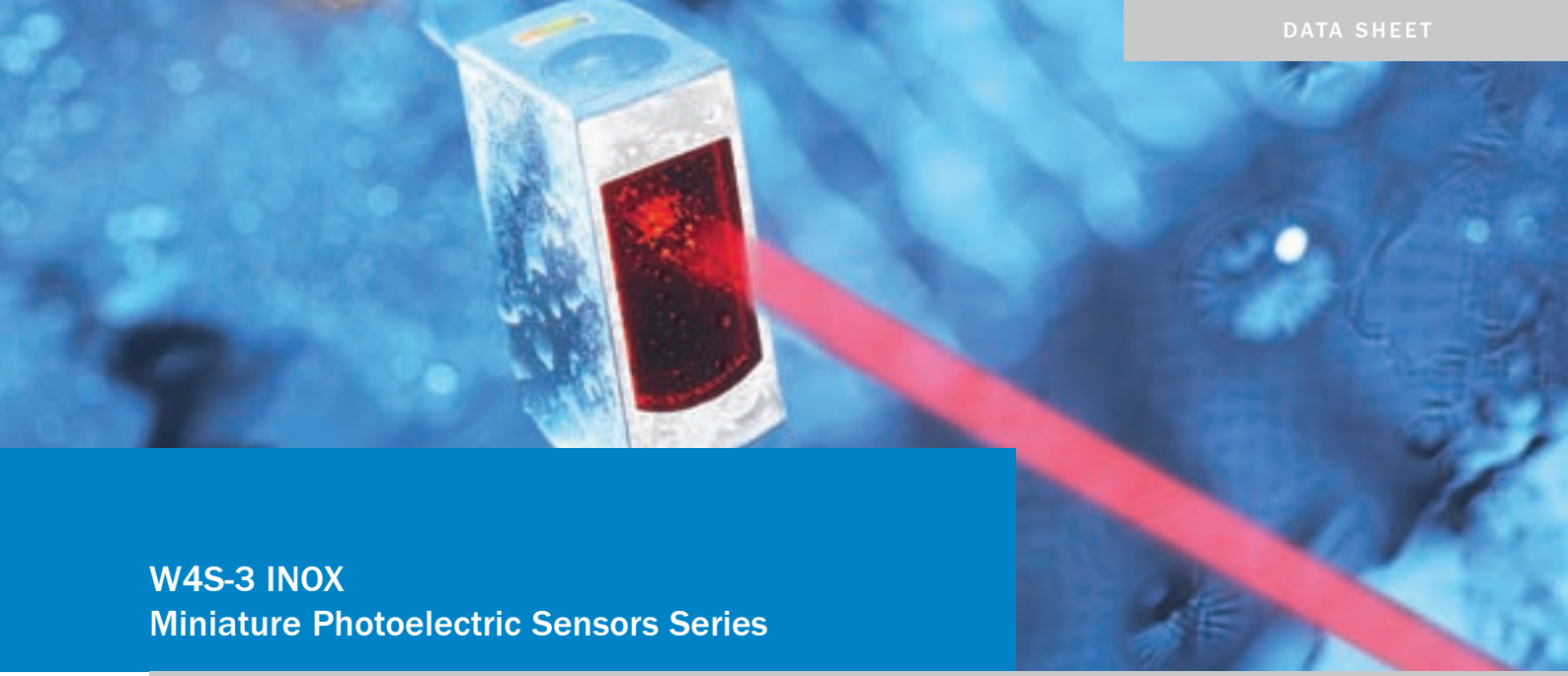


# W4S-3 INOX
# Miniature Photoelectric Sensors Series

Smaller, tougher, better.
Best optical performance in a robust stainless steel housing.

Your machine is cleaned with steam jets and highly aggressive cleaning agents. You expect state-of-the-art sensor technology to reliably detect all of your target objects. You need to adjust the sensor quickly and reliably and have optional diagnostic information available. If so, the new W4S-3 INOX is the sensor product for you.

It combines a proven sensor core in a robust housing. Robust because the V4A/316L casing with a specially coated, scratch-resistant front screen withstands all known cleaning procedures.

The tried and tested individual models of the W4S-3 series, with their special features, are also available in the INOX range. Thus, all models feature SICK PinPoint technology, which still sets market standards.

Fast and simple installation: one particular feature is adjustment of the sensor via the use of a teach-in button covered by a stainless steel metal membrane with a click effect.

The sensors may also be adjusted remotely via a control wire, or full communication via IO Link can now permit monitoring and diagnostics to become a reality.

The W4S-3 INOX series complies with the most important standards such as ECOLAB, FDA and EHEDG and ensures maximum protection (IP 69K).

This new range is suitable for a multitude of applications in the food and beverage sectors. However, application problems in other, harsh environments may also be solved reliably.

## Further benefits

- V4A/316L housing
- $SiO_x$ coated front screen
- Complies with the following standards and protection classes:
  - ECOLAB
  - FDA
  - Based on EHEDG
  - HACCP certified
  - IP 67, IP 68, IP 69K

IO-Link

PinPoint by SICK

SICK
Sensor Intelligence.

# W4S-3 INOX – the series for harsh environments.

The W4S-3 INOX series is one of the most space saving miniature sensors for application solutions in harsh environments. The stainless steel housing and the specially coated front screen make this series extremely resistant to the effects of chemicals, and cleaning is simple and reliable.

## The W4S-3 INOX series – best optical performance in a robust stainless steel housing

The small and easily visible light spot provided by the PinPoint LED, enables the reliable detection of small, transparent and very reflective objects almost irrespective of their surface colour or texture. These sensors really impress with their precise and active suppression of unwanted background effects. A particular feature of the reflex version is the continuous monitoring and adaptation of the internal switching threshold to compensate for changing environmental conditions, which ensures that transparent materials, glass bottles etc, are reliably detected, even at very close range. The W4S-3 INOX series are demonstrably best in class.

| | Description | Version | Light beam geometry | Page |
|---|---|---|---|---|
| **Photoelectric proximity sensor BGS** 3 ... 500 mm | • For large scanning distances<br>• Secure detection of objects in front of critical backgrounds<br>• Best background suppression in its class | Teach-in via cable | ∅ 6.5 mm in 150 mm | 6–7 |
| | | Metal membrane Teach-in button | | 8–9 |
| | | IO-Link | | 10–11 |
| **Photoelectric proximity sensor BGS** 3 ... 120 mm | • Precise detection at 30 ... 90 mm distance<br>• Exact scanning distance adjustment with Teach-in<br>• Secure detection of objects in front of critical backgrounds<br>• Laser-like, focussed light spot at 40 ... 80 mm | Teach-in via cable | ∅ < 3 mm of 40 mm to 80 mm | 12–13 |
| | | Metal membrane Teach-in button | | 14–15 |
| | | IO-Link | | 16–17 |
| **Photoelectric proximity sensor BGS** 3 ... 280 mm | • Laser-like, focussed light spot between 90 and 110 mm<br>• Detection of small objects at greater distances | Teach-in via cable and Metal membrane Teach-in button | ∅ 2.5 mm in 100 mm | 18–19 |
| **Photoelectric proximity sensor FGS** 20 ... 200 mm | • The background serves as a reflector<br>• Perfect for the detection of objects from above on conveyor belts<br>• Detection of objects on or in front of steel surfaces | Metal membrane Teach-in button | ∅ 6.5 mm in 150 mm | 20–21 |
| **Photoelectric reflex sensor** 0 ... 4/5 m | • Small, easily visible light spot enables quick and easy alignment<br>• Detection through small (4 mm) apertures, thanks to the autocollimation principle | Without Teach-in, max. sensitivity | ∅ 45 mm in 1.5 m | 22–23 |
| | | Teach-in | | 24–25 |
| **Photoelectric reflex sensor** 0 ... 5 m | • Best performance for transparent objects<br>• Products from the food and beverage sectors are detected<br>• Easy and secure adjustment via Teach-in function<br>• Automatic adaptation of the switching threshold<br>• Detection through small (4 mm) apertures, thanks to the autocollimation principle | Teach-in via cable | ∅ 45 mm in 1.5 m | 26–27 |
| | | Metal membrane Teach-in button | | 28–29 |
| **Through-beam photoelectric sensor** 0 ... 5 m | • Easily visible light spot enables quick and easy alignment. | Without Teach-in, max. sensitivity | ∅ 130 mm in 2.0 m | 30–31 |
| **Accessories** | • Teach-in and battery box for mains-independent testing and remote adjustment of difficult to access sensors | • IP 69K cable with stainless steel fittings<br>• Chemically resistant reflectors<br>• Stainless steel mounting bracket<br>• Sealing plugs for threaded holes | | 32–37 |

**STAINLESS STEEL V4A/ 316L – RUSTPROOF AND CHEMICAL RESISTANT**

Extremely resistant stainless steel housing ideally suited for contact with foods.

**For the toughest cleaning routines.**

**SMOOTH SURFACE**

Completely smooth surface from which the cleaning agents run off slowly, giving bacteria no chance.

**For the most thorough cleaning routine.**

**HOLES CAN BE SEALED.**

Flush-fitting dummy plugs seal the fixing holes.

**For fastest cleaning.**

**RECESSED DISPLAY LED**

Flush, recessed display LEDs are bright and easily visible.

**For best indication.**

**SIMPLE AND FAST SET-UP**

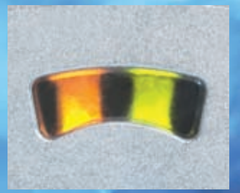
Easy remote set-up via cable and/or IO link or the, integrated flush Teach-in button for input directly on the sensor.

**For most comfortable operation.**

**FRONT SCREEN WITH SPECIAL COATING**

Extremely resistant, specially coated screen ensures reliable cleaning and high scratch resistance.

**For secure cleaning.**



**INOX, high-grade stainless steel from SICK – the best for your application.**

| Can be loaded with ... | Robustness for ... | Concentration | Loading time ... | Result |
|---|---|---|---|---|
| Hydrogen peroxide $H_2O_2$ | Cleaning procedure for antiseptic production conditions in the pharmaceutical and, increasingly, in the food industry | 30 % | Immersed, 3 days at 20 °C | passed [1] |
| Alcohol | Additive in cleaning agents for the food industry | 70 % | Immersed, 3 days at 20 °C | passed [1] |
| Alkaline cleaning agents (caustic soda) | Base substance for many cleaning agents | 5 % | Immersed, 7 days at 60 °C | passed [1] |
| Acetic acid | Wet-chemical processes in the solar industry | 5 % | Immersed, 90 days at 20 °C | passed [1] |
| Citric acid | Juice bottling processes | 4 % | Immersed, 20 days at 20 °C | passed [1] |
| Oils | | Hydraulic oil (Nuto H46) | Immersed, 14 days at 20 °C | passed [1] |
| Temperature drift | Stressing of joints, simulation of ageing processes | Climatic chamber with 100 % humidity | 1000 cycles, 15 min. at 0 °C 15 min. at 75 °C | passed [1] |
| Temperature shock | Stressing of joints, simulation of ageing processes | 2 immersions with 2 % P3 | 10 cycles, 5 min. at 10 °C 5 min. at 70 °C | passed [1] |
| IP 69K | Can be cleaned with high-pressure and steam jets | Water 80 °C, 8 ... 10 bar Pressure from 10 ... 15 cm | 4 x 30 seconds from different positions | passed [1] |

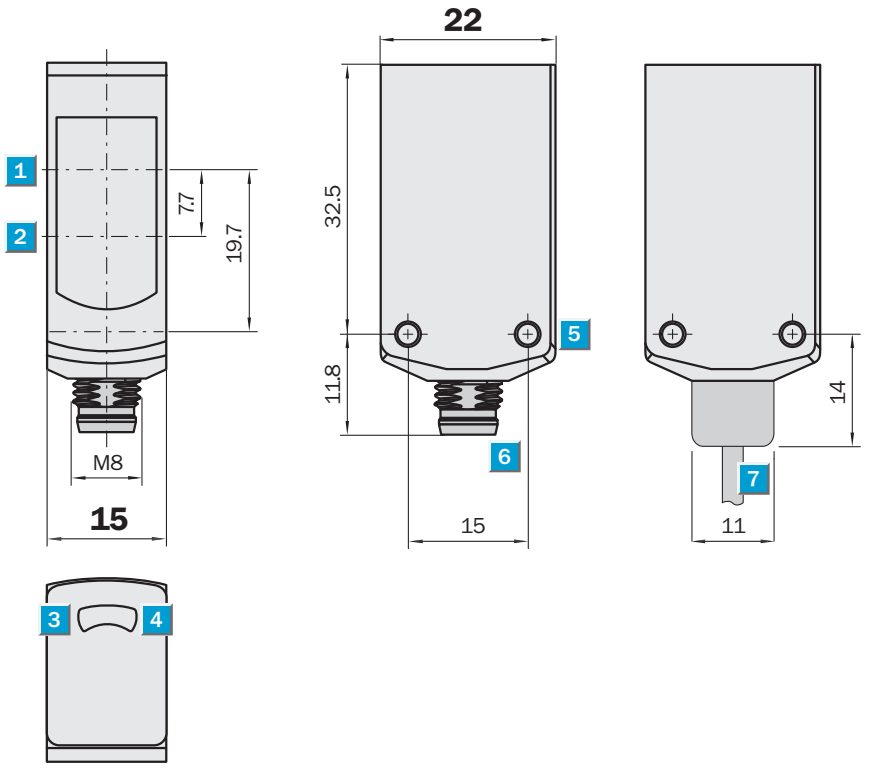
[1] The test criterion for "passed": the sensor is drilled into after the test and put under 1.0 bar air pressure. All joints and seals must remain gas-tight and hold.

