

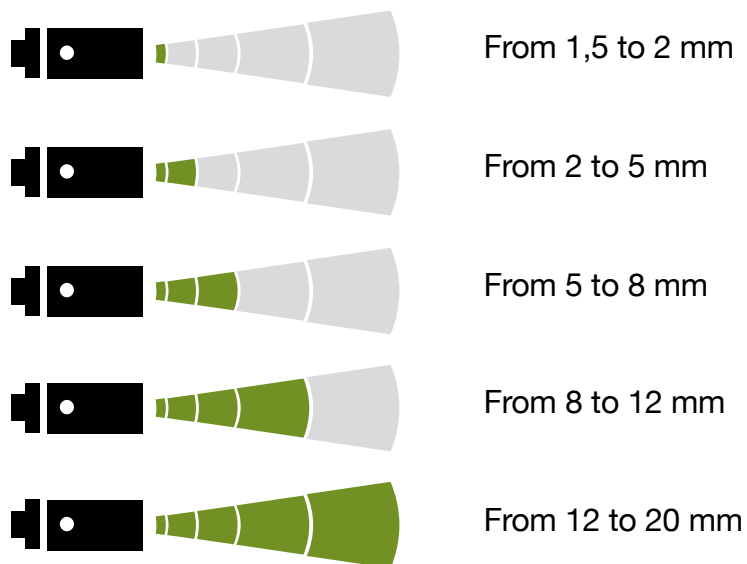


Proximity Sensors

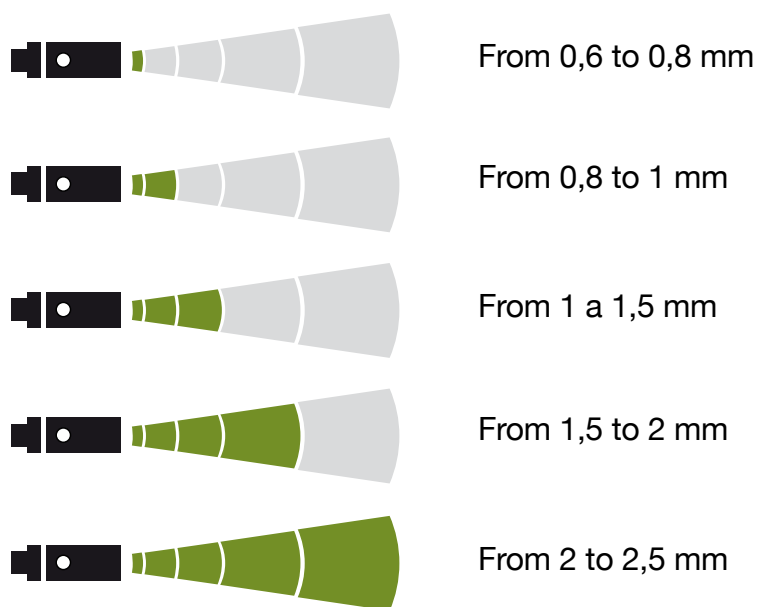
- Inductive
- Capacitive

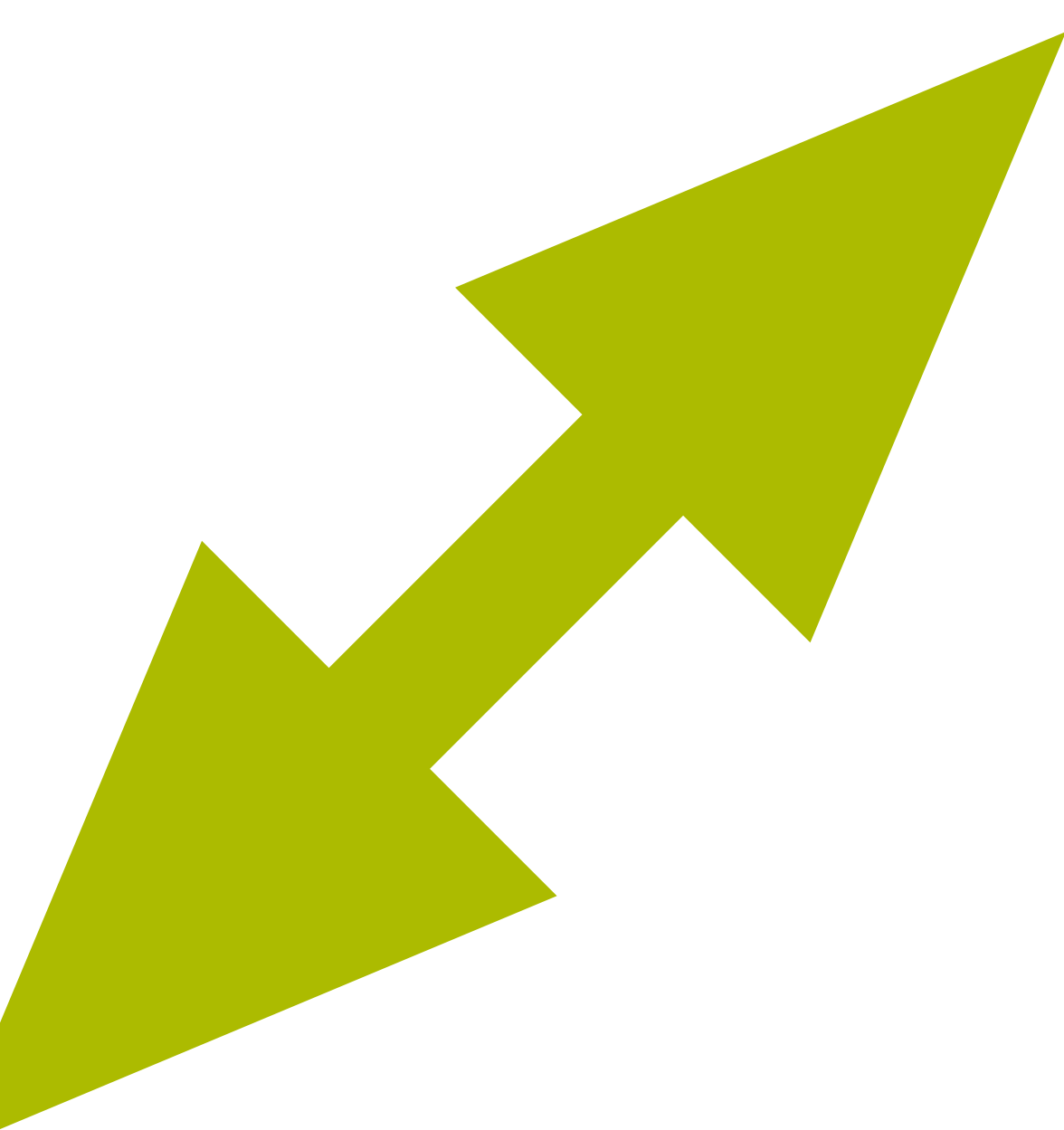


Nominal sensing distance (standard models)



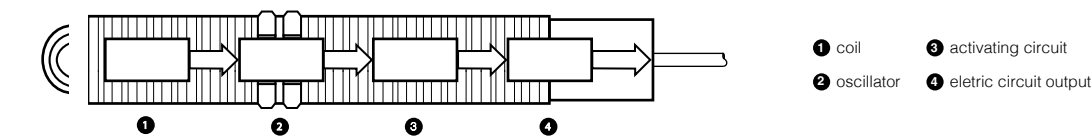
Nominal sensing distance (miniaturized models)





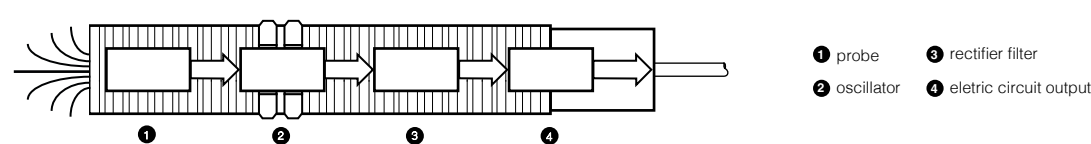


Operating principle of inductive sensors



The electric current, which flows inside the coil, generates an oscillating electromagnetic field. When a metallic item (object) gets into the field, the induced eddy currents decrease the amplitude of the oscillation. When this oscillation becomes lower than a specific threshold, the sensor switches. The parting of the metallic item reestablishes energy to the electromagnetic field; consequently the amplitude of the field increases until , above a certain threshold, the sensor switches again, returning to the initial state. Only metal items can generate enough eddy currents to modify the magnetic field's oscillation amplitude generated by the sensor. Therefore, an inductive sensor detects only metallic items without being influenced by the presence of other materials, both solid (wood, glass, plastic, etc.) and liquids (water, oils, etc).

Operating principle of capacitive sensors



The capacitive probe generates an electrostatic field. When an item gets close to the capacitive probe, the oscillator starts to oscillate (and the amplitude). The amplitude of oscillations increases as the target moves closer to the sensor. Above a certain amplitude, the detection circuit switches the sensor. When the item separates from the probe the amplitude of the oscillations decreases until the sensor reaches a specific, at which the sensor switches again to the initial conditions.

Target Considerations

The standard target used to determine the range of an inductive sensor is represented by a square soft steel, 1 mm thick, and the side equal to:

- diameter of the active surface (if $\varnothing > 3 \times S_n$)
- $3 \times S_n$ (if $3 \times S_n > \varnothing$)

For instance: a M8 diameter sensor with a rated operating distance $S_n = 2$ mm has a target standard of $L = 8$ mm; otherwise, a M30 sensor with a rated operating distance $S_n = 15$ mm has a target standard side of $L = 45$ mm. The composition of the target has a large effect on the effective sensing distance. Depending on the material used, the flow rate changes according to the correction factors of each material. Therefore:

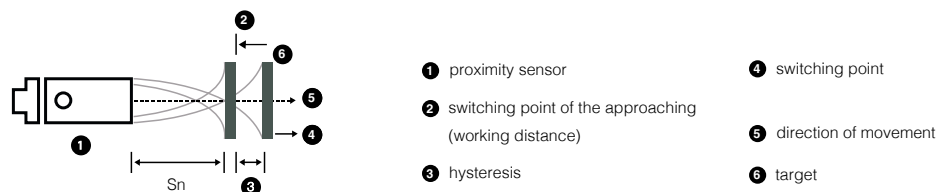
$$\text{sensing range} = (\text{rated operating distance}) \times (\text{reduction factor})$$

correction factors	
material target	correction factor
soft steel	1.00
stainless steel	0.85
brass	0.50
aluminium	0.45
copper	0.40

Approximate values. The correction factor depends on the material and the characteristics of the coil used. For a specific sensor, refer to the technical specifications of the product.

Hysteresis

The difference between the output activation point and the point of de-energizing when the target is gets closer and separates is called hysteresis. The hysteresis is necessary to prevent the occurrence of rapid activation and deactivation of the output either when the sensor is exposed to vibrations or when the target is stationary at the nominal sensing distance (S_n).



Correction factors of the target (capacitive)

Capacitive sensors can detect virtually any type of material, but the effective detection distance depends, besides on the size of the target, on its dielectric constant: materials with high dielectric constants (metals, water, ...) are perceived at higher distance than materials with low dielectric distances (flour, oils, etc).

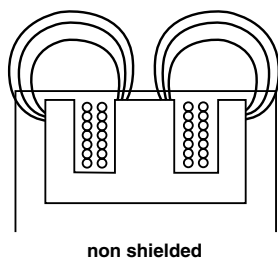
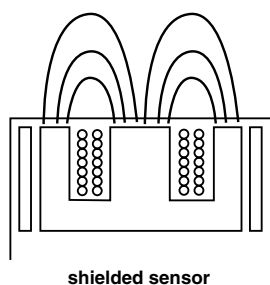
Below is attached a partial list of materials with their dielectric constants:

dielectric constants of common industrial materials		
Acetone 19,5	Freon R22 e 502 (liquid) 6,11	Polystyrene 3,0
Acrylic resin 2,7-4,5	Gasoline 2,2	Quartz glass 3,7
Air 1,0	Glass 3,7-10	Resin of urea 5-8
Alcohol 25,8	Glycerin 47	Resin, polyvinyl chloride 2,8-3,1
Ammonia 15-25	Limestone 1,2	Rubber 2,5-35
Aniline 6,9	Marble 8,0-8,5	Sale 6,0
Aqueous 50-80	Melamine resin 4,7-10,2	Sand 3-5
Ash turned 1,5-1,7	Mica 5,7-6,7	Shellac 2,5-4,7
Bakelite 3,6	Milk powder 3,5-4	Silicone paint 2,8-3,3
Benzene 2,3	Nitrobenzina 36	Soybean oil 2,9-3,5
Carbon dioxide 1,0	Nylon 4-5	Styrene resin 2,3-3,4
Carbon tetrachloride 2,2	Oil of turpentine 2,2	Sugar 3,0
Carton 2-5	Oiled paper 4,0	Sulfide 3,4
Celluloid 3,0	Paper 1,6-2,6	Teflon 2,0
Cement 4,0	Paraffin 1,9-2,5	Toluene 2,3
Cereals 3-5	Perspex 3,2-3,5	Transformer oil 2,2
China 4,4-7	Petroleum 2,0-2,2	Vaseline 2,2-2,9
Chlorine in solution 2,0	Phenolic resin 4-12	Water 80
Ebonite 2,7-2,9	Poliacetato 3,6-3,7	Wood, dry 2-7
Epoxy 2,5-6	Polyamide 5,0	Wood, wet 10-30
Ethanol 24	Polyester resin 2,8-8,1	
Ethylene glycol 38,7	Polyethylene 2,3	
Flour 1,5-1,7	Polypropylene 2,0-2,3	

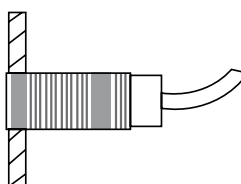
Shielded and non-shielded models

The proximity sensors differ between shielded and non-shielded.

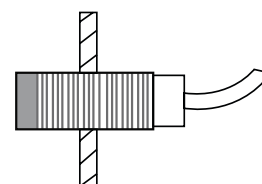
The shielded models have the sensitive part completely shielded of the sensor body. The field generated by the sensor is only present on the active face and therefore only detects a front positioned target. These models can be mounted completely embedded in the metal body of the machine. The non-shielded models have the sensitive part jutting out from the sensor body. The detection range is also present laterally to the active face. Thus, having a greater extension makes the detection range greater than that of the shielded models. These models must be mounted jutting out from the metal body of the machine.



shielded



non shielded

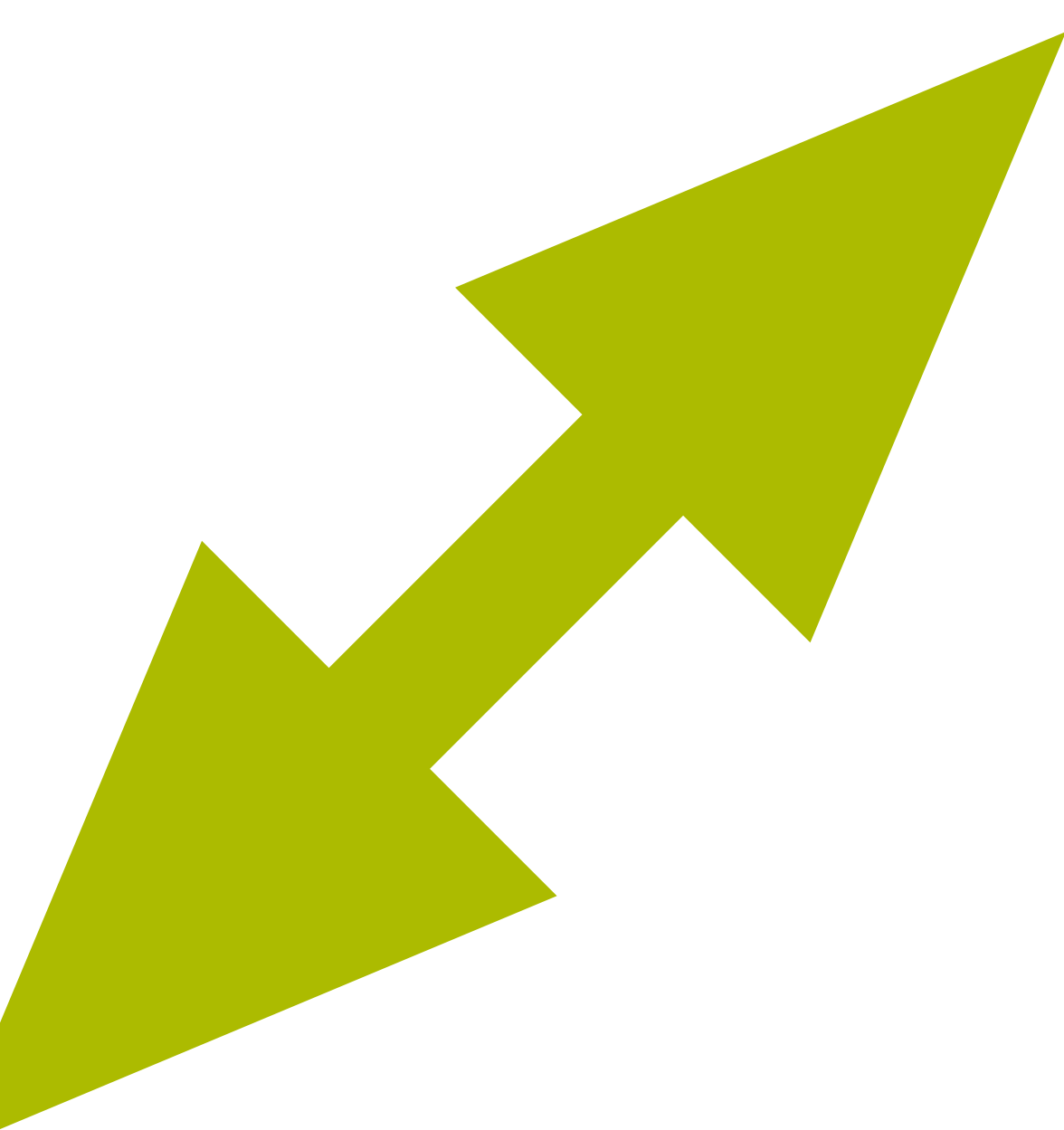


Switching frequency

It shows the pulse maximum frequency at which a sensor can activate the output while the target enters and exits the sensing range. This value depends on the type of sensor, on the target size, on the target distance from the sensing surface and on the target speed. It shows the maximum number of operations per second.



