

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.

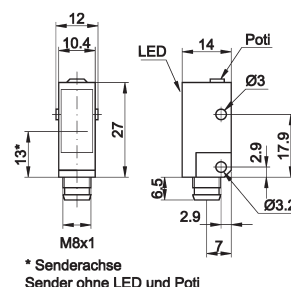
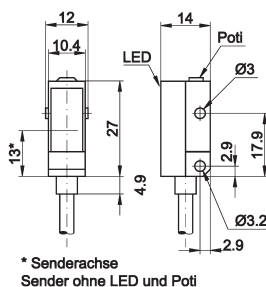
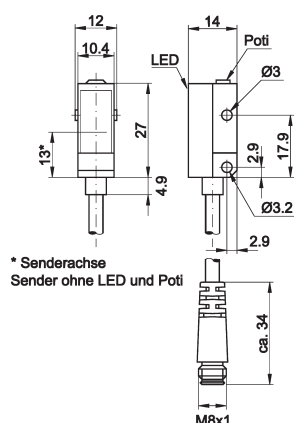
Optical sensors are frequently used in combination with a programmable logic controller (PLC).

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

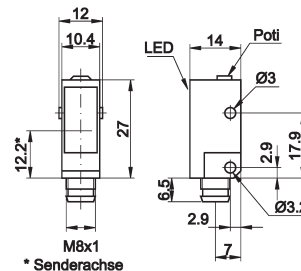
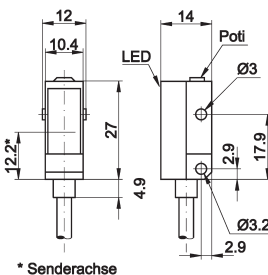
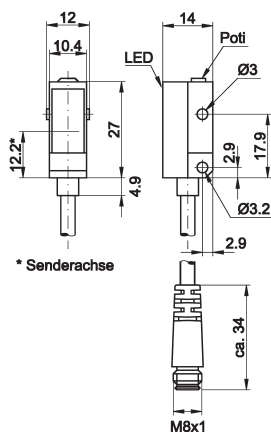
range	5m	5m	5m
output signal**	pnp, dark-on mode	pnp, light-on/dark-on mode	pnp, light-on/dark-on mode
operating voltage	10 ... 30V DC	10 ... 30V DC	10 ... 30V DC
current consumption (w/o load)	≤ 23mA* / ≤ 16mA**	≤ 23mA* / ≤ 16mA**	≤ 23mA* / ≤ 16mA**
output current (max. load)**	100mA	100mA	100mA
voltage 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

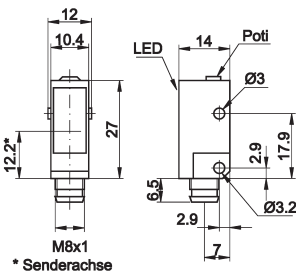
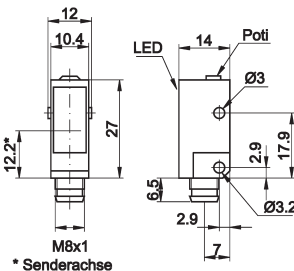
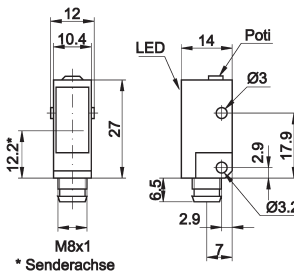
article-no.	OT140170	OT140406	OT140476
version	dif. reflection sensor with background suppression	dif. reflection sensor with background suppression	dif. reflection sensor background suppression
connection	M8 cable connector, PVC	cable, PUR	M8-connector
output	pnp, light-on mode	pnp, light-on/dark-on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



TECHNICAL DATA

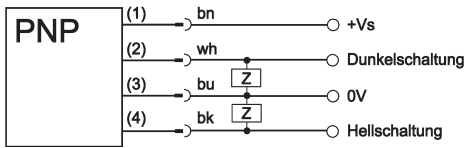
sensing range	20 ... 120mm	20 ... 120mm	20 ... 120mm
output signal	pnp, light-on mode	pnp, light-on/dark-on mode	pnp, light-on/dark-on mode
operating voltage	10 ... 30V DC	10 ... 30V DC	10 ... 30V DC
current consumption (w/o load)	≤ 30mA	≤ 30mA	≤ 30mA
output current (max. load)	100mA	100mA	100mA
voltage 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

