# Datasheet

# RS PRO Photoelectric Background Suppression sensors with IO-Link communication

Stock No: **2377280, 2377281**

## Description

The 2377280/2377281 stainless steel sensors are built with high-quality materials and designed for harsh environments.

They are designed for use in environments where high-pressure cleaning, cleaning agents and disinfectants are used on a daily basis.

The strong stainless steel (AISI316L) together with high-quality plastic materials like PEEK, PPSU, and PES sealings of FKM ensure a safe and excellent mechanical resistance.

The sensor housing has the IP69K rating as well as approval by ECOLAB for cleaning and disinfection agents.

The compact sensor design is ideally suited to confined spaces.

## Benefits

- **Red** sensor with IO-Link with a adjustable distance of 25 to 200 mm, either by trimmer or via IO-Link.
- **Application functions:** Pattern Recognition, Speed & Length, Divider function and Object & Gap Monitoring.
- **Neighbour Immunity**, selectable up to 3 sensors
- **Easy customization** to specific OEM requests by use of the build in IO-Link functionalities.
- **The output can be operated** either as a standard switching output or in IO-Link mode.
- **Fully configurable via output IO-Link v 1.1.** Electrical outputs can be configured as PNP / NPN / Push-Pull / External input, normally open or normally closed.
- **Timer functions** can be set, such as ON-delay, Off-delay, and one shots.
- **Logging functions:** Temperatures, detecting counter, power cycles and operating hours.
- **Detection modes** Single point, two point, windows and foreground suppression (FGS) mode.
- **Logic functions:** AND, OR, XOR and Gated SR-FF.
- **Analogue output:** In IO-Link mode the sensor will generate 16 bit analogue process data output representing various selectable process data such as received signal level.



## Applications

**Pattern Recognition**: An easy way to verify that a product is manufactured to the specification e.g. Furniture production where tabs or holes has to be with a defined pattern.

**Speed and Length**: Monitor the speed and length of an object on a conveyour for e.g. sorting on size.

**Divider function**: A de-central counting function that gives a signal when a preset count level is reached e.g. when a certain items are packed in a carton box it ask for a new box.

**Object and Gap Monitoring**: Function that can sort out good objects and gaps between them so e.g. a packaging machine only reveive objects with the correct size and gaps.

> **Main functions**

- Detects presence or absence of objects that cut off the light from the emitter
- The detection distance is very independent of the colour of the object to detect.
- The sensor can be operated in IO-Link mode once connected to an IO-Link master or in standard I/O mode.
- Received sensing distance as process data.
- Neighbor inference protection.
- Sensing distance by potentiometer, teach by wire or by IO-link parameter.
- Quality of Run and Quality of Teach result.
- Temperature date for preventive maintenance.
- Front-end check for preventive maintenance.

**Adjustable parameters via IO-Link interface:**
- Sensing distance and hysteresis.
- Sensing modes: single point or two point or window mode.
- Timer functions, e.g.: On-delay, Off delay, One shot leading edge or trailing edge.
- Logic functions such as: AND, OR, X-OR and SR-FF.
- External input.
- Logging functions: Maximum temperatures, minimum temperatures, operating hours, operating cycles, power cycles, minutes above maximum temperature, minutes below minimum temperature, etc.
- Auto hysteresis
- Special functions: Pattern Recognition, Speed & Length, Divider function and Object & Gap Monitoring.
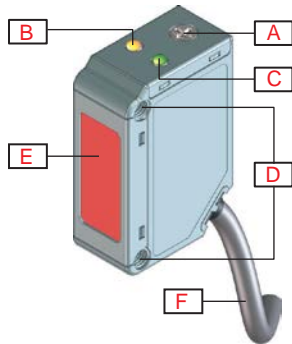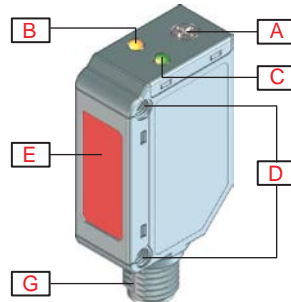
# References