Inductive Proximity Sensors





PA series

Ø 3 mm cylindrical miniaturized



Ø 3 mm cylindrical
miniaturized

features

- Extremely reduced dimensions: Ø 3 mm x 22 mm length
- Supply voltage 10...30 Vdc, output current 100 mA
- Led status indicator
- IP 67 housing protection
- Complete protection against electrical damages



web contents



- Application notes
- Photos
- Catalogue / Manuals



code description

	PA1	/	A	P	-	1	A
series	PA1	Ø 3 mm inductive proximity switch					
output state	A	NO output state					
	C	NC output state					
output state	N	NPN logic output					
	P	PNP logic output					
distance	1	Standard shielded 0.6 mm					
	3	Long distance shielded 1 mm					
connect.	A	Cable exit output					

available models

diameter	installation	distance	plug	distance (mm)	NPN/NO	NPN/NC	PNP/NO	PNP/NC
Ø 3	shielded	standard	cable	0.6	PA1/AN-1A	PA1/CN-1A	PA1/AP-1A	PA1/CP-1A
		long distance		1	PA1/AN-3A	-	PA1/AP-3A	-



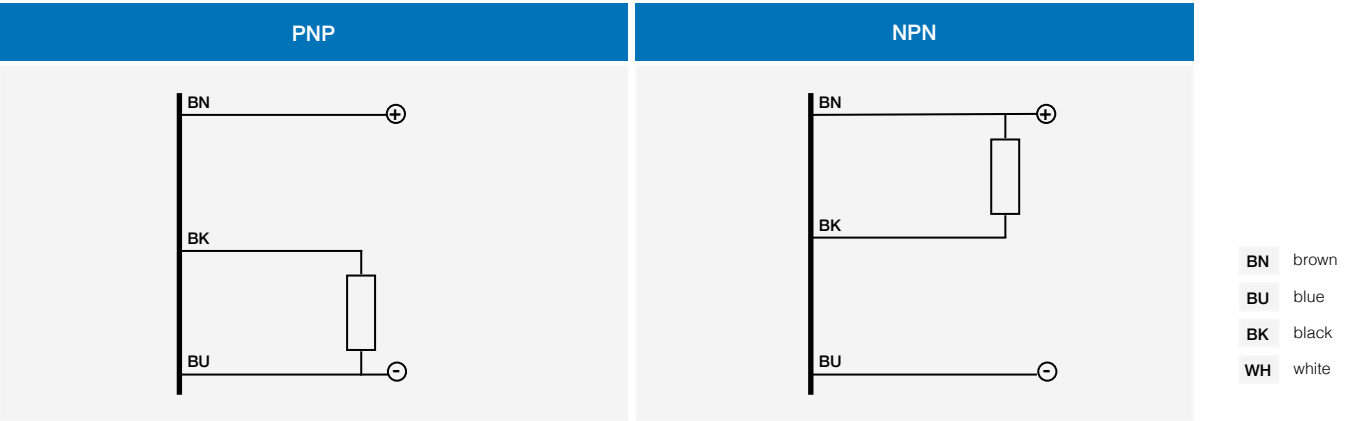
Ø 3 mm cylindrical
miniaturized

technical specification

	PA1/**-1A	PA1/**-3A
		
nominal sensing distance	0,6 mm	1 mm
hysteresis	≤ 10% Sr	
standard target	3 x 3 x 1 mm	
repeatability	2%	
operating voltage	10...30 Vdc	
max ripple content	≤ 20%	
output type	NPN or PNP - NO or NC	
output current	≤ 100 mA	
output voltage drop	≤ 2,0 V @ 100 mA	
no-load supply current	≤ 10 mA	
leakage current	≤ 0.1 mA	
switching frequency	≤ 5000 Hz	≤ 3000 Hz
power on delay	10 ms	
ambient temperature range	-25...+70 °C	
temperature drift of Sr	≤ 10%	
short-circuit protection	●	
voltage reversal protection	●	
induction protection	●	
shocks and vibration	IEC 60947-5-2	
weight	16 g	
protection degree	IP 67	
EMC	in conformity with the EMC Directive according to IEC 60947-5-2	
housing material	stainless steel	
active head material	polyester	
connection	2 m PUR cable	

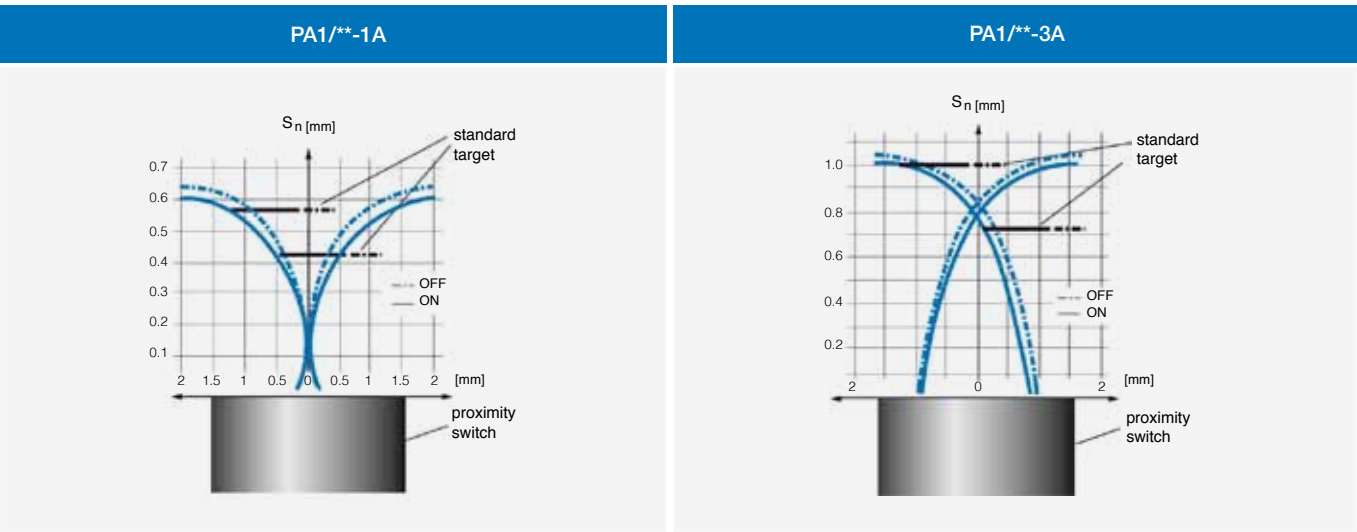
correction factors

steel FE 360		copper		alluminium		brass		stainless steel	
PA1/**-1*	PA1/**-3*	PA1/**-1*	PA1/**-3*	PA1/**-1*	PA1/**-3*	PA1/**-1*	PA1/**-3*	PA1/**-1*	PA1/**-3*
1.0	1.0	0.50	0.45	0.55	0.50	0.65	0.60	0.80	0.80

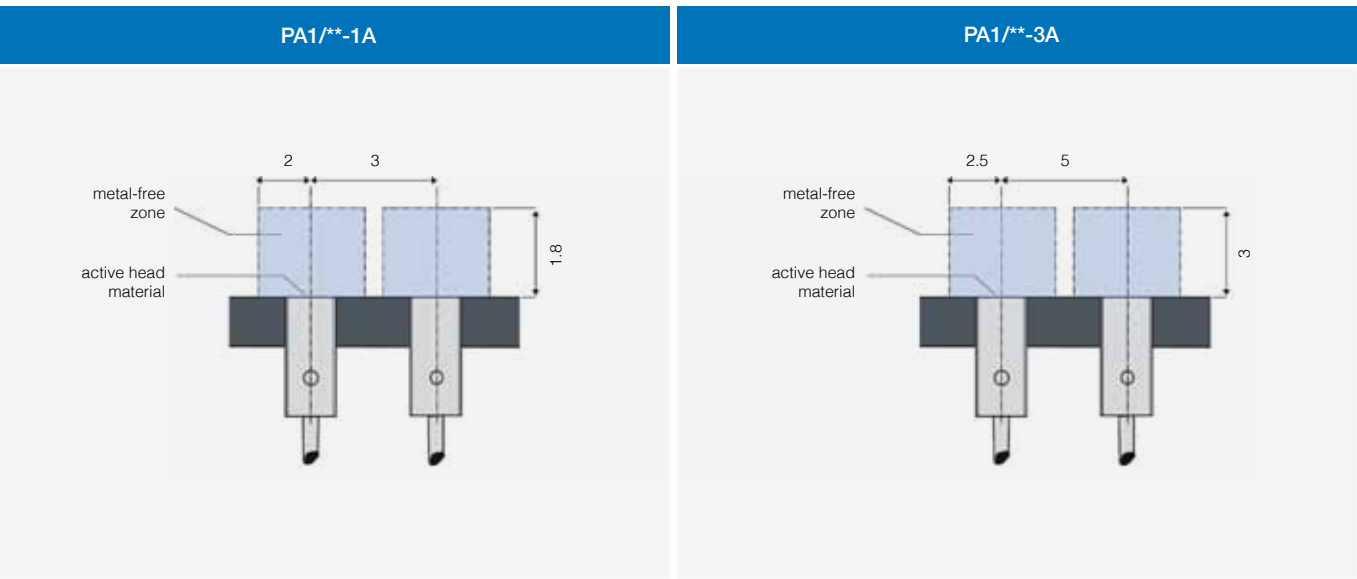


↗
Ø 3 mm cylindrical
miniaturized

response diagram



installation

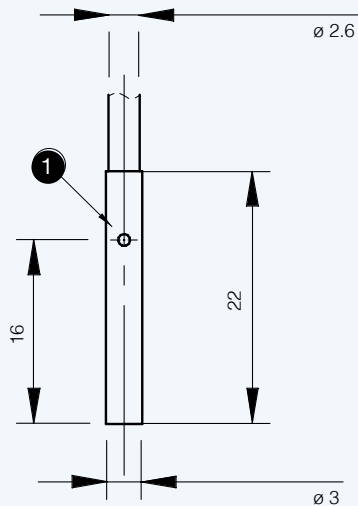




Ø 3 mm cylindrical
miniaturized

dimensions (mm)

PA1/**-*A



1 LED



PB series

M4 cylindrical
miniaturized



M4 cylindrical
miniaturized

features

- Extremely reduced dimensions: M4 x 22 mm length
- Supply voltage 10...30 Vdc, output current 100 mA
- LED status indicator
- IP 67 housing protection
- Complete protection against electrical damages



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- Photos
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code description

			PB1 / A P - 1 A
series	PB1	M4 inductive proximity switch	
output state	A	NO output state	
	C	NC output state	
logic state	N	NPN logic output	
	P	PNP logic output	
distance	1	Standard shielded 0,6 mm	
	3	Long distance shielded 1 mm	
connect.	A	Cable exit output	

available models

diameter	installation	distance	plug	distance (mm)	NPN/NO	NPN/NC	PNP/NO	PNP/NC
M4	shielded	standard	cable	0.6	PB1/AN-1A	PB1/CN-1A	PB1/AP-1A	PB1/CP-1A
		long distance		1	PB1/AN-3A	-	PB1/AP-3A	-



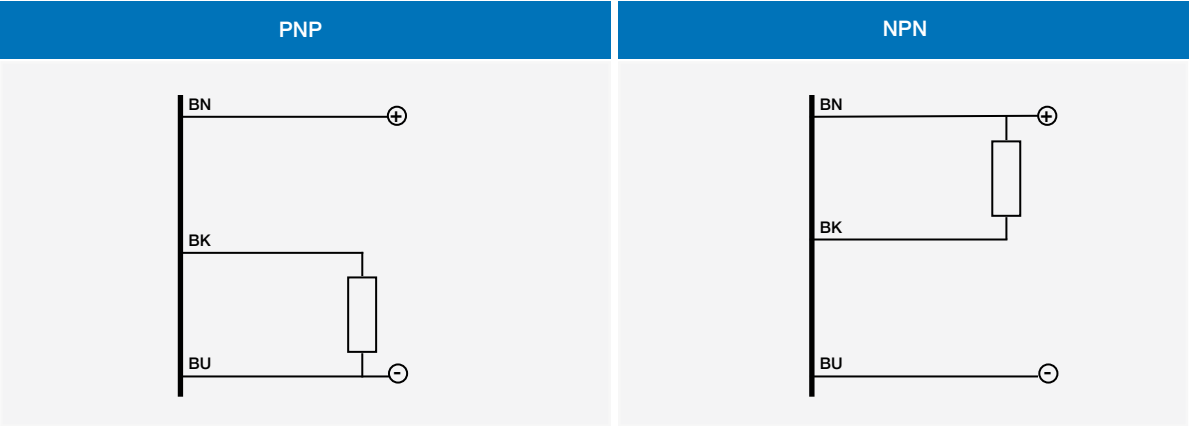
M4 cylindrical
miniaturized

technical specification

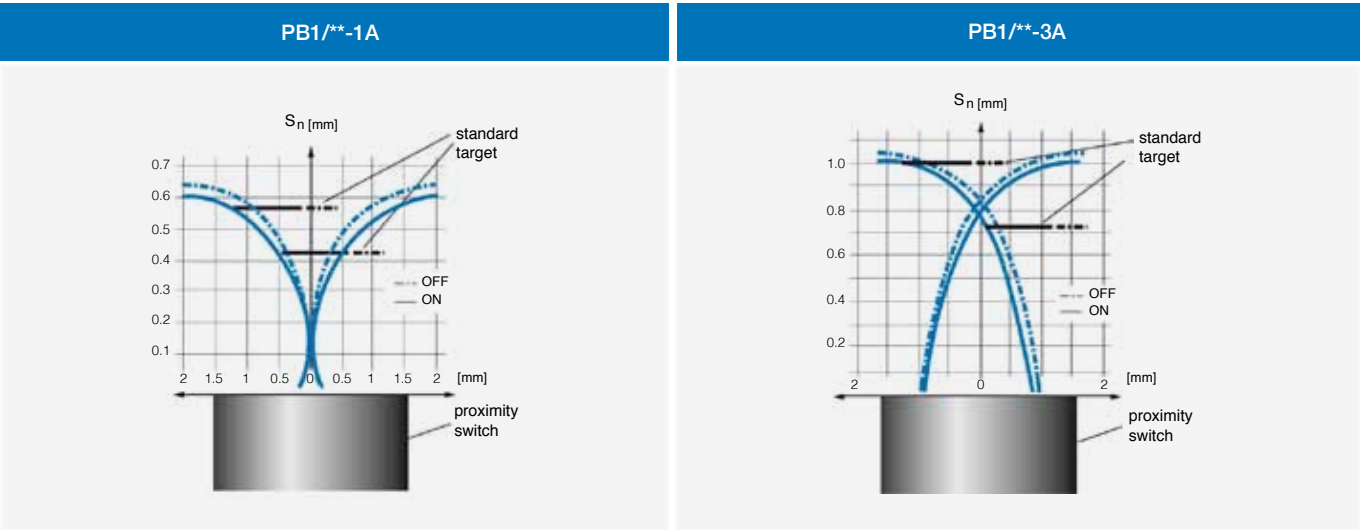
	PB1/**-1A	PB1/**-3A
		
nominal sensing distance	0,6 mm	1 mm
hysteresis	≤ 10% Sr	
standard target	4x4x1 mm	
repeatability	2%	
operating voltage	10...30 Vdc	
max ripple content	≤ 20%	
output type	NPN or PNP - NO or NC	
output current	≤ 100 mA	
output voltage drop	≤ 2,0 V @ 100 mA	
no-load supply current	≤ 10 mA	
leakage current	≤ 0,1 mA	
switching frequency	≤ 5000 Hz	≤ 3000 Hz
power on delay	10 ms	
ambient temperature range	-25...+70 °C	
temperature drift of Sr	≤ 10%	
short-circuit protection	●	
voltage reversal protection	●	
induction protection	●	
shocks and vibration	IEC 60947-5-2 / 7.4	
weight	17 g	
protection degree	IP 67	
EMC	in conformity with the EMC Directive, according to EN 60947-5-2	
housing material	stainless steel	
active head material	polyester	
connection	2 m PUR cable	

correction factors

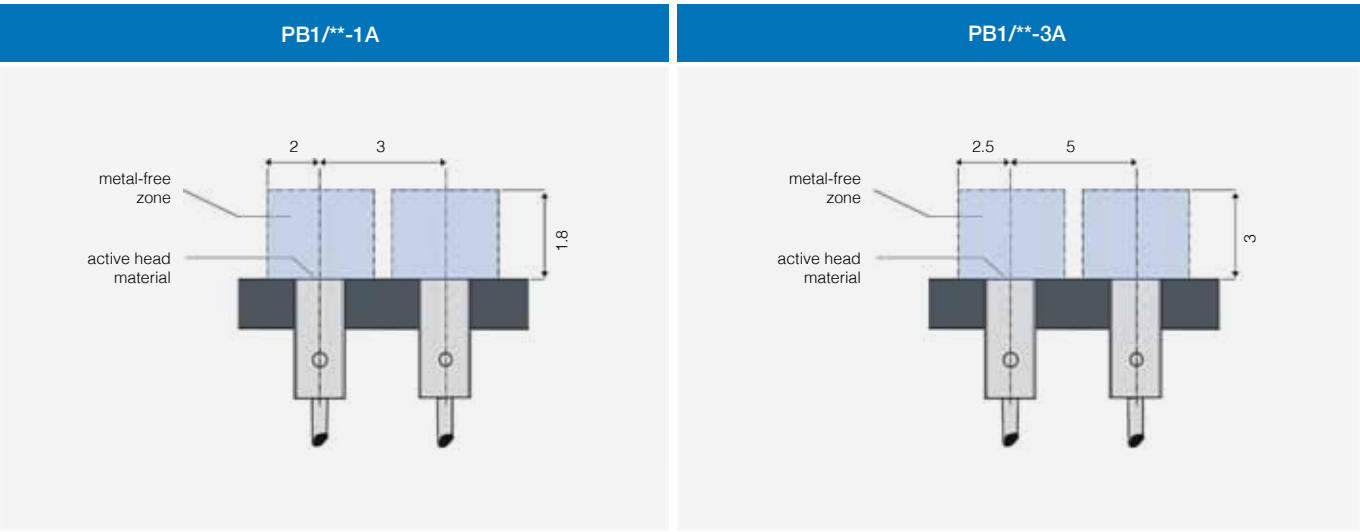
steel FE 360		copper		alluminium		brass		stainless steel	
PB1/**-1A	PB1/**-3A	PB1/**-1A	PB1/**-3A	PB1/**-1A	PB1/**-3A	PB1/**-1A	PB1/**-3A	PB1/**-1A	PB1/**-3A
1.0	1.0	0.50	0.45	0.55	0.50	0.65	0.60	0.80	0.80



response diagram



installation

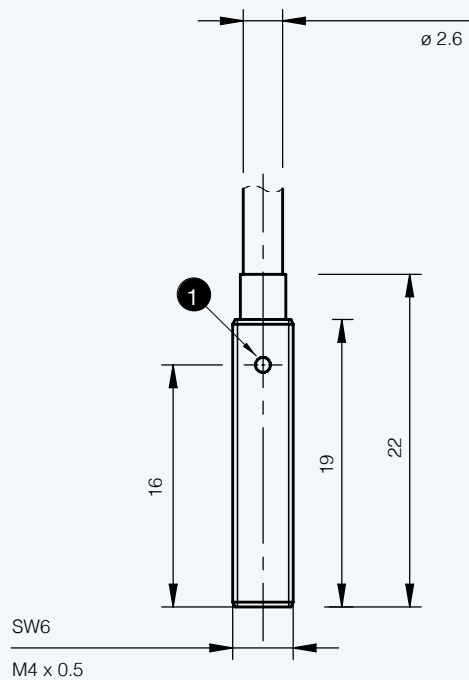




M4 cylindrical
miniaturized

dimensions(mm)

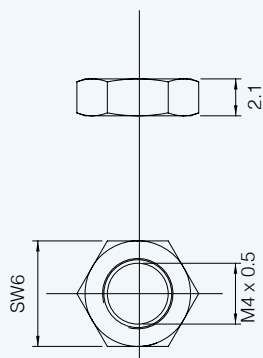
PB1/**-*A



1 LED

dimensions (mm)

accessories included models





AC1 series

Ø 4 mm cylindrical
miniaturized inductive sensors



Ø 4 mm cylindrical
miniaturized

features

- Smooth stainless steel housing
- Ø4 mm diameter
- Yellow output LED 360° visible
- Available 2 m PVC cable models or M8 connector models
- IP 67 protection degree



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- Photos
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code description^(*)

