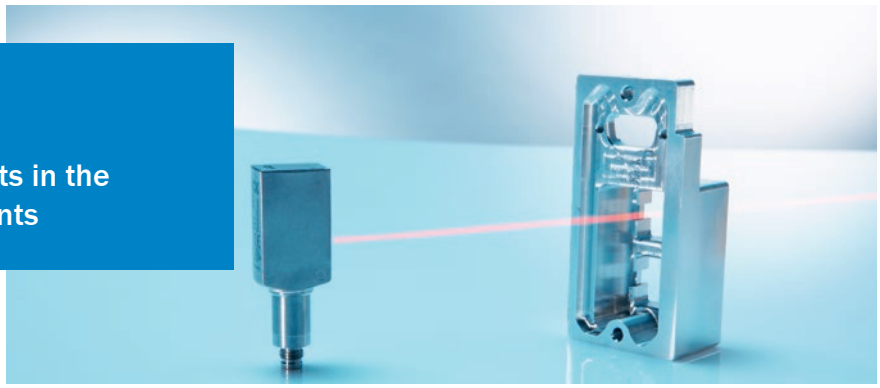
Sensing range	Vertical	Horizontal
0.5 m (1.64 feet)	< 1.0 (0.04)	< 1.0 (0.04)
1 m (3.28 feet)	1.5 (0.06)	1.2 (0.05)
5 m (16.40 feet)	15 (0.59)	11 (0.43)
10 m (32.81 feet)	45 (1.77)	28 (1.10)
60 m (196.85 feet)	336 (13.23)	200 (7.87)

Close up



Vertical
Horizontal

Precise detection of tiny objects in the harshest industrial environments



Stainless Steel

IP 69K ECOLAB

Additional information

Product description

The stainless steel housing of the WTB4SL-3 Inox Hygiene photoelectric proximity sensor, which complies with current hygienic guidelines, is especially suited to machines in which hygiene is already part of the system design. The precise laser light spot detects tiny objects such as syringe needles, wires, and drilled holes, even under adverse usage conditions. Both active and passive sources of interference, such as modern energy-saving lights or background reflections, do not impair detection reliability, meaning that process reliability is not affected. The combination of SICK's latest proprietary laser and ASIC technologies meets the demanding requirements for detection quality, especially in food processing and packaging, and the pharmaceutical and cosmetics industries. The sensors work with sensing ranges from 25 to 300 mm.

At a glance

- Precise laser light spot, laser class 1
- Stainless steel housing with hygienic design
- Latest SICK proprietary ASIC and laser technologies for very good background suppression and ambient light immunity
- ECOLAB certified, tested to IP66, IP67, IP68 and IP69K enclosure rating
- State-of-the-art connections through 100 % sealed electronics
- Patented teach-in pushbutton consisting of a stainless steel membrane welded into the housing

Your benefits

- Precise laser light spot for highly accurate switching behavior
- Washable stainless steel housing reduces bacterial contamination
- Innovative hygienic design with sealed connections and unique patented membrane teach-in push-button
- High level of system reliability and minimal operating costs even when aggressive cleaners are used, thanks to high-quality manufacturing and inspection
- High ambient light immunity reduces incorrect switching and ultimately machine downtime, even when modern energy-saving lights are used
- The highest degree of machine design flexibility. Outstanding BGS (background suppression) eliminates the effect of undesired background reflections.

→ **www.mysick.com/en/WTB4SL-3H**

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.

8015618/2013-04-18
Subject to change without notice

Detailed technical data

Features

Sensor principle	Photoelectric proximity sensor
Detection principle	Background suppression
Dimensions (W x H x D)	12.2 mm x 41.8 mm x 17.3 mm
Housing design [1]	Hygiene
Housing design (light emission)	Rectangular / Slim
Mounting hole	M3
Sensing range max. [2]	25 mm ... 300 mm
Sensing range [2]	25 mm ... 300 mm
Type of light	Visible red light
Light source [3]	Laser
Laser class	1 (EN60825-1:2008-05 & IEC 60825-1:2007-03 / CDRH 21 CFR 1040.10 & 1040.11)
Wave length	650 nm
Light spot size (distance)	Ø 1 mm (170 mm)
Sensitivity adjustment	Single teach-in button

[1] The essential difference between a standard/wash down product and a hygiene product is that where the process and contact with the medium (activity in the vicinity of the food) are concerned, the product is designed in accordance with the latest standards and hygiene design guidelines, and materials are selected accordingly.

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

[3] Average service life 50,000 h at T_a = +25 °C.

Mechanics/electronics

Supply voltage [1]	10 V DC ... 30 V DC
Residual ripple [2]	< 5 V_{pp}
Power consumption [3]	≤ 30 mA
Switching output	PNP, light/dark-switching, complementary [4] NPN, light/dark-switching, complementary [4] (depending on type)
Output current $I_{max.}$	≤ 100 mA
Response time [5]	≤ 0.5 ms
Switching frequency [6]	1,000 Hz
Connection type	Cable with connector, 150 mm, PVC, 0.14 mm² [7] Cable, 2 mm, PVC, 0.14 mm² [7] Connector (depending on type)
Circuit protection	A [8] B [9] C [10]
Protection class	III
Weight	
Cable with connector, M12, 4-pin	150 g
Connector, M8, 4-pin	140 g
Cable, 4-wire	180 g
Housing material	Stainless steel V4A (1.4404, 316L), average roughness < 0,8 µm
Optics material	PMMA
Enclosure rating	IP 66 IP 67 IP 68 IP 69K [11]

Ambient operating temperature	–10 °C ... +50 °C
Ambient operating temperature extended [12) 13)]	–30 °C ... +55 °C
Ambient storage temperature	–30 °C ... +70 °C

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

2) May not exceed or fall short of V_S.

3) Without load.

4) Q = light-switching.

5) Signal transit time with resistive load.

6) With light/dark ratio 1:1.

7) Do not bend below 0 °C.

8) A = V_S connections reverse-polarity protected.

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

10) C = interference suppression.

11) Only in case of correctly mounted IP 69K connecting cable.

12) As of T_a = 50 °C, a max. supply voltage $V_{max.}$ = 24 V and a max. load current $I_{max.}$ = 50 mA is permitted.

13) Using the sensor below T_a = -10 °C is possible, if the sensor is turned on at T_a > -10 °C, then the environment cools down and the sensor is not disconnected from the supply voltage during the whole time. It is not allowed to turn on the sensor below T_a = -10 °C.