> **Type selection**

| Connec-tion | Housing | Light type | Code |
|---|---|---|---|
| Cable | Stainless steel | Red | **2377280** |
| Plug | Stainless steel | Red | **2377281** |

# Structure



**Fig. 1** *Cable*

**Fig. 2** *Plug*
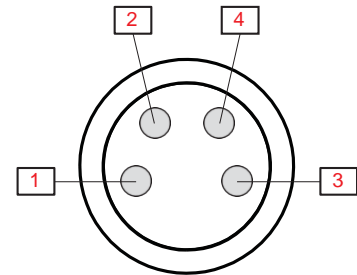
**Fig. 3** *"M8-plug" Pin numbers*

| | | | |
|---|---|---|---|
| **A** | Sensitivity adjustment (Top trimmer) | **G** | M8, 4-pin male connector |
| **B** | Yellow LED | **1** | Brown |
| **C** | Green LED | **2** | White |
| **D** | M3 Fixing holes for sensor mounting | **3** | Blue |
| **E** | Sensing window | **4** | Black |
| **F** | 2 m, 4 wire PVC Ø 3.3 mm cable | | |

# Sensing

## Detection

| Sensor front | | |
|---|---|---|
| **1. SSC1** S.P.1 (trimmer/IO-Link)S.P.2 Hysteresis (man./auto) Logic Single pointTwo point Windows FGS | | |
| **2. SSC2** S.P.1 S.P.2 Hysteresis Logic Single pointTwo point Windows FGS | | |
| 3. **Temperature** 4. **Dust 1** 5. **Dust 2** 6. **EXT-Input** | | |

SSC1 → **Selector A** One of1 to 7 → A, B → **Logic A - B** AND, OR, XOR, S-R → **Time delay** ON, OFF One-shot → **Output inverter** N.O., N.C. → **Sensor output** NPN, PNP, Push-Pull → SO1

SSC2 → **Selector B** One of 1 to 7 → A, B → **Logic A - B** AND, OR, XOR, S-R → **Time delay** ON, OFF One-shot → **Output inverter** N.O., N.C. → **Sensor output** NPN, PNP, Push-PullEXT-Input → SO2 EXT-Inpu

**7. Aplication functions**

| Pattern Recognition | or | Speed & Length | or | Diveder function | o | Object & Gap Monitoring |
|---|---|---|---|---|---|---|

