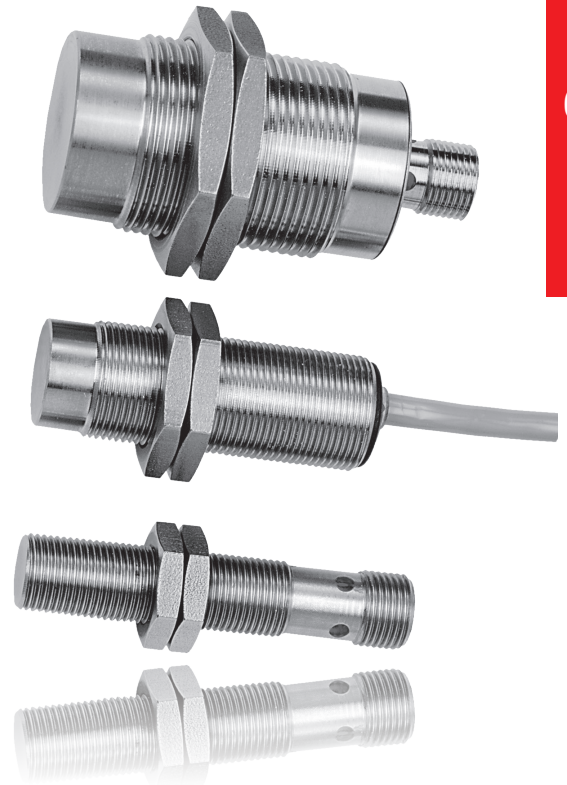


dimensions	M8x1	
	M12x1	
	M18x1	
	M30x1.5	
flush	switching distance	3 ... 20mm
non-flush	switching distance	6 ... 40mm

- ✓ all-stainless steel housing
- ✓ high pressure resistance max. 40 ... 100bar
- ✓ high switching distances on steel, brass and aluminum
- ✓ outstanding impermeability, cable device IP68
- ✓ LED display for assured switching range
- ✓ high switching frequency up to 1kHz



**up to 3-fold norm switching distance
active surface made from metal**

description

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

A further important characteristic of these sensors is their all-stainless steel housing. This means that the active surface of the devices is sealed against fluids and gases, to which the housing material is resistant. The devices in the **PRO**-series offer a high resistance to pressure thanks to the comparatively thick gauge material of the active surface. The pressure resistance of the devices refers to the active surface 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 switching distance.

For the reliable operation of the devices, it is essential that the installation conditions on the following pages are adhered to. Furthermore it is recommended that the flush devices protrude approx. 1.5mm from the metal backing 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 switching distance. The object is reliably detected.

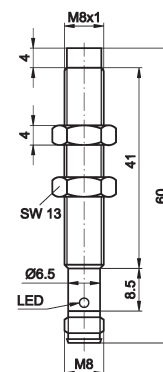
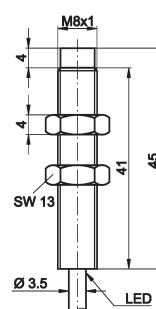
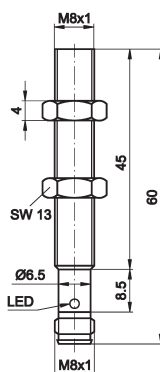
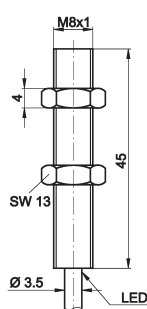
In the case of larger distances, (80 to 100% of the indicated switching distance) the LED display flashes.

correction factors indicate the change relating to the switching distance if materials other than St37 (steel) are used. The change in the switching distance depends on the type, characteristics (internal structure), size and the geometry of the material that is to be detected. In order to assess the approximate switching distance on the materials which differ from St37, the value for St37 has to be multiplied by 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

switching distance	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	pnp, no	pnp, no	pnp, no	pnp, no
article-no.	(on request)	IC080276	(on request)	(on request)
output	pnp, nc	pnp, nc	pnp, nc	pnp, nc