**Scanning distance 3 ... 500 mm**

**Photoelectric proximity sensor BGS**

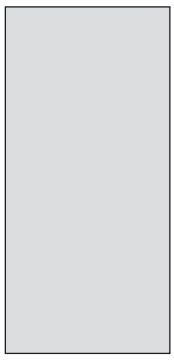
- Robust housing in V4A/316L with internal M3 threaded holes
- Meets highest demands for harshest resistance to environmental conditions
- Best background suppression and best ambient light suppression in its class

## Dimensional drawing




## Adjustments possible

All types



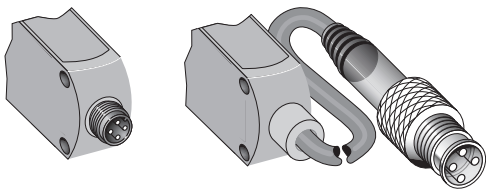
ET: Teach-in via wire

1 Optical axis, sender
2 Optical axis, receiver
3 LED indicator, yellow: status of received light beam
4 LED indicator, green: power on
5 Mounting hole M3
6 Connector M8
7 Cable, Ø 3.4 mm

## Connection types

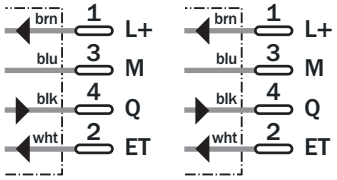
WTB4S-3P2265V
WTB4S-3N2265V

WTB4S-3P3465V



M8, 4-pin

M12, 4-pin



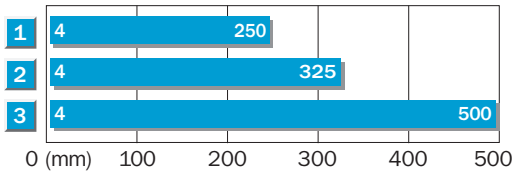

## Accessories

Cables and connectors
Test and teach box
Threaded stopper

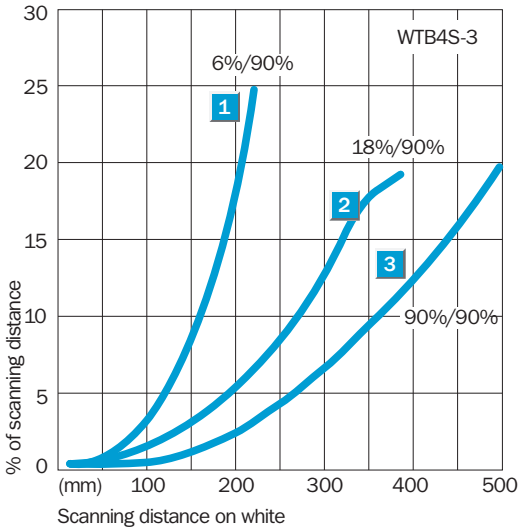
| Technical data | WTB4S-3 | P2265V | P3465V | N2265V |
|---|---|---|---|---|
| **Scanning distance typ. max.** | 3 ... 500 mm[1] | | | |
| Sensitivity setting | ET: Teach-in via cable[2] | | | |
| Light source, light type | PinPoint LED, red light, 650 nm[3] | | | |
| Light spot diameter | 6.5 mm at 150 mm | | | |
| **Supply voltage $V_S$** | 10 ... 30 V DC[4] | | | |
| Residual ripple[5] | < 5 $V_{PP}$ | | | |
| Power consumption[6] | ≤ 30 mA | | | |
| **Switching output** | PNP, Q | | | |
| | NPN, Q | | | |
| Switching mode | Light-switching | | | |
| Output current $I_A$ max. | < 100 mA | | | |
| Response time[7] | < 0.5 ms | | | |
| Switching frequency, max.[8] | 1000/s | | | |
| **Connection type** | Plug M8, 4-pin | | | |
| | Cable with plug M12, 4-pin, | | | |
| | PVC, 150 mm[9] | | | |
| **VDE protection class** | ⧫ | | | |
| **Circuit protection** | A, B, C[10] | | | |
| **Enclosure rating** | IP 67, IP 68, IP 69K[11] | | | |
| **Ambient temperature** | Operation –30 °C ... +60 °C/70 °C[12] | | | |
| | Storage –30 °C ... +75 °C | | | |
| **Weight** | Approx. 40 g | | | |
| **Housing material** | AISI 316 L, $SiO_x$ | | | |

1) Object with 90 % remission (based on standard white DIN 5033)
2) External Teach-in: impulse > 2 s with voltage $V_S$ for PNP or M for NPN
3) Average service life 100,000 h at $T_A$ = +25 °C
4) Limit values, operation in short-circuit protected network max. 8 A
5) May not exceed or fall short of $V_S$ tolerances
6) Without load
7) Signal transit time with resistive load
8) With light/dark ratio 1 : 1
9) Do not bend below 0 °C
10) A = $V_S$ connections reverse-polarity protected
B = All outputs short-circuit protected
C = Interference pulse suppression
11) Only for correctly mounted IP 69K supply cable
12) At $U_V$ ≤ 24 V and $I_A$ < 30 mA

## Scanning distance




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




**Order information**

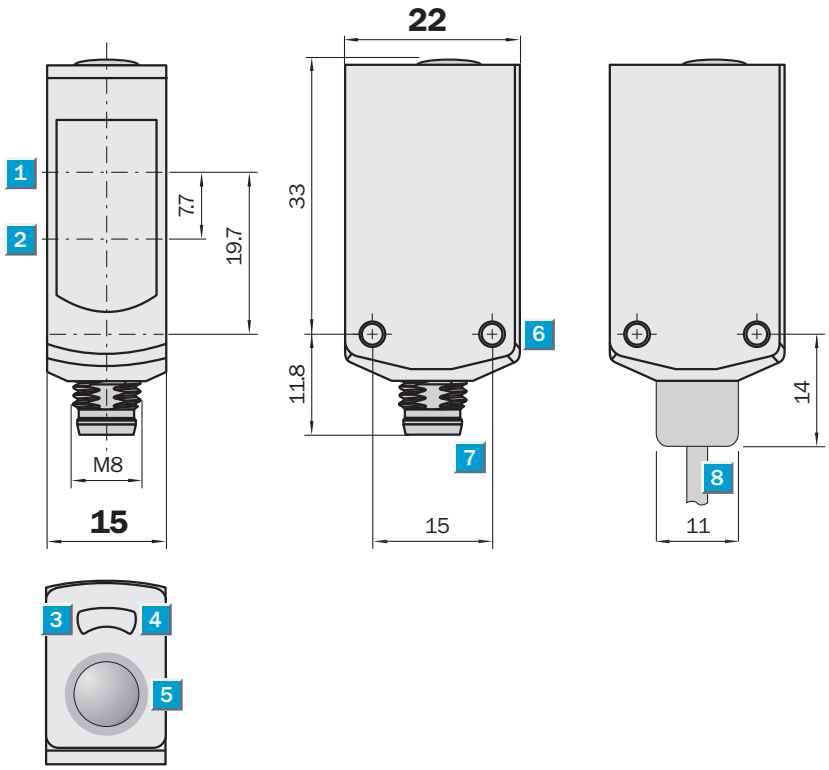
| Type | Order no. |
|---|---|
| WTB4S-3P2265V | 1045091 |
| WTB4S-3P3465V | 1046394 |
| WTB4S-3N2265V | 1047620 |

**Scanning distance 3 ... 500 mm**

**Photoelectric proximity sensor BGS**

- Robust housing in V4A/316L with internal M3 threaded holes
- Seamlessly and smoothly welded metal membrane Teach-in button for maximum robustness
- Best background suppression and best ambient light suppression in its class

## Dimensional drawing

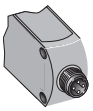
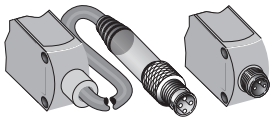
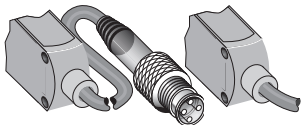
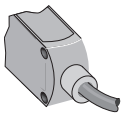



**Adjustments possible**

All types

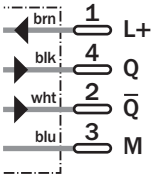
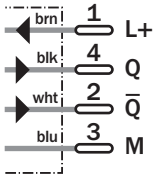
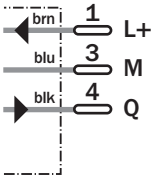
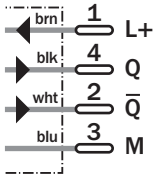
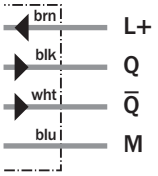
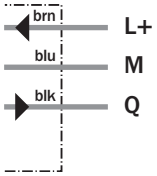

1 Optical axis, sender
2 Optical axis, receiver
3 LED indicator, yellow: status of received light beam
4 LED indicator, green: power on
5 Sensitivity control: Metal membrane Teach-in button
6 Mounting hole M3
7 Connector M8
8 Cable, Ø 3.4 mm

**Connection types**

| WTB4S-3P2262V | WTB4S-3P3262V | WTB4S-3P2162V<br>WTB4S-3F2162V<br>WTB4S-3N2162V | WTB4S-3P3462V | WTB4S-3P1162V<br>WTB4S-3N1162V | WTB4S-3N1362V |
|---|---|---|---|---|---|
|  |  | |  | |  |

**Accessories**

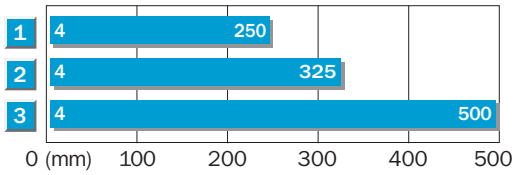
- Cables and connectors
- Test and teach box
- Threaded stopper

| M8, 4-pin | M8, 4-pin | M8, 3-pin | M12, 4-pin | 4 x 0.14 mm² | 3 x 0.14 mm² |
|---|---|---|---|---|---|
|  |  |  |  |  |  |

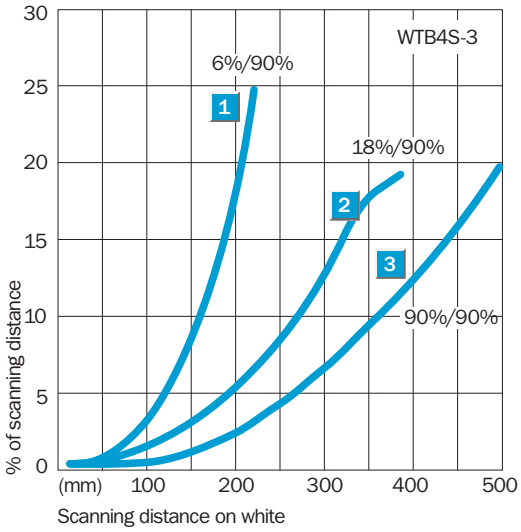
| Technical data | WTB4S-3 | P2262V | P2162V | P3262V | P3462V | P1162V | F2162V | N1162V | N2162V | N1362V |
|---|---|---|---|---|---|---|---|---|---|---|
| **Scanning distance typ. max.** | 3 ... 500 mm[1] | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Sensitivity setting | Teach-in: single Teach-in button | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Light source, light type | PinPoint LED, red light, 650 nm[2] | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Light spot diameter | 6.5 mm at 150 mm | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Supply voltage $V_S$** | 10 ... 30 V DC[3] | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Residual ripple[4] | < 5 $V_{PP}$ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Power consumption[5] | ≤ 30 mA | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Switching output** | PNP, Q | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | NPN, Q | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Switching mode | Dark-switching | | | | | | ■ | | | |
| | Complementary | ■ | | ■ | ■ | ■ | | ■ | | |
| | Light-switching | | ■ | | | | | | ■ | ■ |
| Output current $I_A$ max. | < 100 mA | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Response time[6] | < 0.5 ms | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Switching frequency, max.[7] | 1000/s | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Connection type** | Cable, PVC, 2 m[8] | | | | | ■ | | ■ | | ■ |
| | Plug M8, 4-pin | ■ | | | | | | | | |
| | Plug M8, 3-pin | | ■ | | | | ■ | | ■ | |
| | Cable with plug M8, 4-pin, 150 mm[8] | | | ■ | | | | | | |
| | Cable with plug M12, 4-pin, 150 mm[8] | | | | ■ | | | | | |
| **VDE protection class** | ⧫ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Circuit protection** | A, B, C[9] | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Enclosure rating** | IP 67, IP 68, IP 69K[10] | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Ambient temperature** | Operation –30 °C ... +60 °C/70 °C[11] | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | Storage –30 °C ... +75 °C | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Weight** | Approx. 40 g | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Housing material** | AISI 316 L, $SiO_x$ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |

1) Object with 90 % remission (based on standard white DIN 5033)
2) Average service life 100,000 h at $T_A$ = +25 °C
3) Limit values, operation in short-circuit protected network max. 8 A
4) May not exceed or fall short of $V_S$ tolerances
5) Without load
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
B = All outputs short-circuit protected
C = Interference pulse suppression
10) Only for correctly mounted IP 69K supply cable
11) At $U_V$ ≤ 24 V and $I_A$ < 30 mA

## Scanning distance




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




**Order information**

| Type | Order no. |
|---|---|
| WTB4S-3P2262V | 1046383 |
| WTB4S-3P2162V | 1046384 |
| WTB4S-3P3262V | 1046385 |
| WTB4S-3P3462V | 1046386 |
| WTB4S-3P1162V | 1046388 |
| WTB4S-3F2162V | 1046389 |
| WTB4S-3N1162V | 1046391 |
| WTB4S-3N2162V | 1046392 |
| WTB4S-3N1362V | 1046393 |

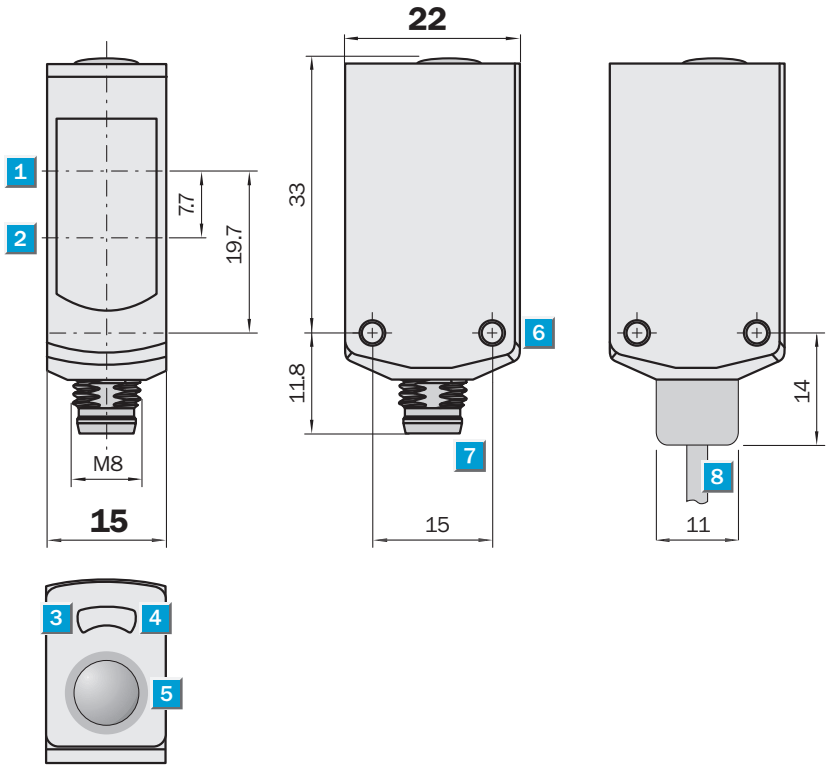
Further types on request

**Scanning distance 3 ... 500 mm**

**Photoelectric proximity sensor BGS**

- Robust housing in V4A/316L with internal M3 threaded holes
- Seamlessly and smoothly welded metal membrane Teach-in button for maximum robustness
- Best background suppression and best ambient light suppression in its class

## Dimensional drawing



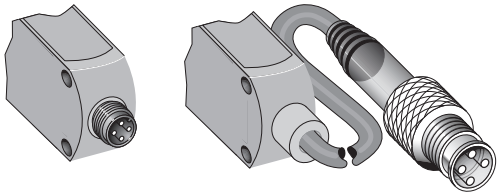

## Adjustments possible

All types

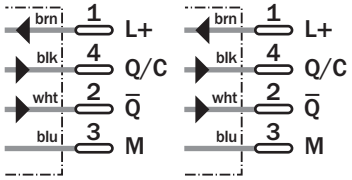

1 Optical axis, sender
2 Optical axis, receiver
3 LED indicator, yellow: status of received light beam
4 LED indicator, green: power on
5 Sensitivity control:
Metal membrane Teach-in button
6 Mounting hole M3
7 Connector M8
8 Cable, Ø 3.4 mm