| Sensor switching channel SSC1 and SSC2 | **SSC1**<br>• Enabled<br>• Disabled<br>*Factory settings: Enabled* | **SSC2**<br>• Enabled<br>• Disabled<br>*Factory settings: Enabled* |
|---|---|---|
| **Set Point 1 (SP1)** | • 20 ... 225<br>*Factory settings: 200 (Approx. 200 mm @ Rererence target 90% reflection)* | |
| **Set Point 2 (SP2)** | • 20 ... 225<br>*Factory settings: 20 (Approx. 20 mm @ Rererence target 90% reflection)* | |
| **Switching logic** | • High active<br>• Low active<br>*Factory settings: High active* | |
| **Switching mode** | **SSC1**<br>• Deactivated<br>• Single point mode<br>• Two point mode<br>• Windows mode<br>• FGS mode<br>*Factory settings: Single point mode* | **SSC2**<br>• Deactivated<br>• Single point mode<br>• Two point mode<br>• Windows mode<br>• FGS mode<br>*Factory settings: Single point mode* |
| **Rated operating distance ($S_n$)** | ≤ 200 mm | Reference target, white paper with 90 % reflectivity, Size 200x200 mm |
| **Maximum detection distance** | ≤ 200 mm | White object 90% reflection |
| | ≤ 200 mm | Grey object 18% reflection |
| | ≤ 200 mm | Black object 6% reflection |
| **Cutoff distance** | 20...250 mm<br>*Factory settings: 250 mm*<br>Measured distance beyond Cutoff distance, will be truncated to Cutoff distance.<br>Cutoff distance value will also be used when an object cannot be detected. | |
| **Sensitivity control ( selectable between)** | • IO-Link Adjustment (SSC1)<br>• Trimmer Input (SSC1)<br>• Teach by wire (SSC1)<br>*Factory settings: Trimmer Input* | |
| **Sensitivity adjustment** | 23 mm ... 210 mm | Single-turn potentiometer |
| **Blind zone** | ≤ 10 mm | White object 90% reflection |
| | ≤ 12 mm | Grey object 18% reflection |
| | ≤ 14 mm | Black object 6% reflection |
| **Light source / Light type** | 620 nm / Red modulated | PD30CTBR20BPxxIO |
| **Detection angle** | ± 1.2° @ half sensing distance | @ 100 mm |
| **Light spot size** | Ø 6.8 mm | @ 100 mm |
| **Emitter beam angle** | ± 2.0° | @ 100 mm |
| **Adjustable distance** | 20 ... 225 mm<br>*Factory settings: SP1 200 and SP2 20* | White object 90% reflection |
| | 20 ... 225 mm<br>*Factory settings: SP1 200 and SP2 20* | Grey object 18% reflection |
| | 20 ... 225 mm<br>*Factory settings: SP1 200 and SP2 20* | Black object 6% reflection |
| **Hysteresis (H)**<br>**Manual**<br>**Automatic** | Adjustable by IO-Link<br>• 2 mm ... 225 mm<br>*Factory settings: 14 mm* | |
| **Detection filter** | This function can increase the immunity towards unstable targets and electromagnetic disturbances: Value can be set from 1 to 255.<br>*Factory settings: 1*<br>(1 is max. operating frequency and 255 is min. operating frequency) | |

| Mutual Inteference Protection | • MIP Off<br>• One channel<br>• 2 channels - CH A<br>• 2 channels - CH B<br>• 3 channels - CH A<br>• 3 channels - CH B<br>• 3 channels - CH C | ***Factory settings:*** *MIP Off* |
|---|---|---|

▶ **Application functions**

| Selectable dedicated applications | • No application<br>• Pattern Recognition<br>• Speed and Length<br>• Divider function<br>• Object and Gap Monitoring | ***Factory settings:*** No application |
|---|---|---|

## Pattern Recognition

| Function description | The Pattern recognition function detects a pattern (e.g. a row of holes or pins) and compare the order with a pre-teached reference pattern. |
|---|---|
| Conditions | Two sensors (Main sensor and Trigger sensor) are needed for this function. |
| Settings | • The Trigger sensor has to detect the full length of the body that contains the pattern.<br>• The Main sensor has to be aimed at the e.g. holes or pins that constitute the pattern. |

## Speed and Length

| Function description | This function is designed to monitor the length of an object as well as the speed of a conveyour belt. The actual value if the length in [mm] and the speed in [mm/s] are directly available on the IO-Link master. | |
|---|---|---|
| Conditions | Two sensors (Main sensor and Trigger sensor) are needed for this function. | |
| Settings | Distance between sensors. | 25 ... 150 mm<br>***Factory settings:*** 100 mm |

## Divider function

| Function description | This function can be used to e.g. monitor how many items that are packed into a carton box. Once the preset number is reached the sensor gives an output so the full box can be replaced. | |
|---|---|---|
| Conditions | Only one sensor is needed for this function. | |
| Settings | A counter value must be set in the sensor. | |
| | Counter limit. | 1...60 000<br>***Factory settings:*** 5 |

# Object and Gap Monitoring

| Function description | This function is designed to monitor, that the length of an object and the gap between the following object on a conveyer belt, are witin certain limits. | |
|---|---|---|
| Conditions | Only one sensor is needed for this function. | |
| Settings | An acceptable minimum and maximum time [ms] mus be set for both the object size a gap size between two objects represented by the time it takes to pass the sensor. | |
| | Object minimum time. | 10...60 000 ms <br> *Factory settings:* 500 ms |
| | Object maximum time. | 10...60 000 ms <br> *Factory settings:* 10 000 ms |
| | Gap minimum time. | 10...60 000 ms <br> *Factory settings:* 500 ms |
| | Gap maximum time. | 10...60 000 ms <br> *Factory settings:* 10 000 ms |
| Outputs | Output 1 is active when an object is outside the set limits. <br> Output 2 is active when the gap between two objects is outside the set limits. | |