AC 1 / A P - 1 F 8F

series	AC	Inductive sensor Ø4 mm
housing	1	Miniaturized housing
output state	A	NO output state
	C	NC output state
output logic	P	PNP output
	N	NPN output
distance	1	Standard distance shielded 0.8 mm
	3	Long distance shielded 1.5 mm
connect.	A	Cable exit
	F	M8 connector exit
special models	8F	Models with cable in PUR

Models with plug or cable exit in PUR → certification

Models with cable exit in PVC → certification or

(*) ATEX models available, contact our Sales Dept. for further information.

available models

diameter	installation	distance	plug	distance (mm)	PNP/NO	NPN/NO	PNP/NC	NPN/NC
Ø 4	shield	standard	cable	0.8	AC1/AP-1A	AC1/AN-1A	AC1/CP-1A	AC1/CN-1A
			M8		AC1/AP-1F	AC1/AN-1F	AC1/CP-1F	AC1/CN-1F
		long distance	cable	1.5	AC1/AP-3A	AC1/AN-3A	AC1/CP-3A	AC1/CN-3A
			M8		AC1/AP-3F	AC1/AN-3F	AC1/CP-3F	AC1/CN-3F



Ø 4 mm cylindrical
miniaturized

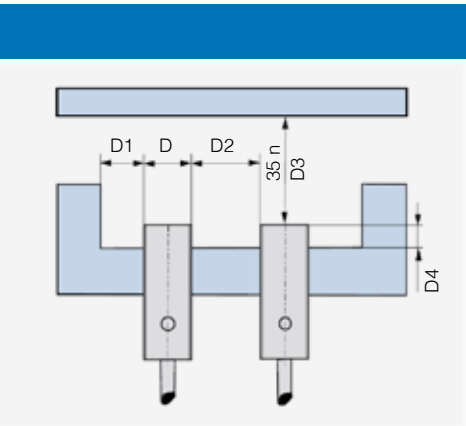
technical specification

	AC1/**-1*	AC1/**-3*
		
nominal sensing distance S_n	0.8 mm	1.5 mm
working distance	0...0.65 mm	0...1.21 mm
hysteresis	1...20%	
standard target	4 x 4 mm	4.5 x 4.5 mm
repeatability	5% @UB=20...30 V; Ta = 23°C ±5°C	
operating voltage	10...30 Vdc	
output type	NPN or PNP - NO or NC	
ripple	≤ 10%	
output current	≤ 100 mA	
output voltage drop	≤ 1.5 V @ 100 mA	
no-load supply current	≤ 10 mA	
leakage current	≤ 10 µA	
switching frequency	7Hz	
power on delay	≤ 50 ms	
temperature range	-25...+70 °C	
temperature drift	≤ 10%	
power supply protections	polarity reversal	
output protection	short circuit (auto reset), overvoltage pulses	
EMC	in conformity with the EMC Directive according to IEC 60947-5-2	
shock and vibration	IEC 60947-5-2	
protection degree	IP67	
housing material	stainless steel AISI 303	
active head material	PBT	
reduction factor	see table	
LEDs	on (yellow LED)	
weight	4g M8 connector / 30 g cable	

correction factors

model	FE 360	copper	aluminium	brass	stainless steel
AC1/**-1*	1	0.28 ± 10%	0.21 ± 10%	0.32 ± 10%	0.63 ± 10%
AC1/**-3*		0.29 ± 10%	0.23 ± 10%	0.31 ± 10%	0.66 ± 10%

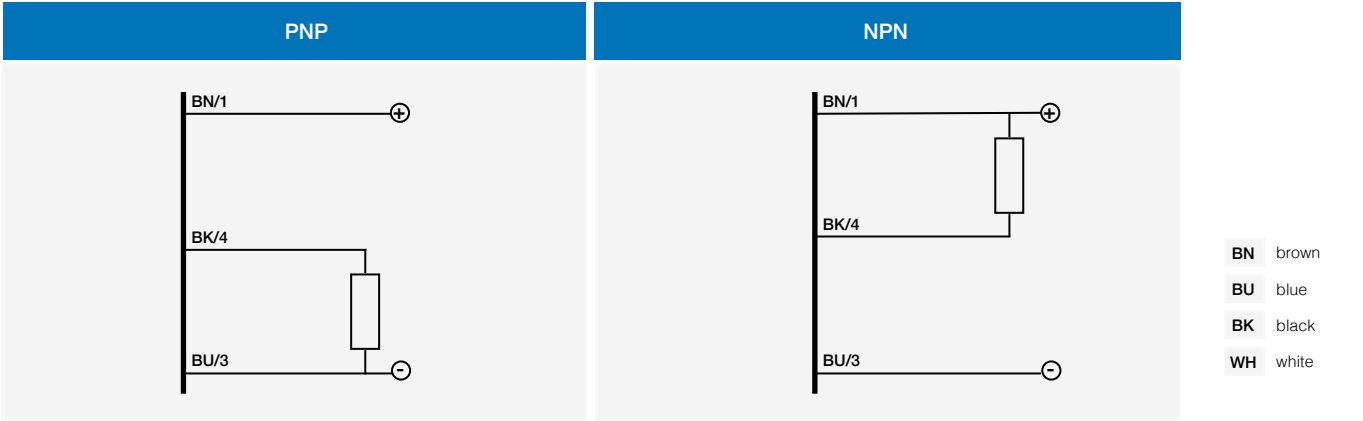
installation



model	D4	D1	D2	D3
AC1/**-1*	≥ 2 mm ⁽¹⁾	≥ 4 mm	≥ 8 mm	≥ 2.4 mm
AC1/**-3*	≥ 3 mm ⁽²⁾	≥ 4 mm	≥ 8 mm	≥ 4.5 mm

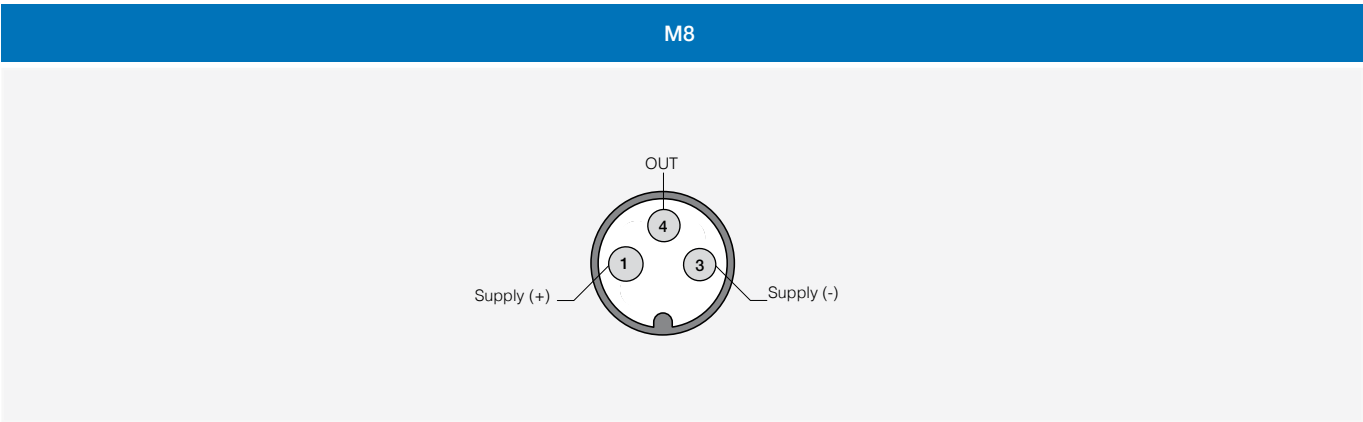
⁽¹⁾ ≥ 3 mm without ferro-magnetic material
⁽²⁾ ≥ 4 mm without ferro-magnetic material

electrical diagrams of connections

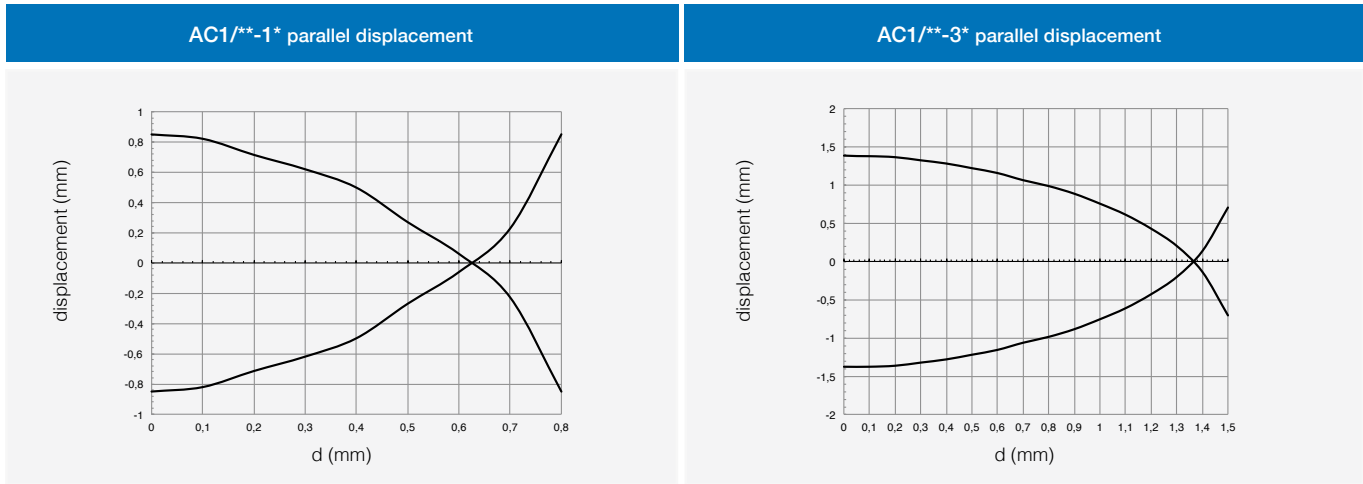


↗
Ø 4 mm cylindrical
miniaturized

plug



response diagrams



AC



Ø 4 mm cylindrical
miniaturized

dimensions (mm)

AC1/**-*A	AC1/**-*F

1 LED



PC1 series

Ø 4 mm cylindrical
miniaturized inductive sensors



Ø 4 mm cylindrical
miniaturized

features

- Cable and M8 plug versions
- Reduced dimensions: Ø 4 mm x 25 mm (cable) / 38 mm (plug) length
- Supply voltage 10...30 Vdc, output current 200 mA
- Led status indicator
- IP 67 housing protection
- Complete protection against electrical damages



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code description

			PC1 / A P - 1 A
series	PC1	Ø 4 mm inductive proximity switch	
output state	A	NO output state	
	C	NC output state	
output logic	N	NPN logic output	
	P	PNP logic output	
distance	1	Standard shielded 0.8 mm	
	3	Long distance shielded 1.5 mm	
connect.	A	Cable exit output	
	F	M8 plug cable exit	

available models

diameter	installation	distance	plug	distance (mm)	NPN/NO	NPN/NC	PNP/NO	PNP/NC
Ø 4	shielded	standard	cable	0.8	PC1/AN-1A	PC1/CN-1A	PC1/AP-1A	PC1/CP-1A
			M8		PC1/AN-1F	PC1/CN-1F	PC1/AP-1F	PC1/CP-1F
		long distance	cable	1.5	PC1/AN-3A	-	PC1/AP-3A	-
			M8		PC1/AN-3F	-	PC1/AP-3F	-



Ø 4 mm cylindrical
miniaturized

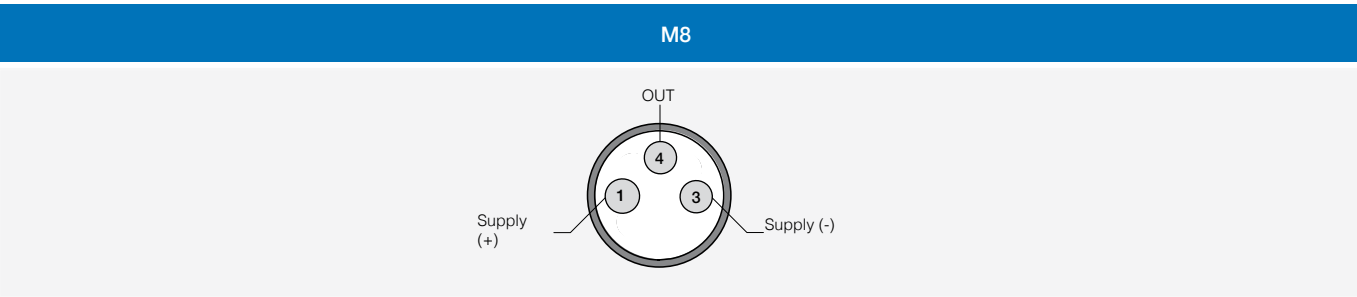
technical specification

	PC1/**-1*	PC1/**-3*
		
nominal sensing distance	0.8 mm	1.5 mm
hysteresis	$\leq 10\% \text{ Sr}$	
standard target	4 x 4 x 1 mm	4.5 x 4.5 x 1 mm
repeatability	2%	
operating voltage	10...30 Vdc	
max ripple content	$\leq 20\%$	
output type	NPN or PNP - NO or NC	
output current	$\leq 200 \text{ mA}$	
output voltage drop	$\leq 2,0 \text{ V @ } 100 \text{ mA}$	
no-load supply current	$\leq 10 \text{ mA}$	
leakage current	$\leq 0,1 \text{ mA}$	
switching frequency	$\leq 5,000 \text{ Hz}$	$\leq 3,000 \text{ Hz}$
power on delay	$\leq 10 \text{ ms}$	
ambient temperature range	$-25...+70 \text{ }^{\circ}\text{C}$	
temperature drift of Sr	$\leq 10\%$	
short-circuit protection	●	
voltage reversal protection	●	
induction protection	●	
shocks and vibration	IEC 60947-5-2 / 7.4	
weight	3 g connector M8 32 g cable	
protection degree	IP 67	
EMC:		
IEC 60255-5	1 kV	
IEC 61000-4-2	livello 2	livello 3
IEC 61000-4-3	livello 3	
IEC 61000-4-4	livello 2	livello 3
housing material	acciaio INOX	
active head material	polyester	
connection	2 m PVC cable 3 x 0,14 mm ²	

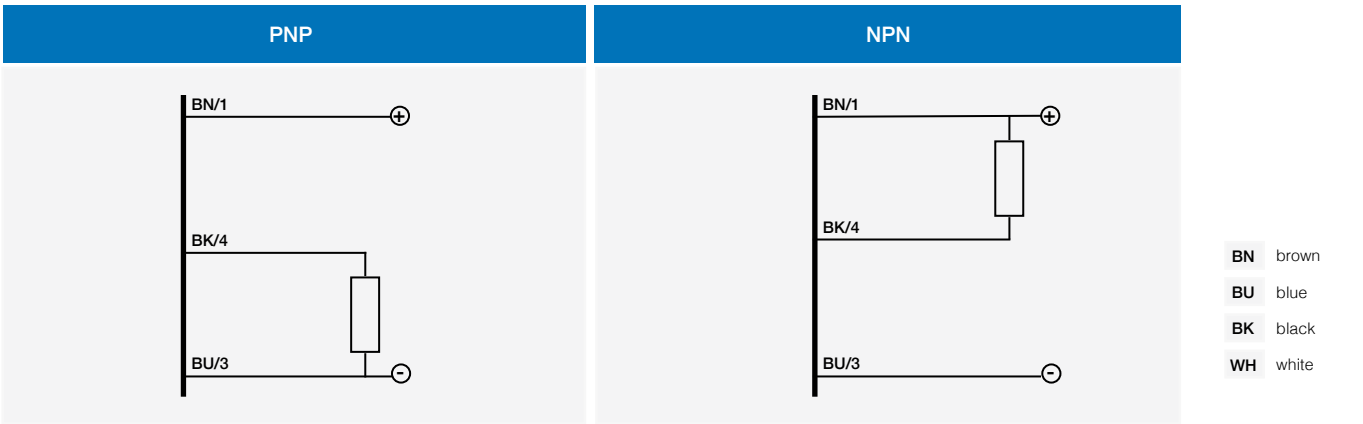
correction factors

steel FE 360		copper		alluminium		brass		stainless steel	
PC1/**-1A	PC1/**-3A	PC1/**-1A	PC1/**-3A	PC1/**-1A	PC1/**-3A	PC1/**-1A	PC1/**-3A	PC1/**-1A	PC1/**-3A
1.0	1.0	0.45	0.40	0.50	0.40	0.55	0.50	0.80	0.75