## Connection types

WTB4SC-3P2262V | WTB4SC-3P3462V



M8, 4-pin | M12, 4-pin



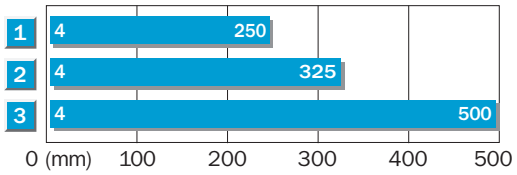

## Accessories

Cables and connectors
Test and teach box
Threaded stopper

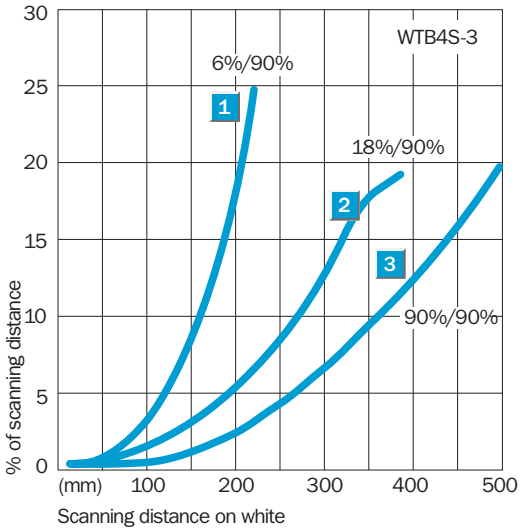
| Technical data | WTB4SC-3 | P3462V | P2262V |
|---|---|---|---|
| **Scanning distance typ. max.** | 3 ... 500 mm[1] | | |
| Sensitivity setting | Teach-in: single Teach-in button | | |
| Light source, light type | PinPoint LED, red light, 650 nm[2] | | |
| Light spot diameter | 6.5 mm at 150 mm | | |
| **Supply voltage $V_S$** | 10 ... 30 V DC[3] | | |
| Residual ripple[4] | < 5 $V_{PP}$ | | |
| Power consumption[5] | ≤ 30 mA | | |
| **Switching output** | PNP, Q/C | | |
| | PNP, $\overline{Q}$ | | |
| Switching mode | Complementary | | |
| Communication mode | COM2 | | |
| Output current $I_A$ max. | < 100 mA | | |
| Response time[6] | < 0.5 ms | | |
| Switching frequency, max.[7] | 1000/s | | |
| **Connection type** | Plug M8, 4-pin | | |
| | Cable with plug M12, 4-pin, 150 mm[8] | | |
| **VDE protection class** | ⧫ | | |
| **Circuit protection** | A, B, C[9] | | |
| **Enclosure rating** | IP 67, IP 68, IP 69K[10] | | |
| **Ambient temperature** | Operation –30 °C ... +60 °C/70 °C[11] | | |
| | Storage –30 °C ... +75 °C | | |
| **Weight** | Approx. 40 g | | |
| **Housing material** | AISI 316 L, $SiO_x$ | | |

1) Object with 90 % remission (based on standard white DIN 5033)
2) Average service life 100,000 h at $T_A$ = +25 °C
3) Limit values, operation in short-circuit protected network max. 8 A
4) May not exceed or fall short of $V_S$ tolerances
5) Without load
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
B = All outputs short-circuit protected
C = Interference pulse suppression
10) Only for correctly mounted IP 69K supply cable
11) At $U_V$ ≤ 24 V and $I_A$ < 30 mA

## Scanning distance




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




**Order information**

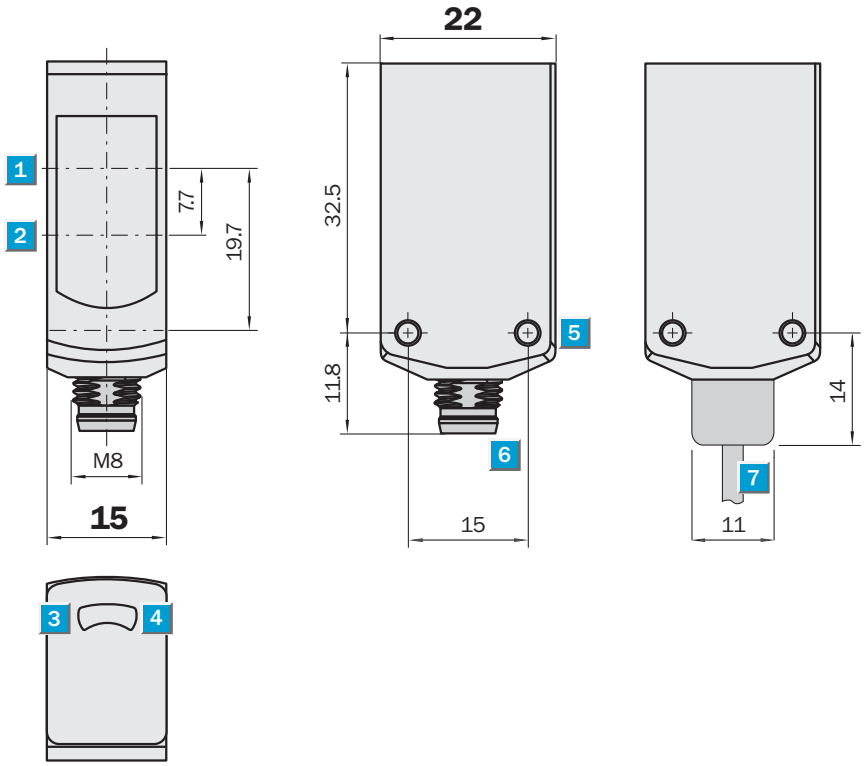
| Type | Order no. |
|---|---|
| WTB4SC-3P3462V | 1046395 |
| WTB4SC-3P2262V | 1045092 |

**Scanning distance 3 ... 120 mm**

**Photoelectric proximity sensor BGS**

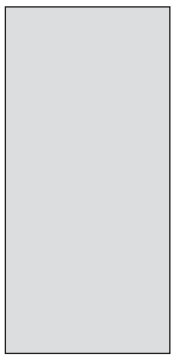
- Robust housing in V4A/316L with internal M3 threaded holes
- Laser-like, focussed light spot, to accurately detect small parts or edges
- Best background suppression and best ambient light suppression in its class

## Dimensional drawing




## Adjustments possible

All types

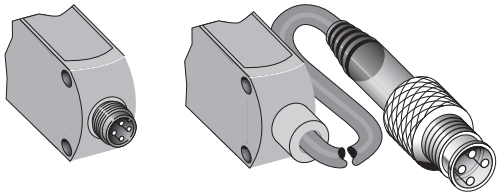


ET: Teach-in via wire

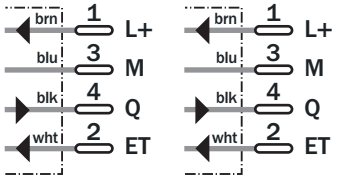
1 Optical axis, sender
2 Optical axis, receiver
3 LED indicator, yellow: status of received light beam
4 LED indicator, green: power on
5 Mounting hole M3
6 Connector M8
7 Cable, Ø 3.4 mm

## Connection types

WTB4S-3P2235V | WTB4S-3P3435V



M8, 4-pin | M12, 4-pin



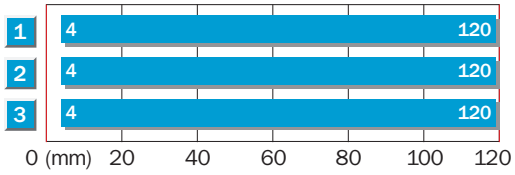

## Accessories

Cables and connectors
Test and teach box
Threaded stopper

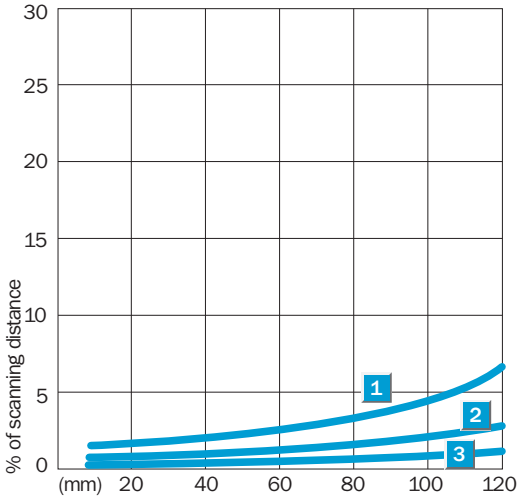
| Technical data | WTB4S-3 | P2235V | P3435V |
|---|---|---|---|
| **Scanning distance typ. max.** | 3 ... 120 mm[1] | | |
| Sensitivity setting | ET: Teach-in via cable[2] | | |
| Light source, light type | PinPoint LED, red light, 650 nm[3] | | |
| Light spot diameter | 2.5 mm at 50 mm | | |
| **Supply voltage $V_S$** | 10 ... 30 V DC[4] | | |
| Residual ripple[5] | < 5 $V_{PP}$ | | |
| Power consumption[6] | ≤ 30 mA | | |
| **Switching output** | PNP, Q | | |
| Switching mode | Light-switching | | |
| Output current $I_A$ max. | < 100 mA | | |
| Response time[7] | < 0.5 ms | | |
| Switching frequency, max.[8] | 1000/s | | |
| **Connection type** | Plug M8, 4-pin | | |
| | Cable with plug M12, 4-pin, 150 mm[9] | | |
| **VDE protection class** | III | | |
| **Circuit protection** | A, B, C[10] | | |
| **Enclosure rating** | IP 67, IP 68, IP 69K[11] | | |
| **Ambient temperature** | Operation –30 °C ... +60 °C/70 °C[12] | | |
| | Storage –30 °C ... +75 °C | | |
| **Weight** | Approx. 40 g | | |
| **Housing material** | AISI 316 L, $SiO_x$ | | |

1) Object with 90 % remission (based on standard white DIN 5033)
2) External Teach-in: impulse > 2 s with voltage $V_S$ for PNP or M for NPN
3) Average service life 100,000 h at $T_A$ = +25 °C
4) Limit values, operation in short-circuit protected network max. 8 A
5) May not exceed or fall short of $V_S$ tolerances
6) Without load
7) Signal transit time with resistive load
8) With light/dark ratio 1 : 1
9) Do not bend below 0 °C
10) A = $V_S$ connections reverse-polarity protected
B = All outputs short-circuit protected
C = Interference pulse suppression
11) Only for correctly mounted IP 69K supply cable
12) At $U_V$ ≤ 24 V and $I_A$ < 30 mA

## Scanning distance




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




**Order information**

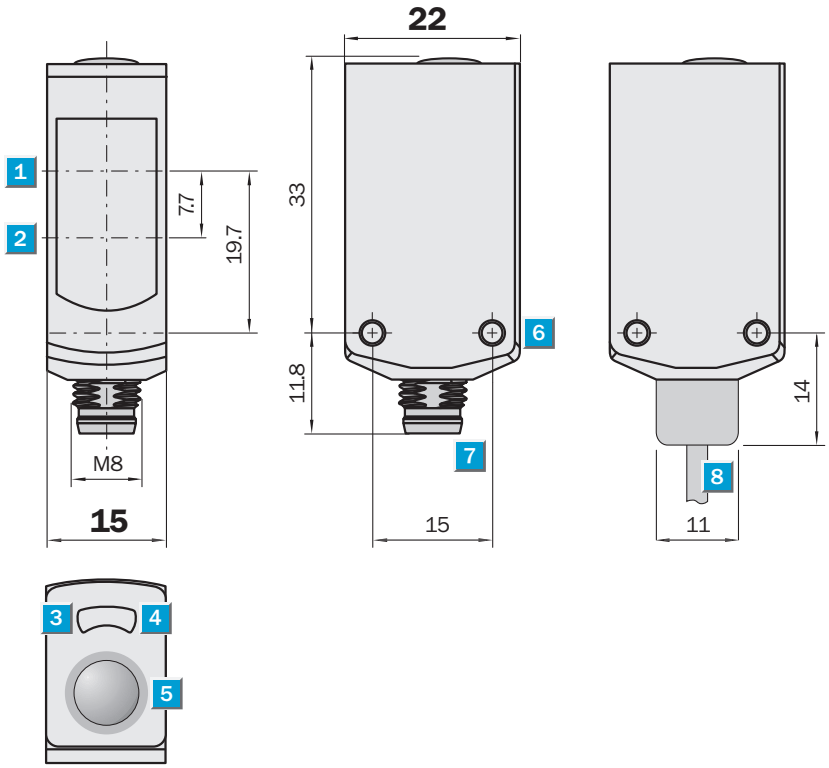
| Type | Order no. |
|---|---|
| WTB4S-3P2235V | 1045093 |
| WTB4S-3P3435V | 1046407 |

**Scanning distance 3 ... 120 mm**

**Photoelectric proximity sensor BGS**

- Robust housing in V4A/316L with internal M3 threaded holes
- Seamlessly and smoothly welded metal membrane Teach-in button for maximum robustness
- Best background suppression and best ambient light suppression in its class

## Dimensional drawing




**Adjustments possible**

All types


1 Optical axis, sender
2 Optical axis, receiver
3 LED indicator, yellow: status of received light beam
4 LED indicator, green: power on
5 Sensitivity control: Metal membrane Teach-in button
6 Mounting hole M3
7 Connector M8
8 Cable, Ø 3.4 mm

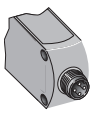
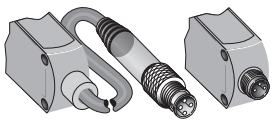
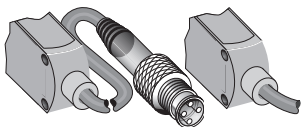
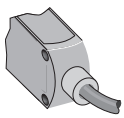
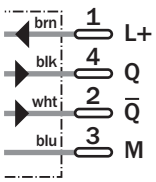
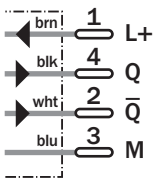
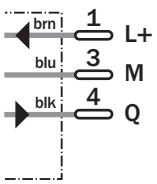
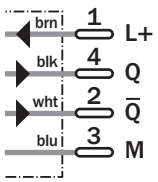
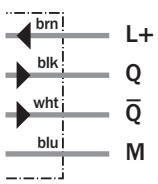
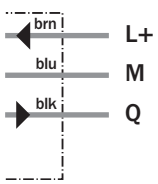
**Accessories**

Cables and connectors

Test and teach box

Threaded stopper

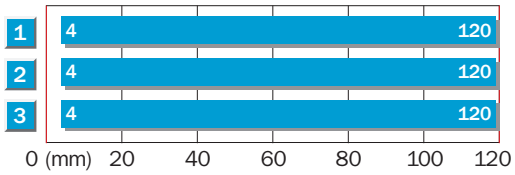
## Connection types

| WTB4S-3P2232V | WTB4S-3P3232V | WTB4S-3P2132V<br>WTB4S-3F2132V<br>WTB4S-3N2132V | WTB4S-3P3432V | WTB4S-3N1132V<br>WTB4S-3P1132V | WTB4S-3N1332V |
|---|---|---|---|---|---|
|  |  | |  | |  |
| M8, 4-pin | M8, 4-pin | M8, 3-pin | M12, 4-pin | 4 x 0.14 mm² | 3 x 0.14 mm² |
|  |  |  |  |  |  |
| brn 1 L+<br>blk 4 Q<br>wht 2 $\overline{Q}$<br>blu 3 M | brn 1 L+<br>blk 4 Q<br>wht 2 $\overline{Q}$<br>blu 3 M | brn 1 L+<br>blu 3 M<br>blk 4 Q | brn 1 L+<br>blk 4 Q<br>wht 2 $\overline{Q}$<br>blu 3 M | brn L+<br>blk Q<br>wht $\overline{Q}$<br>blu M | brn L+<br>blu M<br>blk Q |