## ▶ Alarm settings

| | SSC1 | SSC2 |
|---|---|---|
| Safe limits | • 0 ... 100 % of actual SP <br> *Factory settings: 5%* | • 0 ... 100 % of actual SP <br> *Factory settings: 5%* |
| Dust alarm | Safe limits are used for dust alarm level. | |
| Temperature alarm | • High threshold -50 ... +150 °C <br> • Low threshold -50 ... +150 °C <br> *Factory settings:* <br> *High value 70 °C* <br> *Low value -20 °C* | |

## ▶ Detection diagram
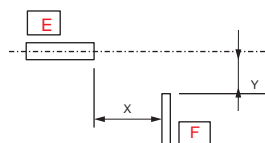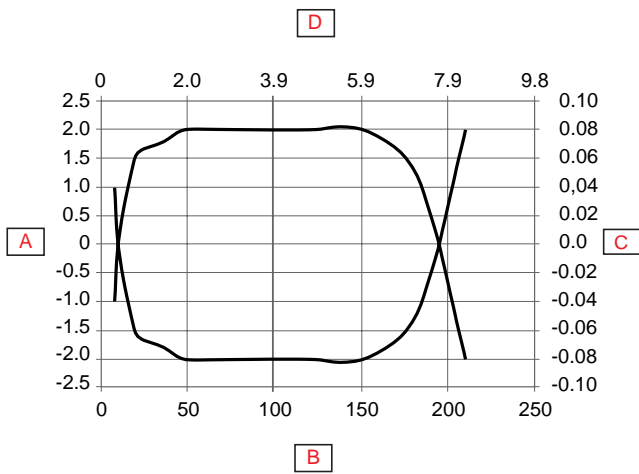
| A | Detection width (mm) | D | Sensing range (inches) |
|---|---|---|---|
| B | Sensing range (mm) | E | Sensor |
| C | Detection width (inches) | F | Object 25 x 25 mm, White 90% |

## Accuracy

| Temperature drift | ≤ 0.2%/°C |
|---|---|

## Sensing conditions
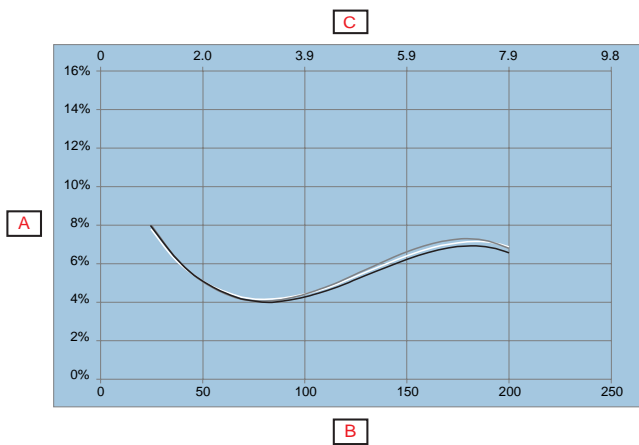


| A | Distance from background (%) | ▬▬ | (Black on white 6%/90%) |
|---|---|---|---|
| B | White background 90% (mm) | ▬▬ | (Grey on white 18%/90%) |
| C | White background 90% (inches) | ▭ | (White on white 90%/90%) |

# Features

![RS logo]



▶ **Power Supply**

| | |
|---|---|
| **Rated operational voltage ($U_B$)** | 10 ... 30 VDC (ripple included) |
| **Ripple ($U_{rpp}$ )** | ≤ 10% |
| **No load supply current ($I_o$)** | ≤ 35 mA @ $U_B$ min. |
| | ≤ 15 mA @ $U_B$ max. |
| **Power-ON delay ($t_v$)** | ≤ 150 ms |