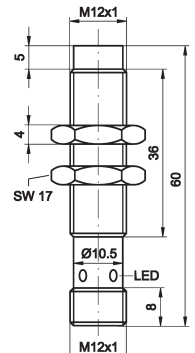
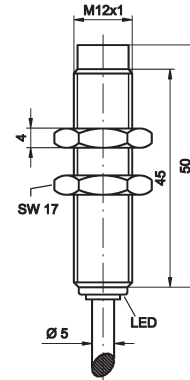
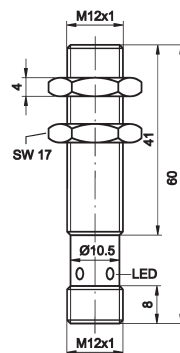
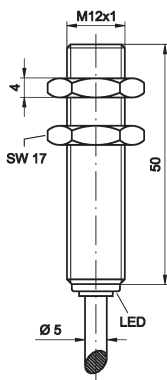


TECHNICAL DATA

switching distance (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 measuring plate	9x9x1mm, FE360	9x9x1mm, FE360	18x18x1mm, FE360	18x18x1mm, FE360
hysteresis	≤ 20%	≤ 20%	≤ 20%	≤ 20%
repeat accuracy *	≤ 5%	≤ 5%	≤ 5%	≤ 5%
correction factors (St37/Alu/Ms)	1.0 / 1.0 / 1.35	1.0 / 1.0 / 1.35	1.0 / 1.0 / 1.4	1.0 / 1.0 / 1.4
correction factors (stainl. steel/Cu)	- / 0.9	- / 0.9	- / 0.85	- / 0.85
correction factors (V2A: 1mm/2mm)	0.3 / 0.6	0.3 / 0.6	0.3 / 0.9	0.3 / 0.9
switching frequency	1000Hz	1000Hz	700Hz	700Hz
display (signal)	yellow LED	yellow LED	yellow LED	yellow LED
display (functional reserve)	yellow LED, flashing	yellow LED, flashing	yellow LED, flashing	yellow LED, flashing
short-circuit protection	+	+	+	+
reverse polarity protection	+	+	+	+
dimensions	M8x1	M8x1	M8x1	M8x1
length (thread/complete)	45mm / 45mm	45mm / 60mm	41mm / 45mm	41mm / 60mm
housing material	V2A (1.4305)	V2A (1.4305)	V2A (1.4305)	V2A (1.4305)
material thickness (active surface)	0.25mm	0.25mm	0.25mm	0.25mm
line length (max.)	300m	300m	300m	300m
operating temperature	-25 ... +85°C	-25 ... +85°C	-25 ... +85°C	-25 ... +85°C
degree 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. VK200075	-	e.g. VK200075
mounting accessories (clip)	e.g. AY000047	e.g. AY000047	e.g. AY000047	e.g. AY000047
mounting accessories (universal holder)	AY000115	AY000115	AY000115	AY000115

* at 20 ... 30V DC and +18 ... +28°C

switching distance	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	(on request)	IO120226
output	pnnp, nc	pnnp, nc	pnnp, nc	pnnp, nc

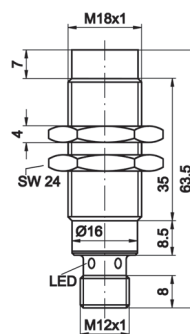
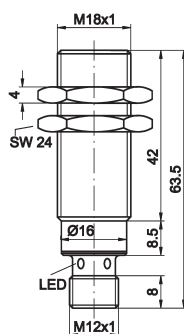
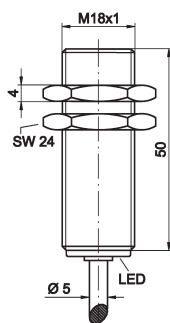