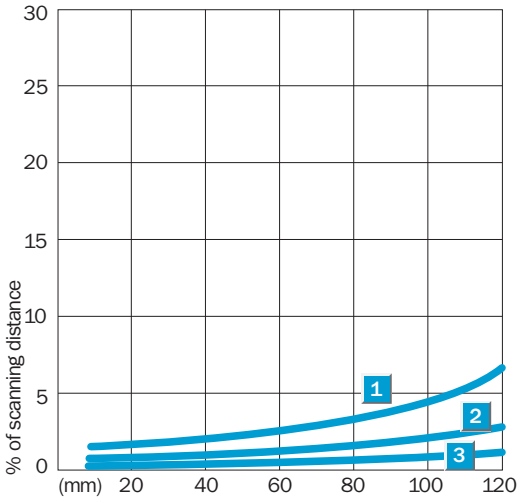
| Technical data | WTB4S-3 | P2232V | P2132V | P3232V | P3432V | P1132V | F2132V | N1132V | N2132V | N1332V |
|---|---|---|---|---|---|---|---|---|---|---|
| **Scanning distance typ. max.** | 3 ... 120 mm[1] | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Sensitivity setting | Teach-in: single Teach-in button | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Light source, light type | PinPoint LED, red light, 650 nm[2] | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Light spot diameter | 2.5 mm at 50 mm | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Supply voltage $V_S$** | 10 ... 30 V DC[3] | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Residual ripple[4] | < 5 $V_{PP}$ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Power consumption[5] | ≤ 30 mA | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Switching output** | PNP, Q | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | NPN, Q | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Switching mode | Dark-switching | | | | | | ■ | | | |
| | Complementary | ■ | | ■ | ■ | ■ | | ■ | | |
| | Light-switching | | ■ | | | | | | ■ | ■ |
| Output current $I_A$ max. | < 100 mA | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Response time[6] | < 0.5 ms | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Switching frequency, max.[7] | 1000/s | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Connection type** | Cable, PVC, 2 m[8] | | | | | ■ | | ■ | | ■ |
| | Plug M8, 4-pin | ■ | | | | | | | | |
| | Plug M8, 3-pin | | ■ | | | | ■ | | ■ | |
| | Cable with plug M8, 4-pin, 150 mm[8] | | | ■ | | | | | | |
| | Cable with plug M12, 4-pin, 150 mm[8] | | | | ■ | | | | | |
| **VDE protection class** | ⧫ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Circuit protection** | A, B, C[9] | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Enclosure rating** | IP 67, IP 68, IP 69K[10] | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Ambient temperature** | Operation –30 °C ... +60 °C/70 °C[11] | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | Storage –30 °C ... +75 °C | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Weight** | Approx. 40 g | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Housing material** | AISI 316 L, $SiO_x$ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |

1) Object with 90 % remission (based on standard white DIN 5033)
2) Average service life 100,000 h at $T_A$ = +25 °C
3) Limit values, operation in short-circuit protected network max. 8 A
4) May not exceed or fall short of $V_S$ tolerances
5) Without load
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
B = All outputs short-circuit protected
C = Interference pulse suppression
10) Only for correctly mounted IP 69K supply cable
11) At $U_V$ ≤ 24 V and $I_A$ < 30 mA

## Scanning distance




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




**Order information**

| Type | Order no. |
|---|---|
| WTB4S-3P2232V | 1046396 |
| WTB4S-3P2132V | 1046397 |
| WTB4S-3P3232V | 1046398 |
| WTB4S-3P3432V | 1046399 |
| WTB4S-3P1132V | 1046402 |
| WTB4S-3F2132V | 1046404 |
| WTB4S-3N1132V | 1046403 |
| WTB4S-3N2132V | 1046405 |
| WTB4S-3N1332V | 1046406 |

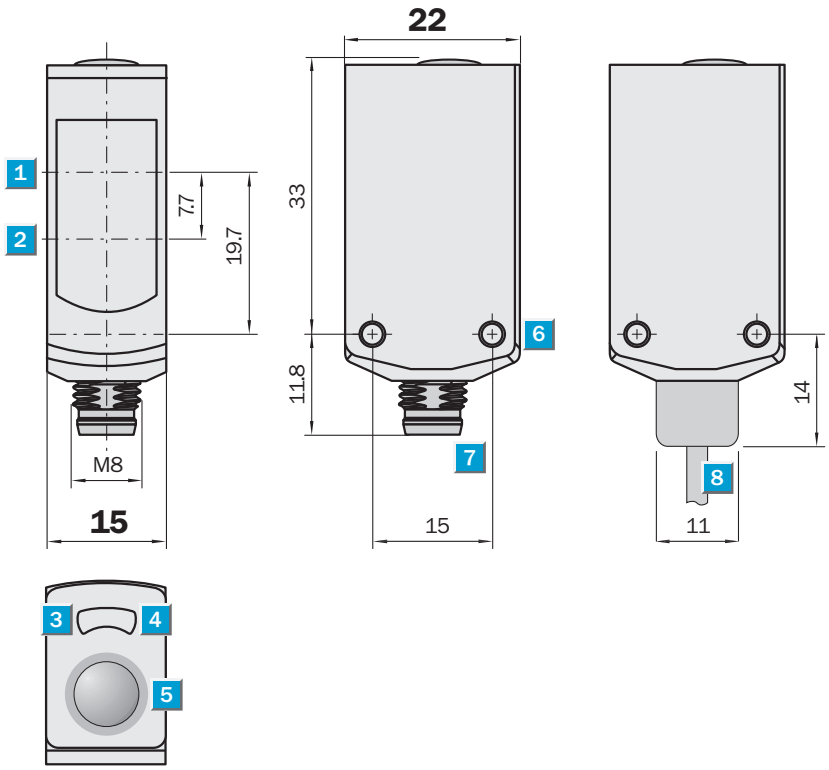
Further types on request

**Scanning distance 3 ... 120 mm**

**Photoelectric proximity sensor BGS**

- Robust housing in V4A/316L with internal M3 threaded holes
- Seamlessly and smoothly welded metal membrane Teach-in button for maximum robustness
- Best background suppression and best ambient light suppression in its class

## Dimensional drawing







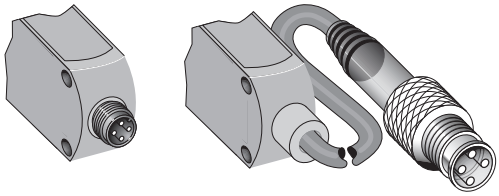
## Adjustments possible

All types

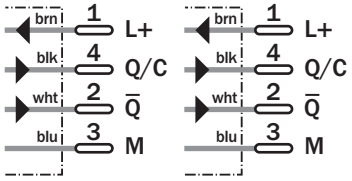

1 Optical axis, sender
2 Optical axis, receiver
3 LED indicator, yellow: status of received light beam
4 LED indicator, green: power on
5 Sensitivity control:
Metal membrane Teach-in button
6 Mounting hole M3
7 Connector M8
8 Cable, Ø 3.4 mm

## Connection types

WTB4SC-3P2232V | WTB4SC-3P3432V



M8, 4-pin | M12, 4-pin



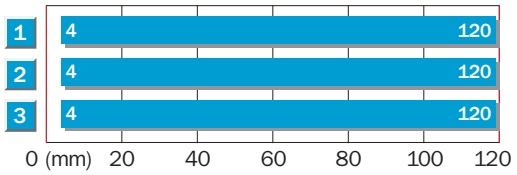

## Accessories

Cables and connectors
Test and teach box
Threaded stopper

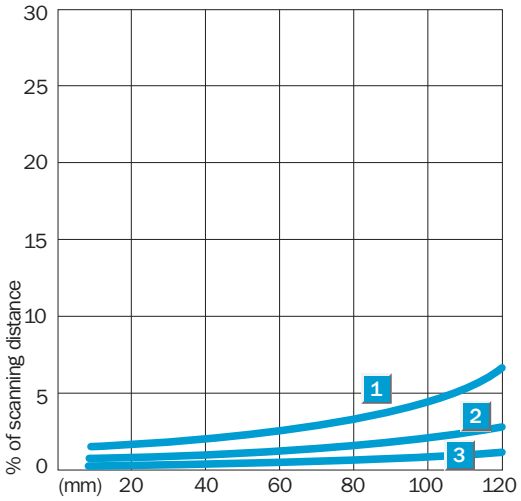
| Technical data | WTB4SC-3 | P2232V | P3432V |
|---|---|---|---|
| **Scanning distance typ. max.** | 3 ... 120 mm[1] | | |
| Sensitivity setting | Teach-in: single Teach-in button | | |
| Light source, light type | PinPoint LED, red light, 650 nm[2] | | |
| Light spot diameter | 2.5 mm at 50 mm | | |
| **Supply voltage $V_S$** | 10 ... 30 V DC[3] | | |
| Residual ripple[4] | < 5 $V_{PP}$ | | |
| Power consumption[5] | ≤ 30 mA | | |
| **Switching output** | PNP, Q/C | | |
| | PNP, $\overline{Q}$ | | |
| Switching mode | Complementary | | |
| Communication mode | COM2 | | |
| Output current $I_A$ max. | < 100 mA | | |
| Response time[6] | < 0.5 ms | | |
| Switching frequency, max.[7] | 1000/s | | |
| **Connection type** | Plug M8, 4-pin | | |
| | Cable with plug M12, 4-pin, 150 mm[8] | | |
| **VDE protection class** | III | | |
| **Circuit protection** | A, B, C[9] | | |
| **Enclosure rating** | IP 67, IP 68, IP 69K[10] | | |
| **Ambient temperature** | Operation –30 °C ... +60 °C/70 °C[11] | | |
| | Storage –30 °C ... +75 °C | | |
| **Weight** | Approx. 40 g | | |
| **Housing material** | AISI 316 L, $SiO_x$ | | |

1) Object with 90 % remission (based on standard white DIN 5033)
2) Average service life 100,000 h at $T_A$ = +25 °C
3) Limit values, operation in short-circuit protected network max. 8 A
4) May not exceed or fall short of $V_S$ tolerances
5) Without load
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
B = All outputs short-circuit protected
C = Interference pulse suppression
10) Only for correctly mounted IP 69K supply cable
11) At $U_V$ ≤ 24 V and $I_A$ < 30 mA

## Scanning distance




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



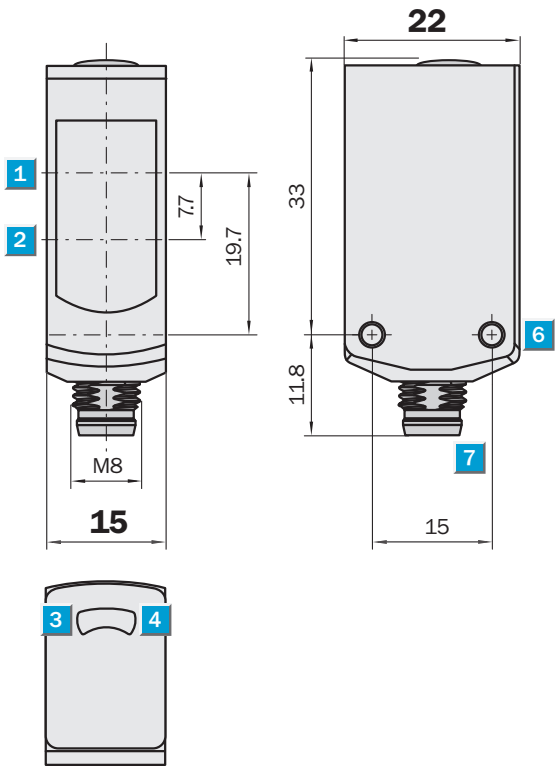

| Order information | |
|---|---|
| **Type** | **Order no.** |
| WTB4SC-3P2232V | 1046409 |
| WTB4SC-3P3432V | 1046408 |

**Scanning distance 3 ... 280 mm**

**Photoelectric proximity sensor BGS**

- Robust housing in V4A/316L with internal M3 threaded holes
- Seamlessly and smoothly welded metal membrane Teach-in button for maximum robustness
- Laser-like light spot within 100 mm operating range
- Best background suppression and best ambient light suppression in its class

## Dimensional drawing



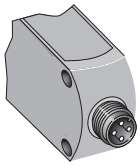

## Adjustments possible

WTB4S-3P2204VS02

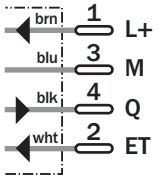

1 Optical axis, sender
2 Optical axis, receiver
3 LED indicator, yellow: status of received light beam
4 LED indicator, green: power on
5 Sensitivity control:
Metal membrane Teach-in button
6 Mounting hole M3
7 Connector M8

## Connection type

WTB4S-3P2204VS02



M8, 4-pin



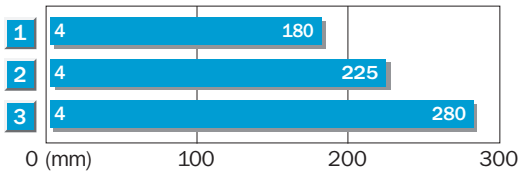

## Accessories

Cables and connectors
Test and teach box
Threaded stopper

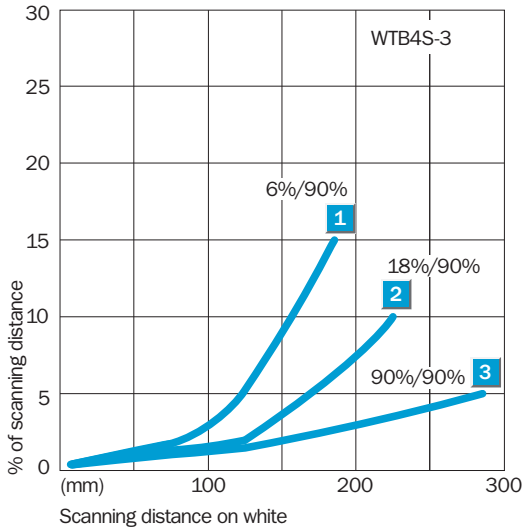
| Technical data | WTB4S-3 | P2204VS02 |
|---|---|---|
| **Scanning distance typ. max.** | 3 ... 280 mm[1] | |
| Sensitivity setting | Teach-in: single Teach-in button | |
| | Teach-in: via cable[2] | |
| Light source, light type | PinPoint LED, red light, 650 nm[3] | |
| Light spot diameter | Approx. 2.5 mm at 100 mm | |
| **Supply voltage $V_S$** | 10 ... 30 V DC[4] | |
| Residual ripple[5] | < 5 $V_{PP}$ | |
| Power consumption[6] | < 30 mA | |
| **Switching output** | PNP, Q | |
| | Light-switching | |
| Output current $I_A$ max. | < 100 mA | |
| Response time[7] | < 0.5 ms | |
| Switching frequency, max.[8] | 1000/s | |
| **Connection type** | Plug M8, 4-pin | |
| **VDE protection class** | III | |
| **Circuit protection** | A, B, C[9] | |
| **Enclosure rating** | IP 67, IP 68, IP 69K[10] | |
| **Ambient temperature** | Operation –30 °C ... +60 °C/70 °C[11] | |
| | Storage –30 °C ... +75 °C | |
| **Weight** | Approx. 40 g | |
| **Housing material** | AISI 316 L, $SiO_x$ | |

1) Object with 90 % remission (based on standard white DIN 5033)
2) External Teach-in: impulse > 2 s with voltage $V_S$ for PNP or M for NPN
3) Average service life 100,000 h at $T_A$ = +25 °C
4) Limit values, operation in short-circuit protected network max. 8 A
5) May not exceed or fall short of $V_S$ tolerances
6) Without load
7) Signal transit time with resistive load
8) With light/dark ratio 1 : 1
9) A = $V_S$ connections reverse-polarity protected
B = All outputs short-circuit protected
C = Interference pulse suppression
10) Only for correctly mounted IP 69K supply cable
11) At $U_V$ ≤ 24 V and $I_A$ < 30 mA

## Scanning distance




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



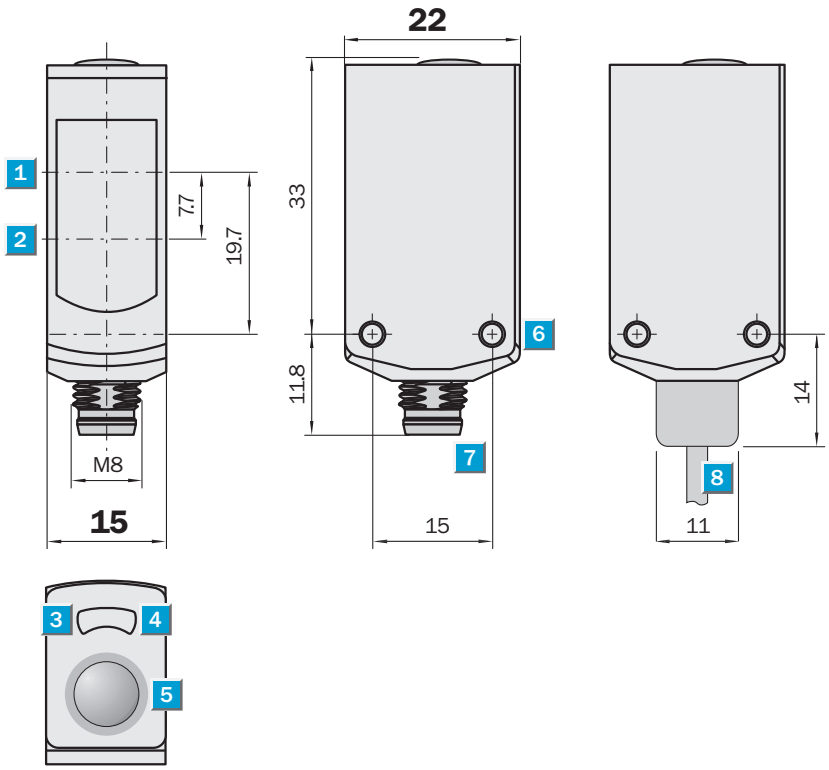

| Order information | |
|---|---|
| **Type** | **Order no.** |
| WTB4S-3P2204VS02 | 1047652 |