plug

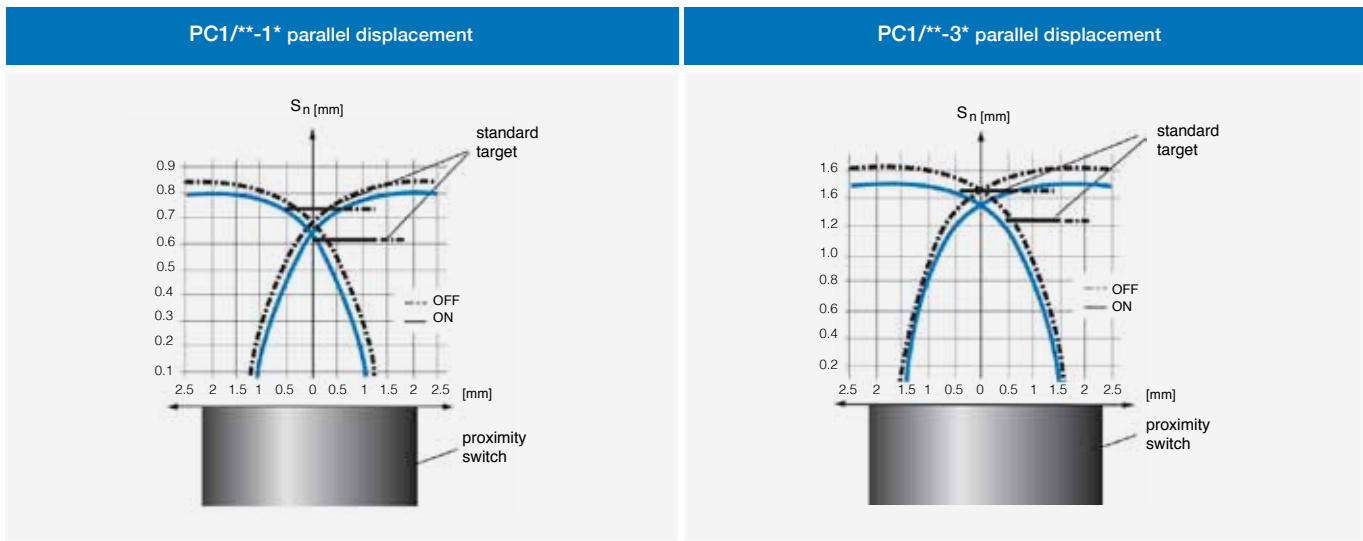


PC1

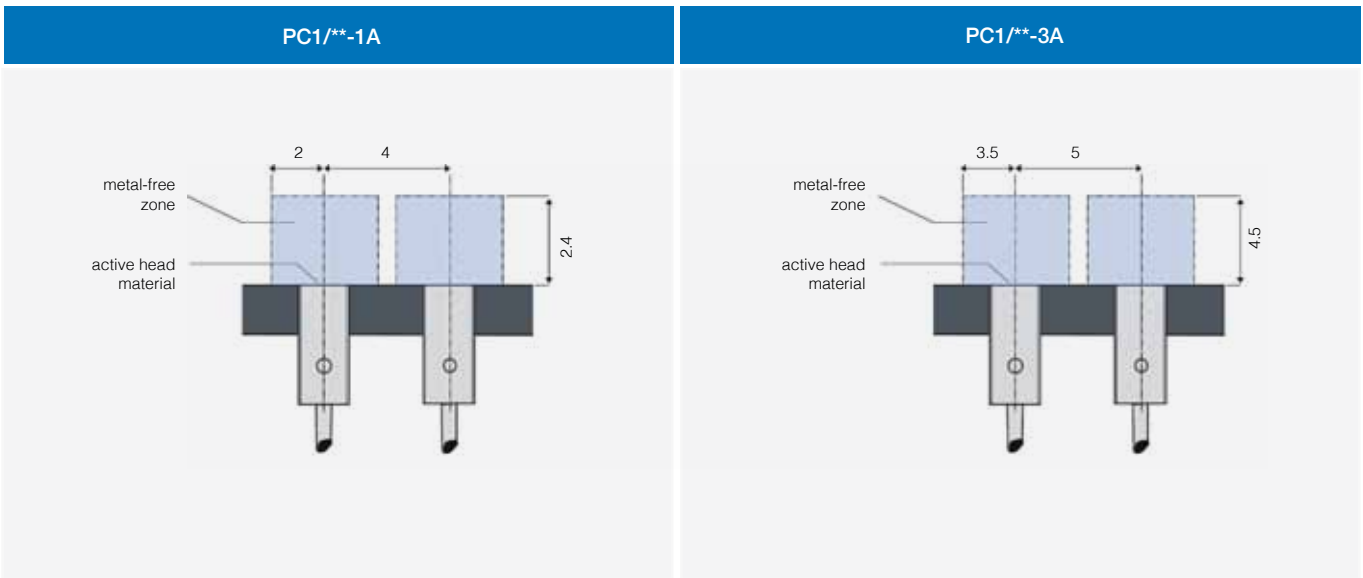


↗
Ø 4 mm cylindrical
miniaturized

response diagram

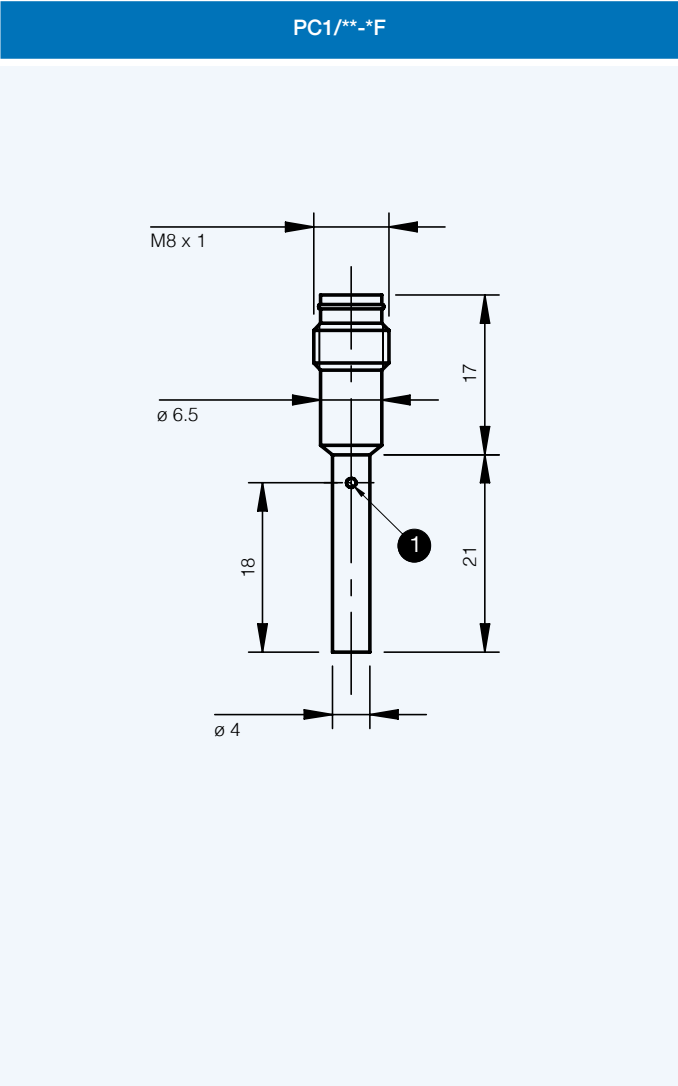
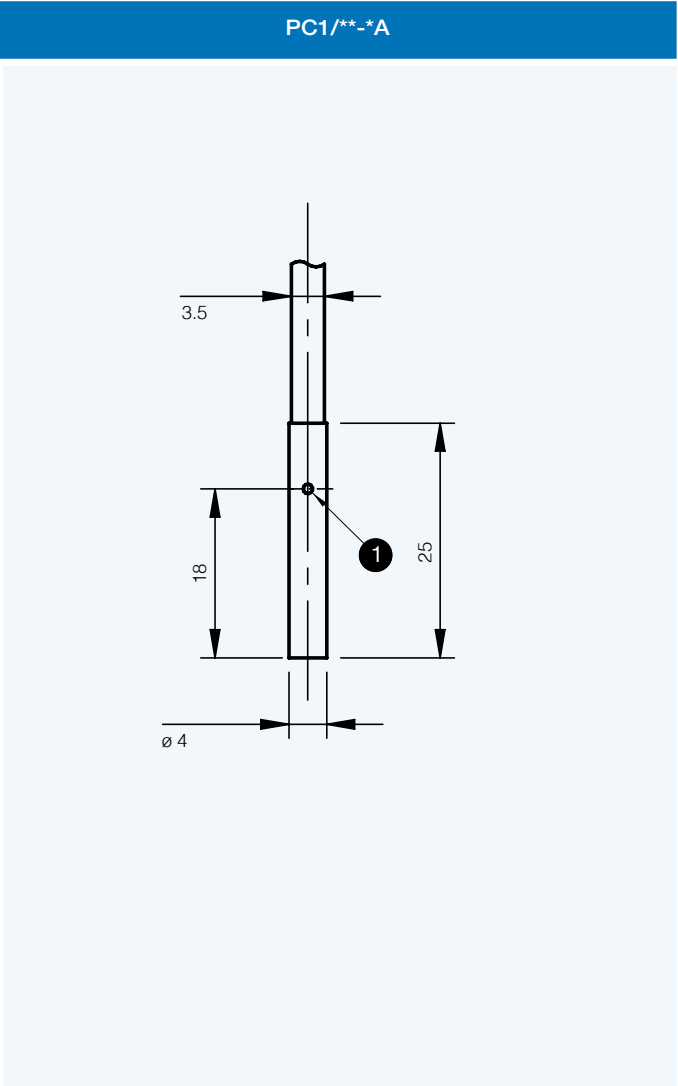


installation





Ø 4 mm cylindrical
miniaturized



1 LED



AD series

M4 cylindrical
miniaturized inductive sensors



M4 cylindrical
miniaturized

features

- Extremely reduced models: M5 x 30 mm (cable) / 38 mm (plug) lenght
- Operating voltage: 10...30 Vcc
- Output current: 100 mA
- LED output indicator
- Totally protected against electrical damages
- Cable and M8 plug output
- Stainless steel housing



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code description (*)

	AD	1	/	A	P	-	1	F	8F
series	AD	Inductive sensor M5							
housing	1	Miniaturized housing							
output state	A	NO output state							
	C	NC output state							
output logic	N	NPN logic output							
	P	PNP logic output							
distance	1	Standard distance shielded 0,8 mm							
	3	Long distance shielded 1,5 mm							
connect.	A	Cable exit							
	F	M8 connector exit							
special models	8F	Models with cable in PUR							

Models with plug or cable exit in PUR → certification

Models with cable exit in PVC → certification or

(*) ATEX models available, contact our Sales Dept. for further information.

available models

model	installation	sensing	plug	distance (mm)	PNP/NO	NPN/NO	PNP/NC	NPN/NC
M5	shielded	standard	cable	0.8	AD1/AP-1A	AD1/AN-1A	AD1/CP-1A	AD1/CN-1A
			M8		AD1/AP-1F	AD1/AN-1F	AD1/CP-1F	AD1/CN-1F
		long distance	cable	1.5	AD1/AP-3A	AD1/AN-3A	AD1/CP-3A	AD1/CN-3A
			M8		AD1/AP-3F	AD1/AN-3F	AD1/CP-3F	AD1/CN-3F



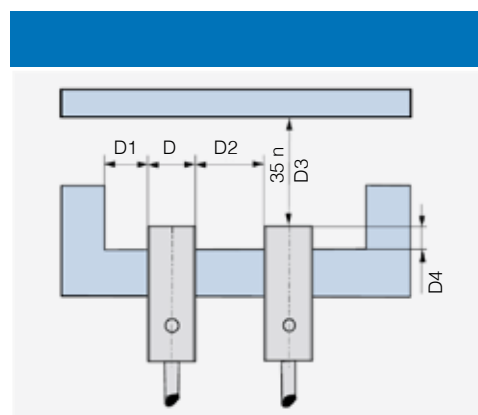
technical specification

	AD1/**-1*	AD1/**-3*
		
nominal sensing distance S_n	0.8 mm	1.5 mm
operating distance	0...0.65 mm	0...1.21 mm
hysteresis	1...20%	
standard target	5 x 5 mm	
repeatability	5% @UB=20...30 V; Ta = 23°C ±5°C	
operating voltage	10...30 Vdc	
ripple	≤ 10%	
output type	NPN or PNP - NO or NC	
output current	≤ 100 mA	
output voltage drop	≤ 1.5 V @ 100mA	
no-load supply current	≤ 10 mA	
leakage current	≤ 10 µA	
switching frequency	7 kHz	
power on delay	≤ 50 ms	
temperature range	-25°C...+70°C	
temperature drift	≤ 10%	
power supply protections	polarity reversal	
output protection	short circuit (auto reset), overvoltage pulses	
EMC	in conformity with the EMC Directive according to IEC 60947-5-2	
shock and vibration	IEC 60947-5-2	
protection degree	IP67	
housing material	stainless steel AISI 303	
active head material	PBT	
reduction factor	see table	
LEDs	on (yellow LED)	
weight	30 g cable / 4g M8 connector	

correction factors

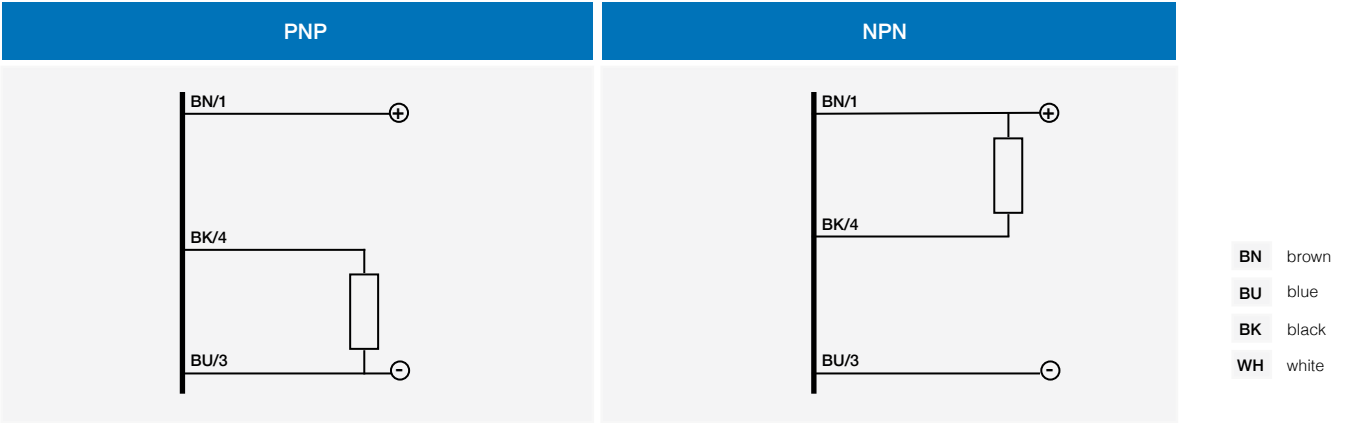
model	FE 360	copper	aluminium	brass	stainless steel
AD1/**-1*	1	0.32 ± 10%	0.26 ± 10%	0.35 ± 10%	0.66 ± 10%
AD1/**-3*		0.33 ± 10%	0.27 ± 10%	0.34 ± 10%	

installation

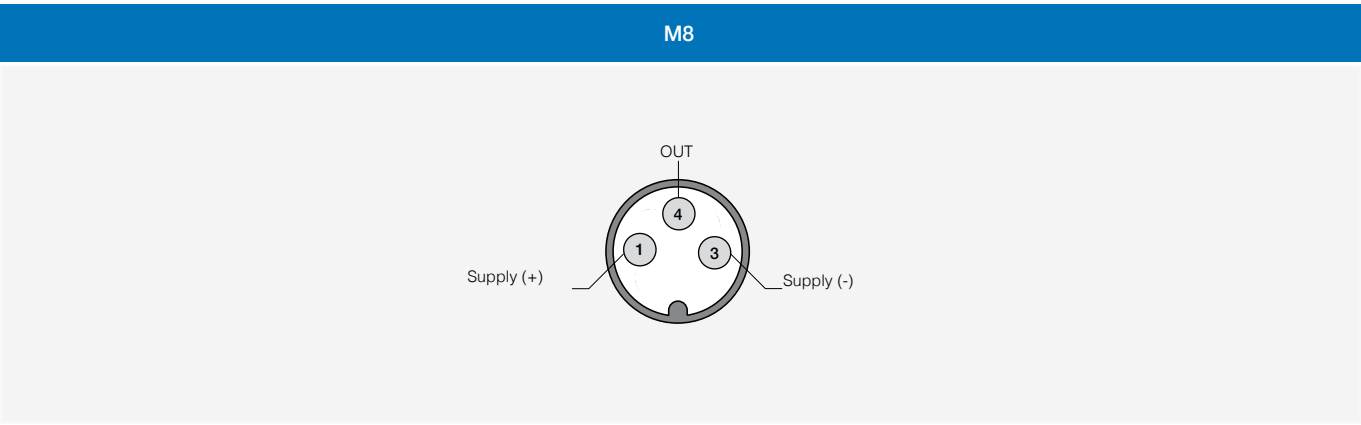


model	D4	D1	D2	D3
AD1/**-1*	≥ 2 mm ⁽¹⁾	≥ 5 mm	≥ 5 mm	≥ 2.4 mm
AD1/**-3*			≥ 10 mm	≥ 4.5 mm

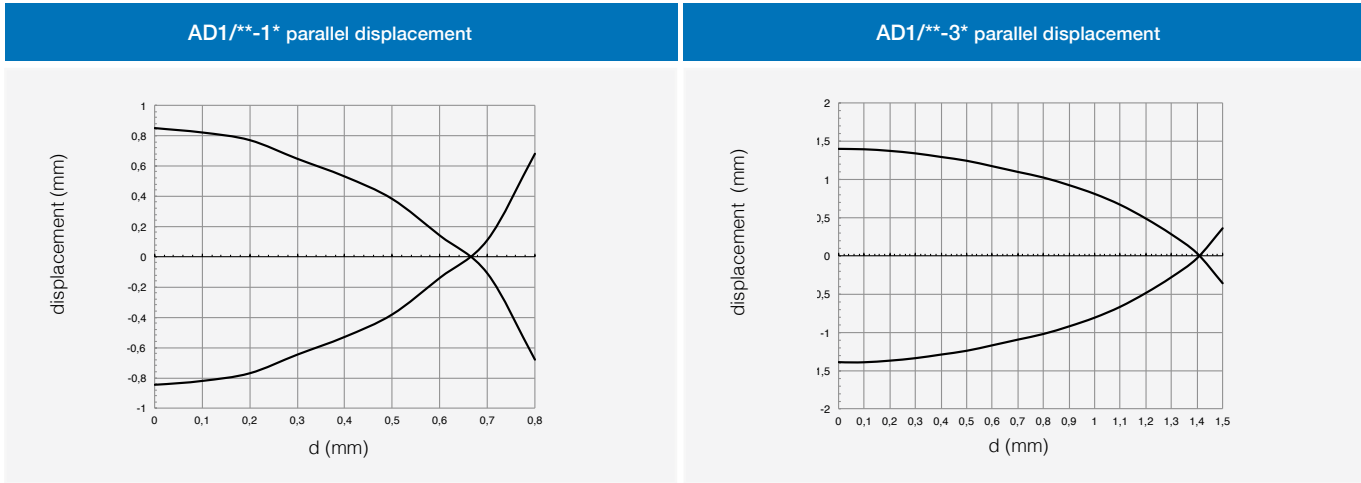
⁽¹⁾ ≥ 3 mm without ferro-magnetic material



plug



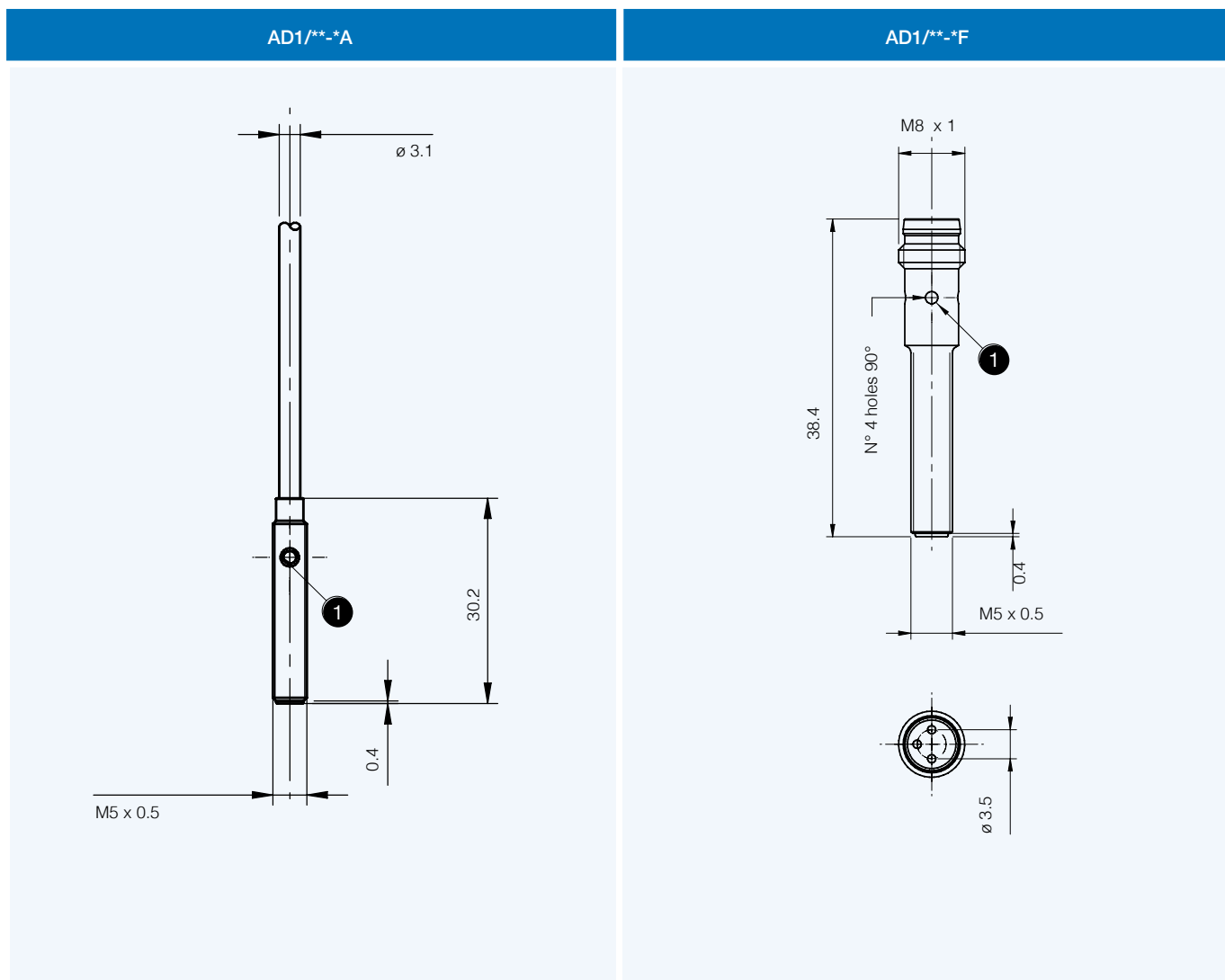
response diagram





M4 cylindrical
miniaturized

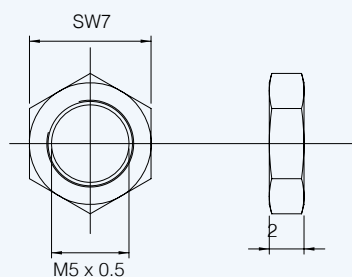
dimensions (mm)



