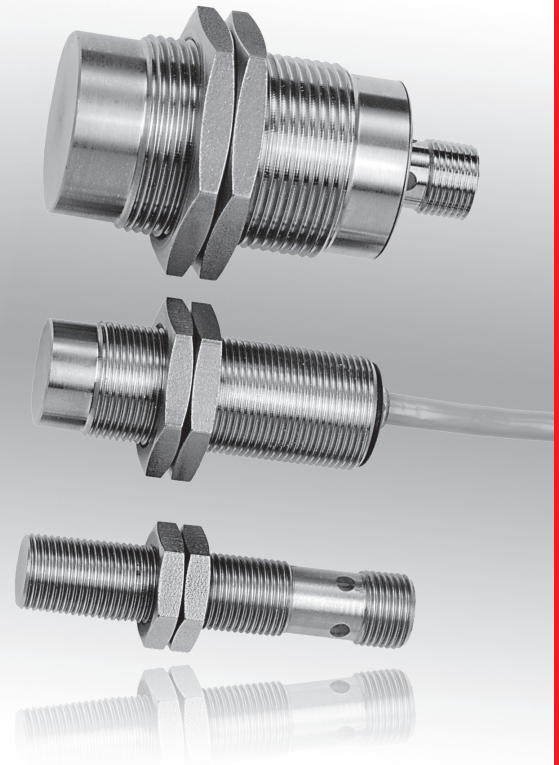
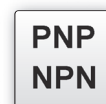


design	M8x1 M12x1 M18x1 M30x1.5	
flush	sensing range	3 ... 20mm
non-flush	sensing range	6 ... 40mm



- ✓ one-piece stainless steel housing
- ✓ high pressure resistance max. 40 ... 100bar
- ✓ high sensing ranges on steel, brass and aluminium
- ✓ outstanding impermeability, cable device IP68
- ✓ LED-display for assured switching range
- ✓ high sampling frequency up to 1 kHz

up to 3-fold norm sensing range
active face made from metal



description

The **PRO-series** from **ipf electronic** features large sensing ranges that are on a par with those of the PLUS-series. Thanks to special technology these high sensing ranges can be achieved not only on steel but also on other metals such as aluminium or brass.

A further important characteristic of these sensors is their one-piece stainless-steel housing. This means that the active face of these devices is impervious to liquids and gases the housing material is resistant to. The devices in the **PRO-series** offer a high resistance to pressure thanks to the comparatively thick gauge material of the active face. The pressure resistance of the devices refers to the active face and the thread only. In addition they are much more resistant to mechanical loads than usual proximity switches. Attention should be paid to the size of the object (standard target) and the surface condition (even surface) to guarantee the maximum sensing range.

The installation requirements on the following pages must be strictly complied with in order to ensure safe operation of the devices. Furthermore it is recommended that the flush devices protrude approx. 1.5mm from the metal

carrier material.

The LED status display lights up permanently if the distance between the sensor surface and the object is not more than 80% of the indicated sensing range. As such, the object is surely detected.

In the case of larger distances, (80 to 100% of the indicated sensing range) the LED display flashes.

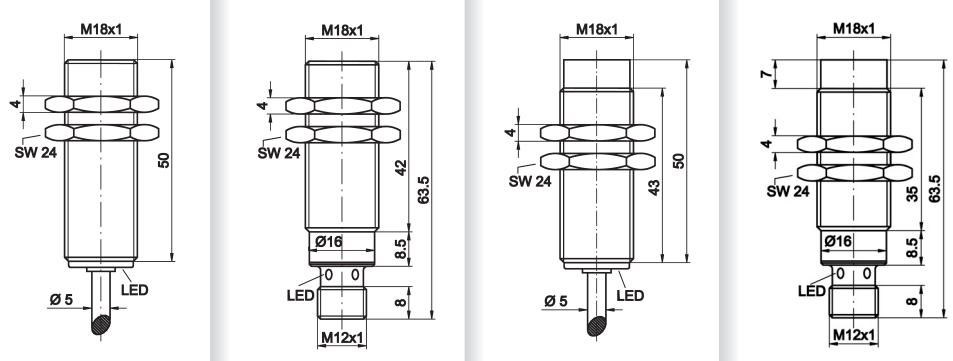
Correction factors indicate the change in the sensing range if other materials than steel (1.0037) are used. The change in the sensing range depends on the nature, character (inner structure), size and geometry of the material to be detected. In order to establish the approximate sensing range on the materials deviating from steel the steel value has to be multiplied with the appropriate correction factor.