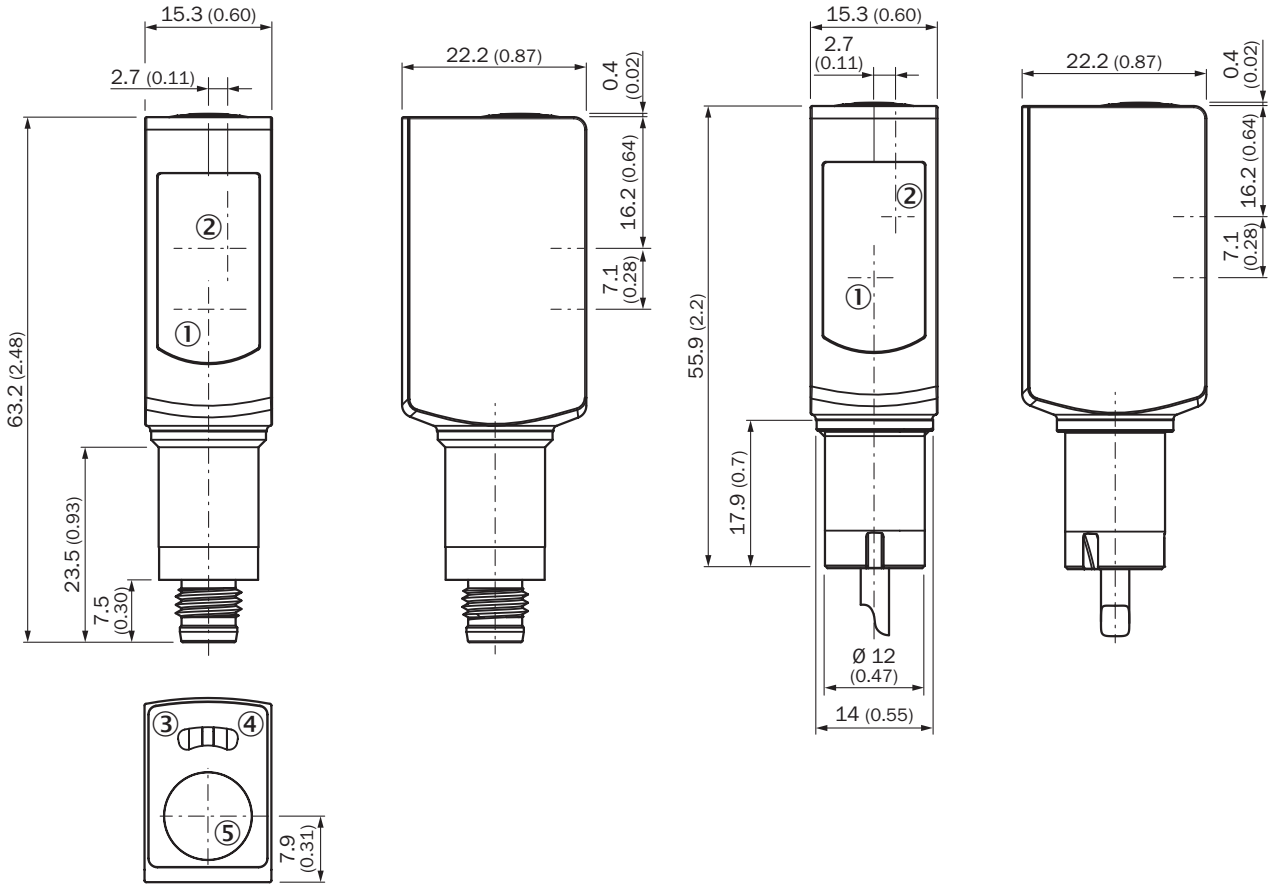
Ordering information

Sensing range max. [1)]	Output function	Connection	Model name	Part no.
25 mm ... 300 mm	PNP	Cable, 4-wire, 2 mm, PVC	WTB4SL-3P4162H	1058274
		Connector, M8, 4-pin	WTB4SL-3P5262H	1058271
		Cable with connector, M8, 4-pin, 150 mm, PVC	WTB4SL-3P7262H	1058272
	NPN	Cable, 4-wire, 2 mm, PVC	WTB4SL-3N4162H	1058275

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

Dimensional drawings

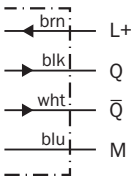
dimensions in mm (inch)



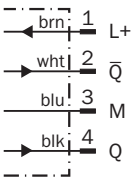
① Center of optical axis, sender
② Center of optical axis, receiver
③ Status indicator LED, yellow: Status of received light beam
④ Status indicator LED green: power on
⑤ Single teach-in button

Connection diagram

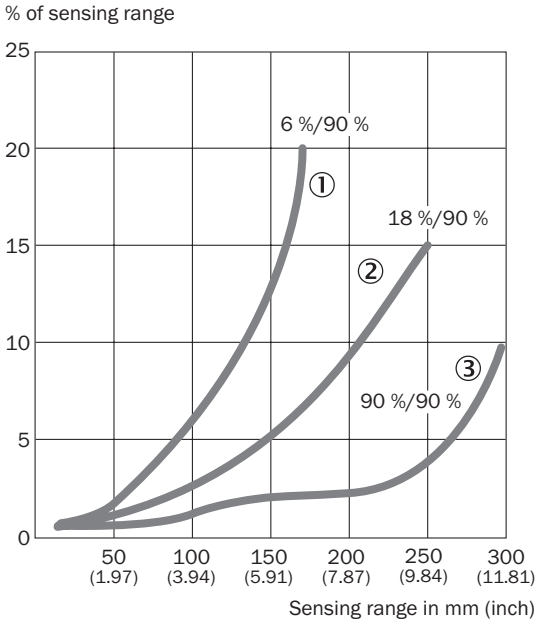
WTB4SL-3x41xxH
Cable



WTB4SL-3xx2xxH
(Cable with) connector

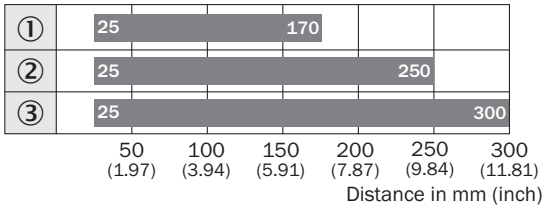


Black/white shift



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

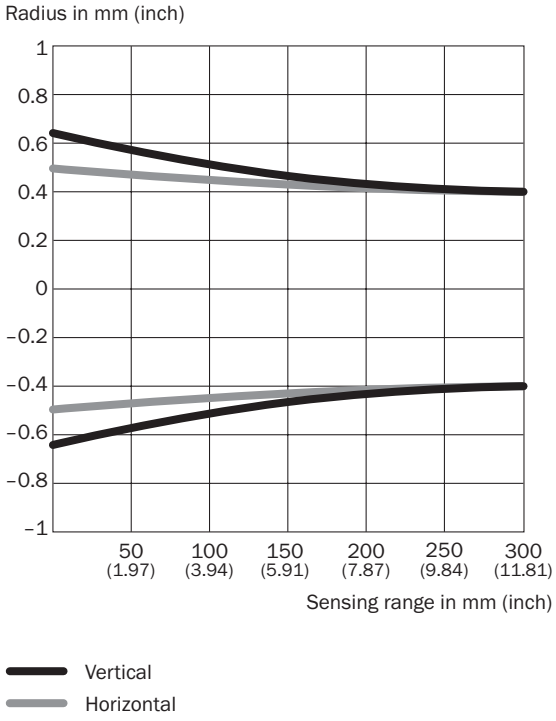
Sensing range



Sensing range typ. max.

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

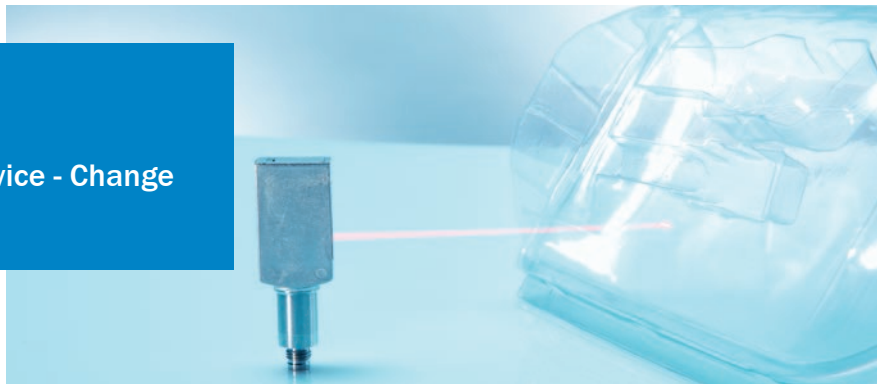
Light spot size



Dimensions in mm (inch)

Sensing range	Vertical	Horizontal
50 mm (1.97)	1.2 (0.05)	1.0 (0.04)
100 mm (3.94)	1.1 (0.04)	1.0 (0.04)
200 mm (7.87)	0.9 (0.04)	0.9 (0.04)
300 mm (11.81)	0.8 (0.03)	0.8 (0.03)

Detect all objects with one device - Change mode via teach button



Stainless Steel

IP 69K ECOLAB

Additional information

Product description

The stainless steel housing of the WL4SLG-3 Inox Hygiene photoelectric retro-reflective sensor, which is designed based on hygienic guidelines, is especially suited to machines in which hygiene is already part of the design. A press of a button allows operation in the detection mode for transparent and/or non-transparent objects. This means that one device can be used to detect transparent vials and metallic needles, for example. This reduces the variety of sensors needed. The precise, highly visible laser light spot ensures a high level of detection quality and facilitates alignment. Autocollimation technology ensures that the sensor reliably detects objects at close range as well as through small drilled holes. The photoelectric sensors also feature an IO-Link function, so that initial system performance diagnostics can be done independently. Furthermore, IO-Link permits the integration of additional functions such as meters directly into the sensor. There is no need for complex control programming.

