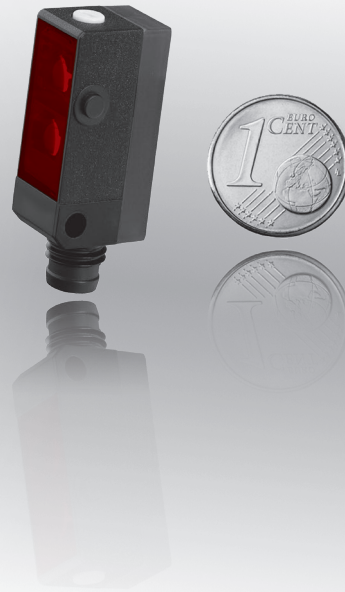


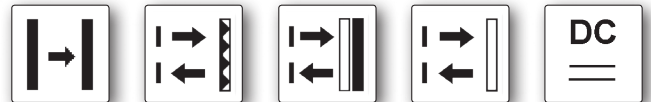
dimensions **12 x 27 x 14mm**
12 x 27 x 16.3mm

through-beam sensors range **5m**
retro-reflective sensors operating range **3.5m**
dif. reflection sensors sensing range **5 to 200mm**

- ✓ special versions for glass detection or with linear red light beam
- ✓ diffuse reflection sensor with either intensity differentiation or background suppression
- ✓ range or sensing range adjustable with through-beam sensors and diffuse reflection sensors
- ✓ retro-reflective sensors with polarizing filter
- ✓ plastic housing, subminiature design
- ✓ LED switching state display with alignment-aid
- ✓ integrated amplifier
- ✓ high switching frequency and switching distances
- ✓ connection via cable, M8-connector, 4-pin or M8 cable connector, 3-pin



performance giant in spite of tiny size optimal – with visible red light!



description

ipf sensors of this series are optoelectronic proximity switches with a very high accuracy in an extremely small and compact design.

The through-beam sensors operate over a range of up to 5000mm. The retro-reflective sensors (with built-in polarizing filter) up to 3500m.

Diffuse reflection sensors are available with both intensity differentiation as well as with background suppression through triangulation.

For the version with background suppression, objects are reliably detected independent of their color, since their position is calculated from the angle of the reflected light.

These sensors allow very accurate detection of the smallest objects, even in rapid production sequences.

The sensors operate with visible red light, which allows for an easy alignment with the object to be detected and a comfortable adjustment.

Possible misalignment or soiled optics are signalled by the flashing of the switching state display.

Functional monitoring of the devices is possible via a test input

in the transmitter of the through-beam sensor. For this, the operating voltage potential is applied to the corresponding contact. The transmitter is switched off. Through this, the basic alignment of the transmitter to the receiver can be checked. The retro-reflective sensors are equipped with a polarizing filter. The reliable detection of reflective objects and mutual interference suppression by further through-beam sensors is thereby ensured. The interference suppression function is also available for diffuse reflection sensors.

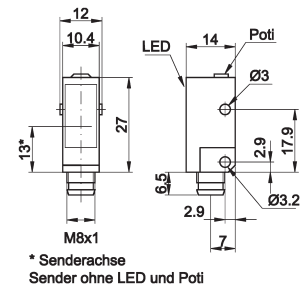
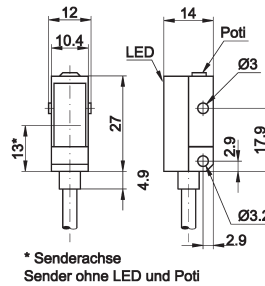
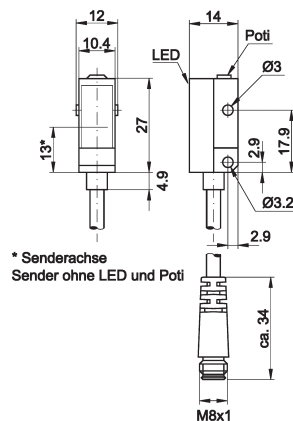
Optical sensors are frequently used in combination with a programmable logic controller (PLC).