1 LED

dimensions (mm)

accessories included models





PD1 series

M5 cylindrical miniaturized inductive sensors



M5 cylindrical miniaturized

features

- Cable and M8 plug versions
- Extremely reduced dimensions: M5 x 25 mm (cable) / 38 mm (plug) length
- Supply voltage 10...30 Vdc, output current 100 mA
- Led status indicator
- IP 67 housing protection
- Complete protection against electrical damages



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code description

			PD1 / A P - 1 A
series	PD1	M5 inductive proximity switch	
output state	A	NO output state	
	C	NC output state	
output logic	N	NPN logic output	
	P	PNP logic output	
distance	1	Standard shielded 0.8 mm	
	3	Long distance shielded 1.5 mm	
connect.	A	Cable exit output	
	F	M8 plug cable exit	

available models

model	installation	sensing	plug	distance (mm)	NPN/NO	NPN/NC	PNP/NO	PNP/NC
M5	shielded	standard	cable	0.8	PD1/AN-1A	PD1/CN-1A	PD1/AP-1A	PD1/CP-1A
			M8		PD1/AN-1F	PD1/CN-1F	PD1/AP-1F	PD1/CP-1F
		long distance	cable	1.5	PD1/AN-3A	-	PD1/AP-3A	-
			M8		PD1/AN-3F	-	PD1/AP-3F	-

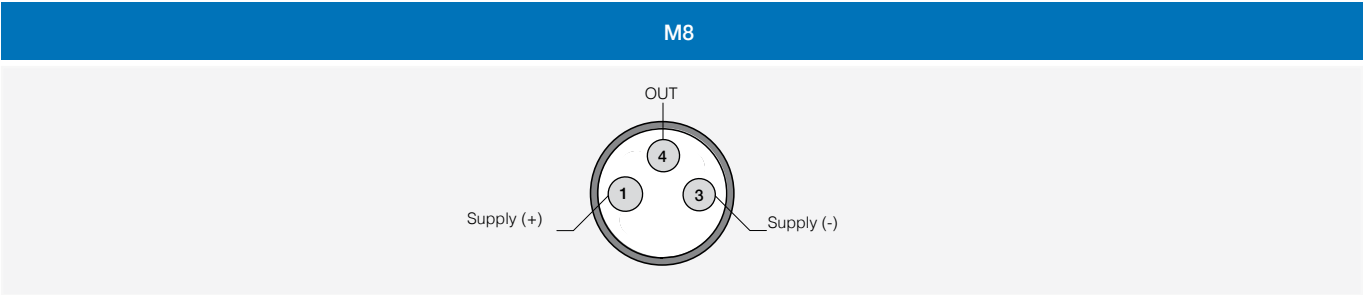
technical specification

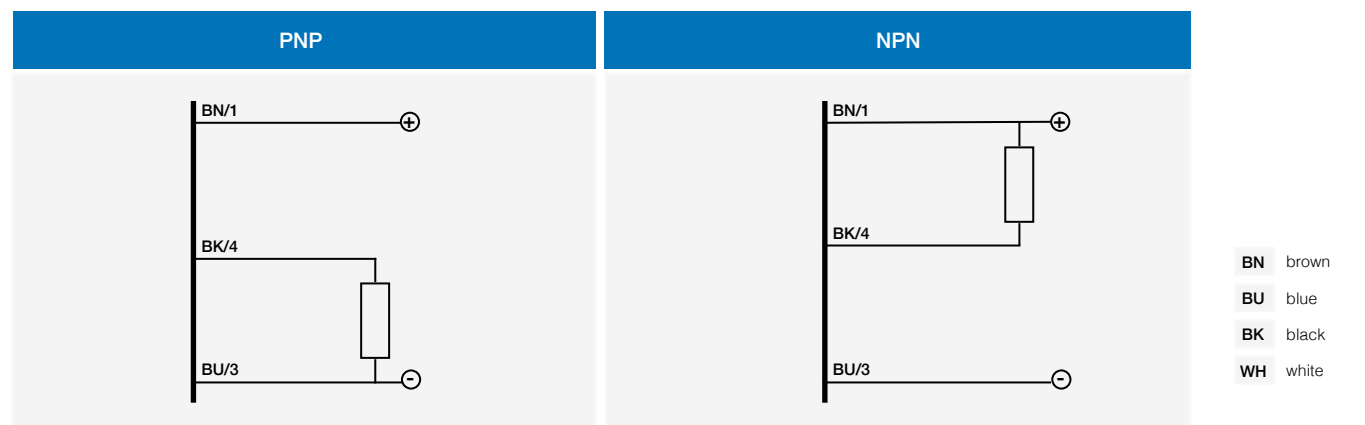
	PD1/**-1A	PD1/**-3A
nominal sensing distance	0.8 mm	1.5 mm
hysteresis	≤ 10% Sr	
standard target	5 x 5 x 1 mm	
repeatability	2%	
operating voltage	10...30 Vdc	
max ripple content	≤ 20%	
output type	NPN or PNP - NO or NC	
output current	≤ 200 mA	
output voltage drop	≤ 2.0 V @ 100 mA	
no-load supply current	≤ 10 mA	
leakage current	≤ 0.1 mA	
switching frequency	≤ 5,000 Hz	≤ 3,000 Hz
power on delay	10 ms	
ambient temperature range	-25...+70 °C	
temperature drift of Sr	≤ 10%	
short-circuit protection	●	
voltage reversal protection	●	
induction protection	●	
shocks and vibration	IEC 60947-5-2	
weight	5 g connector M8 34 g cable	
protection degree	IP 67	
EMC:		
IEC 60255-5	1 kV	
IEC 61000-4-2	level 2	level 3
IEC 61000-4-3	level 3	
IEC 61000-4-4	level 2	level 3
housing material	stainless steel V2A	
active head material	polyester	
connection	2 m PVC cable or M8 plug	

correction factors

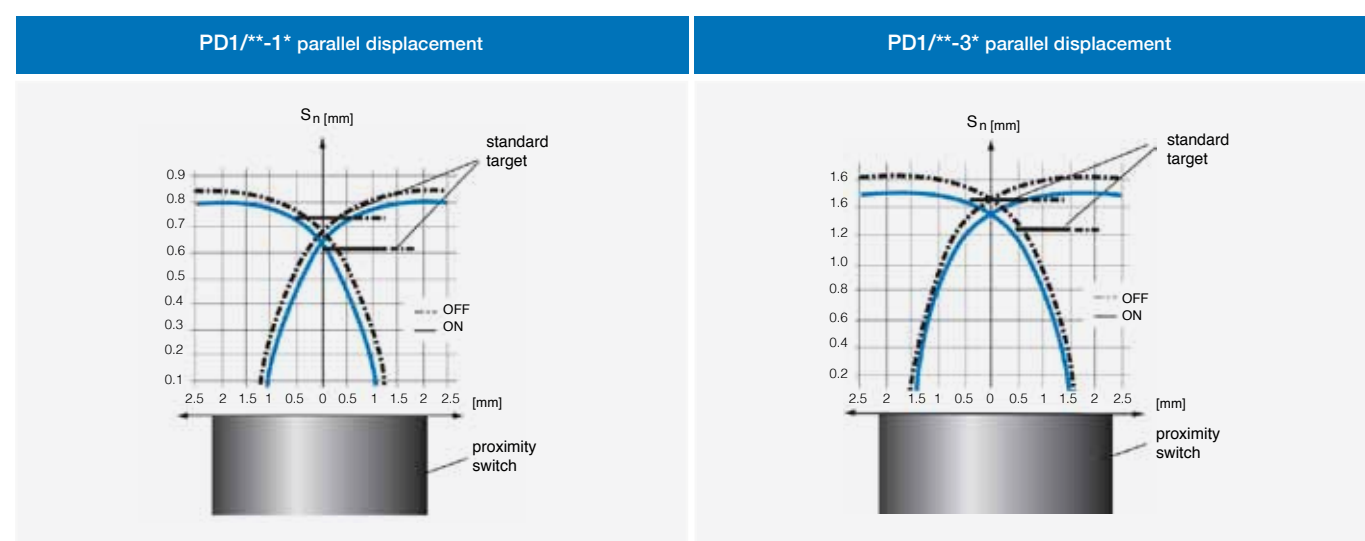
steel FE 360		copper		alluminium		brass		stainless steel	
PD1/**-1	PD1/**-3*	PD1/**-1*	PD1/**-3*	PD1/**-1*	PD1/**-3*	PD1/**-1*	PD1/**-3*	PD1/**-1*	PD1/**-3*
1.0	1.0	0.45	0.40	0.50	0.40	0.55	0.50	0.80	0.75

plug

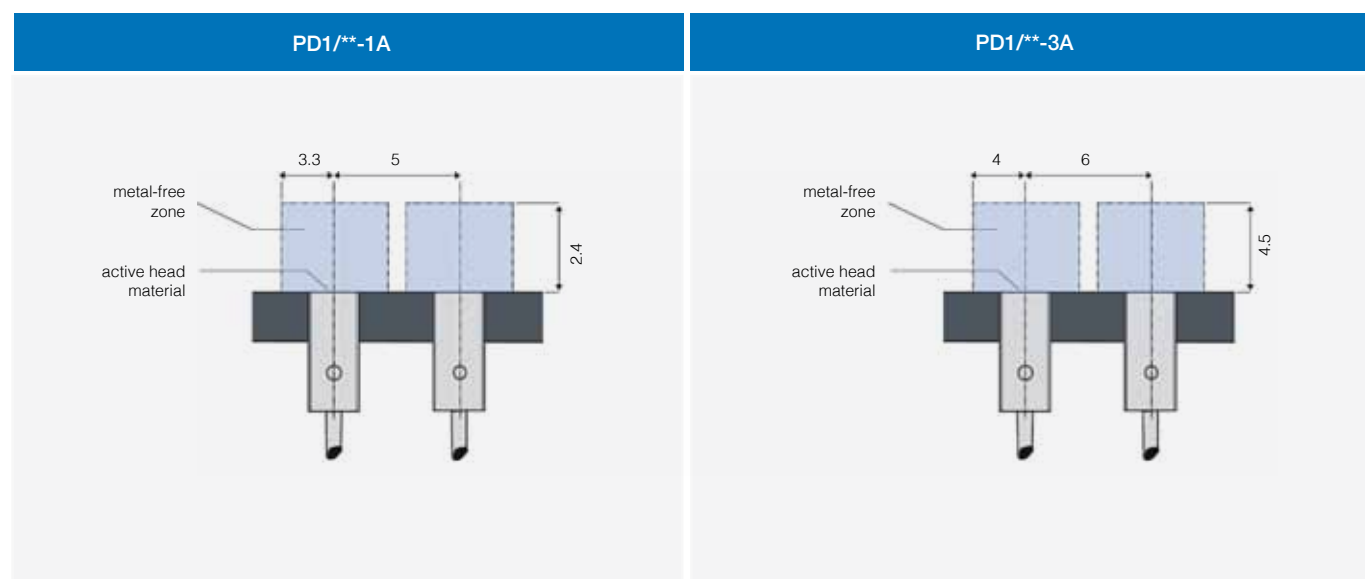




response diagram



installation



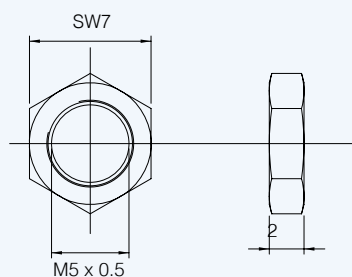
dimensions (mm)

PD1/**-*A	PD1/**-*F

1 LED

dimensions (mm)

accessories included models





AHS series

Ø 6.5 mm cylindrical
miniaturized inductive sensors



Ø 6.5 mm cylindrical
miniaturized

features

- Miniaturized dimensions: Ø 6.5 x 20 mm (cable) / 30 mm (plug) lenght
- Operating voltage: 10...30 Vdc
- Output current: 100 mA
- LED output indicator
- Totally protected against electrical damages
- Cable and plug M8 output
- Stainless steel housing



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code description (*)

			AH	S	/	A	P	-	1	F	8F
series	AH	Inductive sensor Ø 6.5 mm									
housing	S	Miniaturized housing									
output state	A	NO output									
	C	NC output									
output logic	N	NPN logic output									
	P	PNP logic output									
distance	1	Standard distance shielded 1.5 mm									
	3	Long distance shielded 2 mm									
connect.	A	Cable exit									
	F	M8 connector exit									
special models	8F	Models with cable in PUR									

Models with plug or cable exit in PUR → certification

Models with cable exit in PVC → certification or

(*) ATEX models available, contact our Sales Dept. for further information.

available models

diameter	installation	distance	plug	distance (mm)	PNP/NO	NPN/NO	PNP/NC	NPN/NC
Ø 6.5 mm	shielded	standard	cable	1.5	AHS/AP-1A	AHS/AN-1A	AHS/CP-1A	AHS/CN-1A
			M8		AHS/AP-1F	AHS/AN-1F	AHS/CP-1F	AHS/CN-1F
		long distance	cable	2	AHS/AP-3A	AHS/AN-3A	AHS/CP-3A	AHS/CN-3A
			M8		AHS/AP-3F	AHS/AN-3F	AHS/CP-3F	AHS/CN-3F



Ø 6.5 mm cylindrical
miniaturized

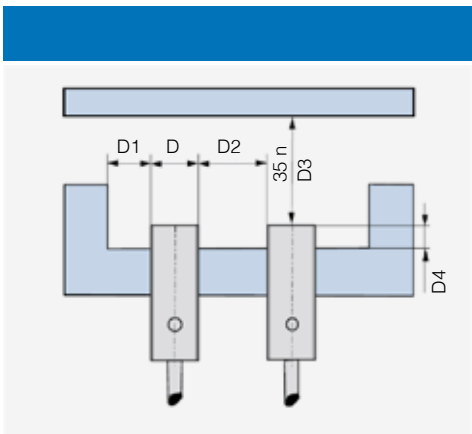
technical specification

	AHS/**-1*	AHS/**-3*
		
nominal sensing distance	1,5 mm	2,0 mm
working distance	0...1.21 mm	0...1.62 mm
hysteresis	1...20%	
standard target	6.5 x 6.5 mm	
repeatability	5% @UB=20...30 V; Ta = 23°C ±5°C	
operating voltage	10...30 Vcc	
output type	NPN or PNP - NO or NC	
ripple	≤ 10%	
output current	≤ 100 mA	
output voltage drop	≤ 1.5 V @ 100mA	
no-load supply current	≤ 10 mA	
leakage current	≤ 10 µA	
switching frequency	7 kHz	
power on delay	≤ 50 ms	
temperature range	-25°C...+70°C	
temperature drift	≤ 10%	
power supply protections	polarity reversal	
output protection	short circuit (auto reset), overvoltage pulses	
EMC	in conformity with the EMC Directive according to IEC 60947-5-2	
shock and vibration	IEC 60947-5-2	
protection degree	IP67	
housing material	stainless steel AISI 303	
active head material	PBT	
reduction factor	see table	
LEDs	on (yellow LED)	
weight	30 g cable / 4g M8 connector	

correction factors

model	FE 360	copper	aluminium	brass	stainless steel
AHS/**-1*	1	0.10 ± 10%	0.05 ± 10%	0.13 ± 10%	0.54 ± 10%
AHS/**-3*		0.05 ± 10%		0.10 ± 10%	0.50 ± 10%

installation

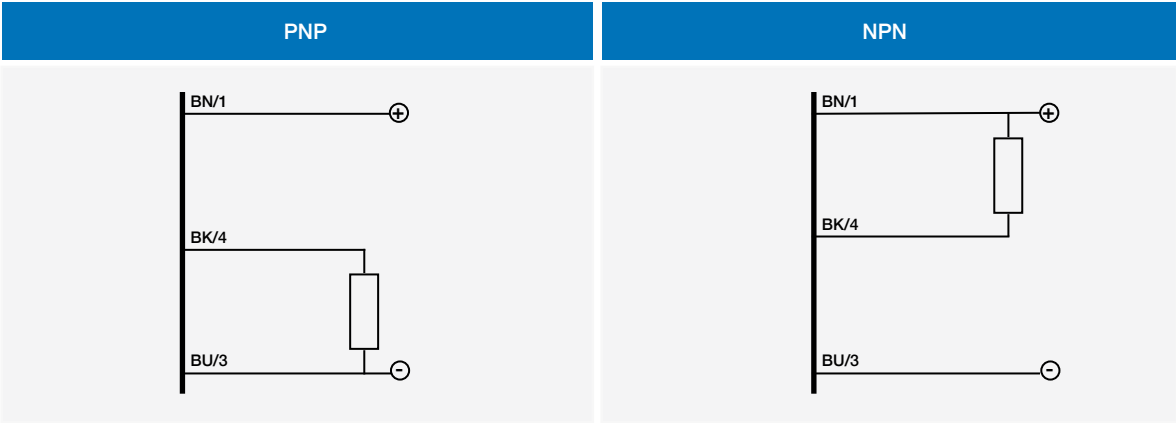


model	D4	D1	D2	D3
AHS/**-1*	≥ 3.9 mm ⁽¹⁾	≥ 6.5 mm	≥ 13 mm	≥ 4.5 mm
AHS/**-3*				≥ 6 mm

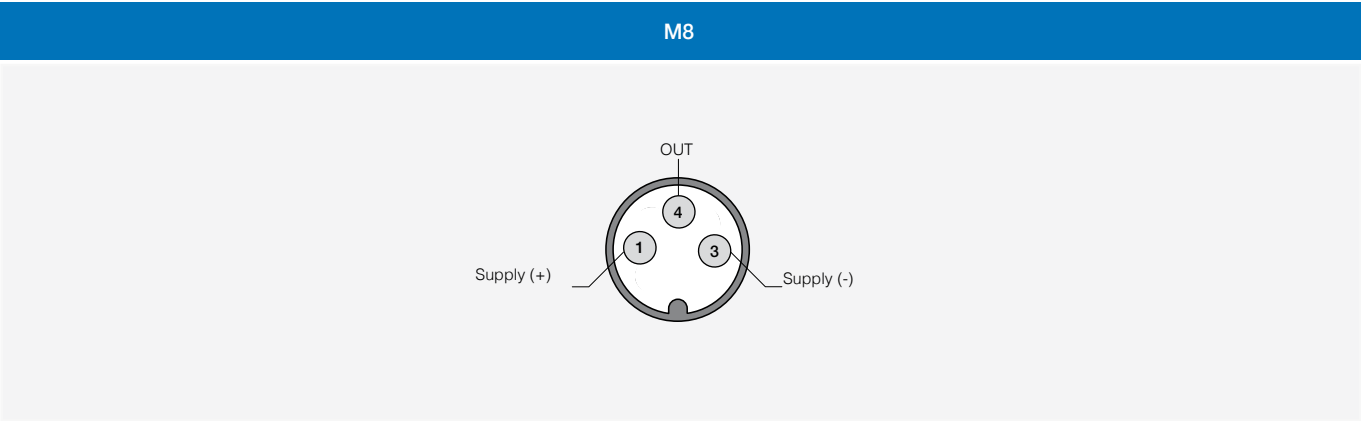
⁽¹⁾ ≥ 3 mm without ferro-magnetic material