At a glance

- Precise laser light spot, laser class 1
- Stainless steel housing with hygienic design
- Latest SICK proprietary ASIC and laser technologies for outstanding background suppression and ambient light immunity
- Teach-in pushbutton can be switched between detection of transparent and tiny non-transparent objects
- ECOLAB certified, tested to IP 66, IP 67, IP 68 and IP 69K enclosure rating
- IO-Link (optional)

Your benefits

- Precise laser light spot for highly accurate switching
- Washable stainless steel housing reduces bacterial contamination
- Innovative hygienic design with sealed connections and unique patented membrane teach-in push-button
- One sensor for detecting both transparent objects and tiny non-transparent objects. This reduces the variety of sensors and saves on storage costs
- Autocollimation permits detection through very small drilled holes
- IO-Link facilitates, for example, effortless initial system performance diagnostics and uses additional sensor functions to reduce complex control programming

→ **www.mysick.com/en/WL4SLG-3H**

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.

8015618/2013-04-18
Subject to change without notice

Detailed technical data

Features

Sensor principle	Photoelectric retro-reflective sensor
Detection principle	Autocollimation
Dimensions (W x H x D)	12.2 mm x 41.8 mm x 17.3 mm
Housing design [1]	Hygiene
Housing design (light emission)	Rectangular / Slim
Mounting hole	M3
Sensing range max. [2][3][4]	0 m ... 4.5 m
Sensing range [2][3][4]	0 m ... 2 m
Type of light	Visible red light
Light source [5]	Laser
Laser class	1 (EN60825-1:2008-05 & IEC 60825-1:2007-03 / CDRH 21 CFR 1040.10 & 1040.11)
Wave length	650 nm
Light spot size (distance)	Ø 1 mm (500 mm)
Sensitivity adjustment	Single teach-in button and teach-in via cable [6] (depending on type)

[1] The essential difference between a standard/wash down product and a hygiene product is that where the process and contact with the medium (activity in the vicinity of the food) are concerned, the product is designed in accordance with the latest standards and hygiene design guidelines, and materials are selected accordingly.

[2] REF-AC1000.

[3] CTA (continuous threshold adaption) allows automatic adaptation to changes in light conditions.

[4] We recommend using reflective tape REF-AC1000 or reflectors based on this reflective tape, like P41F, PLV14-A, PLH25-M12 or PLH25-D12, to ensure reliable operation. Reflectors with larger-scaled triple structures should only be used after application clarification.

[5] Average service life 50,000 h at T_a = +25 °C.

[6] Adjustment via cable (ET): white cable or PIN2 according to the desired sensitivity > 2 ... < 8 s or put > 8 s on L+ (PNP) or on M (NPN)

Mechanics/electronics

Supply voltage [1]	10 V DC ... 30 V DC
Residual ripple [2]	< 5 V_{pp}
Power consumption [3]	≤ 30 mA
Switching output	PNP, light/dark-switching, complementary [4] PNP, dark-switching [5] NPN, light/dark-switching, complementary [4] (depending on type)
Output current $I_{max.}$	≤ 100 mA
Response time [6]	≤ 0.5 ms
Switching frequency [7]	1,000 Hz
Connection type	Cable with connector, 150 mm, PVC, 0.14 mm² [8] Cable, 2 m, PVC, 0.14 mm² [8] Connector (depending on type)
Circuit protection	A [9] B [10] C [11]
Protection class	⧫
Weight	
Cable with connector, M8, 4-pin	150 g
Connector, M8, 4-pin	140 g
Cable, 4-wire	180 g
Polarisation filter	✔

IO-Link	✔ (COM2) (depending on type)
Housing material	Stainless steel V4A (1.4404, 316L), average roughness < 0,8 µm
Optics material	PMMA
Enclosure rating	IP 66 IP 67 IP 68 IP 69K [12]
Ambient operating temperature	–10 °C ... +50 °C
Ambient operating temperature extended [13] [14]	–30 °C ... +55 °C
Ambient storage temperature	–30 °C ... +70 °C

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

[2] May not exceed or fall short of V_S.

[3] Without load.

[4] Q = light-switching.

[5] Q = dark-switching.

[6] Signal transit time with resistive load.

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

[8] Do not bend below 0 °C.

[9] A = V_S connections reverse-polarity protected.

[10] B = inputs and output reverse-polarity protected.

[11] C = interference suppression.

[12] Only in case of correctly mounted IP 69K connecting cable.

[13] As of T_a = 50 °C, a max. supply voltage $V_{max.}$ = 24 V and a max. load current $I_{max.}$ = 50 mA is permitted.

[14] Using the sensor below T_a = -10 °C is possible, if the sensor is turned on at T_a > -10 °C, then the environment cools down and the sensor is not disconnected from the supply voltage during the whole time. It is not allowed to turn on the sensor below T_a = -10 °C.

Ordering information

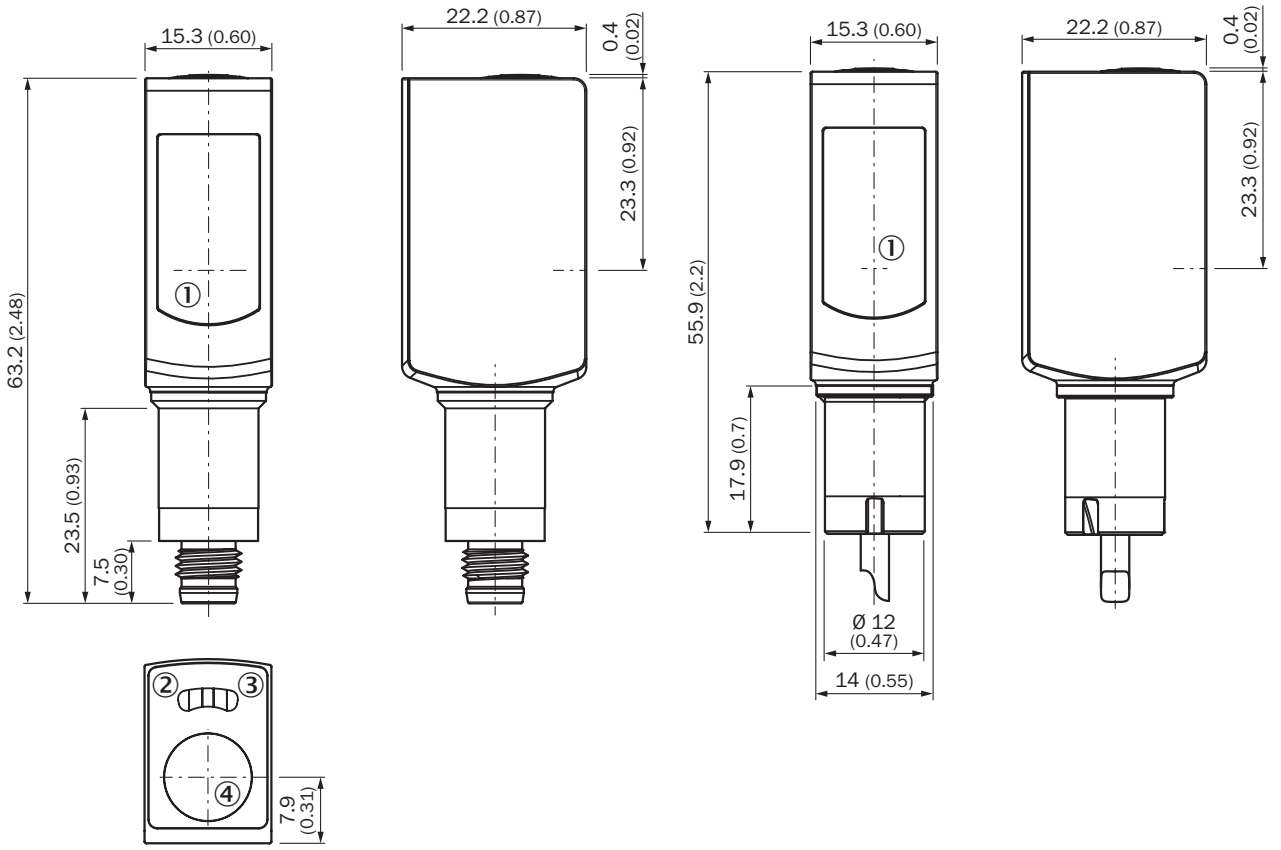
Sensing range max. [1]	Output function	Switching mode	Sensitivity adjustment	IO-Link	Connection	Model name	Part no.
0 m ... 4.5 m	PNP	Light/dark-switching	Single teach-in button	–	Cable, 4-wire, 2 m, PVC	WL4SLG-3P4132H	1058282
					Connector, M8, 4-pin	WL4SLG-3P5232H	1058276
				COM2	Connector, M8, 4-pin	WL4SLGC-3P5232H	1058277
				–	Cable with connector, M8, 4-pin, 150 mm, PVC	WL4SLG-3P7232H	1058280
		Dark-switching	Single teach-in button and teach-in via cable [2]	–	Cable, 4-wire, 2 m, PVC	WL4SLG-3F4134H	1058283
					Connector, M8, 4-pin	WL4SLG-3F5234H	1058278
					Cable with connector, M8, 4-pin, 150 mm, PVC	WL4SLG-3F7234H	1058281
	NPN	Light/dark-switching	Single teach-in button	–	Cable, 4-wire, 2 m, PVC	WL4SLG-3N4132H	1058284

[1] REF-AC1000.