Matching standard mounting brackets are included in the scope of delivery.

application examples

- ▶ limit switches, position switches and pulse generators in automatic machinery and production processes
- ▶ precise detection of minute objects made from metal, glass, plastic (films), wood, paper, etc.

| | | | |
|-----------------|---------------------------------|---------------------------------|---------------------------------|
| article-no. | OE140170 | OE140406 | OE140476 |
| version | through-beam sensor receiver | through-beam sensor receiver | through-beam sensor receiver |
| connection | M8 cable connector, PVC | cable, PUR | M8-connector |
| output | pnp, dark-on mode | pnp, light-on/dark-on mode | pnp, light-on/dark-on mode |
| article-no. | OS140070 | OS140006 | OS140076 |
| version | through-beam sensor transmitter | through-beam sensor transmitter | through-beam sensor transmitter |
| connection | M8 cable connector, PVC | cable, PUR | M8-connector |
| operating range | 5m | 5m | 5m |

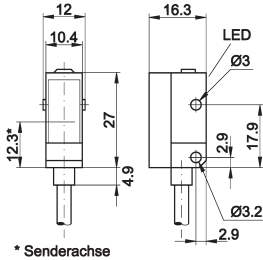
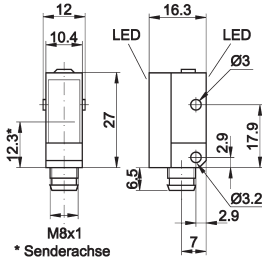


TECHNICAL DATA

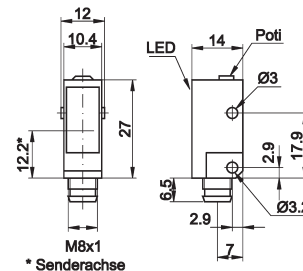
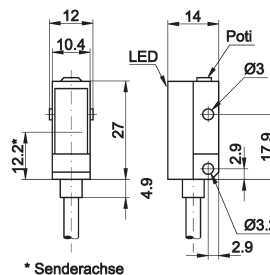
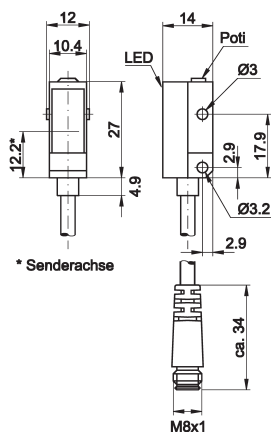
| | | | |
|---|----------------------------------|------------------------------|------------------------------|
| range | 5m | 5m | 5m |
| output signal** | pnp, dark-on mode | pnp, light-on/dark-on mode | pnp, light-on/dark-on mode |
| operating voltage | 10 ... 30V DC | 10 ... 30V DC | 10 ... 30V DC |
| current consumption (w/o load) | ≤ 23mA* / ≤ 16mA** | ≤ 23mA* / ≤ 16mA** | ≤ 23mA* / ≤ 16mA** |
| output current (max. load)** | 100mA | 100mA | 100mA |
| voltage drop (max. load)** | 1.8V DC | 1.8V DC | 1.8V DC |
| transmitting element (pulsed)* | LED, red light | LED, red light | LED, red light |
| wavelength* | 660nm | 660nm | 660nm |
| response/decay time** | < 1.4ms | < 1.4ms | < 1.4ms |
| switching frequency | 350Hz | 350Hz | 350Hz |
| display (signal)** | yellow LED, continuous light | yellow LED, continuous light | yellow LED, continuous light |
| display (functional reserve)** | yellow LED, flashing | yellow LED, flashing | yellow LED, flashing |
| sensitivity adjustment** | potentiometer 270° | potentiometer 270° | potentiometer 270° |
| interference suppression | - | - | - |
| test input* | + | + | + |
| short-circuit protection** | + | + | + |
| reverse polarity protection | + | + | + |
| dimensions | 12x27x14mm | 12x27x14mm | 12x27x14mm |
| housing material | plastic (ASA) | plastic (ASA) | plastic (ASA) |
| front screen material | PMMA | PMMA | PMMA |
| operating temperature | -25 ... +65°C | -25 ... +65°C | -25 ... +65°C |
| degree of protection (EN 60529) | IP65 | IP65 | IP67 |
| connection | M8 cable connector, 200mm, 3-pin | 2m cable, 4-wire | M8-connector, 4-pin |
| connection accessories | e.g. VK200075 | - | e.g. VK200375 |
| mounting accessories | e.g. AU000073 | e.g. AO000073 | e.g. AO000073 |
| mounting accessories (universal holder) | AY000116 | AY000116 | AY000116 |