⁽²⁾ ≥ 4 mm without ferro-magnetic material

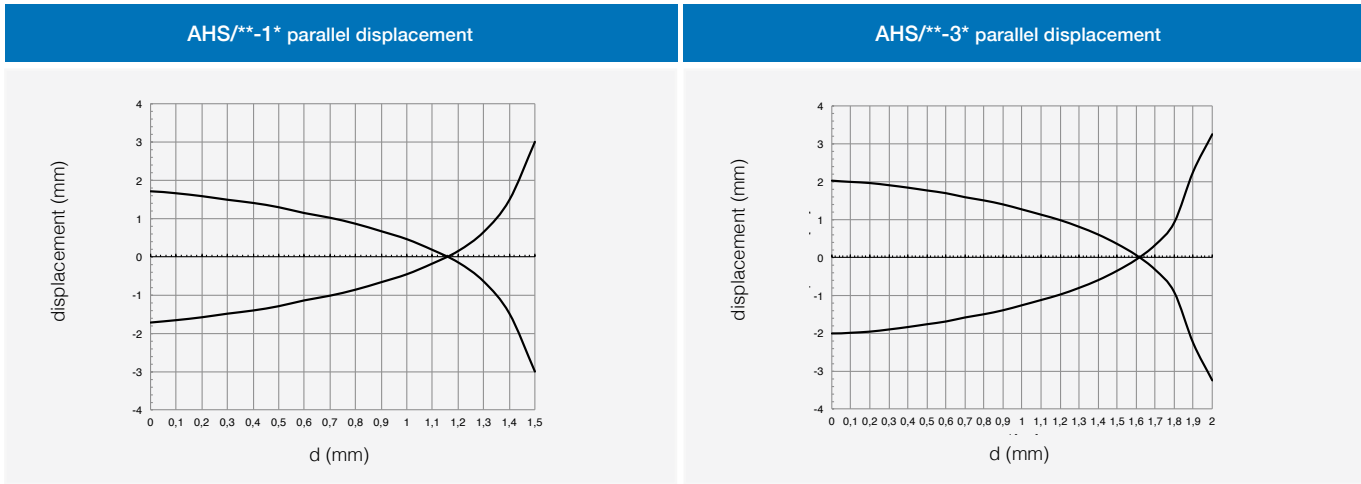
AHS



plug



response diagram





dimensions (mm)

Ø 6.5 mm cylindrical
miniaturized

AHS/**-A	AHS/**-F

1 LED



PH6 series

Ø 6.5 mm cylindrical
miniaturized inductive sensors



Ø 6.5 mm cylindrical
miniaturized



features

- Cable and M8 plug versions
- Reduced dimensions: Ø 6.5 mm x 16 mm (cable) / 29 mm (plug) length
- Supply voltage 10...30 Vdc, output current 200 mA
- Led status indicator
- IP 67 housing protection
- Complete protection against electrical damages

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code description (*)

	PH6	/	A	P	-	1	A
series	PH6	Ø 6.5 mm inductive proximity switch					
output state	A	NO output state					
	C	NC output state					
output logic	N	NPN logic output					
	P	PNP logic output					
distance	1	Long distance shielded 1.5 mm					
connect.	A	Cable exit output					
	F	M8 plug cable exit					

(*) ATEX models available, contact our Sales Dept. for further information.

available models

diameter	installation	distance	plug	distance (mm)	NPN/NO	NPN/NC	PNP/NO	PNP/NC
Ø 6.5 mm	shielded	standard	cable	1.5	PH6/AN-1A	PH6/CN-1A	PH6/AP-1A	PH6/CP-1A
			M8		PH6/AN-1A	PH6/CN-1F	PH6/AP-1F	PH6/CP-1F



Ø 6.5 mm cylindrical
miniaturized

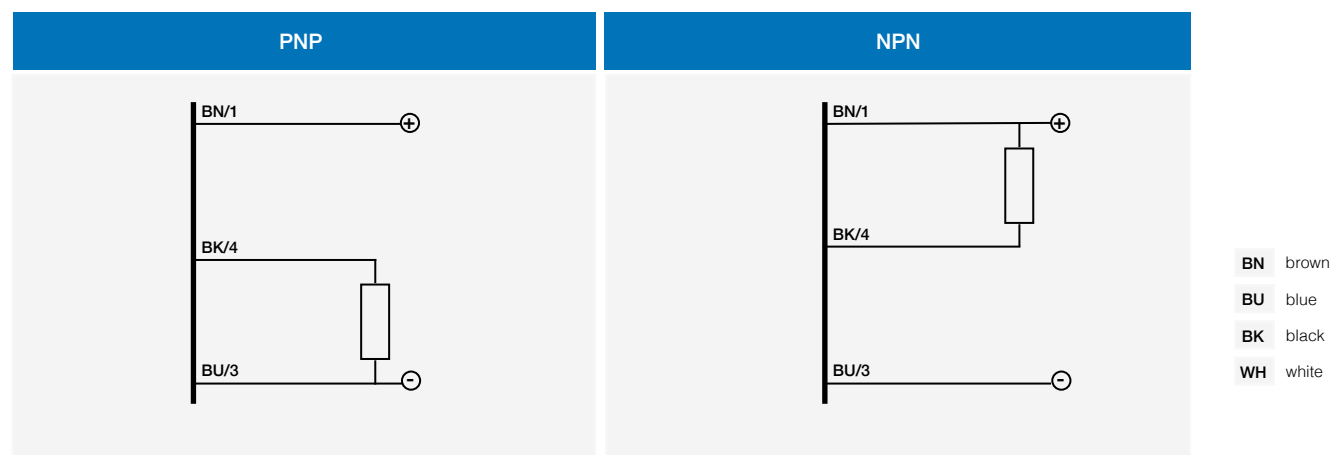
technical specification

	PH6/**-1*
nominal sensing distance	1.5 mm
hysteresis	≤ 10 % Sr
standard target	6.5 x 6.5 x 1 mm
repeatability	2%
operating voltage	10...30 Vdc
max ripple content	≤ 20%
output type	NPN or PNP - NO or NC
output current	≤ 200 mA
output voltage drop	≤ 2.0 V @ 100 mA
no-load supply current	≤ 10 mA
leakage current	≤ 0,1 mA
switching frequency	≤ 5000 Hz
power on delay	10 ms
ambient temperature range	-25...+70 °C
temperature drift of Sr	≤ 10%
short-circuit protection	•
voltage reversal protection	•
induction protection	•
shocks and vibrations	IEC 60947-5-2 / 7.4
weight	3 g connector M8 32 g cable
protection degree	IP 67
EMC:	
IEC 60255-5	1 kV
IEC 61000-4-2	level 2
IEC 61000-4-3	level 3
IEC 61000-4-4	level 2
housing material	stainless steel V2A
active head material	polyester
connection	2 m PVC cable 3 x 0.14 mm²

correction factors

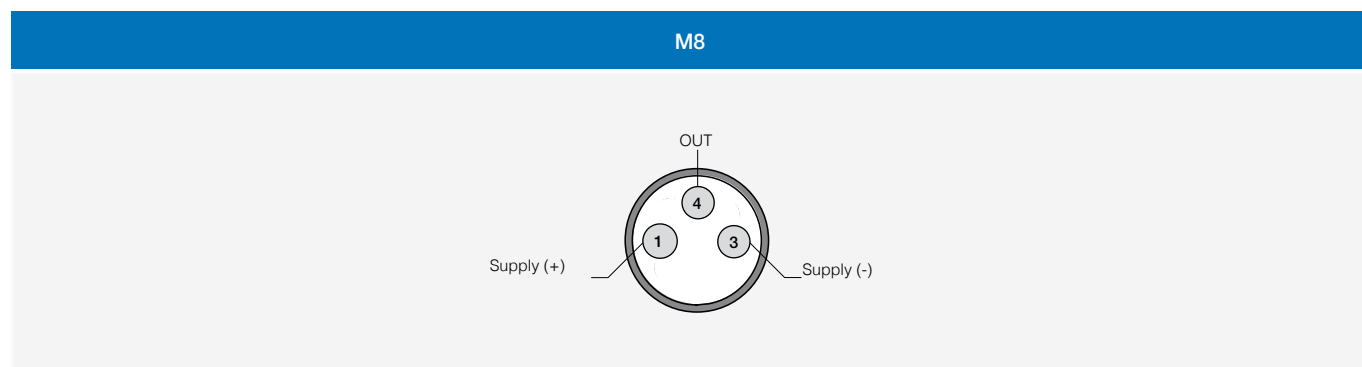
model	steel FE 360	copper	alluminium	brass	stainless steel
CPH6/**-**	1.0	0.40	0.45	0.50	0.80

electrical diagrams of connections

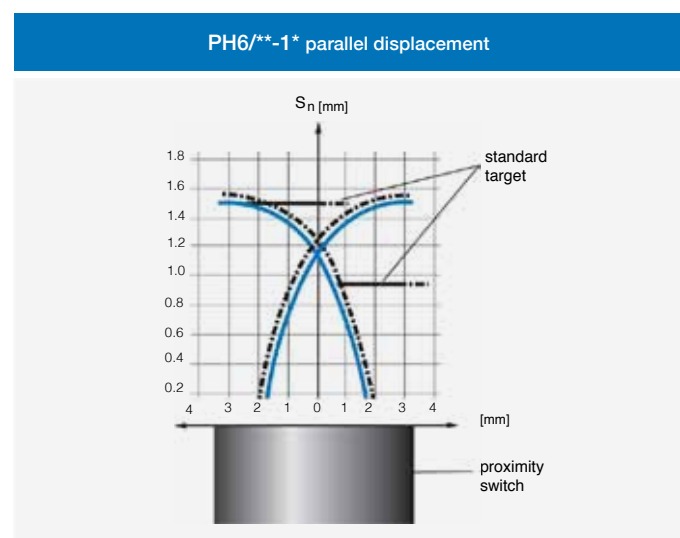


Ø 6.5 mm cylindrical
 miniaturized

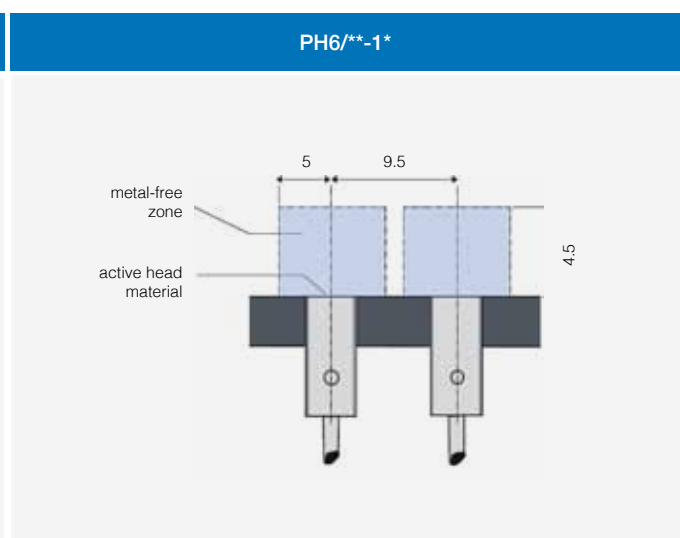
plug



response diagram



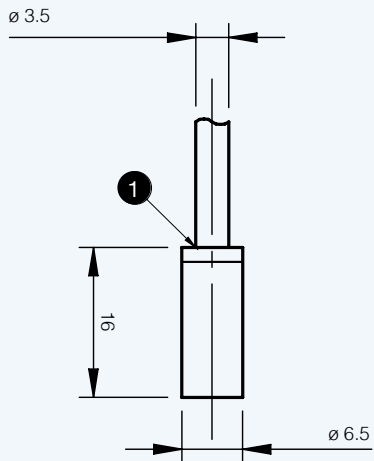
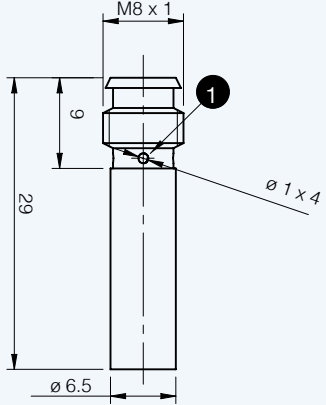
installation





Ø 6.5 mm cylindrical
miniaturized

dimensions (mm)

PH6/**-1A	PH6/**-1F
	

1 LED



AES series

M8 cylindrical
miniaturized inductive sensors



M8 cylindrical
miniaturized

features

- Miniaturized dimensions: M8 x 20 mm (cable) / 30 mm (plug) lenght
- Operating voltage: 10...30 Vcc
- Output current: 100 mA
- LED output indicator
- Totally protected against electrical damages
- Cable and plug M8 output
- Stainless steel housing



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code description (*)

AE S / A P - 1 F 8F

series	AE	Inductive sensor M8
housing	S	Miniaturized housing
output state	A	NO output
	C	NC output
output logic	N	NPN output
	P	PNP output
distance	1	Standard distance shielded 1.5 mm
	3	Long distance shielded 2 mm
connect.	A	Cable exit
	F	M8 connector exit
special models	8F	Models with cable in PUR

Models with plug or cable exit in PUR → certification

Models with cable exit in PVC → certification or

(*) ATEX models available, contact our Sales Dept. for further information.

available models

diameter	installation	distance	plug	distance	PNP/NO	NPN/NO	PNP/NC	NPN/NC
M8	shielded	standard	cable	1.5 mm	AES/AP-1A	AES/AN-1A	AES/CP-1A	AES/CN-1A
			M8		AES/AP-1F	AES/AN-1F	AES/CP-1F	AES/CN-1F
		long distance	cable	2 mm	AES/AP-3A	AES/AN-3A	AES/CP-3A	AES/CN-3A
			M8		AES/AP-3F	AES/AN-3F	AES/CP-3F	AES/CN-3F



technical specification

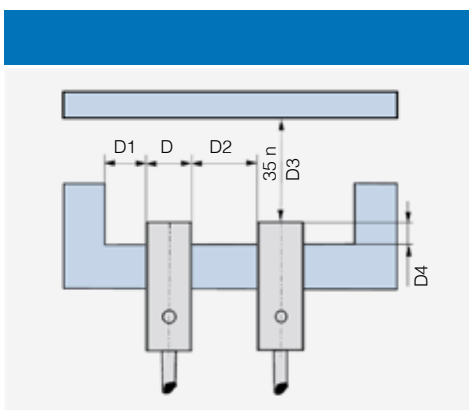
according to IEC EN 60947-5-2 / DIN 44030

	AES/**-1*	AES/**-3*
		
nominal sensing distance S_n	1,5 mm	2,0 mm
working distance	0...1.21 mm	0...1.62 mm
hysteresis	1...20%	
standard target	8 x 8 mm	
repeatability	5% @UB=20...30 V; Ta = 23°C ±5°C	
operating voltage	10...30 Vcc	
output type	NPN or PNP - NO or NC	
ripple	≤ 10%	
output current	≤ 100 mA	
output voltage drop	≤ 1.5 V @ 100mA	
no-load supply current	≤ 10 mA	
leakage current	≤ 10 µA	
switching frequency	7 kHz	
power on delay	≤ 50 ms	
temperature range	-25°C...+70°C	
temperature drift	≤ 10%	
power supply protections	polarity reversal	
output protection	short circuit (auto reset), overvoltage pulses	
EMC	in conformity with the EMC Directive according to IEC 60947-5-2	
shock and vibration	IEC 60947-5-2	
protection degree	IP67	
housing material	stainless steel AISI 303	
active head material	PBT	
reduction factor	see table	
LEDs	on (yellow LED)	
weight	30 g cable / 4g M8 connector	

correction factors

model	FE 360	copper	aluminium	brass	stainless steel
AES/**1*	1	0.15 ± 10%	0.10 ± 10%	0.15 ± 10%	0.55 ± 10%
AES/**3*			0.15 ± 10%	0.21 ± 10%	0.56 ± 10%

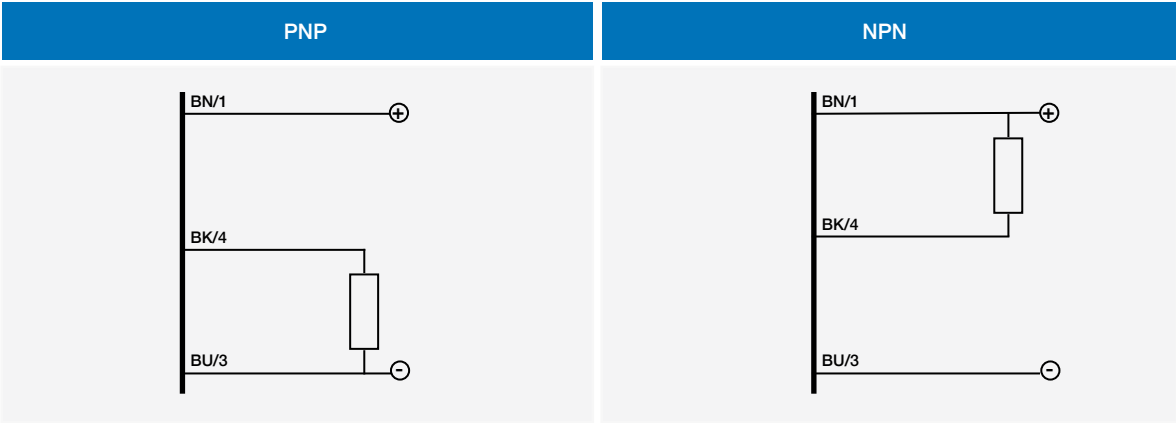
installation



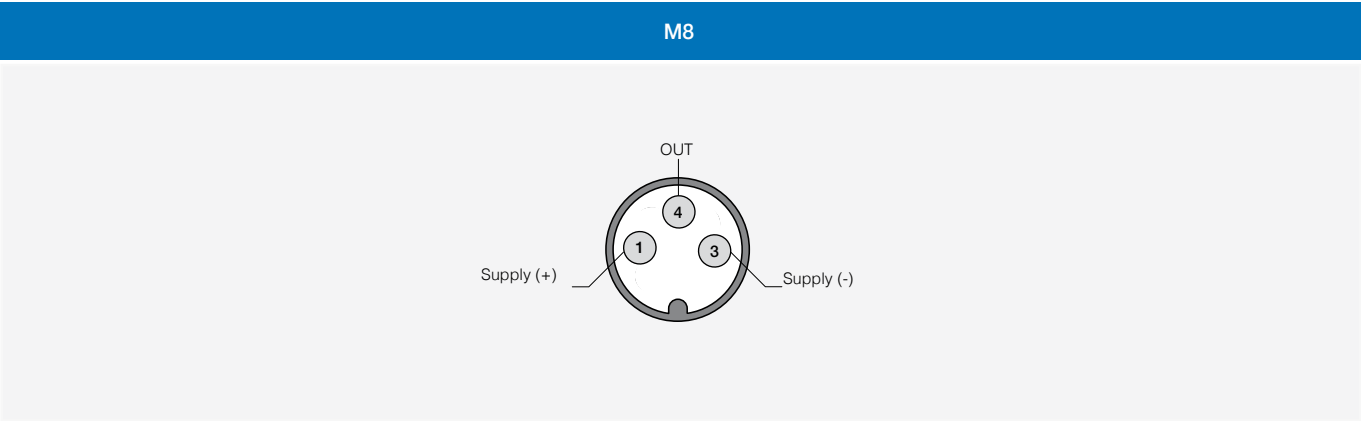
model	D4	D1	D2	D3
AES/**-1*	≥ 3 mm ⁽¹⁾	≥ 8 mm	≥ 8 mm	≥ 4.5 mm
AES/**-3*	≥ 3.5 mm ⁽²⁾	≥ 8 mm	≥ 8 mm	≥ 6 mm