**Scanning distance 20 ... 200 mm**

**Photoelectric proximity sensor FGS**

- Robust housing in V4A/316L with internal M3 threaded holes
- Seamlessly and smoothly welded metal membrane Teach-in button for maximum robustness
- Sensor with foreground suppression: background serves as a reflector

## Dimensional drawing



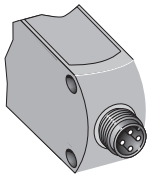

## Adjustments possible

WTF4SC-3P2262V

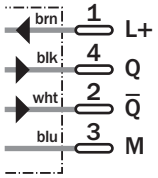

1 Optical axis, sender
2 Optical axis, receiver
3 LED indicator, yellow: status of received light beam
4 LED indicator, green: power on
5 Sensitivity control:
Metal membrane Teach-in button
6 Mounting hole M3
7 Connector M8
8 Cable, Ø 3.4 mm

## Connection type

WTF4SC-3P2262V



M8, 4-pin




## Accessories

Cables and connectors
Test and teach box
Threaded stopper

| Technical data | WTF4S-3 | P2262V |
|---|---|---|
| **Scanning distance typ. max.** | 20 ... 200 mm[1] | |
| Sensitivity setting | Teach-in: single Teach-in button | |
| Light source, light type | PinPoint LED, red light, 650 nm[2] | |
| Light spot diameter | 6.5 mm at 150 mm | |
| **Supply voltage $V_S$** | 10 ... 30 V DC[3] | |
| Residual ripple[4] | < 5 $V_{PP}$ | |
| Power consumption[5] | ≤ 30 mA | |
| **Switching output** | PNP, Q/C | |
| | PNP, $\overline{Q}$ | |
| Switching mode | Complementary | |
| Output current $I_A$ max. | < 100 mA | |
| Response time[6] | < 0.5 ms | |
| Switching frequency, max.[7] | 1000/s | |
| **Connection type** | Plug M8, 4-pin | |
| **VDE protection class** | III | |
| **Circuit protection** | A, B, C[8] | |
| **Enclosure rating** | IP 67, IP 68, IP 69K[9] | |
| **Ambient temperature** | Operation –30 °C ... +60 °C/70 °C[10] | |
| | Storage –30 °C ... +75 °C | |
| **Weight** | Approx. 40 g | |
| **Housing material** | AISI 316 L, $SiO_x$ | |

1) Object with 90% remission (based on standard white DIN 5033)
2) Average service life 100,000 h at $T_A$ = +25 °C
3) Limit values, operation in short-circuit protected network max. 8 A
4) May not exceed or fall short of $V_S$ tolerances
5) Without load
6) Signal transit time with resistive load
7) With light/dark ratio 1 : 1
8) A = $V_S$ connections reverse-polarity protected
B = All outputs short-circuit protected
C = Interference pulse suppression
9) Only for correctly mounted IP 69K supply cable
10) At $U_V$ ≤ 24 V and $I_A$ < 30 mA

## Teach-in procedure

1. There is no object in the beam path, the light spot can be detected on the background (e.g. conveyor belt).
2. For the Teach-in procedure, reduce distance from the background. E.g. by holding a lighter coloured object in front of the background or by moving the sensor closer to the background
   - For smooth and consistent backgrounds: reduce distance from the background by at least 5%.
   - For inconsistent objects (e.g. chain links) reduce distance from the background by at least 15%.
3. Press Teach-in button for > 2 s. Sensor is adjusted and the scanning distance is memorised.

More detailed information can be found in the operating instructions and on the Internet at www.sick.com

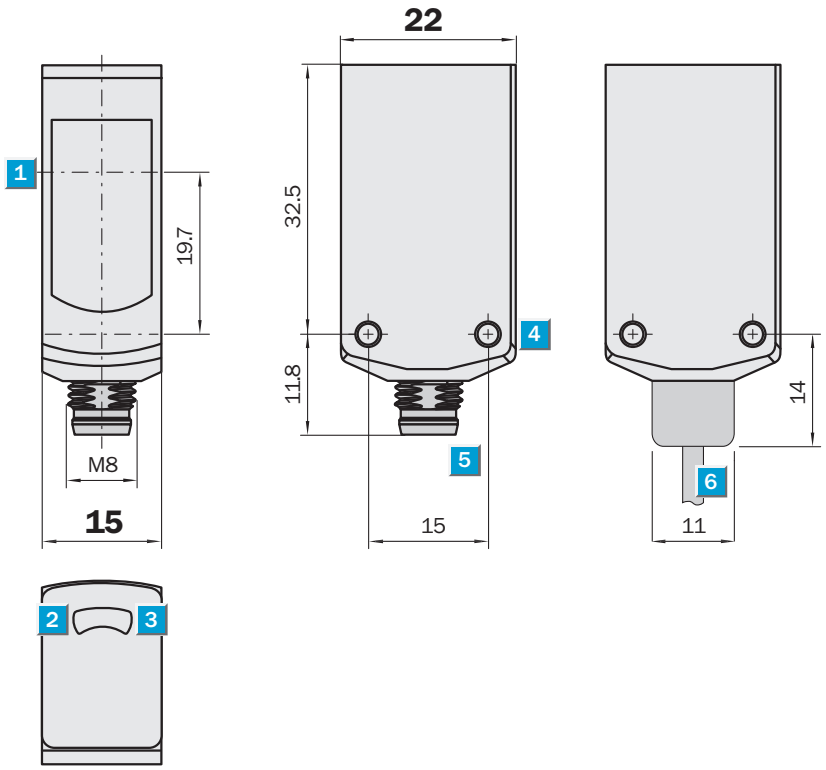
| Order information | |
|---|---|
| **Type** | **Order no.** |
| WTF4S-3P2262V | 1046410 |

**Scanning range**
**0 ... 4 m**

**Photoelectric reflex sensor**

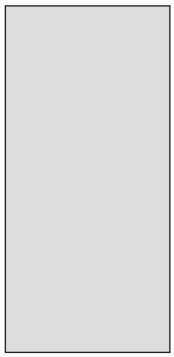
- Robust housing in V4A/316L with internal M3 threaded holes
- PinPoint LED offers maximum adjustability and high operating reserves

## Dimensional drawing




**Adjustments possible**

All types



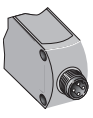
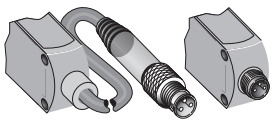
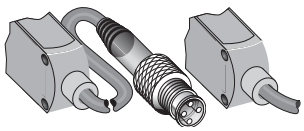
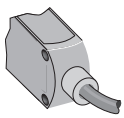
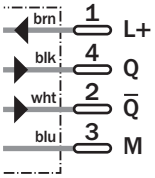
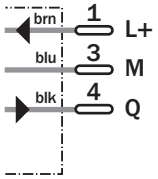
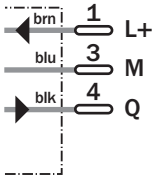
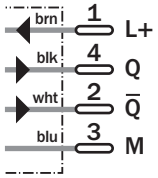
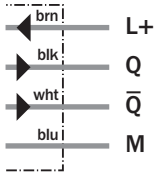
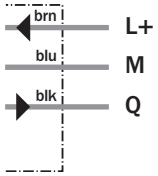
Without adjustment

1 Optical axis, sender and receiver (autocollimation)
2 LED indicator, yellow: status of received light beam
3 LED indicator, green: power on
4 Mounting hole M3
5 Connection, Plug M8
6 Cable, Ø 3.4 mm

**Accessories**

- Cables and connectors
- Reflectors
- Test and teach box
- Threaded stopper

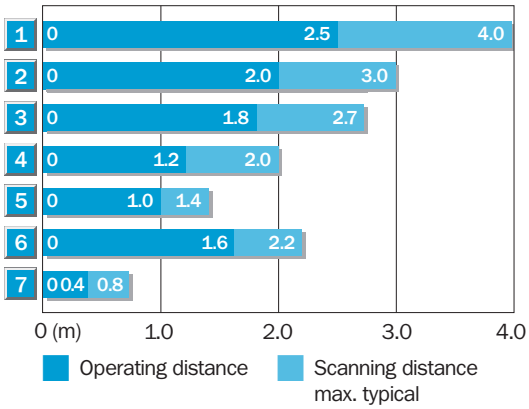
**Connection types**

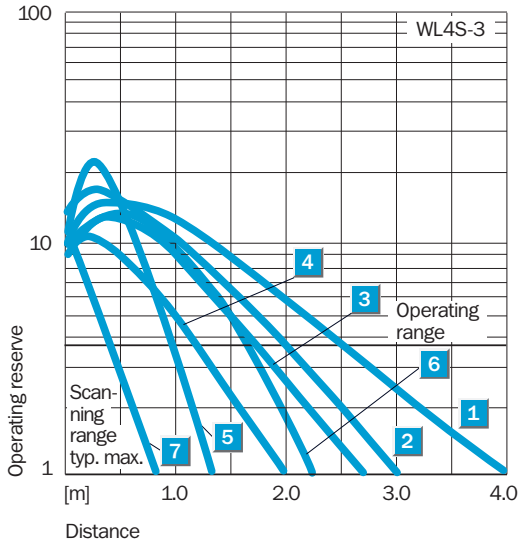
| WL4S-3P2230V | WL4S-3F3130V | WL4S-3P2130V<br>WL4S-3F2130V<br>WL4S-3E2130V | WL4S-3P3430V | WL4S-3N1130V | WL4S-3F1330V<br>WL4S-3N1330V<br>WL4S-3E1330V |
|---|---|---|---|---|---|
|  |  | |  | |  |
| M8, 4-pin | M8, 3-pin | M8, 3-pin | M12, 4-pin | 4 x 0.14 mm² | 3 x 0.14 mm² |
|  |  |  |  |  |  |

| Technical data | WL4S-3 | P2230V | P2130V | P3430V | F2130V | F3130V | F1330V | N1130V | N1330V | E2130V | E1330V |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Scanning range, typ. max.** | 0 ... 4 m | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Scanning range, recommended | 0 ... 2.5 m | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Relating to | PL80A | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Light source, light type | PinPoint LED, red light, 650 nm[1] | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Light spot diameter | 45 mm at 1.5 m | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Polarisation filter | ✔ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Supply voltage $V_S$** | 10 ... 30 V DC[2] | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Residual ripple[3] | < 5 $V_{PP}$ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Power consumption[4] | ≤ 30 mA | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Switching output** | PNP, Q | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | NPN, Q | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Switching mode | Dark-switching | | | | ■ | ■ | ■ | | | ■ | ■ |
| | Complementary | ■ | | ■ | | | | ■ | | | |
| | Light-switching | | ■ | | | | | | ■ | | |
| Output current $I_A$ max. | < 100 mA | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Response time[5] | < 0.5 ms | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Switching frequency, max.[6] | 1000/s | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Connection type** | Cable, PVC, 2 m[7] | | | | | | ■ | ■ | ■ | | ■ |
| | Plug M8, 4-pin | ■ | | | | | | | | | |
| | Plug M8, 3-pin | | ■ | | ■ | | | | | ■ | |
| | Cable with plug M8, 3-pin, 150 mm[7] | | | | | ■ | | | | | |
| | Cable with plug M12, 4-pin, 150 mm[7] | | | ■ | | | | | | | |
| **VDE protection class** | ⧈ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Circuit protection** | A, B, C[8] | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Enclosure rating** | IP 67, IP 68, IP 69K[9] | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Ambient temperature** | Operation –30 °C ... +60 °C/70 °C[10] | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | Storage –30 °C ... +75 °C | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Weight** | Approx. 40 g | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Housing material** | AISI 316 L, $SiO_x$ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |

1) Average service life 100,000 h at $T_A$ = +25 °C
2) Limit values, operation in short-circuit protected network max. 8 A
3) May not exceed or fall short of $V_S$ tolerances
4) Without load
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
B = All outputs short-circuit protected
C = Interference pulse suppression
9) Only for correctly mounted IP 69K supply cable
10) At $U_V$ ≤ 24 V and $I_A$ < 30 mA

## Scanning range and operating reserve




| Reflector type | | Operating range |
|---|---|---|
| 1 | PL80A | 0 ... 2.5 m |
| 2 | PL250F | 0 ... 2.0 m |
| 3 | PL40A | 0 ... 1.8 m |
| 4 | PL20F | 0 ... 1.2 m |
| 5 | PL10F | 0 ... 1.0 m |
| 6 | P250 CHEM | 0 ... 1.6 m |
| 7 | REF-IRF-56 | 0 ... 0.4 m |

**Order information**

| Type | Order no. |
|---|---|
| WL4S-3P2230V | 1045095 |
| WL4S-3P2130V | 1046413 |
| WL4S-3P3430V | 1046415 |
| WL4S-3F2130V | 1045096 |
| WL4S-3P3130V | 1046416 |
| WL4S-3F1330V | 1046417 |
| WL4S-3N1130V | 1046418 |
| WL4S-3N1330V | 1046419 |
| WL4S-3E2130V | 1045097 |
| WL4S-3E1330V | 1046420 |

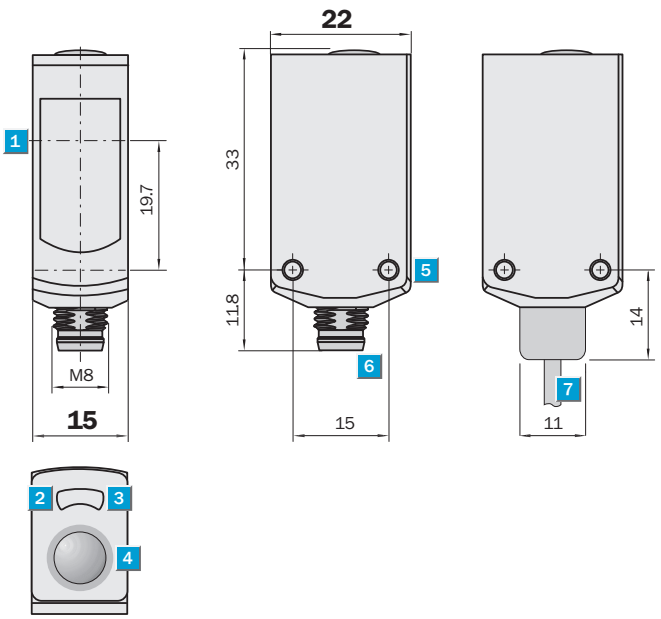
Further types on request see www.sick.com

**Scanning range**
**0 ... 5 m**

**Photoelectric reflex sensor**

- Robust housing in V4A/316L with internal M3 threaded holes
- Seamlessly and smoothly welded metal membrane Teach-in button for maximum robustness
- PinPoint LED offers maximum adjustability and high operating reserves