application examples

- ▶ operation in an extreme environment (oil, dirt, pressure)
- ▶ use where a high demand is made in terms of reliability and longevity

sensing range	3mm	3mm	6mm	6mm
version	M8x1	M8x1	M8x1	M8x1
mounting	flush	flush	non-flush	non-flush
connection	cable	connector	cable	connector
article-no.	IC080106	IC080176	IO080106	IO080176
output	pnnp, no	pnnp, no	pnnp, no	pnnp, no
article-no.	(on request)	IC080276	(on request)	(on request)
output	pnnp, nc	pnnp, nc	pnnp, nc	pnnp, nc
article-no.	(on request)	(on request)	(on request)	(on request)
output	nnpn, no	nnpn, no	nnpn, no	nnpn, no
TECHNICAL DATA				
sensing range (Sn)	3mm	3mm	6mm	6mm
pressure resistance (max.)	100bar	100bar	100bar	100bar
output signal	see above	see above	see above	see above
operating voltage	10 ... 30V DC	10 ... 30V DC	10 ... 30V DC	10 ... 30V DC
current consumption (w/o load)	≤ 10mA	≤ 10mA	≤ 10mA	≤ 10mA
output current (max. load)	200mA	200mA	200mA	200mA
voltage drop (max. load)	2.0V DC	2.0V DC	2.0V DC	2.0V DC
norm trimming plate	9x9x1mm, FE360	9x9x1mm, FE360	18x18x1mm, FE360	18x18x1mm, FE360
hysteresis	≤ 20%	≤ 20%	≤ 20%	≤ 20%
repeat accuracy *	≤ 5%	≤ 5%	≤ 5%	≤ 5%
corr. factors (steel/alum./brass)	1.0/ 1.0 / 1.35	1.0/ 1.0 / 1.35	1.0/ 1.0 / 1.4	1.0/ 1.0 / 1.4
corr. factors (stainless steel /copper)	- / 0.9	- / 0.9	- / 0.85	- / 0.85
corr. fact. (st. steel 1.4301: 1mm/2mm)	0.3 / 0.6	0.3 / 0.6	0.3 / 0.9	0.3 / 0.9
sampling frequency	1000Hz	1000Hz	700Hz	700Hz
display (signal)	LED yellow	LED yellow	LED yellow	LED yellow
display (stand-by)	LED yellow, flashing	LED yellow, flashing	LED yellow, flashing	LED yellow, flashing
short-circuit protection	+	+	+	+
reverse polarity protection	+	+	+	+
design	M8x1	M8x1	M8x1	M8x1
length (thread/complete)	45mm / 45mm	45mm / 60mm	41mm / 45mm	41mm / 60mm
housing material	stainless steel (1.4305)	stainless steel (1.4305)	stainless steel (1.4305)	stainless steel (1.4305)
material thickness (active face)	0.25mm	0.25mm	0.25mm	0.25mm
line length (max.)	300m	300m	300m	300m
operating temperature	-25 ... +70°C	-25 ... +70°C	-25 ... +70°C	-25 ... +70°C
system of protection (EN 60529)	IP68	IP67	IP68	IP67
connection	2m PUR-cable, 3-wire	M8-connector, 3-pin	2m PUR-cable, 3-wire	M8-connector, 3-pin
connection accessories	-	e.g. VK200071, 2m PUR, angular	-	e.g. VK200071, 2m PUR, angular
mounting accessories	e.g. AY000047	e.g. AY000047	e.g. AY000047	e.g. AY000047
universal mounting	AY000089	AY000089	AY000089	AY000089
* at 20 ... 30V DC and +18 ... +28°C°				