[2] Adjustment via cable (ET): white cable or PIN2 according to the desired sensitivity > 2 ... < 8 s or put > 8 s on L+ (PNP) or on M (NPN)

Dimensional drawings

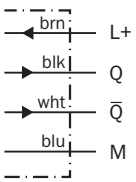
dimensions in mm (inch)



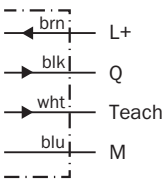
① Center of optical axis
② Status indicator LED, yellow: Status of received light beam
③ Status indicator LED green: power on
④ Single teach-in button

Connection diagram

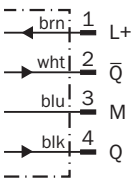
WL4SLG-3x41x2H
Cable



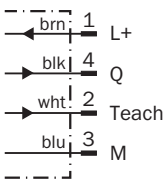
WL4SLG-3x41x4H
Cable



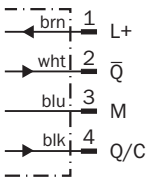
WL4SLG-3xx2x2H
(Cable with) connector



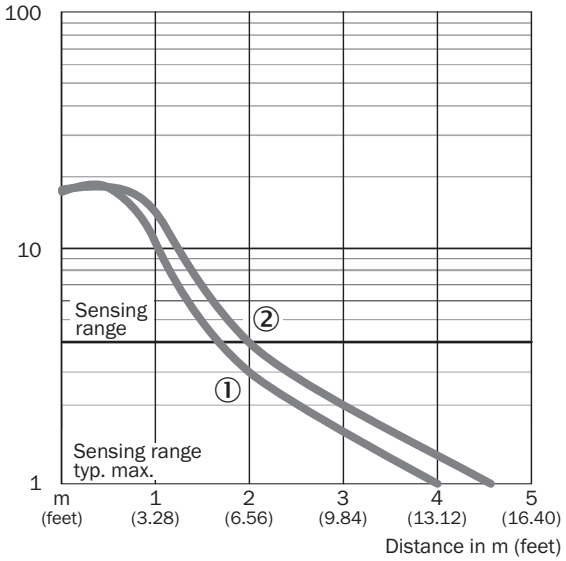
WL4SLG-3xx2x4H
(Cable with) connector



WL4SLGC-3P5232H
Connector

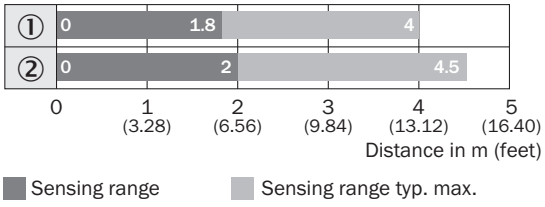


Operating reserve



① PLV14-A/PLH25-M12/PLH25-D12
② P41F/REF-AC1000

Scanning range

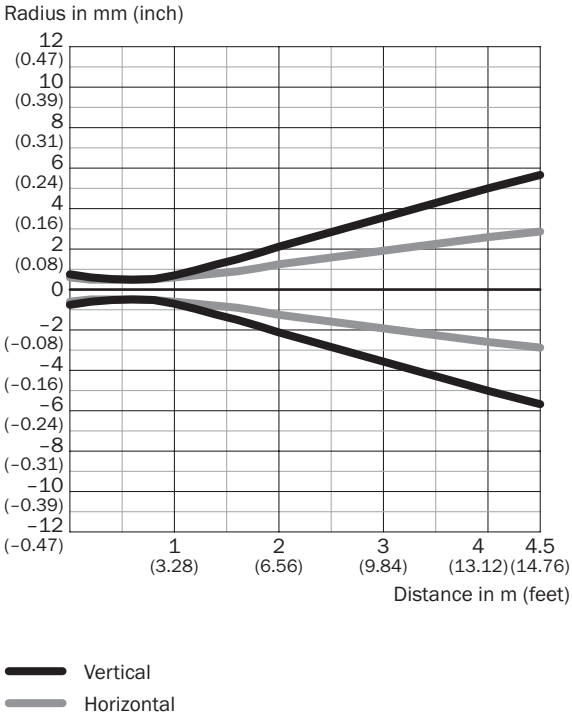


Reflector type

① PLV14-A / PLH25-M12 / PLH25-D12
② P41F / REF-AC1000

Light spot size

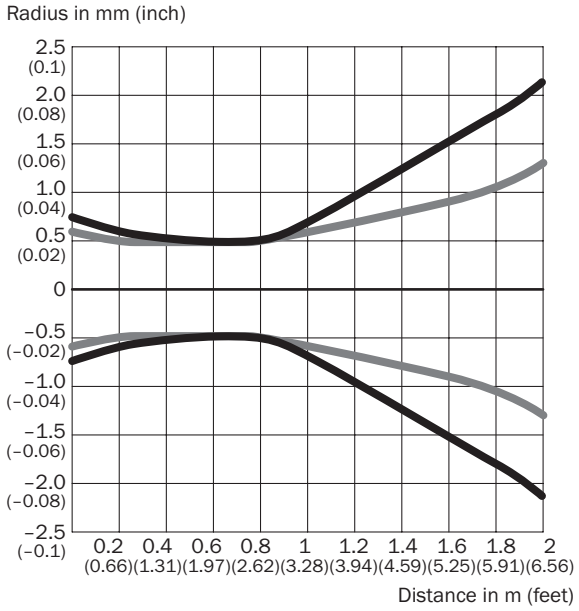
Overview



Dimensions in mm (inch)

Sensing range	Vertical	Horizontal
0.5 m (1.64 feet)	< 1.0 (0.04)	< 1.0 (0.04)
1 m (3.28 feet)	1.5 (0.06)	1.2 (0.05)
2 m (6.56 feet)	4.3 (0.17)	2.6 (0.10)
4.5 m (14.76 feet)	11.3 (0.44)	5.6 (0.22)

Close up


Radius in mm (inch)
2.5 (0.1)
2.0 (0.08)
1.5 (0.06)
1.0 (0.04)
0.5 (0.02)
0
–0.5 (–0.02)
–1.0 (–0.04)
–1.5 (–0.06)
–2.0 (–0.08)
–2.5 (–0.1)
0.2 (0.66)
0.4 (1.31)
0.6 (1.97)
0.8 (2.62)
1 (3.28)
1.2 (3.94)
1.4 (4.59)
1.6 (5.25)
1.8 (5.91)
2 (6.56)
Distance in m (feet)
Vertical
Horizontal

W4 Inox

Mounting brackets/plates

Figure	Accessory type	Material	Model name	Part no.	WTB4SL-3V	WL4SLG-3V	WSE4SL-3V	WTB4SL-3H	WL4SLG-3H
	Mounting brackets	Stainless steel 1.4571	BEF-W4-A	2051628	●	●	●	–	–
			BEF-W4-B	2051630	●	●	●	–	–

Device protection (mechanical)

Figure	Accessory type	Material	Model name	Part no.	WTB4SL-3V	WL4SLG-3V	WSE4SL-3V	WTB4SL-3H	WL4SLG-3H
	Protective housing/tubes	Stainless steel 1.4571	BEF-SW-W4S	2051497	●	●	●	–	–

Terminal and alignment brackets

- **Accessory type:** Universal bar clamp systems

Figure	Material	Model name	Part no.	WTB4SL-3V	WL4SLG-3V	WSE4SL-3V	WTB4SL-3H	WL4SLG-3H
	Zinc diecast	BEF-KHS-KH3	5322626	●	●	●	–	–
	Stainless steel 1.4571 (sheet), Stainless steel 1.4408 (clamp)	BEF-KHS-N02N	2051618	●	●	●	–	–
	Stainless steel (1.4571)	BEF-MS12G-NA	4058914	●	●	●	–	–
		BEF-MS12G-NB	4058915	●	●	●	–	–
		BEF-MS12L-NA	4058912	●	●	●	–	–
		BEF-MS12L-NB	4058913	●	●	●	–	–
		BEF-MS12Z-NA	4058916	●	●	●	–	–
		BEF-MS12Z-NB	4058917	●	●	●	–	–
	Aluminum	BEF-RMC-D12	5321878	●	●	●	–	–