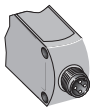
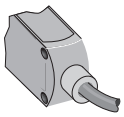
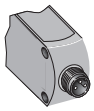
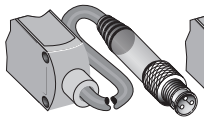
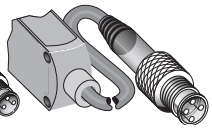
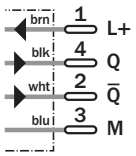
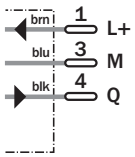
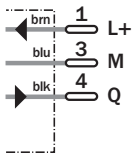
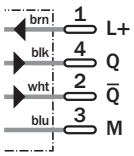
## Dimensional drawing

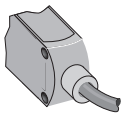
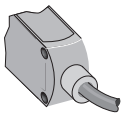
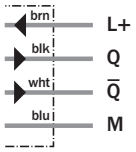
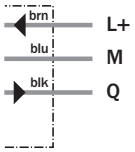



**Adjustments possible**
All types


1 Optical axis, sender and receiver (autocollimation)
2 LED indicator, yellow: status of received light beam
3 LED indicator, green: power on
4 Sensitivity control:
Metal membrane Teach-in button
5 Mounting hole M3
6 Connector M8
7 Cable, Ø 3.4 mm

## Connection types

| WL4S-3P2232V | WL4S-3V2232V | WL4S-3F2132V<br>WL4S-3N2132V<br>WL4S-3E2132V | WL4S-3F3132V | WL4S-3P3432V |
|---|---|---|---|---|
|  |  |  |  |  |
| M8, 4-pin | M8, 4-pin | M8, 3-pin | M8, 3-pin | M12, 4-pin |
|  |  |  |  |  |
| brn 1 L+<br>blk 4 Q<br>wht 2 $\bar{Q}$<br>blu 3 M | brn 1 L+<br>blk 4 Q<br>wht 2 Alarm<br>blu 3 M | brn 1 L+<br>blu 3 M<br>blk 4 Q | brn 1 L+<br>blu 3 M<br>blk 4 Q | brn 1 L+<br>blk 4 Q<br>wht 2 $\bar{Q}$<br>blu 3 M |

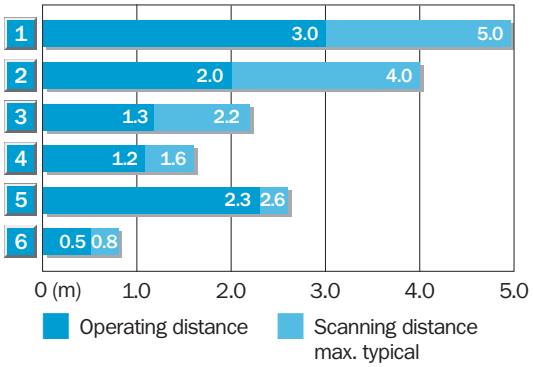
| WL4S-3N1130V | WL4S-3P2130V |
|---|---|
|  |  |
| 4 x 0.14 mm² | 3 x 0.14 mm² |
|  |  |
| brn L+<br>blk Q<br>wht $\bar{Q}$<br>blu M | brn L+<br>blu M<br>blk Q |

**Accessories**
Cables and connectors
Reflectors
Test and teach box
Threaded stopper

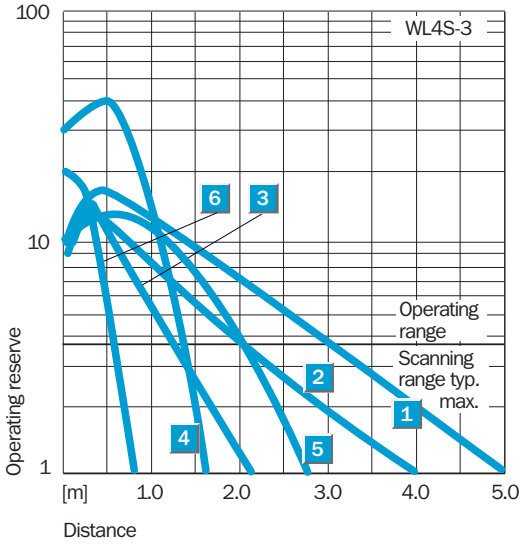
| Technical data | WL4S-3 | P2232V | V2232V | P3432V | F2132V | F3132V | F1332V | N1132V | N2132V | E2132V | E1332V |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Scanning range, typ. max.** | 0 ... 5 m | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Scanning range, recommended | 0 ... 3 m | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Relating to | PL80A | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Sensitivity setting | Teach-in: single Teach button | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Light source, light type | PinPoint LED, red light, 650 nm[1] | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Light spot diameter | 45 mm at 1.5 m | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Polarisation filter | ✔ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Supply voltage $V_S$** | 10 ... 30 V DC[2] | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Residual ripple[3] | < 5 $V_{PP}$ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Power consumption[4] | ≤ 30 mA | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Switching output** | PNP, Q | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | NPN, Q | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Switching mode | Dark-switching | | ■ | | ■ | ■ | ■ | | | ■ | ■ |
| | Complementary | ■ | | ■ | | | | ■ | | | |
| | Light-switching | | | | | | | | ■ | | |
| Output current $I_A$ max. | < 100 mA | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Response time[5] | < 0.5 ms | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Switching frequency, max.[6] | 1000/s | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Alarm output | Pre-failure signalling output | | ■ | | | | | | | | |
| **Connection type** | Cable, PVC, 2 m[7] | | | | | | ■ | ■ | | | ■ |
| | Plug M8, 4-pin | ■ | ■ | | | | | | | | |
| | Plug M8, 3-pin | | | | ■ | | | | ■ | ■ | |
| | Cable with plug M8, 3-pin, 150 mm[7] | | | | | ■ | | | | | |
| | Cable with plug M12, 4-pin, 150 mm[7] | | | ■ | | | | | | | |
| **VDE protection class** | ⧫ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Circuit protection** | A, B, C[8] | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Enclosure rating** | IP 67, IP 68, IP 69K[9] | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Ambient temperature** | Operation –30 °C ... +60 °C/70 °C[10] | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | Storage –30 °C ... +75 °C | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Weight** | Approx. 40 g | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Housing material** | AISI 316 L, $SiO_x$ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |

1) Average service life 100,000 h at $T_A$ = +25 °C
2) Limit values, operation in short-circuit protected network max. 8 A
3) May not exceed or fall short of $V_S$ tolerances
4) Without load
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
B = All outputs short-circuit protected
C = Interference pulse suppression
9) Only for correctly mounted IP 69K supply cable
10) At $U_V$ ≤ 24 V and $I_A$ < 30 mA

## Scanning range and operating reserve




| Reflector type | | Operating range |
|---|---|---|
| 1 | PL80A | 0 ... 3.0 m |
| 2 | PL40A | 0 ... 2.0 m |
| 3 | PL20A | 0 ... 1.3 m |
| 4 | PL10F | 0 ... 1.2 m |
| 5 | P250 CHEM | 0 ... 2.3 m |
| 6 | REF-IRF-56 | 0 ... 0.5 m |




**Order information**

| Type | Order no. |
|---|---|
| WL4S-3P2232V | 1046421 |
| WL4S-3V2232V | 1046422 |
| WL4S-3P3432V | 1046426 |
| WL4S-3F2132V | 1046428 |
| WL4S-3F3132V | 1046429 |
| WL4S-3F1332V | 1046430 |
| WL4S-3N1132V | 1046431 |
| WL4S-3N2132V | 1046432 |
| WL4S-3E2132V | 1046435 |
| WL4S-3E1332V | 1046437 |

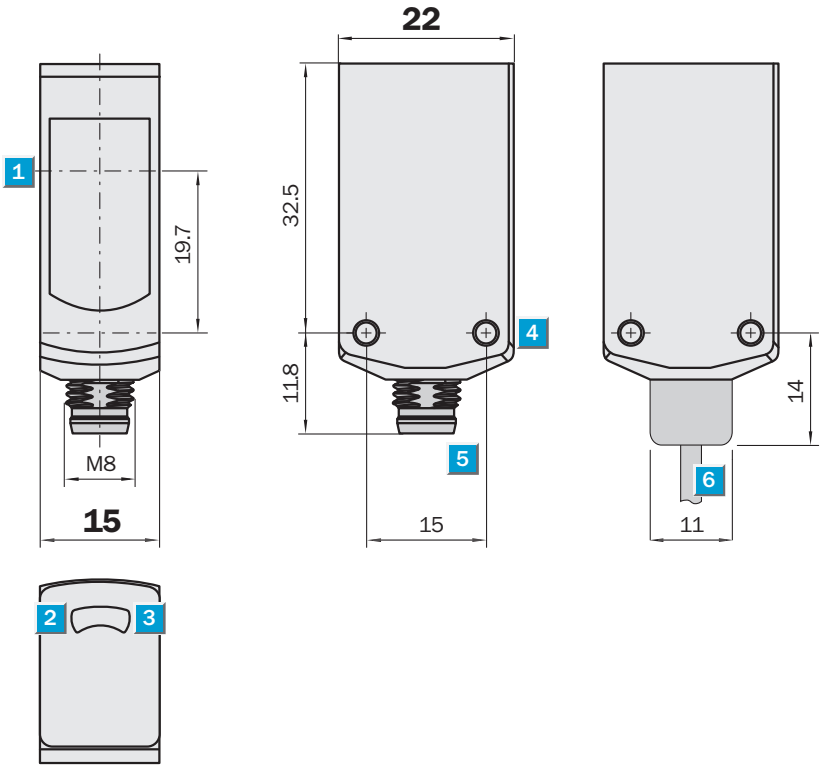
Further options available, see www.sick.com

**Scanning range**
**0 ... 5 m**

**Photoelectric reflex sensor**

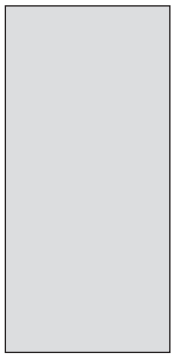
- Robust housing in V4A/316L with internal M3 threaded holes
- Detection of highly transparent objects with switching threshold adaption
- Quick and easy commissioning thanks to teach-in function

## Dimensional drawing




## Adjustments possible

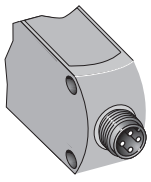
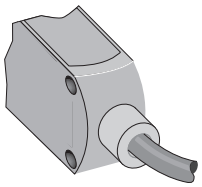
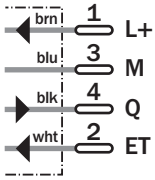
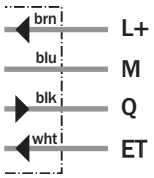
All types



ET: Teach-in via wire

1 Optical axis, sender and receiver (autocollimation)
2 LED indicator, yellow: status of received light beam
3 LED indicator, green: power on
4 Mounting hole M3
5 Connection, Plug M8
6 Cable, Ø 3.4 mm

## Connection types

| WLG4S-3F2235V | WLG4S-3E1135V |
|---|---|
|  |  |
| M8, 4-pin | 4 x 0.14 mm² |
|  |  |



**Accessories**

- Cables and connectors
- Reflectors
- Test and teach box
- Threaded stopper

| Technical data | WLG4S-3 | F2235V | E1135V |
|---|---|---|---|
| **Scanning range typ.** | 0 ... 5 m | | |
| Scanning range, recommended | 0 ... 3 m | | |
| Relating to | PL80A reflector | | |
| Sensitivity setting | ET: Teach-in via cable | | |
| Light source, light type [1] | PinPoint LED, red light, 650 nm | | |
| Light spot diameter | 45 mm at 1.50 m | | |
| Polarisation filter | ✔ | | |
| **Supply voltage $V_S$** | 10 ... 30 V DC [2] | | |
| Residual ripple [3] | < 5 $V_{PP}$ | | |
| Power consumption [4] | ≤ 30 mA | | |
| **Switching output** | PNP, Q | | |
| | NPN, Q | | |
| Switching mode | Dark-switching | | |
| Output current $I_A$ max. | < 100 mA | | |
| Response time [5] | < 0.5 ms | | |
| Switching frequency, max. [6] | 1000/s | | |
| **Connection type** | Cable, PVC, 2 m [7] | | |
| | Plug M8, 4-pin | | |
| **VDE protection class** | III | | |
| **Circuit protection** | A, B, C [8] | | |
| **Enclosure rating** | IP 67, IP 68, IP 69K [9] | | |
| **Ambient temperature** | Operation –30 °C ... +60 °C/70 °C [10] | | |
| | Storage –30 °C ... +75 °C | | |
| **Weight** | Approx. 40 g | | |
| **Housing material** | AISI 316 L, SiOx | | |

1) Average service life 100,000 h at $T_A$ = +25 °C
2) Limit values, operation in short-circuit protected network max. 8 A
3) May not exceed or fall short of $V_S$ tolerances
4) Without load
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
B = All outputs short-circuit protected
C = Interference pulse suppression
9) Only for correctly mounted IP 69K supply cable
10) At $U_V$ ≤ 24 V and $I_A$ < 30 mA

## Teach-in function

**Programming via Teach-in button**

**Standard mode (switching threshold adaptation):**

Standard mode (switching threshold adaptation): sensor adjusts the switching threshold to the ambient conditions. Sensor has clear sight of the reflector.

No object in the beam path: Connect ET (pin2) > 2 s < 5 s with $V_S$.

Yellow LED display flashes briefly. Sensor is ready to operate.

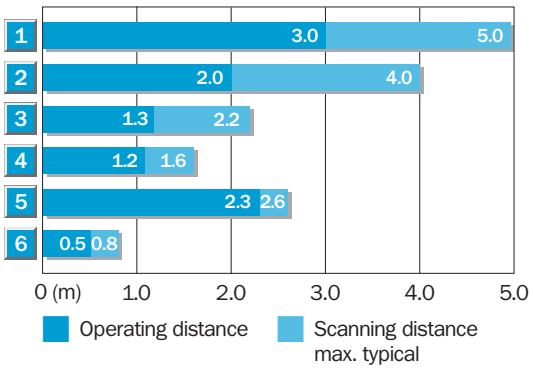
**Switch off switching threshold adaptation:**

Sensor works statically with a switching threshold of 50 %. Sensor has clear sight of the reflector.

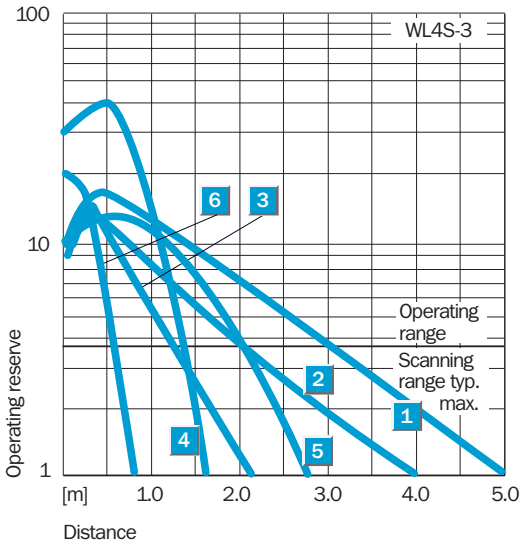
No object in the beam path: Connect ET (pin2) > 8 s with $V_S$.

Yellow LED display flashes 2 times. Sensor is ready to operate.