* only transmitter

** only receiver

| | | |
|---|---|---|
| article-no. | OR140404 | OR140474 |
| version | retro-reflective sensor with polarizing filter | retro-reflective sensor with polarizing filter |
| connection | cable, PUR | M8-connector |
| output | pnp, light-on/dark-on mode | pnp, light-on/dark-on mode |
| range | 3.5m | 3.5m |
| |  |  |
| TECHNICAL DATA | | |
| range | 3.5m | 3.5m |
| output signal | pnp, light-on/dark-on mode | pnp, light-on/dark-on mode |
| operating voltage | 10 ... 30V DC | 10 ... 30V DC |
| current consumption (w/o load) | ≤ 25mA | ≤ 25mA |
| output current (max. load) | 100mA | 100mA |
| voltage drop (max. load) | 1.8V DC | 1.8V DC |
| transmitting element (pulsed) | LED, red light | LED, red light |
| wavelength | 660nm | 660nm |
| response/decay time | < 0.5ms | < 0.5ms |
| switching frequency | 1kHz | 1kHz |
| display (signal) | yellow LED, continuous light | yellow LED, continuous light |
| display (functional reserve) | yellow LED, flashing | yellow LED, flashing |
| sensitivity adjustment | - | - |
| interference suppression | + | + |
| test input | - | - |
| short-circuit protection | + | + |
| reverse polarity protection | + | + |
| dimensions | 12x27x16.3mm | 12x27x16.3mm |
| housing material | plastic (ASA) | plastic (ASA) |
| front screen material | PMMA | PMMA |
| operating temperature | -25 ... +65°C | -25 ... +65°C |
| degree of protection (EN 60529) | IP65 | IP67 |
| connection | 2m cable, 4-wire | M8-connector, 4-pin |
| connection accessories | - | e.g. VK200375 |
| mounting accessories | e.g. AO000073 | e.g. AO000073 |
| mounting accessories (universal holder) | AY000116 | AY000116 |

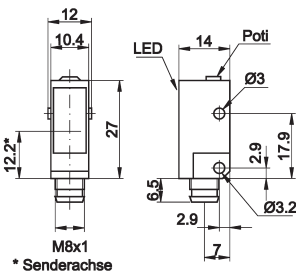
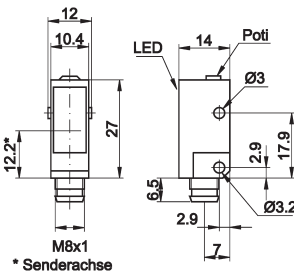
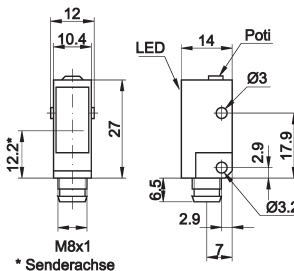
| article-no. | OT140170 | OT140406 | OT140476 |
|---------------|--|--|---|
| version | dif. reflection sensor with background suppression | dif. reflection sensor with background suppression | dif. reflection sensor background suppression |
| connection | M8 cable connector, PVC | cable, PUR | M8-connector |
| output | pnp, light-on mode | pnp, light-on/dark-on mode | pnp, light-on/dark-on mode |
| sensing range | 20 ... 120mm | 20 ... 120mm | 20 ... 120mm |