▶ **Input selector**

| | | |
|---|---|---|
| **Input selector** | **Channel A**<br>• Deactivated<br>• SSC1<br>• SSC2<br>• Dust alarm 1<br>• Dust alarm 2<br>• Temperature alarm<br>• External input<br>• Application functions<br>***Factory settings: SSC1*** | **Channel B**<br>• Deactivated<br>• SSC1<br>• SSC2<br>• Dust alarm 1<br>• Dust alarm 2<br>• Temperature alarm<br>• External input<br>• Application functions<br>***Factory settings: SSC1*** |

▶ **Logic functions**

| | | |
|---|---|---|
| **Logic functions** | **Channel A + B for SO1**<br>• Direct<br>• AND<br>• OR<br>• X-OR<br>• SR-FF<br>***Factory settings: Direct*** | **Channel A + B for SO2**<br>• Direct<br>• AND<br>• OR<br>• X-OR<br>• SR-FF<br>***Factory settings: Direct*** |

## Time delays

| | | |
|---|---|---|
| **Timer mode** | **For SO1**<br>• Disabled<br>• ON delay<br>• OFF delay<br>• ON delay and OFF delay<br>• One-shot leading edge<br>• One-shot trailing edge<br>*Factory settings: Disabled* | **For SO2**<br>• Disabled<br>• ON delay<br>• OFF delay<br>• ON delay and OFF delay<br>• One-shot leading edge<br>• One-shot trailing edge<br>*Factory settings: Disabled* |
| **Timer scale** | **For SO1**<br>• [ms]<br>• [s]<br>• [min]<br>*Factory settings: ms* | **For SO2**<br>• [ms]<br>• [s]<br>• [min]<br>*Factory settings: ms* |
| **Timer value** | **For SO1**<br>• 0 ... 32 767<br>*Factory settings: 0* | **For SO2**<br>• 0 ... 32 767<br>*Factory settings: 0* |

## Outputs

| | | |
|---|---|---|
| **Sensor output** | **For SO1 Pin 4 Black wire**<br>• Disabled output<br>• NPN<br>• PNP<br>• Push-Pull<br><br><br><br><br>*Factory settings: PNP* | **For SO2 Pin 2 White wire**<br>• Disabled output<br>• NPN<br>• PNP<br>• Push-Pull<br>• External input, active high<br>• External input, active low<br>• External teach<br>• Mute input<br>*Factory settings: PNP* |
| **Output Inverter** | **For SO1 Pin 4 Black wire**<br>• N.O.<br>• N.C.<br>*Factory settings: N.O.* | **For SO2 Pin 2 White wire**<br>• N.O.<br>• N.C.<br>*Factory settings: N.C.* |
| **Rated operational current ($I_e$)** | ≤ 100mA (continuous) pr. output<br>100 mA @ 100 nF Load (Short-time) pr. output | |
| **OFF-state current ($I_r$)** | ≤ 50 µA | |
| **Minimum operational current ($I_m$)** | > 0,5 mA | |
| **Voltage drop ($U_d$)** | ≤ 1.0 VDC @ 100 mA | |
| **Protection** | Short circuit, reverse polarity, transients | |
| **Utilization category** | DC-12 | Control of resistive loads and solid-state loads with optical isolation |
| | DC-13 | Control of electromagnets |
| **Capacitive load** | 100 nF @ 100 mA, 24 VDC | |

## Operation diagram

## For default factory sensor

Tv = Power-ON delay

| Power supply | ON | |
|---|---|---|
| Target (Object) | Present | |
| Break output (N.C.) | ON | Tv |
| Make output (N.O.) | ON | Tv |

## Response times

| Operating frequency (f) | ≤ 500 Hz | |
|---|---|---|
| Response times | ≤ 1 ms | OFF-ON ($t_{ON}$) |
| | ≤ 1 ms | ON-OFF ($t_{OFF}$) |