⁽¹⁾ ≥ 3 mm without ferro-magnetic material

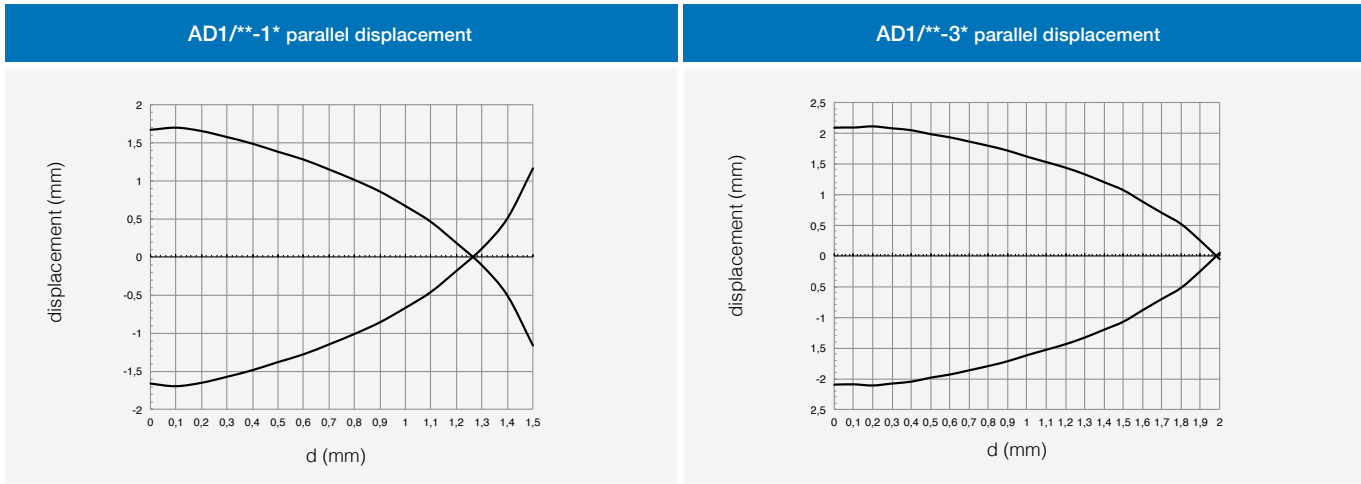
⁽²⁾ ≥ 4 mm without ferro-magnetic material



plug



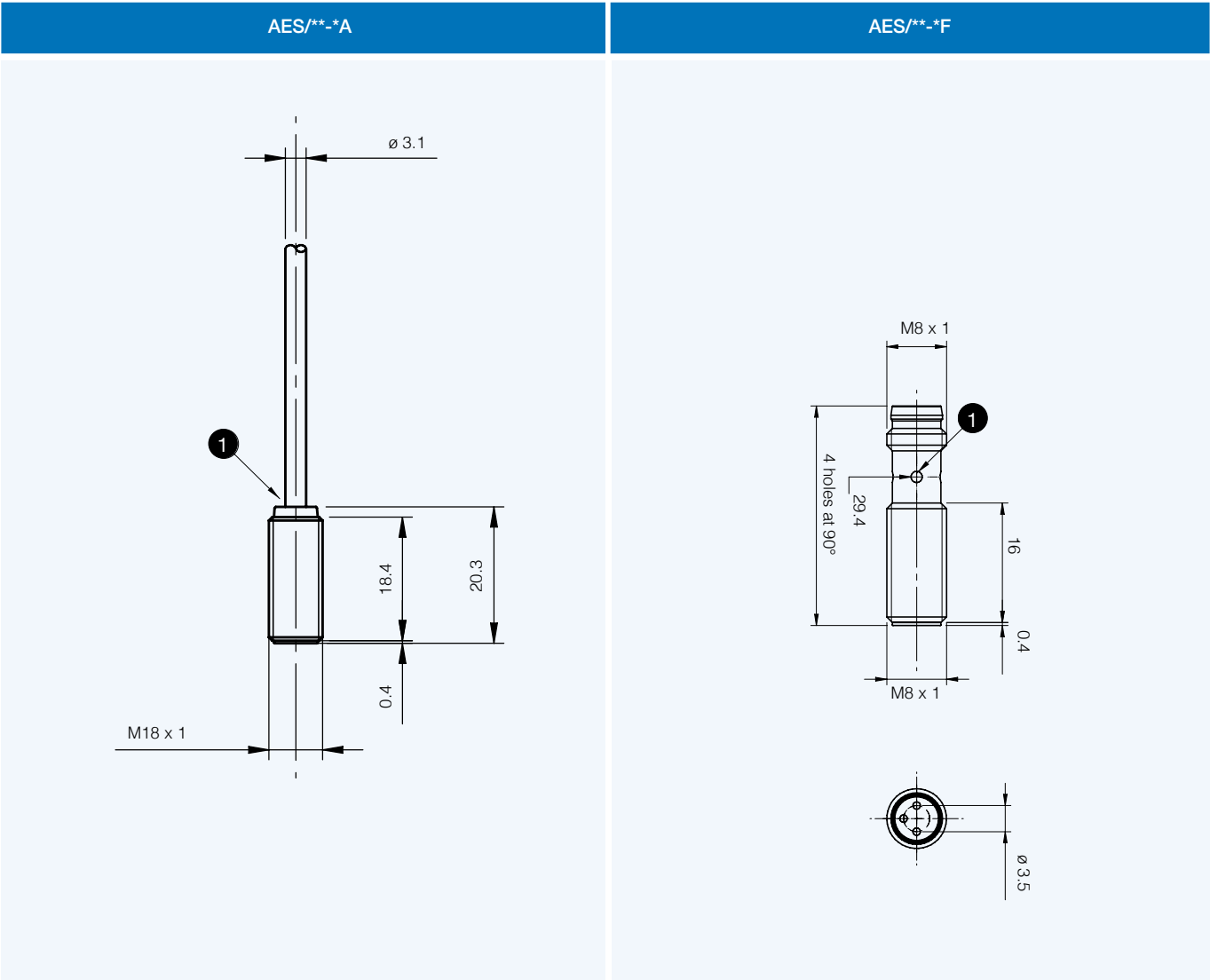
response diagram





M8 cylindrical
miniaturized

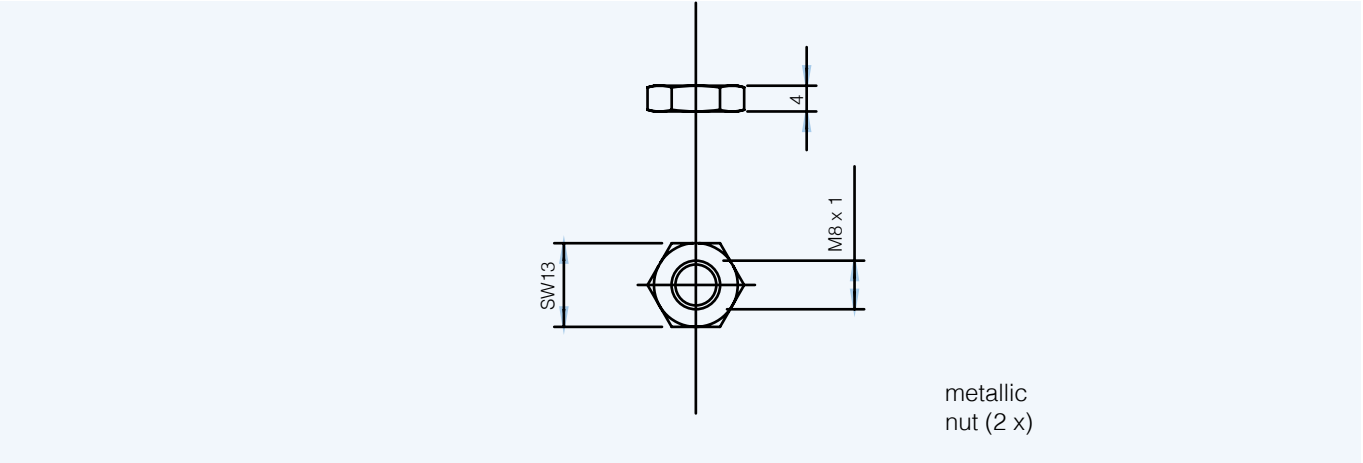
dimensions (mm)



1 LED

dimensions (mm)

accessories included models



AES



PE6 series

M8 cylindrical
miniaturized inductive sensors



M8 cylindrical
miniaturized

features

- Cable and M8 plug versions
- Extremely reduced dimensions: M8 x 16 mm (cable) /29 mm (plug) length
- Supply voltage 10...30 Vdc, output current 200 mA
- Led status indicator
- P 67 housing protection
- Complete protection against electrical damages



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code description

	PE6	/	A	P	-	1	A
series	PE6	M8 inductive proximity switch					
output state	A	NO output state					
	C	NC output state					
output logic	N	NPN logic output					
	P	PNP logic output					
distance	1	Long distance shielded 1.5 mm					
connect.	A	Cable exit output					
	F	M8 plug cable exit					

available models

model	installation	sensing	plug	distance (mm)	NPN/NO	NPN/NC	PNP/NO	PNP/NC
M8	shielded	standard	cable	1.5	PE6/AN-1A	PE6/CN-1A	PE6/AP-1A	PE6/CP-1A
			M8		PE6/AN-1F	PE6/CN-1F	PE6/AP-1F	PE6/CP-1F



M8 cylindrical
miniaturized

technical specification

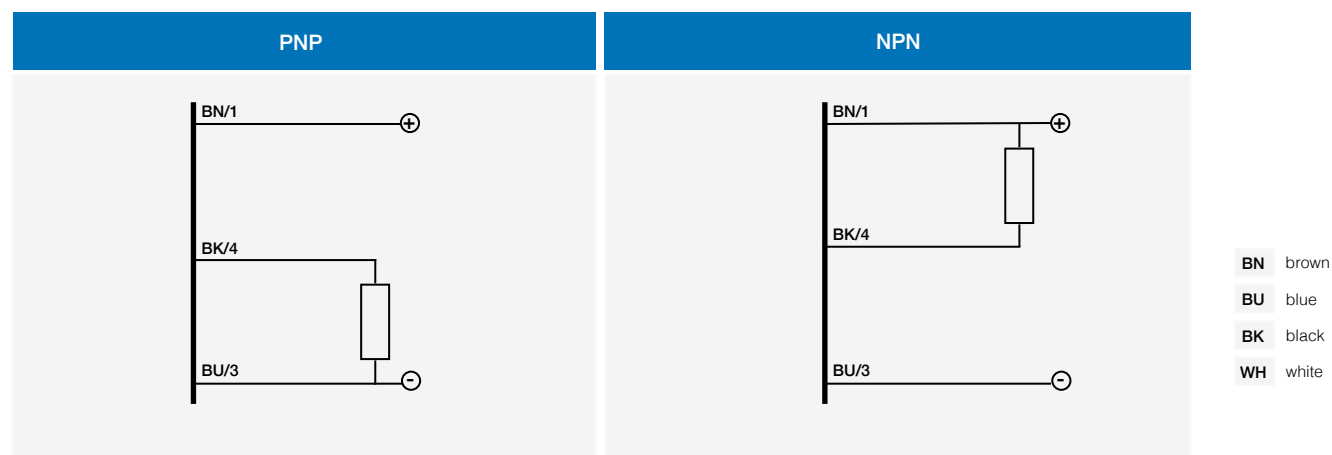
	PE6/**-1*
nominal sensing distance	≤ 1.5 mm
hysteresis	≤ 10% Sr
standard target	8 x 8 x 1 mm
repeatability	2%
operating voltage	10...30 Vdc
max ripple content	≤ 20%
output type	NPN or PNP - NO or NC
output current	≤ 200 mA
output voltage drop	≤ 2.0 V @ 100 mA
no-load supply current	≤ 10 mA
leakage current	≤ 0.1 mA
switching frequency	≤ 5,000 Hz
power on delay	10 ms
ambient temperature range	-25...+70 °C
temperature drift of Sr	≤ 10%
short-circuit protection	•
voltage reversal protection	•
induction protection	•
shocks and vibration	IEC 60947-5-2 / 7.4
weight	10 g connector M8 40 g cable
protection degree	IP 67
EMC:	
IEC 60255-5	1 kV
IEC 61000-4-2	level 2
IEC 61000-4-3	level 3
IEC 61000-4-4	level 2
housing material	stainless steel V2A
active head material	polyester
connection	2 m PVC cable 3 x 0.14 mm ²

correction factors

model	steel FE 360	copper	alluminium	brass	stainless steel
PE6/**-1*	1.0	0.40	0.45	0.50	0.80

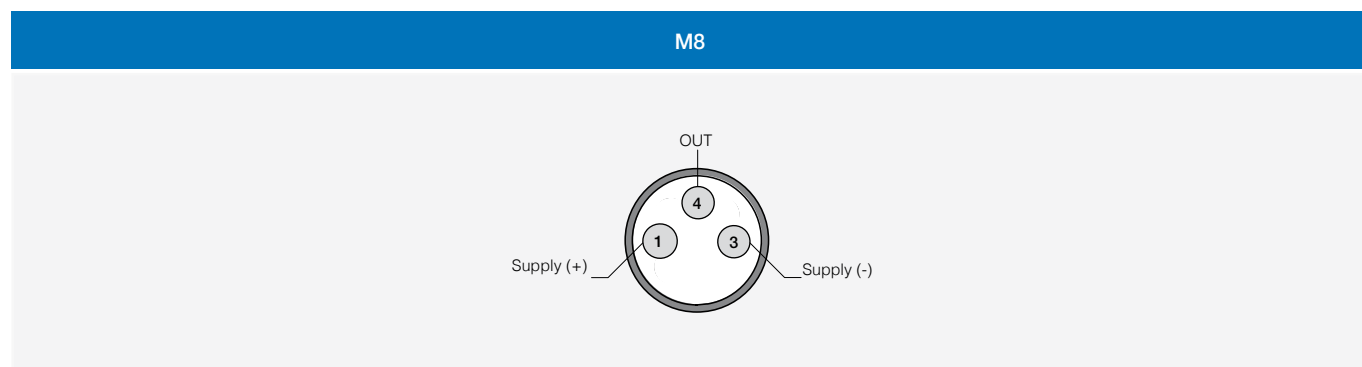
PE6

electrical diagrams of connections

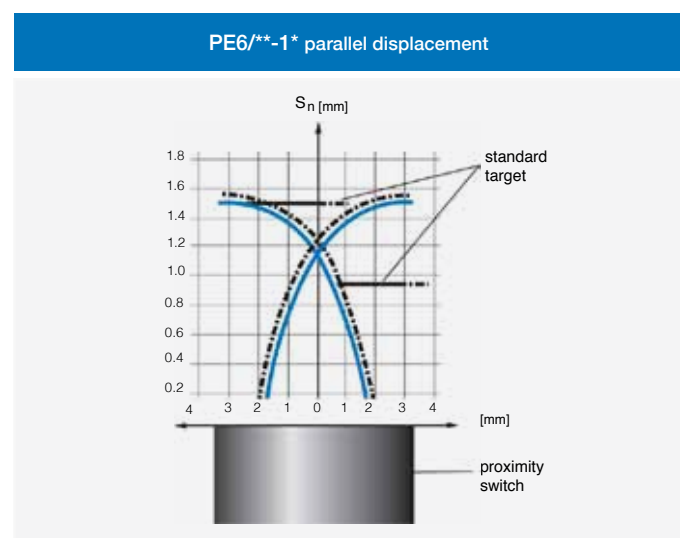


M8 cylindrical
miniaturized

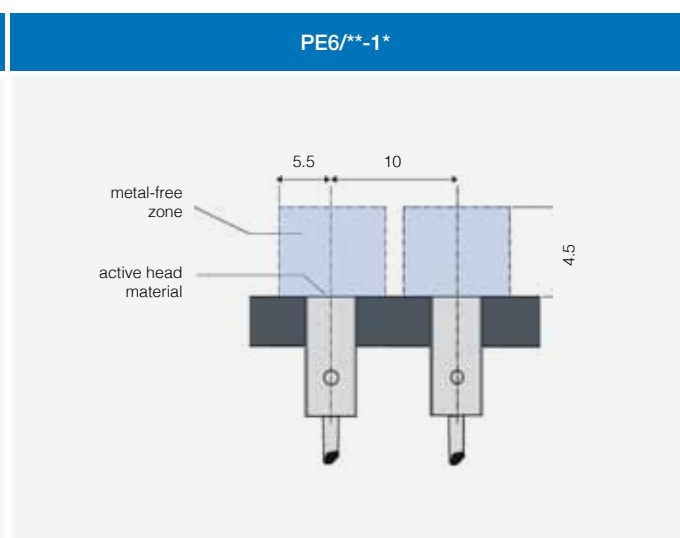
plug



response diagram



installation





M8 cylindrical
miniaturized

dimensions (mm)

PE6/**-1A	PE6/**-1F

1 LED

dimensions (mm)

accessories included models

	metallic nut (2 x)
--	-----------------------

PE6



IL5 series

5 x 5 mm cubic
miniaturized inductive sensors



5 x 5 mm cubic
miniaturized

features

- Complete range of cubic inductive sensors IL8 series: 5x5x25 mm
- IP67 protection degree



web contents

- Application notes
- Photos
- Catalogue / Manuals



code description (*)

	IL	5	/	A	P	-	3	A
series	IL	Cubic inductive sensor						
housing	5	5 x 5 x 25 mm						
output state	A	NO output state						
	C	NC output state						
output logic	N	NPN logic output						
	P	PNP logic output						
distance	1	Standard shielded model 0.8 mm						
	3	Long distance shielded model 1.5 mm						
connect.	A	2 m cable exit in PUR						
	VF80	Free connector M8 + cable 200 mm PUR (**)						

(*) ATEX models available, contact our Sales Dept. for further information.