TECHNICAL DATA

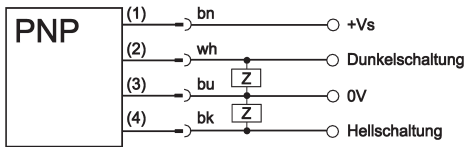
| | | | |
|---|----------------------------------|------------------------------|------------------------------|
| sensing range | 20 ... 120mm | 20 ... 120mm | 20 ... 120mm |
| output signal | pnp, light-on mode | pnp, light-on/dark-on mode | pnp, light-on/dark-on mode |
| operating voltage | 10 ... 30V DC | 10 ... 30V DC | 10 ... 30V DC |
| current consumption (w/o load) | ≤ 30mA | ≤ 30mA | ≤ 30mA |
| output current (max. load) | 100mA | 100mA | 100mA |
| voltage drop (max. load) | 1.8V DC | 1.8V DC | 1.8V DC |
| transmitting element (pulsed) | LED, red light | LED, red light | LED, red light |
| wavelength | 660nm | 660nm | 660nm |
| response/decay time | < 1.0ms | < 1.0ms | < 1.0ms |
| switching frequency | 500Hz | 500Hz | 500Hz |
| display (signal) | yellow LED, continuous light | yellow LED, continuous light | yellow LED, continuous light |
| display (functional reserve) | yellow LED, flashing | yellow LED, flashing | yellow LED, flashing |
| sensitivity adjustment | mechanical, 5 revolutions | mechanical, 5 revolutions | mechanical, 5 revolutions |
| interference suppression | + | + | + |
| test input | - | - | - |
| short-circuit protection | + | + | + |
| reverse polarity protection | + | + | + |
| dimensions | 12x27x14mm | 12x27x14mm | 12x27x14mm |
| housing material | plastic (ASA) | plastic (ASA) | plastic (ASA) |
| front screen material | PMMA | PMMA | PMMA |
| operating temperature | -25 ... +65°C | -25 ... +65°C | -25 ... +65°C |
| degree of protection (EN 60529) | IP65 | IP65 | IP67 |
| connection | M8 cable connector, 200mm, 3-pin | 2m cable, 4-wire | M8-connector, 4-pin |
| connection accessories | e.g. VK200075 | - | e.g. VK200375 |
| mounting accessories | e.g. AO000073 | e.g. AO000073 | e.g. AO000073 |
| mounting accessories (universal holder) | AY000116 | AY000116 | AY000116 |

| | | |
|---|---|---|
| article-no. | OT140405 | OT140475 |
| version | dif. reflection sensor with intensity differentiation | dif. reflection sensor with intensity differentiation |
| connection | cable, PUR | M8-connector |
| output | pnp, light-on/dark-on mode | pnp, light-on/dark-on mode |
| sensing range | 5 ... 200mm | 5 ... 200mm |
| | | |
| TECHNICAL DATA | | |
| sensing range | 5 ... 200mm | 5 ... 200mm |
| output signal | pnp, light-on/dark-on mode | pnp, light-on/dark-on mode |
| operating voltage | 10 ... 30V DC | 10 ... 30V DC |
| current consumption (w/o load) | ≤ 30mA | ≤ 30mA |
| output current (max. load) | 100mA | 100mA |
| voltage drop (max. load) | 1.8V DC | 1.8V DC |
| transmitting element (pulsed) | LED, red light | LED, red light |
| wavelength | 660nm | 660nm |
| response/decay time | < 1.0ms | < 1.0ms |
| switching frequency | 500Hz | 500Hz |
| display (signal) | yellow LED, continuous light | yellow LED, continuous light |
| display (functional reserve) | yellow LED, flashing | yellow LED, flashing |
| sensitivity adjustment | potentiometer 270° | potentiometer 270° |
| interference suppression | + | + |
| test input | - | - |
| short-circuit protection | + | + |
| reverse polarity protection | + | + |
| dimensions | 12x27x14mm | 12x27x14mm |
| housing material | plastic (ASA) | plastic (ASA) |
| front screen material | PMMA | PMMA |
| operating temperature | -25 ... +65°C | -25 ... +65°C |
| degree of protection (EN 60529) | IP65 | IP67 |
| connection | 2m cable, 4-wire | M8-connector, 4-pin |
| connection accessories | - | e.g. VK200375 |
| mounting accessories | e.g. AO000073 | e.g. AO000073 |
| mounting accessories (universal holder) | AY000116 | AY000116 |