## Indication

| Green LED | Yellow LED | Power | Function |
|---|---|---|---|
| | | **SIO and IO-Link mode** | |
| ON | ON | ON | ON (stable)* SSC1 |
| ON | OFF | ON | OFF (stable)* SSC1 |
| OFF | OFF | OFF | OFF (Not stable) SSC1 |
| Flashing 1 Hz (10% or 90% dutycycle ) | - | ON | Connected via IO-Link |
| - | Flashing 10 Hz 50% dutycycle | ON | Output short-circuit |
| - | Flashing 0.5…20 Hz 50% dutycycle | ON | Timer triggered indication |
| | | **SIO mode only** | |
| - | Flashing 1 HZ ON 100 ms OFF 900 ms | ON | External teach by wire. Only for single point mode. |
| - | Flashing 1 HZ ON 900 ms OFF 100 ms | ON | Teach time window (3 - 6 sec). |
| - | Flashing 10 HZ ON 50 ms OFF 50 ms Flashing for 2 sec | ON | Teach time out (12 sec). |
| - | Flashing 2 HZ ON 250 ms OFF 250 ms Flashing for 2 sec | ON | Teach successful. |
| | | **O-Link mode only** | |
| Flashing 1 HZ ON 900 ms OFF 100 ms | - | ON | Sensor is in IO-Link mode. |
| Flashing 2 Hz 50% dutycycle | | ON | Find my sensor |

*See operation diagram

▶ **LED indication**

| LED indication selection | • LED indication inactive<br>• LED indication active<br>• Find my sensor<br>***Factory settings:*** *LED indication active* |
|---|---|

▶ **Environmental**

| Ambient temperature | -25°... +60°C (-13°... +140°F) | Operating [1] |
|---|---|---|
| | -40° ... +85°C (-40° ... +185°F) | Storage [1] |
| Ambient humidity range | 35% ... 95% | Operating [2] |
| | 35% ... 95% | Storage [2] |
| Ambient light | ≤ 65 000 lux | @ 3000 … 3200 °K |
| Vibration | 10 ...150 Hz, 1.0 mm/15 g | EN 60068-2-6 |
| Shock | 30 $g_n$ / 11 ms, 3 pos, 3 neg per axis | EN60068-2-27 |
| Drop test | 2 x 1 m and 100 x 0.5 m | EN 60068-2-31 |
| Rated insulation voltage ($U_i$) | 50 VDC | |
| Dielectric insulation voltage | ≥ 500 VAC rms | 50/60 Hz for 1 min. |
| Rated impulse withstand voltage | >1 kV (with 500 Ω) | 1.2/50 µs |
| Pollution degree | 3 | IEC60664, 60664A; EN60947-1 |
| Overvoltage category | III | IEC60664; EN60947-1 |
| Degree of protection | IP67, IP68 @ 2 m and 20 h | IEC60539; EN60947-1 |
| | IP69K | (DIN 40050-9) |
| NEMA Enclosure Types | 1, 2, 4, 4X, 5, 6, 6P, 12 | NEMA 250 |

[1] *Do not bend the cable in temperatures below -10°C*
[2] *With no icing or condensation*

▶ **EMC**

| Electrostatic discharge immunity test | ± 8 kV @ air discharge or<br>± 4 kV @ contact discharge | IEC 61000-4-2; EN60947-1 |
|---|---|---|
| Electromagnetic field immunity | 10 V/m | IEC 61000-4-3; EN60947-1 |
| Fast transient immunity | ±2 kV / 5 kHz | IEC 61000-4-4; EN60947-1 |
| Wire-conducted noise | 10 Vrms | IEC 61000-4-3; EN60947-1 |
| Power frequency magnetic field immunity test | Continuous:  >30 A/m, 28 µ tesla<br>Short-time: >300 A/m, 280 µ tesla | IEC 61000-4-8; EN60947-1 |