Reflectors

Figure	Accessory type	Dimensions (L x W)	Material	Model name	Part no.	WTB4SL-3V	WL4SLG-3V	WSE4SL-3V	WTB4SL-3H	WL4SLG-3H
	Fine triple reflectors	47 mm x 47 mm	PMMA/ABS	P250F	5308843	–	●	–	–	●
		Ø 23 mm	PMMA/ABS	P25F-1	5319385	–	●	–	–	●
		23 mm x 23 mm	PMMA/ABS	P41F	5315128	–	●	–	–	●
		18 mm x 18 mm	PMMA/ABS	PL10F	5311210	–	●	–	–	●
			–	PL10F CHEM	5321636	–	●	–	–	●
		16 mm x 38 mm	PMMA/ABS	PL20F	5308844	–	●	–	–	●
		28 mm x 56 mm	PMMA/ABS	PL30F	5326523	–	●	–	–	●
		45 mm x 76 mm	PMMA/ABS	PL81-1F	5325060	–	●	–	–	●

Figure	Accessory type	Dimensions (L x W)	Material	Model name	Part no.	WTB4SL-3V	WL4SLG-3V	WSE4SL-3V	WTB4SL-3H	WL4SLG-3H
	Angular	80 mm x 80 mm	PMMA/ABS	PL80A	1003865	–	●	–	–	●
	Special reflectors	25 mm x 25 mm	Stainless steel V4A (1.4404, 316L)	PLH25-D12	2063404	–	●	–	–	●
				PLH25-M12	2063403	–	●	–	–	●
		14 mm x 14 mm	Stainless steel V4A (1.4404, 316L)	PLV14-A	2063405	–	●	–	–	●
	Reflective tape	225 mm x 225 mm	–	REF-AC1000	5319429	–	●	–	–	●
		56.3 mm x 56.3 mm	–	REF-AC1000-56	4063030	–	●	–	–	●

Plug connectors and cables

- **Connector type:** Female connector

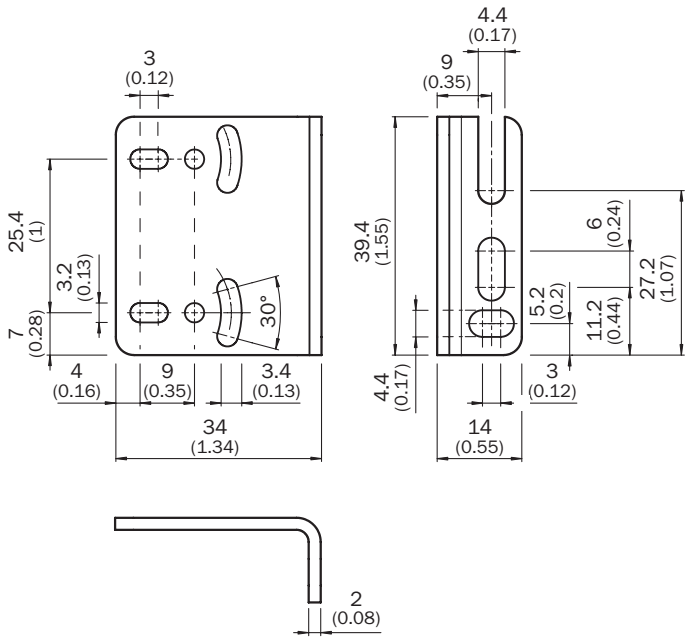
Figure	Connection type	Enclosure rating	Configuration	Jacket material	Cable length	Model name	Part no.	WTB4SL-3V	WL4SLG-3V	WSE4SL-3V	WTB4SL-3H	WL4SLG-3H
	Connector M8, 3-pin	IP 69K	Straight	PVC	2 m	DOL-0803-G02MN	6033664	●	●	●	●	●
	Connector M8, 3-pin	IP 69K	Straight	PVC	5 m	DOL-0803-G05MN	6033665	●	●	●	●	●
					10 m	DOL-0803-G10MN	6033666	●	●	●	●	●
			Angled	PVC	2 m	DOL-0803-W02MN	6033667	●	●	●	●	●
					5 m	DOL-0803-W05MN	6033668	●	●	●	●	●
					10 m	DOL-0803-W10MN	6033669	●	●	●	●	●
	Connector M8, 4-pin	IP 69K	Straight	PVC	2 m	DOL-0804-G02MN	6033670	●	●	●	●	●
					5 m	DOL-0804-G05MN	6033671	●	●	●	●	●
					10 m	DOL-0804-G10MN	6033672	●	●	●	●	●
			Angled	PVC	2 m	DOL-0804-W02MN	6033673	●	●	●	●	●
					5 m	DOL-0804-W05MN	6033674	●	●	●	●	●
					10 m	DOL-0804-W10MN	6033675	●	●	●	●	●

Figure	Connection type	Enclosure rating	Configuration	Jacket material	Cable length	Model name	Part no.	WTB4SL-3V	WL4SLG-3V	WSE4SL-3V	WTB4SL-3H	WL4SLG-3H
	Connector M12, 4-pin	IP 69K	Straight	PVC	2 m	DOL-1204-G02MN	6028128	●	●	●	●	●
					5 m	DOL-1204-G05MN	6028130	●	●	●	●	●
					10 m	DOL-1204-G10MN	6028132	●	●	●	●	●
					25 m	DOL-1204-G25MN	6028134	●	●	●	●	●
			Angled	PVC	2 m	DOL-1204-W02MN	6028129	●	●	●	●	●
					5 m	DOL-1204-W05MN	6028131	●	●	●	●	●
					10 m	DOL-1204-W10MN	6028133	●	●	●	●	●
					25 m	DOL-1204-W25MN	6028135	●	●	●	●	●
	–	–	Angled	–	2 m	DSL-1204-B02MN	6028198	●	●	●	●	●
					5 m	DSL-1204-B05MN	6028199	●	●	●	●	●
					0.6 m	DSL-1204-B0M6N	6028197	●	●	●	●	●
			Straight	–	2 m	DSL-1204-G02MN	6028195	●	●	●	●	●
					5 m	DSL-1204-G05MN	6028196	●	●	●	●	●
					0.6 m	DSL-1204-G0M6N	6028194	●	●	●	●	●

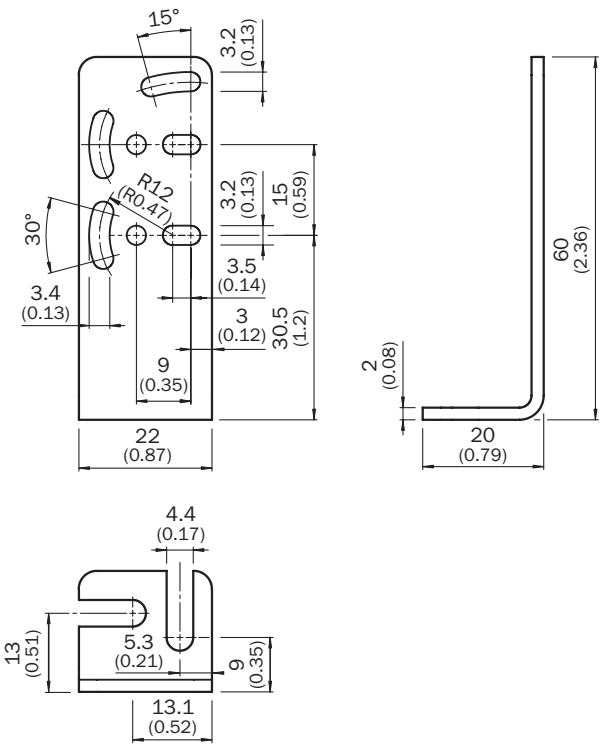
Dimensional drawings Mounting brackets/plates

dimensions in mm (inch)