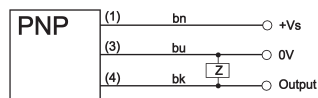
sensing range	6mm	6mm	10mm	10mm
version	M12x1	M12x1	M12x1	M12x1
mounting	flush	flush	non-flush	non-flush
connection	cable	connector	cable	connector
article-no.	IC120106	IC120126	IO120106	IO120126
output	pnnp, no	pnnp, no	pnnp, no	pnnp, no
article-no.	(on request)	IC120226	IO120206	IO120226
output	pnnp, nc	pnnp, nc	pnnp, nc	pnnp, nc
article-no.	IC121106	IC121126	(on request)	(on request)
output	nnpn, no	nnpn, no	nnpn, no	nnpn, no
TECHNICAL DATA				
sensing range (Sn)	6mm	6mm	10mm	10mm
pressure resistance (max.)	80bar	80bar	80bar	80bar
output signal	see above	see above	see above	see above
operating voltage	10 ... 30V DC	10 ... 30V DC	10 ... 30V DC	10 ... 30V DC
current consumption (w/o load)	≤ 10mA	≤ 10mA	≤ 10mA	≤ 10mA
output current (max. load)	200mA	200mA	200mA	200mA
voltage drop (max. load)	2.0V DC	2.0V DC	2.0V DC	2.0V DC
norm trimming plate	18x18x1mm, FE360	18x18x1mm, FE360	30x30x1mm, FE360	30x30x1mm, FE360
hysteresis	≤ 15%	≤ 15%	≤ 15%	≤ 15%
repeat accuracy *	0.3mm	0.3mm	0.5mm	0.5mm
corr. factors (steel/alum./brass)	1.0 / 1.0 / 1.3	1.0 / 1.0 / 1.3	1.0 / 1.0 / 1.4	1.0 / 1.0 / 1.4
corr. factors (stainless steel /copper)	- / 0.85	- / 0.85	- / 0.8	- / 0.8
corr. fact. (st. steel 1.4301: 1mm/2mm)	0.5 / 0.9	0.5 / 0.9	- / 0.65	- / 0.65
sampling frequency	600Hz	600Hz	400Hz	400Hz
display (signal)	LED yellow	LED yellow	LED yellow	LED yellow
display (stand-by)	LED yellow, flashing	LED yellow, flashing	LED yellow, flashing	LED yellow, flashing
short-circuit protection	+	+	+	+
reverse polarity protection	+	+	+	+
design	M12x1	M12x1	M12x1	M12x1
length (thread/complete)	50mm / 50mm	41mm / 60mm	45mm / 50mm	36mm / 60mm
housing material	stainless steel (1.4305)	stainless steel (1.4305)	stainless steel (1.4305)	stainless steel (1.4305)
material thickness (active face)	0.4mm	0.4mm	0.4mm	0.4mm
line length (max.)	300m	300m	300m	300m
operating temperature	-25 ... +70°C	-25 ... +70°C	-25 ... +70°C	-25 ... +70°C
system of protection (EN 60529)	IP68	IP67	IP68	IP67
connection	2m PUR-cable, 3-wire	M12-connector, 4-pin	2m PUR-cable, 3-wire	M12-connector, 4-pin
connection accessories	-	e.g. VK200321, 2m PUR, angular	-	e.g. VK200321, 2m PUR, angular
mounting accessories	e.g. AY000049	e.g. AY000049	e.g. AY000049	e.g. AY000049
universal mounting	AY000090	AY000090	AY000090	AY000090
* at 20 ... 30V DC and +18 ... +28°C				

sensing range	10mm	10mm	20mm	20mm
version	M18x1	M18x1	M18x1	M18x1
mounting	flush	flush	non-flush	non-flush
connection	cable	connector	cable	connector
article-no.	IC180106	IC180126	IO180106	IO180126
output	pnp, no	pnp, no	pnp, no	pnp, no
article-no.	IC180206	IC180226	IO180206	IO180226
output	pnp, nc	pnp, nc	pnp, nc	pnp, nc
article-no.	(on request)	IC181126	(on request)	(on request)
output	nnp, no	nnp, no	nnp, no	nnp, no
				