**Diagnostic parameters**

| Function | Unit | Range |
|---|---|---|
| **Sensor Diagnostics** | | |
| **Frontend Failure** | 0 | 0 or 1 |
| **Memory Failure** | 0 | 0 or 1 |
| **Temperature Diagnostics** | | |
| **Current temperature** | [°C] | -50 ... +150 |
| **Maximum temperature - All time high** | [°C] | -50 ... +150 |
| **Minimum temperature - All time low** | [°C] | -50 ... +150 |
| **Maximum temperature - Since last power-up** | [°C] | -50 ... +150 |
| **Minimum temperature - Since last power-up** | [°C] | -50 ... +150 |
| **Minutes above Maximum Temperature** | [min] | 0 … 2 147 483 647 |
| **Minutes below Minimum Temperature** | [min] | 0 … 2 147 483 647 |
| **Operating Diagnostic** | | |
| **Operating Hours** | [h] | 0 … 2 147 483 647 |
| **Number of Power Cycles** | [cycles] | 0 … 2 147 483 647 |
| **Detection counter SSC1** | [cycles] | 0 … 2 147 483 647 |
| **Maintenaince event counter** | [cycles] | 0 … 2 147 483 647 |
| **Download counter** | [counts] | 0 …65 536 |
| **Quality of Teach** | - | 0 ... 255% |
| **Quality of Run** | - | 0 ... 255% |
| **Excess gain** | | 0.00 ... 1 000.00 |
| **Error Count** | [counts] | 0 …65 536 |
| **Device Status** | | 0 = Device is operating properly<br>1 = Maintenance required<br>2 = Out-of-specification<br>3 = Functional-Check<br>4 = Failure<br>*Factory settings: 0* |

**Events Configuration**

| Events | Factory default setting |
|---|---|
| **Maintenaince Event** | Inactive |
| **Temperature fault event** | Inactive |
| **Temperature over-run** | Inactive |
| **Temperature under-run** | Inactive |
| **Short circuit** | Inactive |

> **Observation menu**

| Process Data | Factory default setting |
|---|---|
| **Analogue value** | Analogue value Inactive |
| | Analogue value normal *Factory settings* |
| | Analogue value as Object Length |
| | Analogue value as Object Speed |
| | Analogue value as Counter value |
| **Excess gain** | Inactive |
| **SO1, Switching output 1** | Active |
| **SO2, Switching output 2** | Active |
| **SSC1, Sensor switching channel 1** | Inactive |
| **SSC2, Sensor switching channel 2** | Inactive |
| **DA1, Dust alarm SSC1** | Inactive |
| **DA2, Dust alarm SSC2** | Inactive |
| **TA, Temperature alarm** | Inactive |
| **SC, Short circuit** | Inactive |
| **AFO1, Application functions output 1** | Inactive |

## Process data structure

4 Bytes, Analogue value 16 ... 31 (16 bit)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Byte 0** | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 |
| | **MSB** | - | - | - | - | - | - | - |
| **Byte 1** | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 |
| | - | - | - | - | - | - | - | **LSB** |
| **Byte 2** | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 |
| | - | - | **SC** | **TA** | **DA2** | **DA1** | **SSC2** | **SSC1** |
| **Byte 3** | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| | **AFO1** | - | - | - | - | - | **SO2** | **SO1** |

# Mechanics/electronics

### ▶ Connection

| Cable | 2 m, 4-wire 4 x 0.14 mm², Ø = 3.3 mm, PVC, Black |
|---|---|
| Plug | M8, 4-pin, male |

### ▶ Wiring
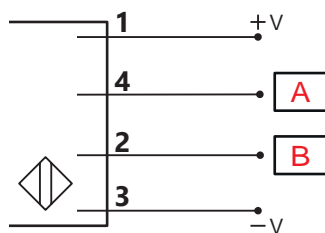


| BN | BK | WH | BU | A | B |
|---|---|---|---|---|---|
| Brown | Black | White | Blue | OUT/IO-Link | IN/OUT |