TECHNICAL DATA

switching distance (S _n)	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 measuring plate	18x18x1mm, FE360	18x18x1mm, FE360	30x30x1mm, FE360	30x30x1mm, FE360
hysteresis	≤ 15%	≤ 15%	≤ 15%	≤ 15%
repeat accuracy *	0.3mm	0.3mm	0.5mm	0.5mm
correction factors (St37/Alu/Ms)	1.0 / 1.0 / 1.3	1.0 / 1.0 / 1.3	1.0 / 1.0 / 1.4	1.0 / 1.0 / 1.4
correction factors (stainl. steel/Cu)	- / 0.85	- / 0.85	- / 0.8	- / 0.8
correction factors (V2A: 1mm/2mm)	0.5 / 0.9	0.5 / 0.9	- / 0.65	- / 0.65
switching frequency	600Hz	600Hz	400Hz	400Hz
display (signal)	yellow LED	yellow LED	yellow LED	yellow LED
display (functional reserve)	yellow LED, flashing	yellow LED, flashing	yellow LED, flashing	yellow LED, flashing
short-circuit protection	+	+	+	+
reverse polarity protection	+	+	+	+
dimensions	M12x1	M12x1	M12x1	M12x1
length (thread/complete)	50mm / 50mm	41mm / 60mm	45mm / 50mm	36mm / 60mm
housing material	V2A (1.4305)	V2A (1.4305)	V2A (1.4305)	V2A (1.4305)
material thickness (active surface)	0.4mm	0.4mm	0.4mm	0.4mm
line length (max.)	300m	300m	300m	300m
operating temperature	-25 ... +85°C	-25 ... +85°C	-25 ... +85°C	-25 ... +85°C
degree 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. VK200325	-	e.g. VK200325
mounting accessories (clip)	e.g. AY000049	e.g. AY000049	e.g. AY000049	e.g. AY000049
mounting accessories (universal holder)	AY000115	AY000115	AY000115	AY000115

* at 20 ... 30V DC and +18 ... +28°C

switching distance	10mm	10mm	20mm
version	M18x1	M18x1	M18x1
mounting	flush	flush	non-flush
connection	cable	connector	connector
article-no.	IC180106	IC180126	IO180126
output	pnp, no	pnp, no	pnp, no
article-no.	IC180206	IC180226	(on request)
output	pnp, nc	pnp, nc	pnp, nc

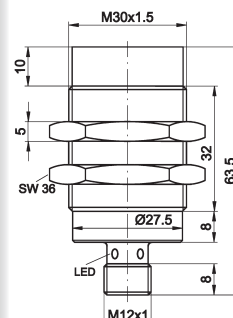
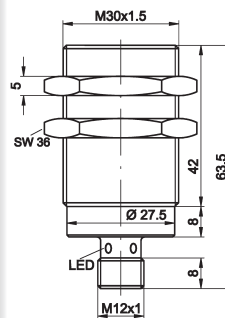
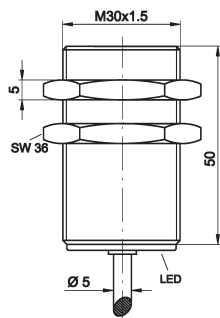


TECHNICAL DATA

switching distance (Sn)	10mm	10mm	20mm
pressure resistance (max.)	60bar	60bar	60bar
output signal	see above	see above	see above
operating voltage	10 ... 30V DC	10 ... 30V DC	10 ... 30V DC
current consumption (w/o load)	≤ 10mA	≤ 10mA	≤ 10mA
output current (max. load)	200mA	200mA	200mA
voltage drop (max. load)	2.0V DC	2.0V DC	2.0V DC
norm measuring plate	30x30x1mm, FE360	30x30x1mm, FE360	60x60x1mm, FE360
hysteresis	≤ 15%	≤ 15%	≤ 15%
repeat accuracy *	0.5mm	0.5mm	1mm
correction factors (St37/Alu/Ms)	1.0 / 1.0 / 1.2	1.0 / 1.0 / 1.2	1.0 / 1.0 / 1.35
correction factors (stainl. steel/Cu)	- / 0.8	- / 0.8	- / 0.9
correction factors (V2A: 1mm/2mm)	0.5 / 0.9	0.5 / 0.9	0.3 / 0.6
switching frequency	200Hz	200Hz	200Hz
display (signal)	yellow LED	yellow LED	yellow LED
display (functional reserve)	yellow LED, flashing	yellow LED, flashing	yellow LED, flashing
short-circuit protection	+	+	+
reverse polarity protection	+	+	+
dimensions	M18x1	M18x1	M18x1
length (thread/complete)	50mm / 50mm	42mm / 63.5mm	35mm / 63.5mm
housing material	V2A (1.4305)	V2A (1.4305)	V2A (1.4305)
material thickness (active surface)	0.6mm	0.6mm	0.6mm
line length (max.)	300m	300m	300m
operating temperature	-25 ... +85°C	-25 ... +85°C	-25 ... +85°C
degree of protection (EN 60529)	IP68	IP67	IP67
connection	2m PUR cable, 3-wire	M12-connector, 4-pin	M12-connector, 4-pin
connection accessories	-	e.g. VK200325	e.g. VK200325
mounting accessories (clip)	e.g. AY000051	e.g. AY000051	e.g. AY000051
mounting accessories (universal holder)	AY000117	AY000117	AY000117