BEF-W4-A



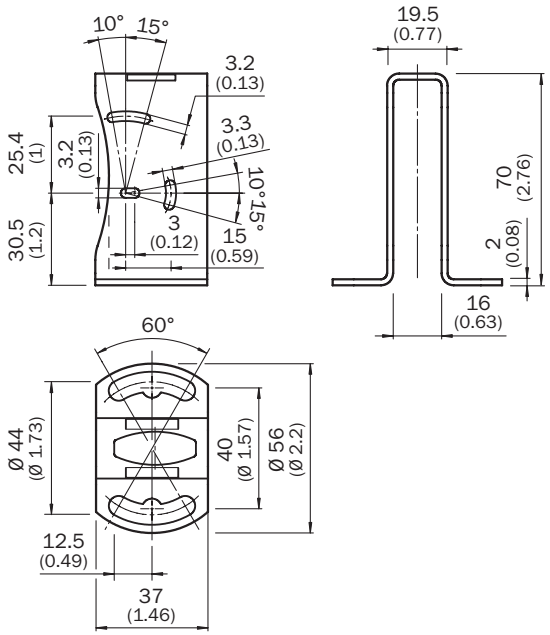
BEF-W4-B



Dimensional drawings Device protection (mechanical)

dimensions in mm (inch)

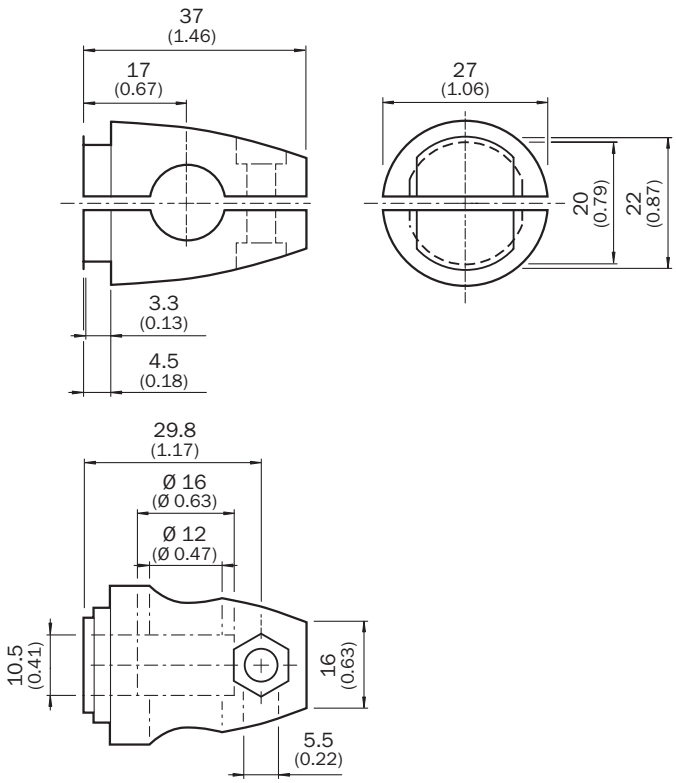
BEF-SW-W4S



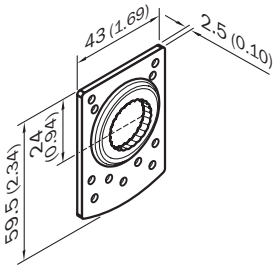
Dimensional drawings Terminal and alignment brackets

dimensions in mm (inch)

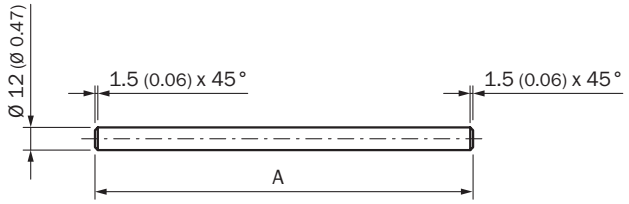
BEF-KHS-KH3



BEF-KHS-N02N

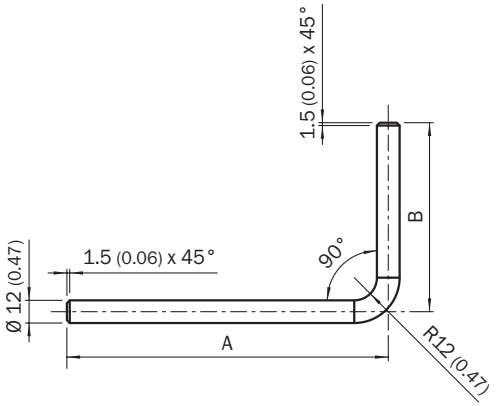


BEF-MS12G-NA
BEF-MS12G-NB



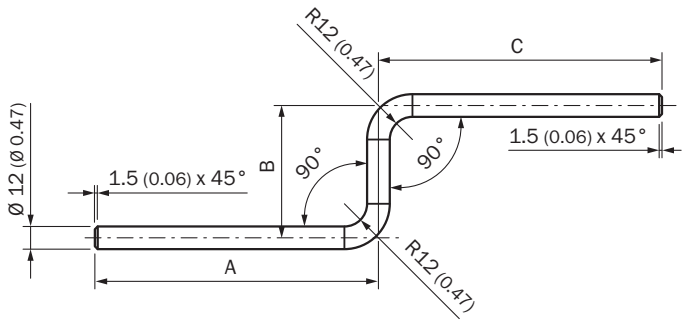
A = 200 mm (BEF-MS12G-NA)
A = 300 mm (BEF-MS12G-NB)

BEF-MS12L-NA
BEF-MS12L-NB



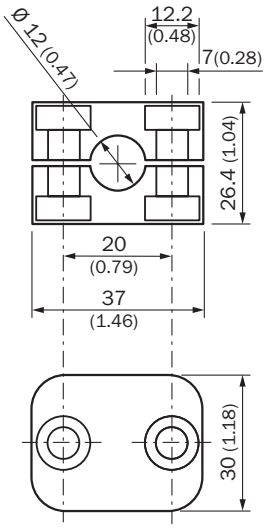
A = 200 mm, B = 150 mm (BEF-MS12L-NA)
A = 250 mm, B = 250 mm (BEF-MS12L-NB)

BEF-MS12Z-NA
BEF-MS12Z-NB



A = 150 mm, B = 70 mm, C = 150 mm (BEF-MS12Z-NA)
A = 150 mm, B = 70 mm, C = 250 mm (BEF-MS12Z-NB)

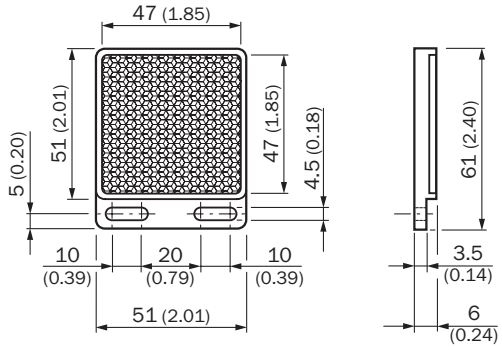
BEF-RMC-D12



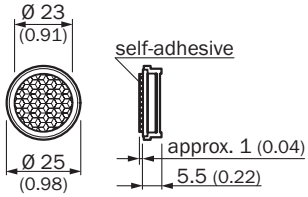
Dimensional drawings Reflectors

dimensions in mm (inch)