### ▶ Housing

| Body | Stainless steel, AISI316L | |
|---|---|---|
| Front glass | PPSU, Red | |
| Trimmer shaft | PEEK, Light grey | |
| Indication | PES, Transparent | Polyethersulfone |
| Sealing | FKM | Fluoroelastomer |
| Cable gland | FKM | Fluoroelastomer |
| Dimensions | 11 x 31.5 x 21 mm | |
| Weight | ≤ 100 g | Cable version |
| | ≤ 65 g | Plug version |

## Dimensions
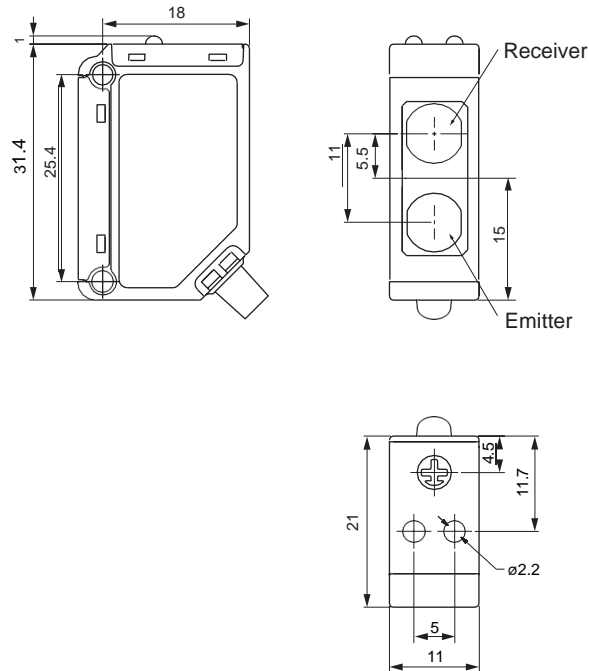


**Fig. 4** *Cable*
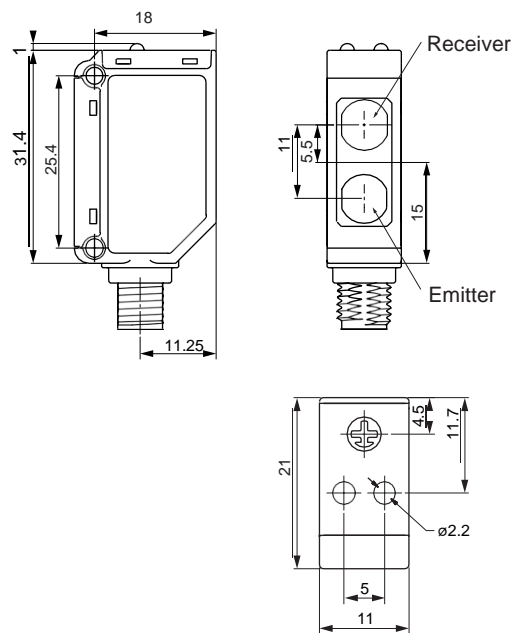


**Fig. 5** *Plug*

# Compatibility and conformity

## ► Approvals and markings

| General reference | Sensor designed according to EN60947-5-2 | |
|---|---|---|
| MTTF$_d$ | 138.5 years | EN ISO 13849-1, SN 29500 |
| CE-marking | $CE$ | |
| Approvals | $_c\text{(UL)}_{US}$ (UL508) | |
| Other Approvals | ECOLAB | Topax 56, Topaz AC1, Topaz MD3, Topaz CL1, Topactiv OKTO, P3-hypochloran |

## ► IO-Link

| IO-Link revision | 1.1 |
|---|---|
| Transmission rate | COM2 (38.4 kbaud) |
| SDCI-Norm | IEC 61131-9 |
| Profile | Smart sensor profile 2nd edition, common profile |
| Min. cycle time | 5 ms |
| SIO mode | Yes |
| Min. master port class | A (4-pin) |
| Process data length | 32 bit |

# Delivery contents and accessories

### ▶ Delivery contents

- Photoelectric switch: 2377280/2377281
- Screwdriver
- Packaging: Plastic bag