* at 20 ... 30V DC and +18 ... +28°C

switching distance	20mm	20mm	40mm
version	M30x1.5	M30x1.5	M30x1.5
mounting	flush	flush	non-flush
connection	cable	connector	connector
article-no.	IC300106	IC300126	IO300126
output	pnnp, no	pnnp, no	pnnp, no
article-no.	(on request)	IC300226	(on request)
output	pnnp, nc	pnnp, nc	pnnp, nc

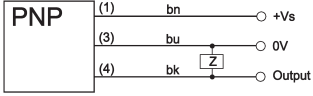


TECHNICAL DATA

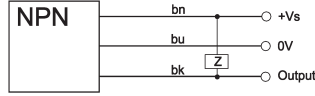
switching distance (S _n)	20mm	20mm	40mm
pressure resistance (max.)	40bar	40bar	40bar
output signal	see above	see above	see above
operating voltage	10 ... 30V DC	10 ... 30V DC	10 ... 30V DC
current consumption (w/o load)	≤ 10mA	≤ 10mA	≤ 10mA
output current (max. load)	200mA	200mA	200mA
voltage drop (max. load)	2.0V DC	2.0V DC	2.0V DC
norm measuring plate	60x60x1mm, FE360	60x60x1mm, FE360	120x120x1mm, FE360
hysteresis	≤ 15%	≤ 15%	≤ 15%
repeat accuracy *	1mm	1mm	2mm
correction factors (St37/Alu/Ms)	1.0 / 1.0 / 1.3	1.0 / 1.0 / 1.3	1.0 / 1.0 / 1.2
correction factors (stainl. steel/Cu)	- / 0.9	- / 0.9	- / 0.9
correction factors (V2A: 1mm/2mm)	0.35 / 0.7	0.35 / 0.7	- / 0.25
switching frequency	100Hz	100Hz	100Hz
display (signal)	yellow LED	yellow LED	yellow LED
display (functional reserve)	yellow LED, flashing	yellow LED, flashing	yellow LED, flashing
short-circuit protection	+	+	+
reverse polarity protection	+	+	+
dimensions	M30x1.5	M30x1.5	M30x1.5
length (thread/complete)	50mm / 50mm	42mm / 63.5mm	32mm / 63.5mm
housing material	V2A (1.4305)	V2A (1.4305)	V2A (1.4305)
material thickness (active surface)	1mm	1mm	1mm
line length (max.)	300m	300m	300m
operating temperature	-25 ... +85°C	-25 ... +85°C	-25 ... +85°C
degree of protection (EN 60529)	IP68	IP67	IP67
connection	2m PUR cable, 3-wire	M12-connector, 4-pin	M12-connector, 4-pin
connection accessories	-	e.g. VK200325	e.g. VK200325
mounting accessories (clip)	e.g. AY000061	e.g. AY000061	e.g. AY000061
mounting accessories (universal holder)	-	-	-
* at 20 ... 30V DC and +18 ... +28°C			

connection

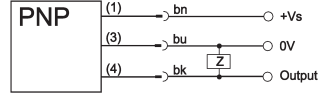
cable devices



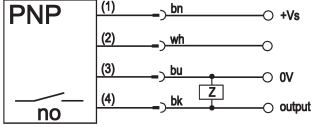
cable devices



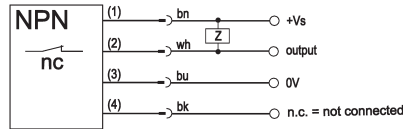
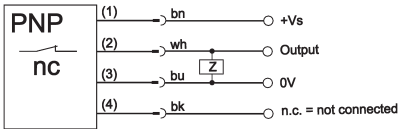
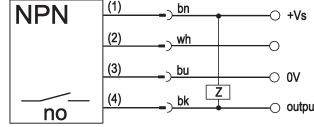
M8-connector