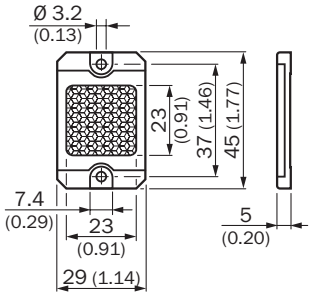
P250F



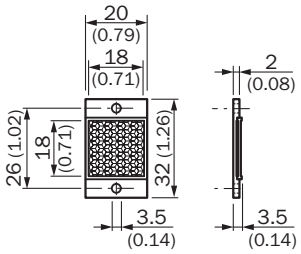
P25F-1



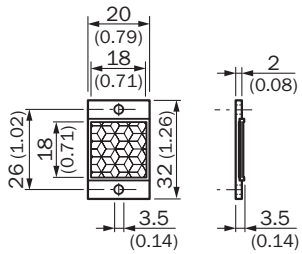
P41F



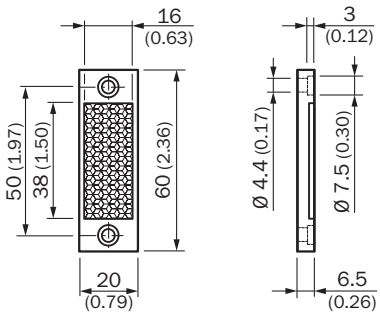
PL10F



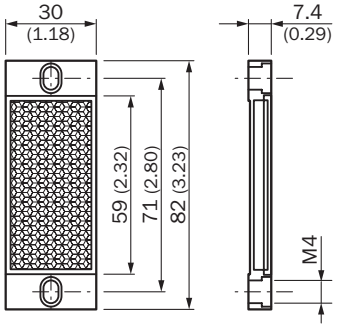
PL10F CHEM



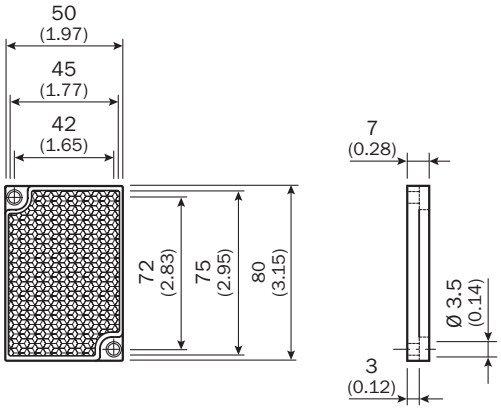
PL20F



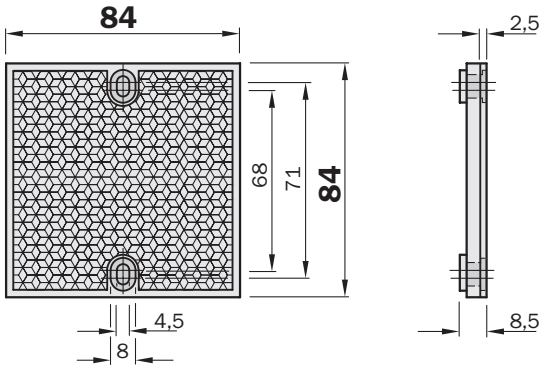
PL30F



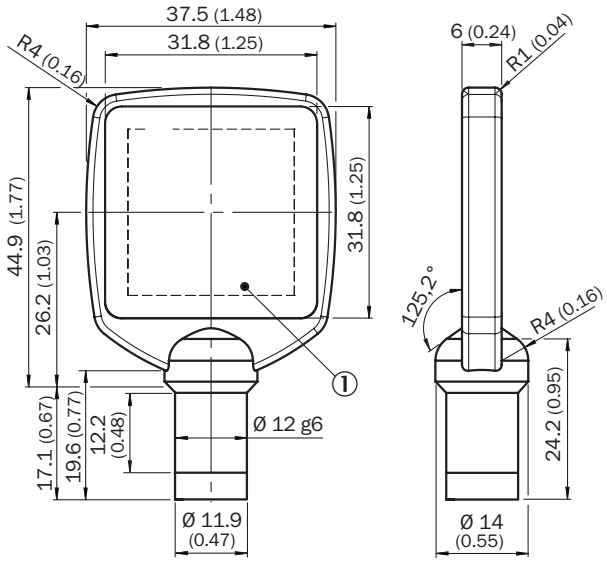
PL81-1F



PL80A

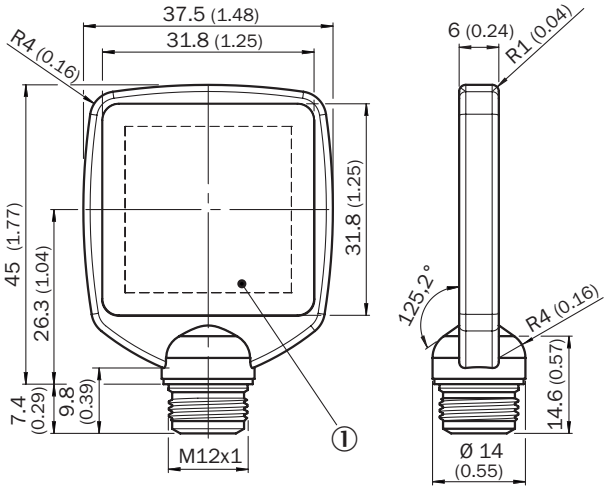


PLH25-D12



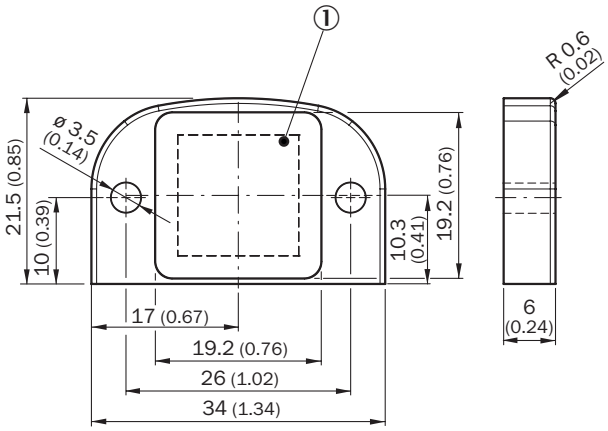
① Reflective area

PLV14-A



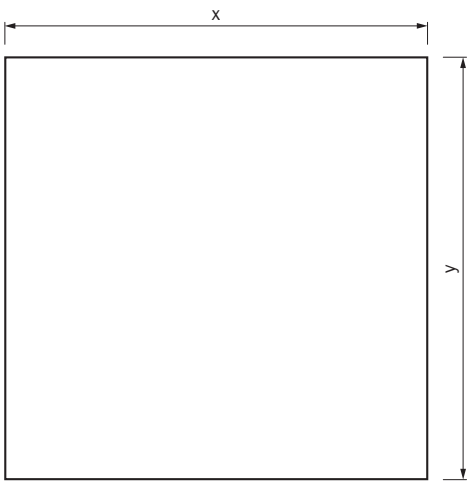
① Reflective area

PLV14-A



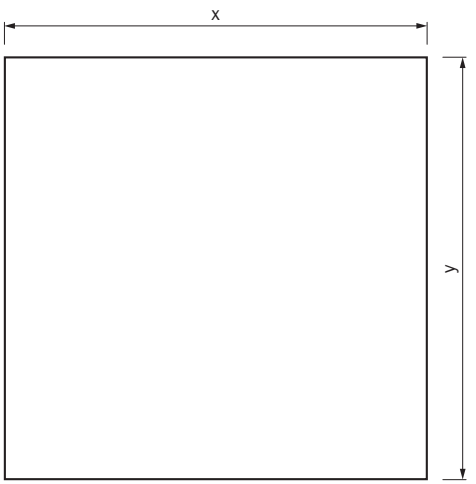
① Reflective area

REF-AC1000



x = 225 mm
y = 225 mm

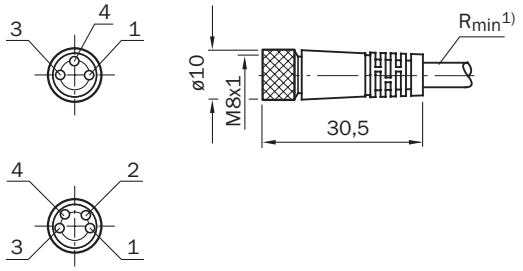
REF-AC1000-56



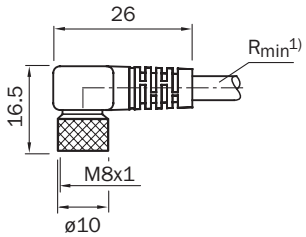
x = 56,3 mm
y = 56,3 mm

Dimensional drawings Plug connectors and cables

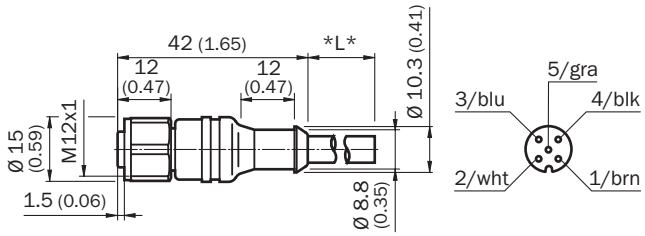
DOL-0803-G02MN, DOL-0803-G05MN, DOL-0803-G10MN, DOL-0804-G02MN, DOL-0804-G05MN, DOL-0804-G10MN



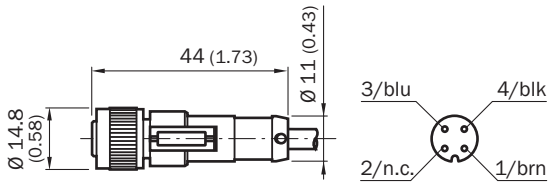
DOL-0803-W02MN, DOL-0803-W05MN, DOL-0803-W10MN, DOL-0804-W02MN, DOL-0804-W05MN, DOL-0804-W10MN