## Scanning range and operating reserve




| Reflector type | Operating range |
|---|---|
| 1 PL80A | 0 ... 3.0 m |
| 2 PL40A | 0 ... 2.0 m |
| 3 PL20A | 0 ... 1.3 m |
| 4 PL10F | 0 ... 1.2 m |
| 5 P250 CHEM | 0 ... 2.3 m |
| 6 REF-IRF-56 | 0 ... 0.5 m |



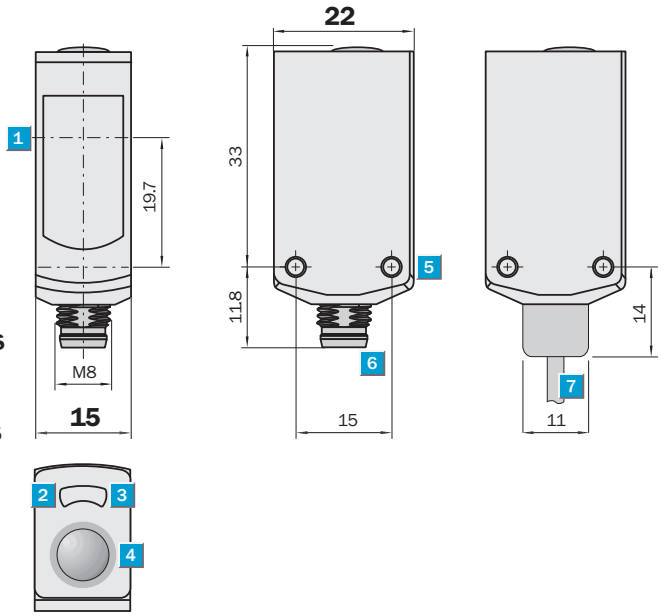

| Order information | |
|---|---|
| **Type** | **Order no.** |
| WLG4S-3F2235V | 1045098 |
| WLG4S-3E1135V | 1046438 |

**Scanning range**
**0 ... 5 m**

**Photoelectric reflex sensor**

- Robust housing in V4A/316L with internal M3 threaded holes
- Seamlessly and smoothly welded metal membrane Teach-in button for maximum robustness
- Detection of highly transparent objects with switching threshold adaption
- Quick and easy commissioning thanks to teach-in function

## Dimensional drawing

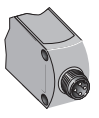
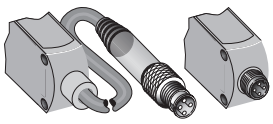
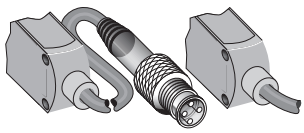
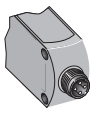
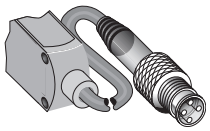



**Adjustments possible**

All types


1 Optical axis, sender and receiver (autocollimation)
2 LED indicator, yellow: status of received light beam
3 LED indicator, green: power on
4 Sensitivity control:
Metal membrane Teach-in button
5 Mounting hole M3
6 Connector M8
7 Cable, Ø 3.4 mm

## Connection types

| WLG4S-3P3232V | WLG4S-3P3232V | WLG4S-3V2232V | WLG4S-3P3432V | WLG4S-3N1132V |
|---|---|---|---|---|
|  |  | |  | |
| M8, 4-pin | M8, 4-pin | M8, 4-pin | M12, 4-pin | 4 x 0.14 mm² |
| brn 1 L+<br>blk 4 Q<br>wht 2 Q̄<br>blu 3 M | brn 1 L+<br>blk 4 Q<br>wht 2 Q̄<br>blu 3 M | brn 1 L+<br>blk 4 Q<br>wht 2 Alarm<br>blu 3 M | brn 1 L+<br>blk 4 Q<br>wht 2 Q̄<br>blu 3 M | brn L+<br>blk Q<br>wht Q̄<br>blu M |
| WLG4S-3F2234V | WLG4S-3F3232V | | | |
|  |  | | | |
| M8, 4-pin | M12, 4-pin | | | |
| brn 1 L+<br>blu 3 M<br>blk 4 Q<br>wht 2 ET | brn 1 L+<br>blu 3 M<br>blk 4 Q<br>wht 2 ET | | | |

**Accessories**

Cables and connectors
Reflectors
Test and teach box
Threaded stopper

| Technical data | WLG4S-3 | P2232V | V2232V | P3232V | P3432V | N1132V | F2234V | F3434V |
|---|---|---|---|---|---|---|---|---|
| **Scanning range typ.** | 0 ... 5 m | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Scanning range, recommended | 0 ... 3 m | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Relating to | PL80A reflector | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Sensitivity setting | Teach-in: single Teach-in button | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Light source, light type [1] | PinPoint LED, red light, 650 nm | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Light spot diameter | 45 mm at 1.5 m | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Polarisation filter | ✔ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Supply voltage $V_S$** | 10 ... 30 V DC [2] | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Residual ripple [3] | < 5 $V_{PP}$ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Power consumption [4] | ≤ 30 mA | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Switching output** | PNP, Q | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | NPN, Q | ■ | ■ | ■ | ■ | ■ | | |
| Switching mode | Dark-switching | | ■ | | | | ■ | ■ |
| | Complementary | ■ | | ■ | ■ | ■ | | |
| | Light-switching | | ■ | | | | | |
| Output current $I_A$ max. | < 100 mA | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Response time [5] | < 0.5 ms | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Switching frequency, max. [6] | 1000/s | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Alarm output | Pre-failure signalling output | | ■ | | | | | |
| **Connection type** | Cable, PVC, 2 m [7] | | | | | ■ | | |
| | Plug M8, 4-pin | ■ | ■ | | | | ■ | |
| | Cable with plug M8, 4-pin, 150 mm [7] | | | ■ | | | | |
| | Cable with plug M12, 4-pin, 150 mm [7] | | | | ■ | | | ■ |
| **VDE protection class** | ⧈ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Circuit protection** | A, B, C [8] | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Enclosure rating** | IP 67, IP 68, IP 69K [9] | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Ambient temperature** | Operation –30 °C ... +60 °C/70 °C [10] | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | Storage –30 °C ... +75 °C | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Weight** | Approx. 40 g | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Housing material** | AISI 316 L, SiOx | ■ | ■ | ■ | ■ | ■ | ■ | ■ |

1) Average service life 100,000 h at $T_A$ = +25 °C
2) Limit values, operation in short-circuit protected network max. 8 A
3) May not exceed or fall short of $V_S$ tolerances
4) Without load
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
B = All outputs short-circuit protected
C = Interference pulse suppression
9) Only for correctly mounted IP 69K supply cable
10) At $U_V$ ≤ 24 V and $I_A$ < 30 mA

## Teach-in function

**Programming via Teach-in button**

**Standard mode (switching threshold adaptation):**

Standard mode (switching threshold adaptation): sensor adjusts the switching threshold to the ambient conditions. Sensor has clear sight of the reflector.

No object in the beam path: Connect ET (pin2) > 2 s < 5 s with $V_S$.

Yellow LED display flashes briefly. Sensor is ready to operate.

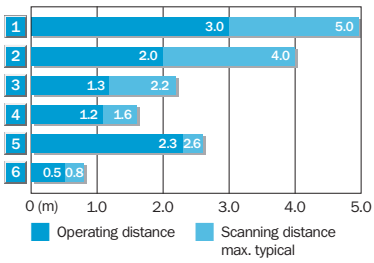
**Switch off switching threshold adaptation:**

Sensor works statically with a switching threshold of 50 %. Sensor has clear sight of the reflector.

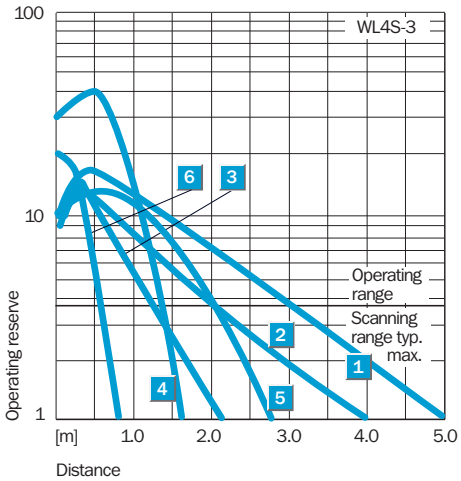
No object in the beam path: Connect ET (pin2) > 8 s with $V_S$.

Yellow LED display flashes 2 times. Sensor is ready to operate.

## Scanning range and operating reserve




| Reflector type | Operating range |
|---|---|
| 1 PL80A | 0 ... 3.0 m |
| 2 PL40A | 0 ... 2.0 m |
| 3 PL20A | 0 ... 1.3 m |
| 4 PL10F | 0 ... 1.2 m |
| 5 P250 CHEM | 0 ... 2.3 m |
| 6 REF-IRF-56 | 0 ... 0.5 m |




## Order information

| Type | Order no. |
|---|---|
| WLG4S-3P2232V | 1046446 |
| WLG4S-3V2232V | 1046447 |
| WLG4S-3P3232V | 1046448 |
| WLG4S-3P3432V | 1046449 |
| WLG4S-3N1132V | 1046450 |
| WLG4S-3F2234V | 1042084 |
| WLG4S-3F3434V | 1048024 |

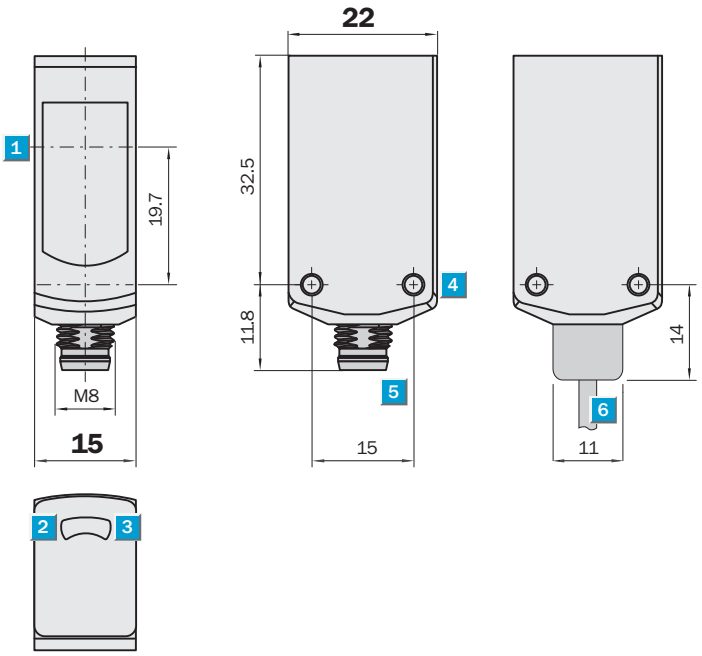
Further types on request
see www.sick.com

**Scanning range**
**0 ... 5 m**

**Through-beam photoelectric sensor**

- Robust housing in V4A/316L with internal M3 threaded holes
- Meets highest demands for harshest resistance to environmental conditions
- PinPoint LED with small, very easily visible light spot enables quick and easy alignment

## Dimensional drawing




## Adjustments possible

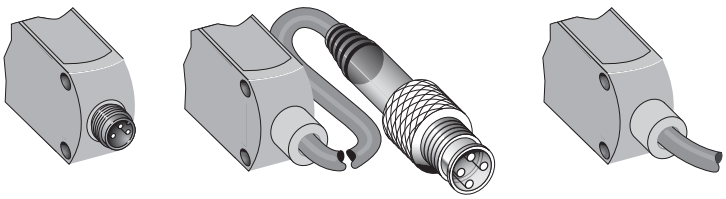
All types

Without adjustment

1 Optical axis, sender and receiver (autocollimation)
2 LED indicator, yellow: status of received light beam (only receiver)
3 LED indicator, green: power on
4 Mounting hole M3
5 Connection, Plug M8
6 Cable, Ø 3.4 mm

## Connection types

| | | |
|---|---|---|
| WSE4S-3P2130V<br>WSE4S-3F2130V<br>WSE4S-3F3130V | WSE4S-3F3430V | WSE4S-3F1330V<br>WSE4S-3P1330V<br>WSE4S-3N1330V<br>WSE4S-3E1330V |



| | M8, 3-pin | M12, 4-pin | 3 x 0.14 mm² |
|---|---|---|---|
| Sender | brn 1 L+<br>blu 3 M<br>blk 4 TE | brn 1 L+<br>blk 4 Q<br>wht 2 NC<br>blu 3 TE | brn L+<br>blu M<br>blk TE |
| Receiver | brn 1 L+<br>blu 3 M<br>blk 4 Q | brn 1 L+<br>blk 4 Q<br>wht 2 NC<br>blu 3 M | brn L+<br>blu M<br>blk Q |

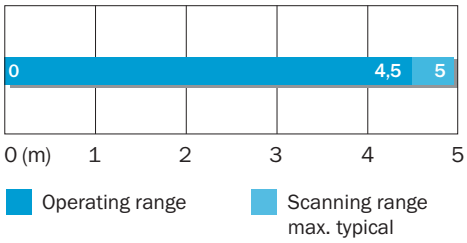
## Accessories

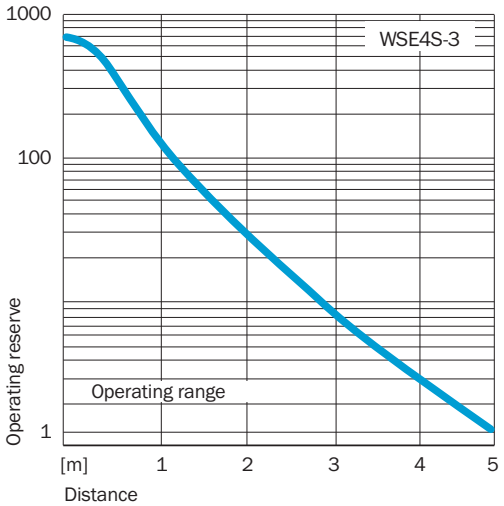
- Cables and connectors
- Test and teach box
- Threaded stopper

| Technical data | WSE4S-3 | P2130V | P1330V | F2130V | F3130V | F3430V | F1330V | N1330V | E1330V |
|---|---|---|---|---|---|---|---|---|---|
| **Scanning distance typ.** | 0 ... 5 m | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Scanning range, recommended | 0 ... 4.5 m | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Light source, light type[1] | PinPoint LED, red light, 650 nm | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Light spot diameter | 130 mm at 2 m | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Supply voltage $V_S$** | 10 ... 30 V DC[2] | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Residual ripple[3] | < 5 $V_{PP}$ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Power consumption, Sender | ≤ 20 mA | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Power consumption, Receiver[4] | ≤ 20 mA | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Switching output** | PNP, Q | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | NPN, Q | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Switching mode | Dark-switching | | | ■ | ■ | ■ | ■ | | ■ |
| | Light-switching | ■ | ■ | | | | | ■ | |
| Output current $I_A$ max. | < 100 mA | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Response time[5] | < 2.5 ms | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Switching frequency, max.[6] | 200/s | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Test input sender off** | TI after 0 V | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Connection type** | Cable, PVC, 2 m[7] | | ■ | | | | ■ | ■ | ■ |
| | Plug M8, 3-pin | ■ | | ■ | | | | | |
| | Cable with plug M8, 3-pin, 100 mm[7] | | | | ■ | | | | |
| | Cable with plug M12, 4-pin, 150 mm[7] | | | | | ■ | | | |
| **VDE protection class** | ⏀ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Circuit protection** | A, B, C[8] | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Enclosure rating** | IP 67, IP 68, IP 69K[9] | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Ambient temperature** | Operation –30 °C ... +60 °C/70 °C[10] | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | Storage –30 °C ... +75 °C | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Weight** | Approx. 80 g | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| **Housing material** | AISI 316 L, SiOx | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |

1) Average service life 100,000 h at $T_A$ = +25 °C
2) Limit values
3) May not exceed or fall short of $V_S$ tolerances
4) Without load
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
B = Outputs Q and $\overline{Q}$ short-circuit protected
C = Interference pulse suppression
9) Only for correctly mounted IP 69K supply cable
10) At $U_V$ ≤ 24 V and $I_A$ < 30 mA

## Scanning range and operating reserve




**Order information**

| Type | Order no. |
|---|---|
| WSE4S-3P2130V | 1046439 |
| WSE4S-3P1330V | 1046440 |
| WSE4S-3F2130V | 1045099 |
| WSE4S-3F3130V | 1046441 |
| WSE4S-3F3430V | 1048028 |
| WSE4S-3F1330V | 1046443 |
| WSE4S-3N1330V | 1046444 |
| WSE4S-3E1330V | 1046445 |

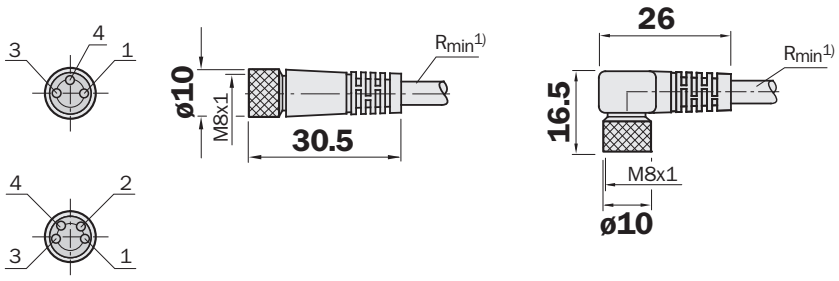
## Connecting cables M8 „Food & Beverage“

### Round connectors

- Especially suitable for use in the “Food & Beverage” industry
- Gold plated pins
- Improved resistance to chemicals, acids and cleaning agent
- Enclosure rating IP 69K (only in fully locked position with its plugs)
- Stainless steel locking nut (V4A)

### Dimensional drawing

DOL-08...