M12-connector



M12-connector



For devices with M12-connector and normally closed contact function (nc), the switching output is wired via PIN2. For this reason a 4-wire cable socket should be used and the connection made via 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	non-flush mounting	overhang (X)																				
M8		<table border="1"> <tr><td>carrier</td><td>X</td></tr> <tr><td>aluminum</td><td>0.9</td></tr> <tr><td>steel</td><td>1.0</td></tr> <tr><td>brass</td><td>0.9</td></tr> <tr><td>stainless steel</td><td>1.0</td></tr> </table>	carrier	X	aluminum	0.9	steel	1.0	brass	0.9	stainless steel	1.0		<table border="1"> <tr><td>carrier</td><td>X</td></tr> <tr><td>aluminum</td><td>9mm</td></tr> <tr><td>steel</td><td>15mm</td></tr> <tr><td>brass</td><td>10mm</td></tr> <tr><td>stainless steel</td><td>14mm</td></tr> </table>	carrier	X	aluminum	9mm	steel	15mm	brass	10mm	stainless steel	14mm
carrier	X																							
aluminum	0.9																							
steel	1.0																							
brass	0.9																							
stainless steel	1.0																							
carrier	X																							
aluminum	9mm																							
steel	15mm																							
brass	10mm																							
stainless steel	14mm																							
M12		<table border="1"> <tr><td>carrier</td><td>X</td></tr> <tr><td>aluminum</td><td>1.15</td></tr> <tr><td>steel</td><td>0.7</td></tr> <tr><td>brass</td><td>1.05</td></tr> <tr><td>stainless steel</td><td>0.8</td></tr> </table>	carrier	X	aluminum	1.15	steel	0.7	brass	1.05	stainless steel	0.8		<table border="1"> <tr><td>carrier</td><td>X</td></tr> <tr><td>aluminum</td><td>13mm</td></tr> <tr><td>steel</td><td>22mm</td></tr> <tr><td>brass</td><td>15mm</td></tr> <tr><td>stainless steel</td><td>21mm</td></tr> </table>	carrier	X	aluminum	13mm	steel	22mm	brass	15mm	stainless steel	21mm
carrier	X																							
aluminum	1.15																							
steel	0.7																							
brass	1.05																							
stainless steel	0.8																							
carrier	X																							
aluminum	13mm																							
steel	22mm																							
brass	15mm																							
stainless steel	21mm																							
M18		<table border="1"> <tr><td>carrier</td><td>X</td></tr> <tr><td>aluminum</td><td>0.9</td></tr> <tr><td>steel</td><td>0.75</td></tr> <tr><td>brass</td><td>0.75</td></tr> <tr><td>stainless steel</td><td>0.8</td></tr> </table>	carrier	X	aluminum	0.9	steel	0.75	brass	0.75	stainless steel	0.8		<table border="1"> <tr><td>carrier</td><td>X</td></tr> <tr><td>aluminum</td><td>20mm</td></tr> <tr><td>steel</td><td>34mm</td></tr> <tr><td>brass</td><td>22mm</td></tr> <tr><td>stainless steel</td><td>36mm</td></tr> </table>	carrier	X	aluminum	20mm	steel	34mm	brass	22mm	stainless steel	36mm
carrier	X																							
aluminum	0.9																							
steel	0.75																							
brass	0.75																							
stainless steel	0.8																							
carrier	X																							
aluminum	20mm																							
steel	34mm																							
brass	22mm																							
stainless steel	36mm																							
M30		<table border="1"> <tr><td>carrier</td><td>X</td></tr> <tr><td>aluminum</td><td>0.7</td></tr> <tr><td>steel</td><td>0.9</td></tr> <tr><td>brass</td><td>0.6</td></tr> <tr><td>stainless steel</td><td>1.3</td></tr> </table>	carrier	X	aluminum	0.7	steel	0.9	brass	0.6	stainless steel	1.3		<table border="1"> <tr><td>carrier</td><td>X</td></tr> <tr><td>aluminum</td><td>34mm</td></tr> <tr><td>steel</td><td>18mm</td></tr> <tr><td>brass</td><td>34mm</td></tr> <tr><td>stainless steel</td><td>18mm</td></tr> </table>	carrier	X	aluminum	34mm	steel	18mm	brass	34mm	stainless steel	18mm
carrier	X																							
aluminum	0.7																							
steel	0.9																							
brass	0.6																							
stainless steel	1.3																							
carrier	X																							
aluminum	34mm																							
steel	18mm																							
brass	34mm																							
stainless steel	18mm																							

This data sheet contains the deliverable 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 for „VK“.

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