TECHNICAL DATA				
sensing range (Sn)	10mm	10mm	20mm	20mm
pressure resistance (max.)	60bar	60bar	60bar	60bar
output signal	see above	see above	see above	see above
operating voltage	10 ... 30V DC	10 ... 30V DC	10 ... 30V DC	10 ... 30V DC
current consumption (w/o load)	≤ 10mA	≤ 10mA	≤ 10mA	≤ 10mA
output current (max. load)	200mA	200mA	200mA	200mA
voltage drop (max. load)	2.0V DC	2.0V DC	2.0V DC	2.0V DC
norm trimming plate	30x30x1mm, FE360	30x30x1mm, FE360	60x60x1mm, FE360	60x60x1mm, FE360
hysteresis	≤ 15%	≤ 15%	≤ 15%	≤ 15%
repeat accuracy *	0.5mm	0.5mm	1mm	1mm
corr. factors (steel/alum./brass)	1.0 / 1.0 / 1.2	1.0 / 1.0 / 1.2	1.0 / 1.0 / 1.35	1.0 / 1.0 / 1.35
corr. factors (stainless steel /copper)	- / 0.8	- / 0.8	- / 0.9	- / 0.9
corr. fact. (st. steel 1.4301: 1mm/2mm)	0.5 / 0.9	0.5 / 0.9	0.3 / 0.6	0.3 / 0.6
sampling frequency	200Hz	200Hz	200Hz	200Hz
display (signal)	LED yellow	LED yellow	LED yellow	LED yellow
display (stand-by)	LED yellow, flashing	LED yellow, flashing	LED yellow, flashing	LED yellow, flashing
short-circuit protection	+	+	+	+
reverse polarity protection	+	+	+	+
design	M18x1	M18x1	M18x1	M18x1
length (thread/complete)	50mm / 50mm	42mm / 63.5mm	43mm / 50mm	35mm / 63.5mm
housing material	stainless steel (1.4305)	stainless steel (1.4305)	stainless steel (1.4305)	stainless steel (1.4305)
material thickness (active face)	0.6mm	0.6mm	0.6mm	0.6mm
line length (max.)	300m	300m	300m	300m
operating temperature	-25 ... +70°C	-25 ... +70°C	-25 ... +70°C	-25 ... +70°C
system of protection (EN 60529)	IP68	IP67	IP68	IP67
connection	2m PUR-cable, 3-wire	M12-connector, 4-pin	2m PUR-cable, 3-wire	M12-connector, 4-pin
connection accessories	-	e.g. VK200321, 2m PUR, angular	-	e.g. VK200321, 2m PUR, angular
mounting accessories	e.g. AY000051	e.g. AY000051	e.g. AY000051	e.g. AY000051
universal mounting	AY000091	AY000091	AY000091	AY000091
* at 20 ... 30V DC and +18 ... +28°C				

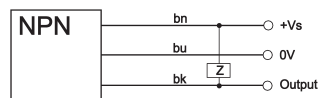
sensing range	20mm	20mm	40mm	40mm
version	M30x1.5	M30x1.5	M30x1.5	M30x1.5
mounting	flush	flush	non-flush	non-flush
connection	cable	connector	cable	connector
article-no.	IC300106	IC300126	IO300106	IO300126
output	pnnp, no	pnnp, no	pnnp, no	pnnp, no
article-no.	IC300206	IC300226	(on request)	IO300226
output	pnnp, nc	pnnp, nc	pnnp, nc	pnnp, nc
article-no.	(on request)	IC301126	(on request)	(on request)
output	nnpn, no	nnpn, no	nnpn, no	nnpn, no
TECHNICAL DATA				
sensing range (Sn)	20mm	20mm	40mm	40mm
pressure resistance (max.)	40bar	40bar	40bar	40bar
output signal	see above	see above	see above	see above
operating voltage	10 ... 30V DC	10 ... 30V DC	10 ... 30V DC	10 ... 30V DC
current consumption (w/o load)	≤ 10mA	≤ 10mA	≤ 10mA	≤ 10mA
output current (max. load)	200mA	200mA	200mA	200mA
voltage drop (max. load)	2.0V DC	2.0V DC	2.0V DC	2.0V DC
norm trimming plate	60x60x1mm, FE360	60x60x1mm, FE360	120x120x1mm, FE360	120x120x1mm, FE360
hysteresis	≤ 15%	≤ 15%	≤ 15%	≤ 15%
repeat accuracy *	1mm	1mm	2mm	2mm
corr. factors (steel/alum./brass)	1.0 / 1.0 / 1.3	1.0 / 1.0 / 1.3	1.0 / 1.0 / 1.2	1.0 / 1.0 / 1.2
corr. factors (stainless steel /copper)	- / 0.9	- / 0.9	- / 0.9	- / 0.9
corr. fact. (st. steel 1.4301: 1mm/2mm)	0.35 / 0.7	0.35 / 0.7	- / 0.25	- / 0.25
sampling frequency	100Hz	100Hz	100Hz	100Hz
display (signal)	LED yellow	LED yellow	LED yellow	LED yellow
display (stand-by)	LED yellow, flashing	LED yellow, flashing	LED yellow, flashing	LED yellow, flashing
short-circuit protection	+	+	+	+
reverse polarity protection	+	+	+	+
design	M30x1.5	M30x1.5	M30x1.5	M30x1.5
length (thread/complete)	50mm / 50mm	42mm / 63.5mm	40mm / 50mm	32mm / 63.5mm
housing material	stainless steel (1.4305)	stainless steel (1.4305)	stainless steel (1.4305)	stainless steel (1.4305)
material thickness (active face)	1mm	1mm	1mm	1mm
line length (max.)	300m	300m	300m	300m
operating temperature	-25 ... +70°C	-25 ... +70°C	-25 ... +70°C	-25 ... +70°C
system of protection (EN 60529)	IP68	IP67	IP68	IP67
connection	2m PUR-cable, 3-wire	M12-connector, 4-pin	2m PUR-cable, 3-wire	M12-connector, 4-pin
connection accessories	-	e.g. VK200321, 2m PUR, angular	-	e.g. VK200321, 2m PUR, angular
mounting accessories	e.g. AY000061	e.g. AY000061	e.g. AY000061	e.g. AY000061
universal mounting	-	-	-	-
* at 20 ... 30V DC and +18 ... +28°C				