1) Minimum bend radius in dynamic use
$R_{min}$ = 20 x cable diameter

### Technical data

| | |
|---|---|
| **Nominal voltage $U_b$** | 60 V AC/75 V DC |
| **Contact resistance** | ≤ 5 mΩ |
| **Nominal power** | 4 A (CSA = 3 A) |
| **Testvoltage** | 1.5 kV eff./60 s. |
| **Insulation group** | C acc. VDE 0110 |
| **Insulation resistance** | > $10^9$ Ω |
| **Temperature range** | –25 °C ... +80 °C |
| **Bending radius** | > 10 x diameter of cable |
| **Contact** | CuZn, 0.3 µm gold plated |
| **Locking nut** | Stainless steel V4A |
| **Cable** | PVC, colour orange |
| **Conductor diameter** | 3/4 x 0.25 mm² |
| **Connector** | PVC, white |
| **Enclosure rating** | IP 69K |

### Order information

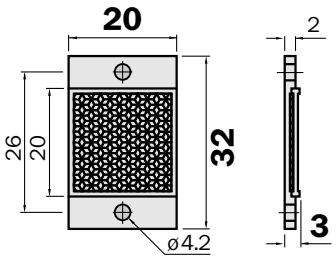
#### Round connectors M8 connecting cable „Food & Beverage“

| Type | Order no. | Description | | Contacts | Cable length [m] |
|---|---|---|---|---|---|
| DOL-0803-G02MN | 6033664 | Female connector | straight | 3 | 2 |
| DOL-0803-G05MN | 6033665 | Female connector | straight | 3 | 5 |
| DOL-0803-G10MN | 6033666 | Female connector | straight | 3 | 10 |
| DOL-0803-W02MN | 6033667 | Female connector | angled | 3 | 2 |
| DOL-0803-W05MN | 6033668 | Female connector | angled | 3 | 5 |
| DOL-0803-W10MN | 6033669 | Female connector | angled | 3 | 10 |
| DOL-0804-G02MN | 6033670 | Female connector | straight | 4 | 2 |
| DOL-0804-G05MN | 6033671 | Female connector | straight | 4 | 5 |
| DOL-0804-G10MN | 6033672 | Female connector | straight | 4 | 10 |
| DOL-0804-W02MN | 6033673 | Female connector | angled | 4 | 2 |
| DOL-0804-W05MN | 6033674 | Female connector | angled | 4 | 5 |
| DOL-0804-W10MN | 6033675 | Female connector | angled | 4 | 10 |

## SENSICK Reflectors plastic design, angular for ambient temperatures up to 65 °C

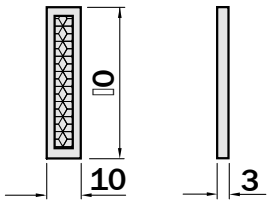
### Micro triple reflector 20 x 20 mm, screwable

| Type | Order no. |
|---|---|
| PL10F | 5311210 |



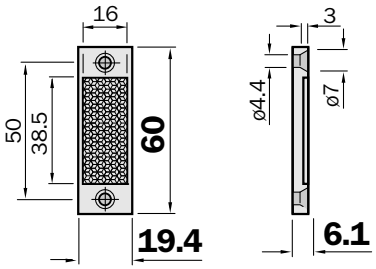

### Reflector 10 x 50 mm, plane

| Type | Order no. |
|---|---|
| PL15F | 5313849 |



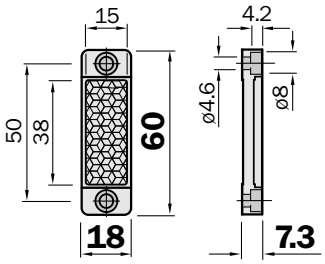

### Micro triple reflector 20 x 40 mm, screwable

| Type | Order no. |
|---|---|
| PL20F | 5308844 |



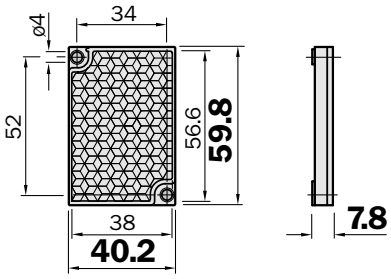

### Reflector 20 x 40 mm, screwable

| Type | Order no. |
|---|---|
| PL20A | 1012719 |




### Reflector 40 x 60 mm, screwable

| Type | Order no. |
|---|---|
| PL40A | 1012720 |



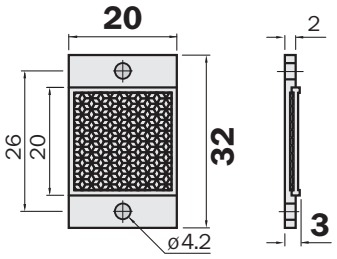
## Reflectors „Food & Beverage“

**Reflectors**

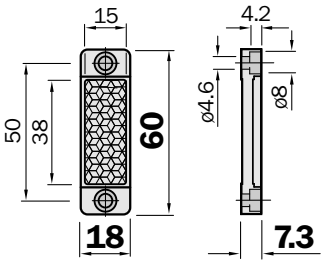
- The Food & Beverage Reflector
- Chemical resistance tested by the German Technical Control Board against $H_2O_2$, formic acid, and clorophene
- Resistant against ECOLAB detergents
- Temperature resistant to 100 °C

### Dimensional drawing

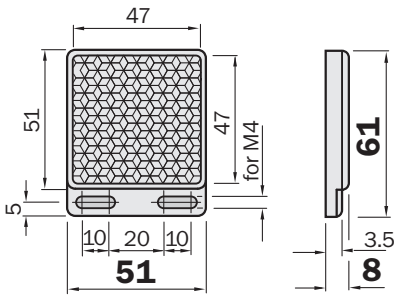
PL10F CHEM




PL20 CHEM




P250 CHEM




### Technical data

| | | PL10F CHEM | PL20 CHEM | P250 CHEM |
|---|---|---|---|---|
| Material | Chemically resistant plastic | | | |
| Mounting | 2-hole mounting, M4 | | | |
| Temperature | –20 ... +100 °C [1] | | | |
| Reflectance | 50 ... 70% [2] | | | |
| Enclosure rating | IP 67/IP 69K | | | |

[1] Continually 80 °C, short-term ~15 min 100 °C. Optical performance can be hampered with use at the upper temperature limit.

[2] Assuming standard reflectors with the same design.
Example: P250 ≙ 100%,
P250 CHEM ≙ 50 ... 70%, dependent on photoelectric switch used.

### Resistant against ECOLAB detergents

**Procedure:**

- Immerse the CHEM reflectors in various detergent solutions and concentrates
- Temperature: 60 or 80 °C
- Length of time: 2 weeks
- After 2 weeks, the reflectors are rinsed using demineralized water and assessed visually and gravimetrically.

| 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 | + |

| Product/ concentration | T [°C] | Suitability |
|---|---|---|
| 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 = conditionally suitable
– = not suitable
* = contains nitric acid

**Assessment of chemical stress by German Technical Control Board Rhineland**

| Checked liquid | Material group/ components | Assessment after (properties, colour) | | |
|---|---|---|---|---|
| | | 1 day | 7 days | 14 days |
| Acetaldehyde | Aldehyde | 0 | 0 | 0 |
| Acetone | Ketone | 1 (softening of the surface) | 1 (softening of the surface) | 1 (softening of the surface) |
| Formic acid | Organic acids | 0 | 0 | 0 |
| Benzene | Aromatic hydrocarbons | 0 | 0 | 1 (cloudiness) |
| 1,3 butandiol | Polyalcohol | 0 | 0 | 0 |
| Butylamine | Amine | 0 | 0 | 0 |
| Chlorobenzene | Chlor., aromatic hydrocarbons | 0 | 0 | 0 |
| Chloroform | Chlorohydrocarbon | 0 | 0 | 0 |
| Chlorosulfuric acid | Acid chloride | 0 | 0 | 0 |
| Diesel fuel | Fuel | 0 | 0 | 0 |
| Diethyl ether | Ether | 0 | 0 | 0 |
| Dimethyl formamide | Amide | 0 | 0 | 0 |
| Dimethyl sulphate | Ester | 0 | 0 | 0 |
| Glacial acetic acid | Organic acids | 0 | 0 | 1 (slight tears) |
| Acetic acid 10% | Organic acids | 0 | 0 | 0 |
| Ethanol | Alcohol | 0 | 0 | 1 (slight color change) |
| Ethylene glycol | Polyalcohol | 0 | 0 | 0 |
| Formaldehyde 37% | Aldehyde | 0 | 0 | 0 |
| Heating oil EL | Fuel | 0 | 0 | 0 |
| Isopropanol | Alcohol | 0 | 0 | 0 |
| Kerosene | Fuel | 0 | 0 | 0 |
| m-cresol | Phenol | 0 | 0 | 0 |
| Methanol | Alcohol | 0 | 0 | 1 (cloudiness) |
| n-heptane | Hydrocarbons | 0 | 0 | 0 |
| Sodium hydroxide solution 10% | Caustic solutions | 0 | 0 | 0 |
| Hydrochloric acid 20% | Inorganic acids | 0 | 0 | 0 |
| Sulfuric acid 98% | Inorganic acids | 0 | 0 | 0 |
| 1, 1, 2, 2 Tetrachlorethane | Chlorinate hydrocarbons | 0 | 0 | 0 |
| Carbon tetrachloride | Chlorinate hydrocarbons | 0 | 0 | 0 |
| Toluene | Aromatic hydrocarbons | 0 | 0 | 0 |
| Hydrogen peroxide ($H_2O_2$), 10% | | 0 | 0 | 0 |
| Medical detergents [a] | | 0 | 0 | 0 |
| Foodstuff detergents [b] | | 0 | 0 | 0 |

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

**The measurement values are taken from the test certificate of German Technical Control Board Rhineland (test no. 620/434628).**

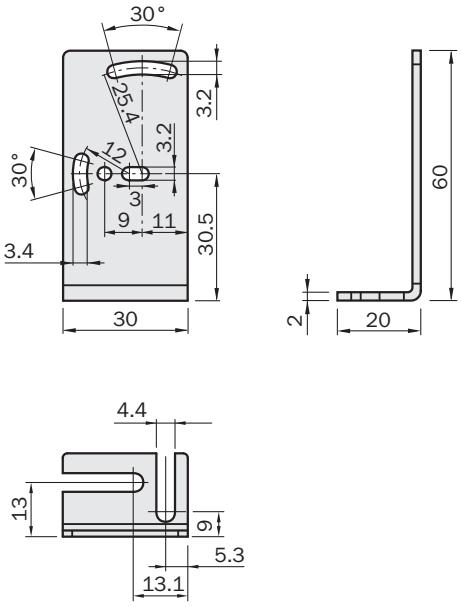
**Order information**

| Type | Order no. |
|---|---|
| PL10F CHEM | 5321636 |
| PL20 CHEM | 5321089 |
| P250 CHEM | 5321097 |

## Mounting systems

### Mounting bracket for W4S-3 INOX, stainless steel (1.4404), floor mounting

| Type | Order no. | |
|---|---|---|
| BEF-W4-B | 2051630 | Screws are included with delivery. |

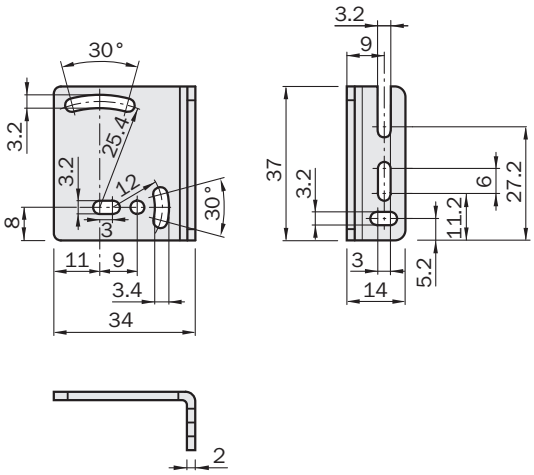






### Mounting bracket for W4S-3 INOX, stainless steel (1.4404), wall mounting

| Type | Order no. | |
|---|---|---|
| BEF-W4-A | 2051628 | Screws are included with delivery. |

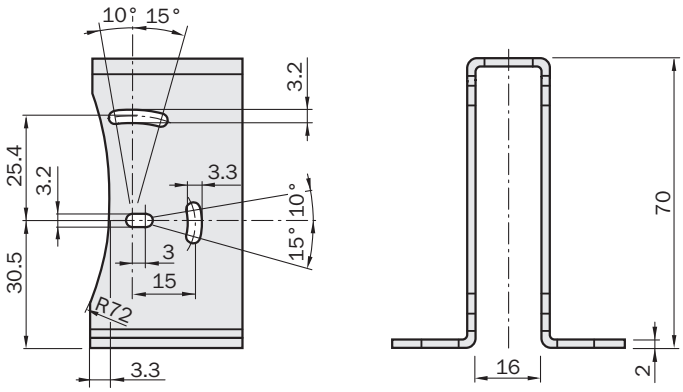


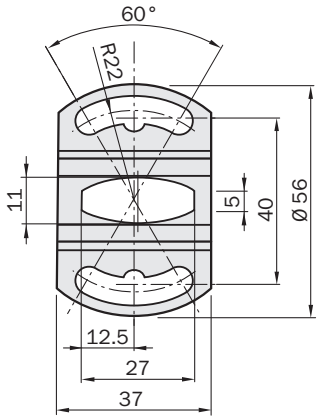




### Protective bracket for W4S-3 INOX, stainless steel (1.4404), floor mounting

| Type | Order no. | |
|---|---|---|
| BEF-SW-W4S | 2051497 | Screws are included with delivery. |



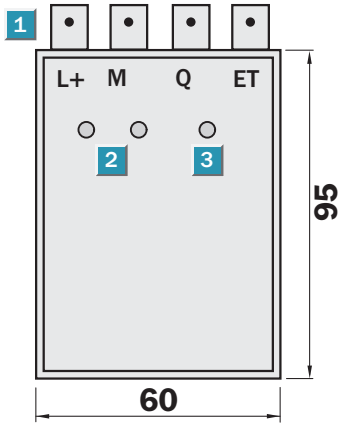

### Universal bar clamp system (UKS) for WTB4S INOX

| Type | Order no. |
|---|---|
| BEF-KHS-N02N | 2051618 |

## Special accessories

### Test box 18V for sensors with Teach-in via cable

| Type | Order no. |
|---|---|
| Testbox | 6038940 |




1 Terminals for electrical connections
2 Teach-in buttons for external Teach-in
3 Display LED for switching output

### Threaded stopper for fixing hole for W4S-3 INOX, 10 pieces

| Typ | Bestell-Nr. |
|---|---|
| BEF-VS-W4S | 4059062 |

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