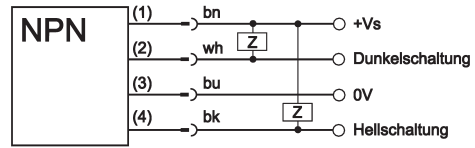
article-no.	OT140477	OT140478	OT140479
version	dif. reflection sensor with background suppression	dif. reflection sensor with background suppression	dif. reflection sensor with background suppression
connection	linear beam	glass detection	small beam diameter
output	M8-connector	M8-connector	M8-connector
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

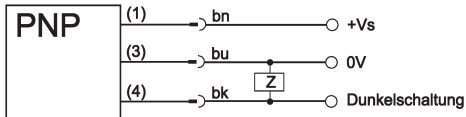
light-on and dark-on mode



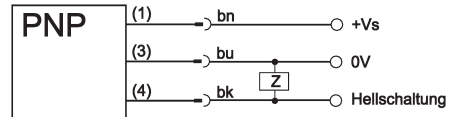
light-on and dark-on mode



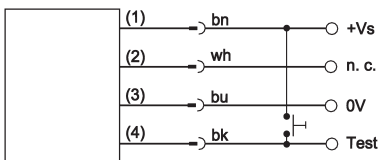
M8 cable connector devices, dark-on mode



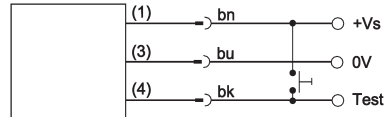
M8 cable connector devices, light-on mode



transmitter through-beam sensor



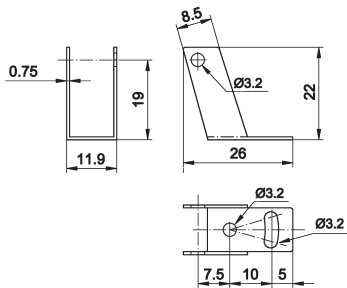
M8 cable connector devices, transmitter through-beam sensor



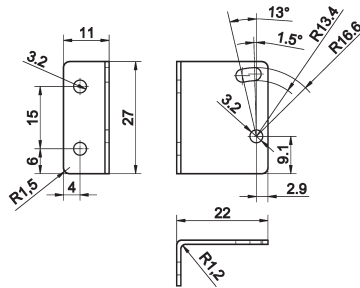
wire colors: bn = brown (1), wh = white (2), bu = blue (3), bk = black (4)

mounting bracket

AO000073 galvanized

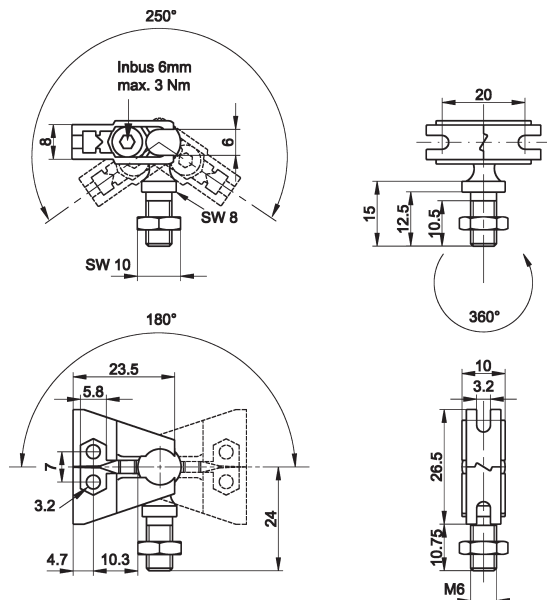


AO000073 galvanized

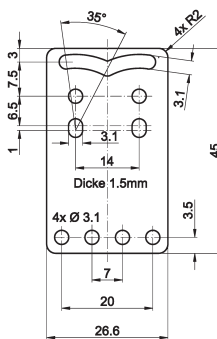


mounting accessories (universal holder) AY000116

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