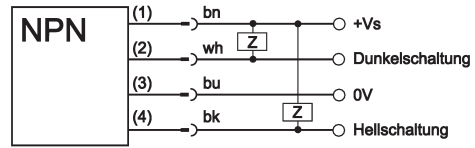
| article-no. | OT140477 | OT140478 | OT140479 |
|---|---|--|---|
| version | dif. reflection sensor with background suppression | dif. reflection sensor with background suppression | dif. reflection sensor with background suppression |
| connection | linear beam | glass detection | small beam diameter |
| output | M8-connector | M8-connector | M8-connector |
| sensing range | pnp, light-on/dark-on mode | pnp, light-on/dark-on mode | pnp, light-on/dark-on mode |
| | 20 ... 80mm | 10 ... 30mm | 25 ... 120mm |
| |  |  |  |
| TECHNICAL DATA | | | |
| sensing range | 20 ... 80mm | 10 ... 30mm | 25 ... 120mm |
| output signal | pnp, light-on/dark-on mode | pnp, light-on/dark-on mode | pnp, light-on/dark-on mode |
| operating voltage | 10 ... 30V DC | 10 ... 30V DC | 10 ... 30V DC |
| current consumption (w/o load) | ≤ 30mA | ≤ 30mA | ≤ 30mA |
| output current (max. load) | 100mA | 100mA | 100mA |
| voltage drop (max. load) | 1.8V DC | 1.8V DC | 1.8V DC |
| transmitting element (pulsed) | LED, red light | LED, red light | LED, red light |
| wavelength | 660nm | 660nm | 660nm |
| beam diameter | - | - | 2mm at distance focus 35 ... 45mm |
| response/decay time | < 1.0ms | < 1.0ms | < 1.0ms |
| switching frequency | < 500Hz | < 500Hz | < 500Hz |
| display (signal) | yellow LED, continuous light | yellow LED, continuous light | yellow LED, continuous light |
| display (functional reserve) | yellow LED, flashing | yellow LED, flashing | yellow LED, flashing |
| sensitivity adjustment | mechanical, 5 revolutions | mechanical, 5 revolutions | mechanical, 5 revolutions |
| interference suppression | + | + | + |
| test input | - | - | - |
| short-circuit protection | + | + | + |
| reverse polarity protection | + | + | + |
| dimensions | 12x27x14mm | 12x27x14mm | 12x27x14mm |
| housing material | plastic (ASA) | plastic (ASA) | plastic (ASA) |
| front screen material | PMMA | PMMA | PMMA |
| operating temperature | -25 ... +65°C | -25 ... +65°C | -25 ... +65°C |
| degree of protection (EN 60529) | IP67 | IP67 | IP67 |
| connection | M8-connector, 4-pin | M8-connector, 4-pin | M8-connector, 4-pin |
| connection accessories | e.g. VK200375 | e.g. VK200375 | e.g. VK200375 |
| mounting accessories | e.g. AO000073 | e.g. AO000073 | e.g. AO000073 |
| mounting accessories (universal holder) | AY000116 | AY000116 | AY000116 |

connection

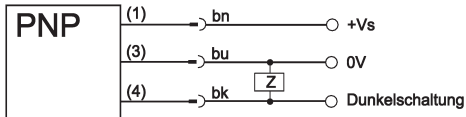
light-on and dark-on mode



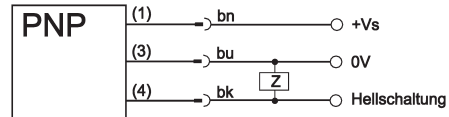
light-on and dark-on mode



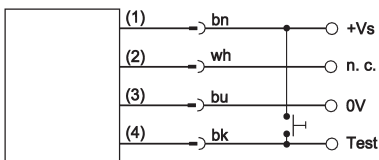
M8 cable connector devices, dark-on mode