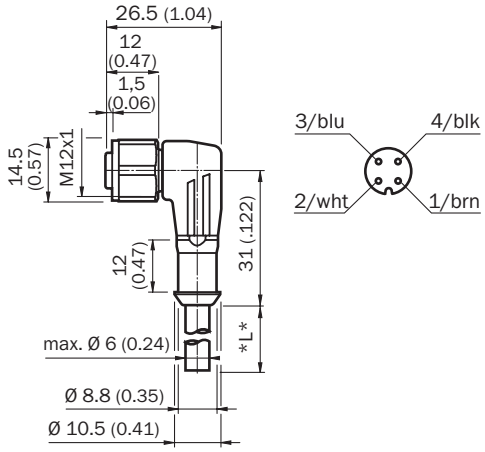
DOL-1204-G02MN



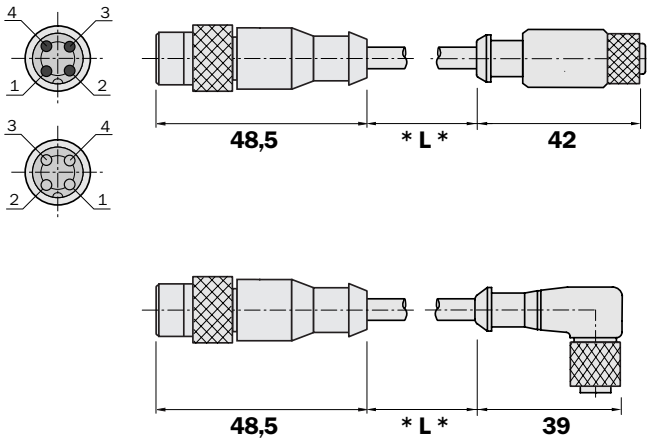
DOL-1204-G05MN
DOL-1204-G10MN
DOL-1204-G25MN



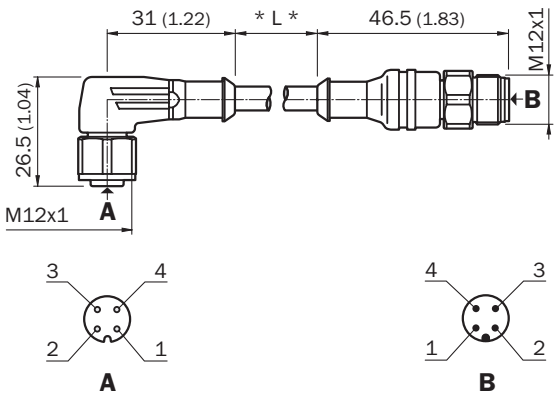
DOL-1204-W02MN
DOL-1204-W05MN
DOL-1204-W10MN
DOL-1204-W25MN



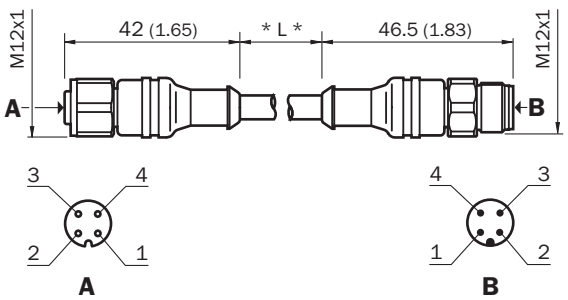
DSL-1204-B02MN
DSL-1204-B05MN



DSL-1204-B0M6N



DSL-1204-G02MN
DSL-1204-G05MN
DSL-1204-G0M6N



PxxxCHEM – Assessment of chemical stress by TÜV Rheinland (Rhineland technical testing authority)

Liquid tested	Substance group/ component parts	Assessment after (composition, color)		
		1 day	7 days	14 days
Acetaldehyde	Aldehydes	0	0	0
Acetone	Ketones	1 (softening of surface)	1 (softening of surface)	1 (softening of surface)
Formic acid	Organic acids	0	0	0
Benzene	Aromat. hydrocarbon	0	0	1 (opacity)
1,3-Butanediol	Polyalcohols	0	0	0
Butylamine	Amines	0	0	0
Chlorobenzene	Chlor., aromat. hydrocarbon	0	0	0
Chloroform	CHC	0	0	0
Chlorosulfonic acid	Acid chlorides	0	0	0
Diesel fuel	Fuels	0	0	0
Diethyl ether	Ether	0	0	0
Dimethyl-formamide	Amides	0	0	0
Dimethyl sulfate	Ester	0	0	0
Glacial acetic acid	Organic acids	0	0	1 (slight fis-sures)
Acetic acid 10 %	Organic acids	0	0	0
Ethanol	Alcohols	0	0	1 (slight color change)
Ethylene glycol	Polyalcohols	0	0	0
Formaldehyde 37 %	Aldehydes	0	0	0
Heating oil EL	Fuels	0	0	0
Isopropanol	Alcohols	0	0	0
Kerosene	Fuels	0	0	0
m-Cresol	Phenols	0	0	0
Methanol	Alcohols	0	0	1 (opacity)
n-Heptane	Hydrocarbon	0	0	0
Sodium hydroxide 10 %	Alkalis	0	0	0
Salt acid 20 %	Inorganic acids	0	0	0
Sulfuric acid 98 %	Inorganic acids	0	0	0
1, 1, 2, 2 Tetrachloroethane	Chlorinated hydrocarbon	0	0	0
Tetrachloro-methane	Chlorinated hydrocarbon	0	0	0
Toluol	Aromat. hydrocarbon	0	0	0
Hydrogen peroxide (H_2O_2), 10%ig		0	0	0
Cleaning agent Medicine [a]		0	0	0
Cleaning agent food [b]		0	0	0

0 = no change
1 = slight change (description required)
2 = significant change (description required)
a = Lysoformin® 3000 (contents: glyoxal, glutaral, didecyldimethylammonium chloride)
b = Bio Tec detergent (contents: alkylbenzene sulfonate, alkyl ether sulfate)

PxxxCHEM – Resistant to ECOLAB cleaning agent

Implementation:
- Immersion of the CHEM reflectors in various cleaning solution and concentrates
- Temperature: +60 °C or +80 °C
- Duration: 2 weeks
- After 2 weeks, the reflectors are rinsed with DI water and optically and gravimetrically assessed.

Product/concentration	T [°C]	Suitability
P3-cosa CIP 72	60	+
P3-cosa CIP 77	80	+
P3-cosa CIP 90	80	+
P3-cosa CIP 92	80	+
P3-cosa CIP 95	80	+
P3-cosa PUR 80	80	+
P3-cosa PUR 83	80	+
P3-cosa PUR 84	80	+
P3-cosa PUR 85	80	+
P3-cosa PUR 88	80	+
P3-cosa FOAM 40	80	+
P3-cosa DES	80	+
P3-cosa FLUX 22	80	+
P3-cosa FLUX 33	80	+
P3-cosa FLUX 44	80	+
P3-cosa FLUX 55*	80	0

+ = suitable
0 = suitable in certain conditions
– = unsuitable
* = contains nitric acid

PxxxCHEM – remission

Compared with standard reflectors of the same design, PxxxCHEM reflectors exhibit a remission of 50 to 70 %.

Example:
P250 = 100 %,
P250CHEM = 50 ... 70 %,
dependent on the photoelectric sensor used.

Measured values were taken from the inspection report by TÜV Rheinland (Rhineland technical testing authority) (Test no. 620/ 434628)

Notes

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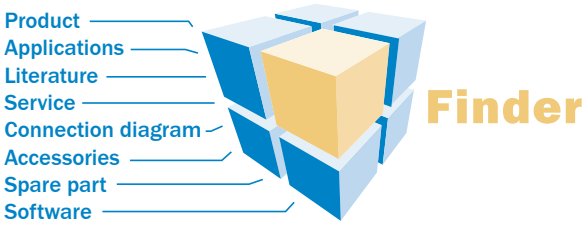

Product Finder: We can help you to quickly target the product that best matches your application.

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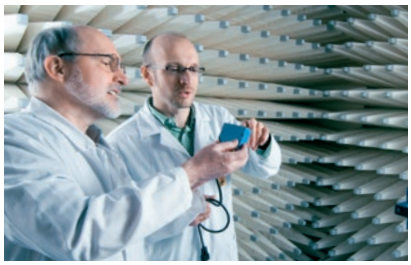
SICK at a glance



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