connection

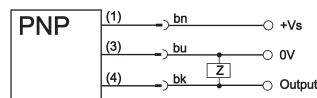
cable devices



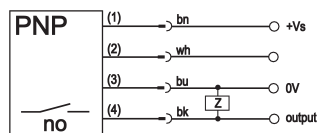
cable devices



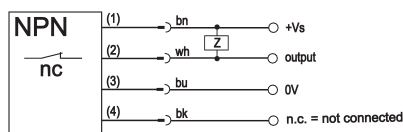
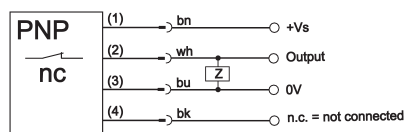
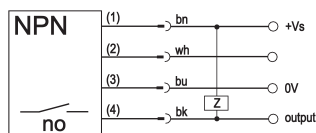
M8-connector



M12-connector



M12-connector



The switching output of devices with M12-connector and break-contact function (nc) is connected with PIN2. Therefore a 4-wire cable socket must be used. The connection takes place by the white wire.

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

mounting parameters

version

flush mounting

correction factors for mounting into carrier

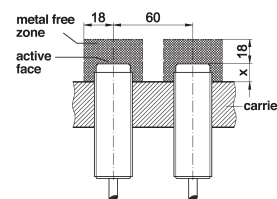
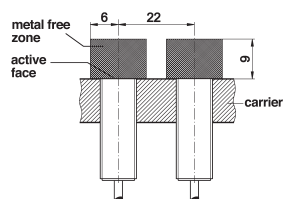
carrier	X
aluminium	0.9
steel	1.0
brass	0.9
stainless steel	1.0

non-flush mounting

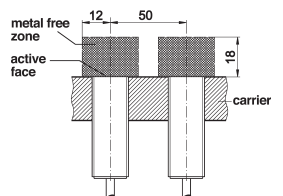
overhang (x)

carrier	X
aluminium	9mm
steel	15mm
brass	10mm
stainless steel	14mm

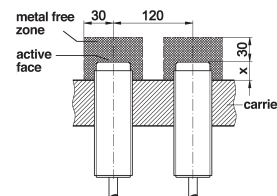
M8 (page 2)



M12 (page 3)

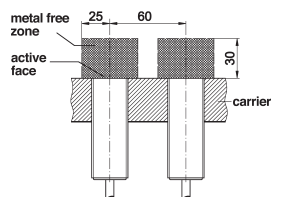


carrier	X
aluminium	1.15
steel	0.7
brass	1.05
stainless steel	0.8

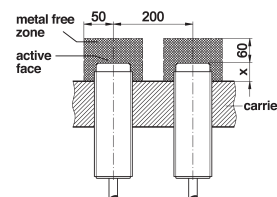


carrier	X
aluminium	13mm
steel	22mm
brass	15mm
stainless steel	21mm

M18 (page 4)

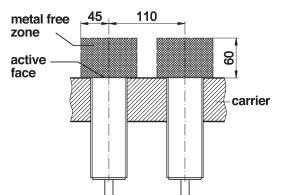


carrier	X
aluminium	0.9
steel	0.75
brass	0.75
stainless steel	0.8

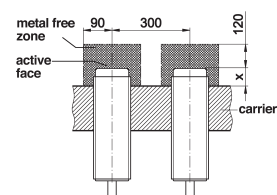


carrier	X
aluminium	20mm
steel	34mm
brass	22mm
stainless steel	36mm

M30 (page 5)



carrier	X
aluminium	0.7
steel	0.9
brass	0.6
stainless steel	1.3



carrier	X
aluminium	33mm
steel	18mm
brass	35mm
stainless steel	19mm

This data sheet contains the standard versions only. Kindly request the availability of other output- and connection functions.

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

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