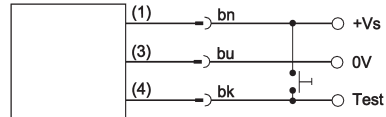
M8 cable connector devices, light-on mode



transmitter through-beam sensor



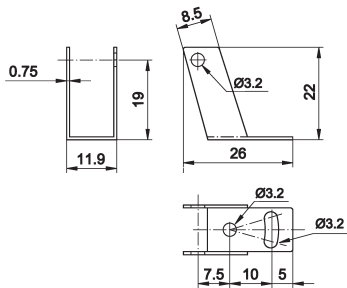
M8 cable connector devices, transmitter through-beam sensor



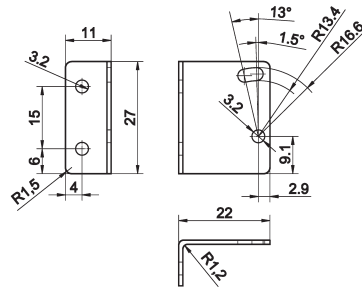
wire colors: bn = brown (1), wh = white (2), bu = blue (3), bk = black (4)

mounting bracket

AO000073 galvanized



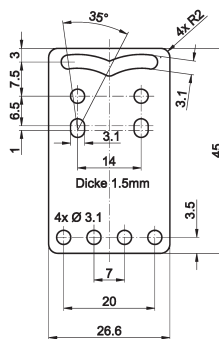
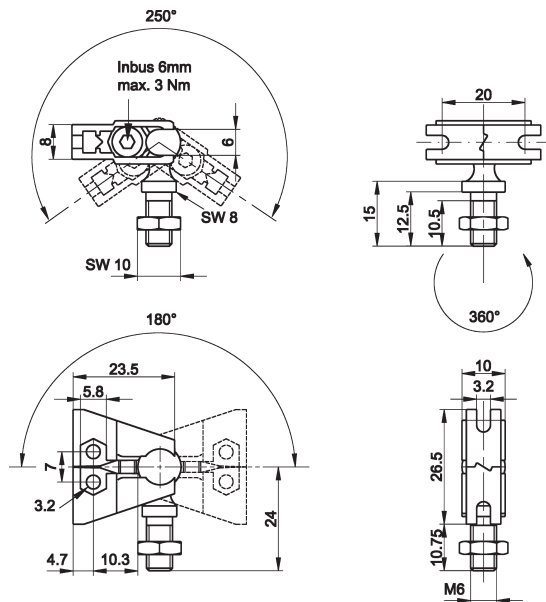
AO000073 galvanized



mounting accessories (universal holder) AY000116

consisting of base module

... and fitting panel



ACCESSORIES

| article-no. | description | note |
|-------------|-------------------------------|--|
| AY000088 | base module * | jaw: stainless steel, ball pin: galvanized steel |
| AY000116 | mounting kit for sensors Ox14 | stainless steel |

* The AY000088 base module is contained in every mounting kit.

Material of bolts and nuts: galvanized steel

This data sheet contains only the available standard versions. Please contact us for other output and connection versions.

We will be pleased to supply the matching cable socket for your connector devices. Please refer to the list in catalog chapter "accessories" under "cable sockets **ipf-SENSORFLEX**®" or search our website for "VK".

Warning: Never use these devices in applications where the safety of a person depends on their functionality.

This data sheet as well as your personal contact can be found at www.ipf-electronic.com