(**) Models without UL certification.

available model

diameter (mm)	installation	distance	plug	distance (mm)	NPN/NO	NPN/NC	PNP/NO	PNP/NC
5 x 5	shielded	standard	cable	0.8	IL5/AN-1A	IL5/CN-1A	IL5/AP-1A	IL5/CP-1A
			pigtail M8		IL5/AN-1AVF80	IL5/CN-1AVF80	IL5/AP-1AVF80	IL5/CP-1AVF80
		long distance	cable	1.5	IL5/AN-3A	IL5/CN-3A	IL5/AP-3A	IL5/CP-3A
			pigtail M8		IL5/AN-3AVF80	IL5/CN-1AVF80	IL5/AP-3AVF80	IL5/CP-3AVF80

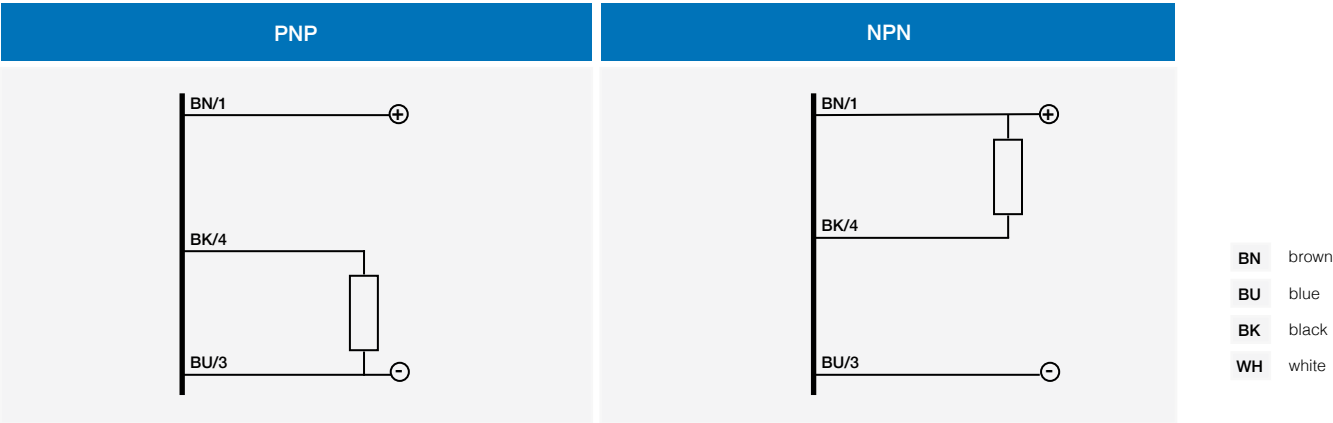


5 x 5 mm cubic
miniaturized

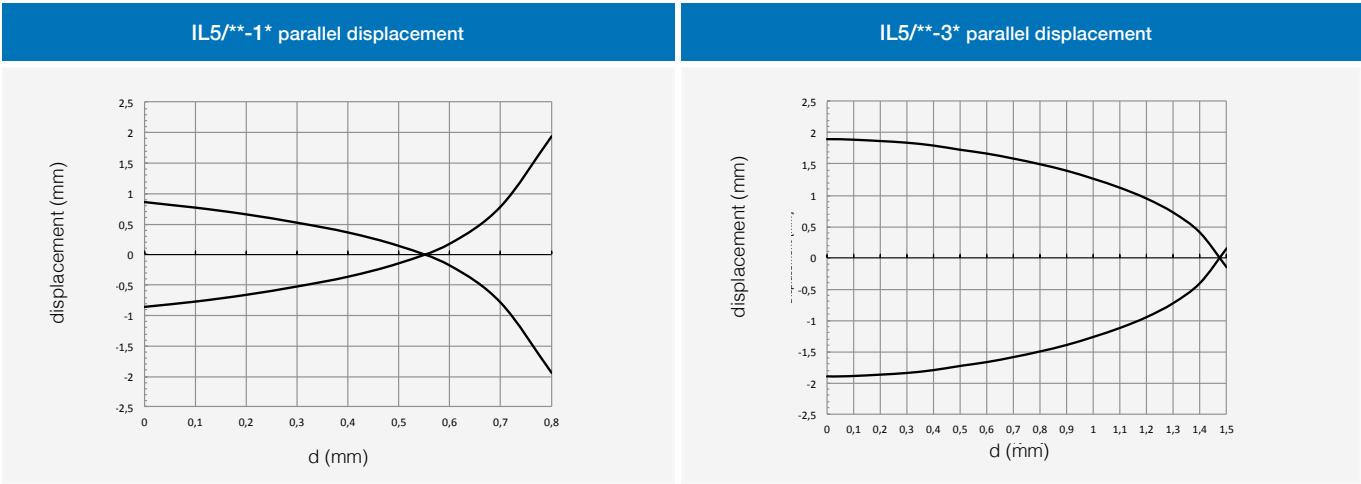
technical specifications

	IL5/**-1*	IL5/**-3*
		
nominal sensing distance	0.8 mm	1.5 mm
operating distance	0...0.65 mm	0...1.21 mm
hysteresis	1...20%	
standard target	5x5 mm FE360	
repeatability	5% @UB=20...30 V; Ta = 23°C ±5°C	
operating voltage	10...30 Vcc	
max. ripple content	≤ 10%	
output current	≤ 100 mA	
output voltage drop	≤ 1.5 V @ 100 mA	
no-load supply current	≤ 10 mA	
logic output	PNP or NPN	
output state	NO or NC	
leakage current	≤ 10 µA	
switching frequency	≤ 7kHz	
power on delay	≤ 50 ms	
ambient temperature range	-25°C...+70°C	
temperature drift of Sr	≤ 10%	
short circuit protection	●	
induction protection	●	
voltage reversal protection	●	
shocks and vibrations	IEC 60947-5-2	
LEDs	yellow (output state)	
protection degree	IP67	
EMC	in conformity with the EMC Directive according to IEC 60947-5-2	
housing material	AISI303 stainless steel housing	
active head material	PBT	
connection	2m PUR cable exit	

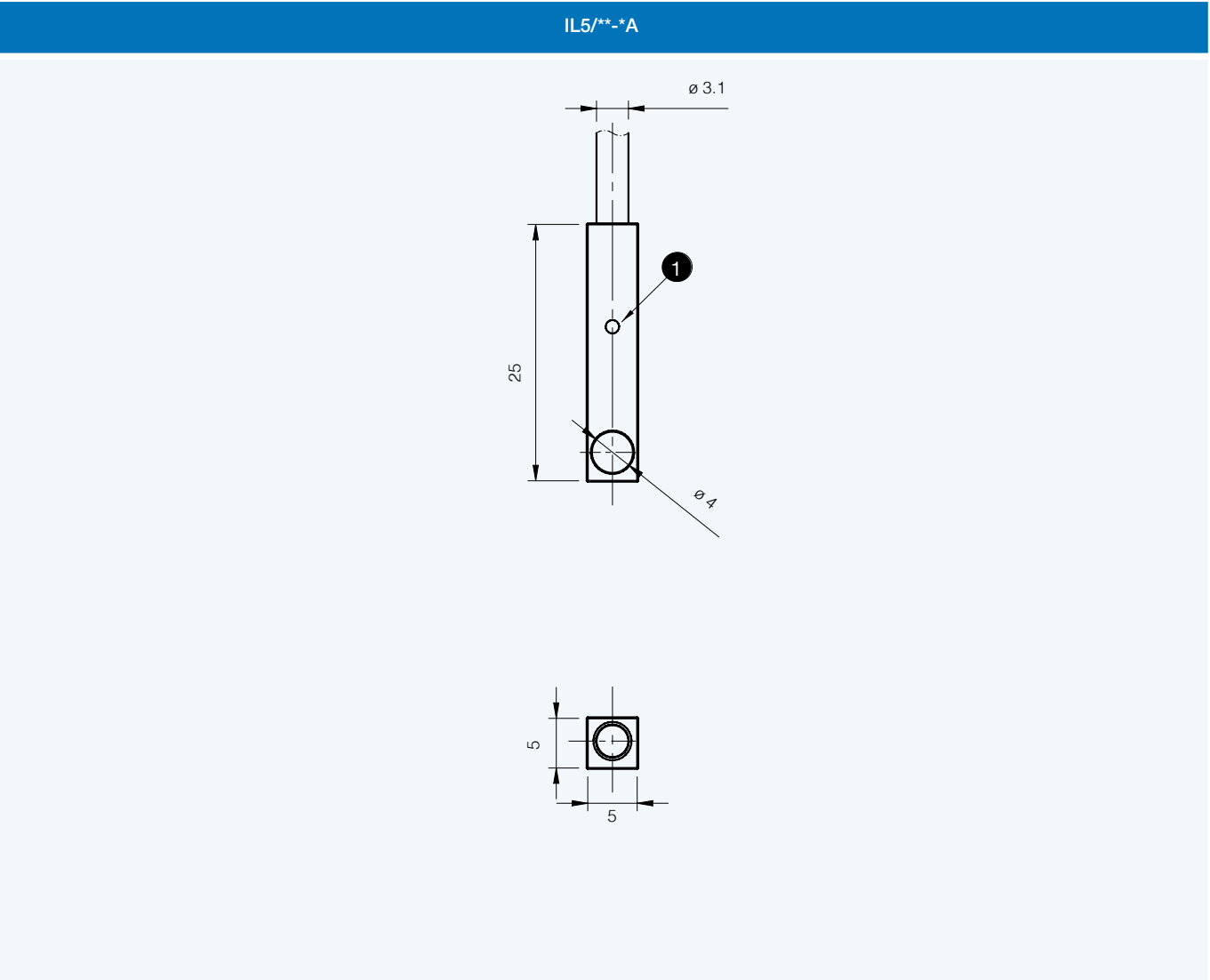
electrical diagrams of the connections



response diagram



dimensions (mm)



1 LED

5 x 5 mm cubic
miniaturized





PP1 series

5 x 5 mm cubic
miniaturized inductive sensors



5 x 5 mm cubic
miniaturized

features

- Extremely reduced dimensions: 5 x 5 x 25 mm length
- Supply voltage 10...30 Vdc, output current 200 mA
- Led status indicator
- IP 67 housing protection
- Complete protection against electrical damages



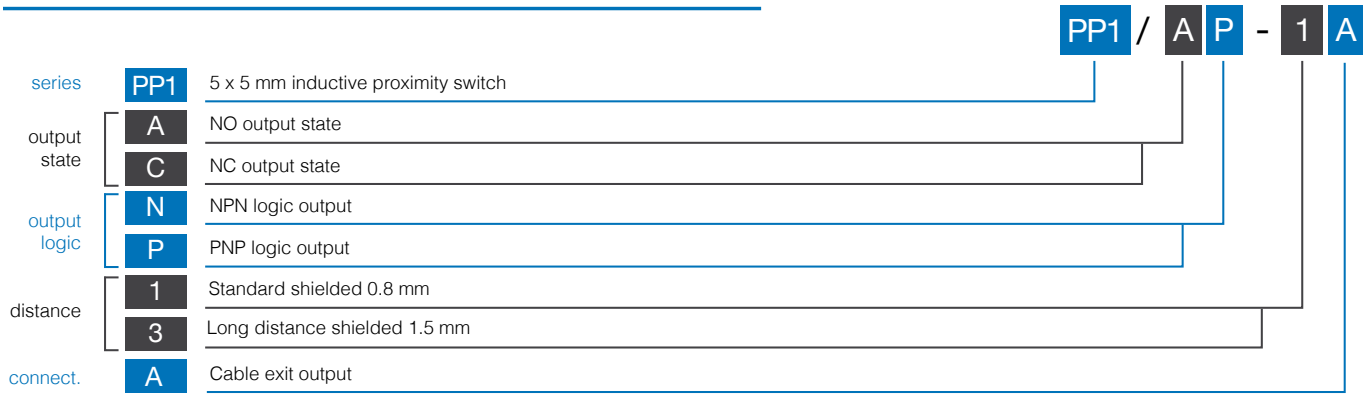
web contents



- Application notes
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code description



available models

dimensioni (mm)	installation	distance	plug	distance (mm)	NPN/NO	NPN/NC	PNP/NO	PNP/NC
5 X 5 X 25	shielded	standard	cable	0.8 mm	PP1/AN-1A	PP1/CN-1A	PP1/AP-1A	PP1/CP-1A
		long distance		1.5 mm	PP1/AN-3A	-	PP1/AP-3A	-



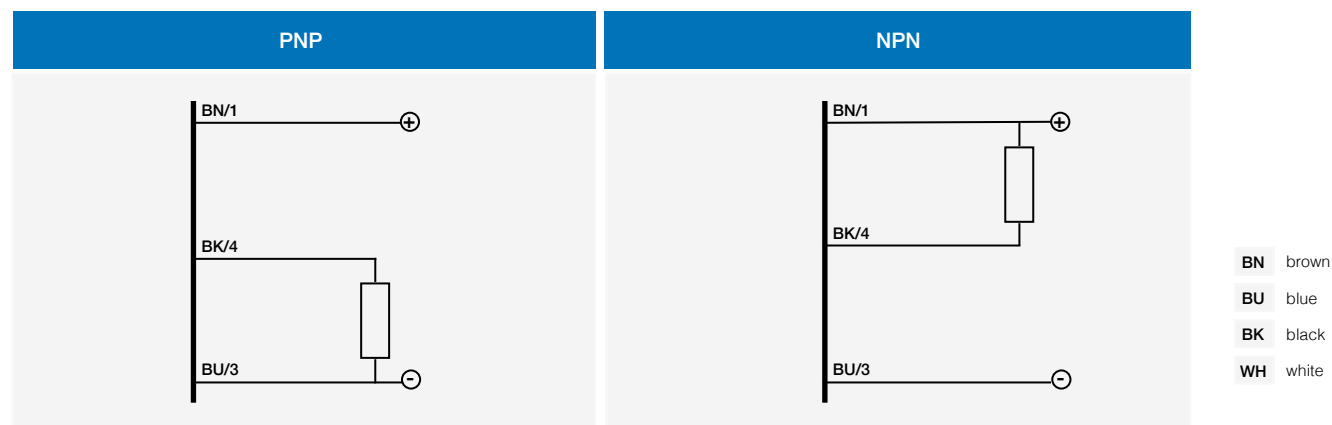
5 x 5 mm cubic
miniaturized

technical specification

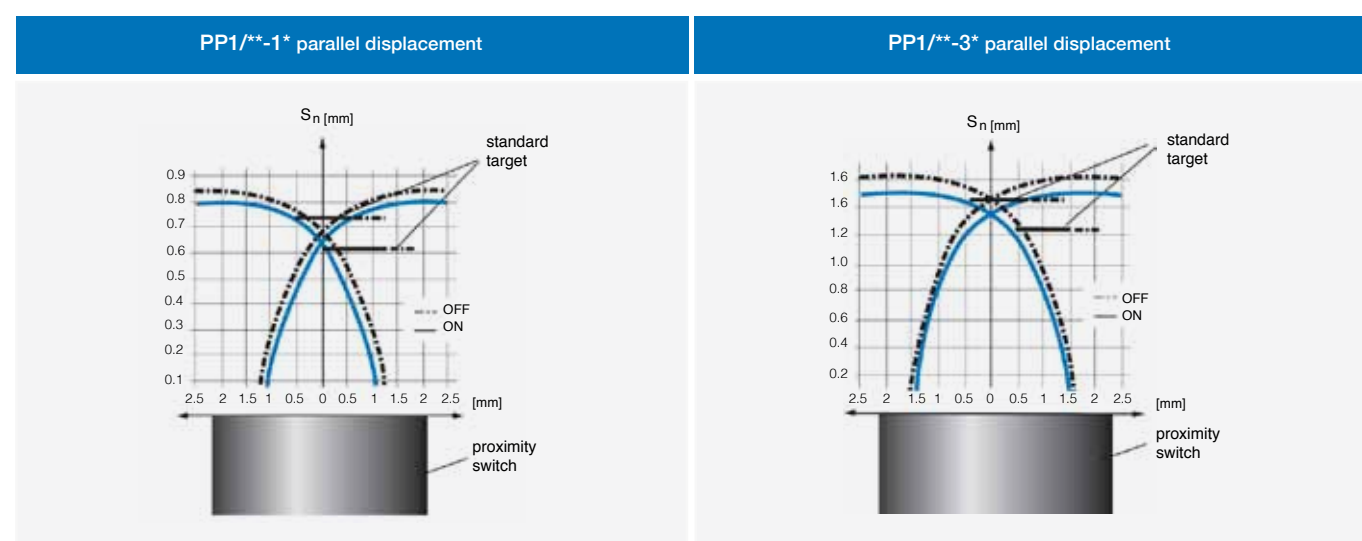
	PP1/**-1*	PP1/**-3*
nominal sensing distance	0.8 mm	1.5 mm
hysteresis	≤ 10% Sr	
standard target	5 x 5 x 1 mm	
repeatability	2%	
operating voltage	10...30 Vdc	
output type	NPN or PNP - NO or NC	
max ripple content	≤ 20%	
output current	≤ 200 mA	
output voltage drop	≤ 2.0 V @ 100 mA	
no-load supply current	≤ 10 mA	
leakage current	≤ 0.1 mA	
switching frequency	≤ 5,000 Hz	≤ 3,000 Hz
power on delay	10 ms	
ambient temperature range	-25...+70 °C	
temperature drift of Sr	≤ 10%	
short-circuit protection	●	
voltage reversal protection	●	
induction protection	●	
shocks and vibrations	IEC 60947-5-2 / 7.4	
weight	23 g	
protection degree	IP 67	
protezione EMC: IEC 60255-5	1 kV	
IEC 61000-4-2	level 2	level 3
IEC 61000-4-3	level 3	
IEC 61000-4-4	level 2	level 3
housing material	stainless steel V2A	
active head material	polyester	
connection	2 m PUR cable	

correction factors

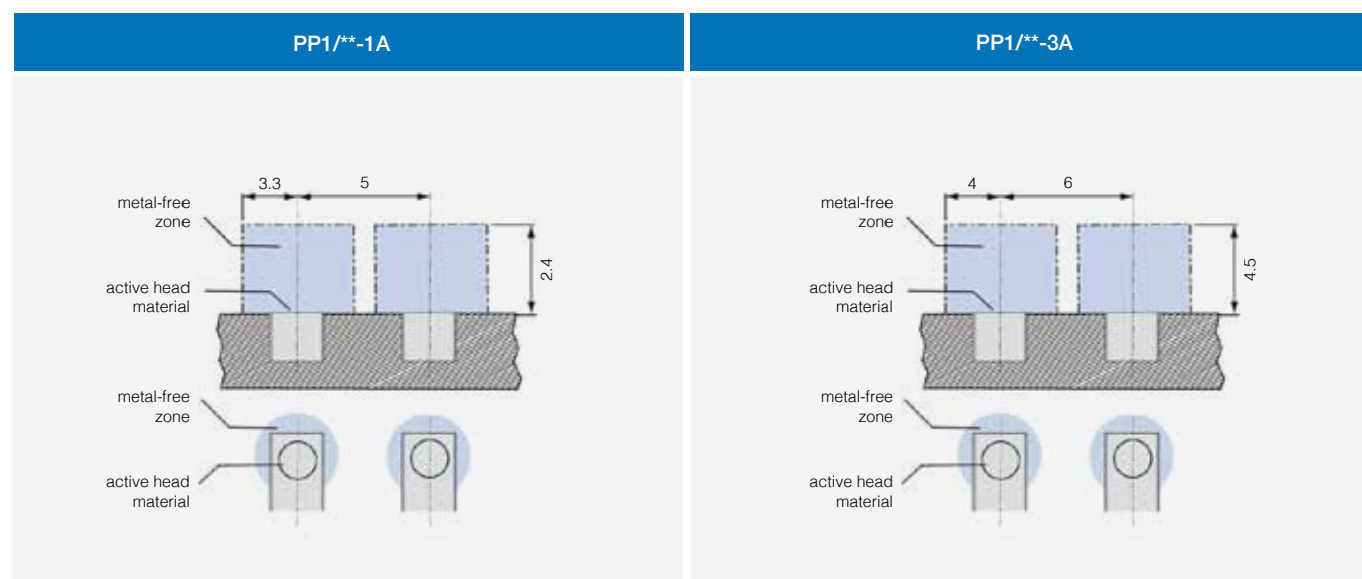
steel FE 360		copper		alluminium		brass		stainless steel	
PP1/**-1A	PP1/**-3A	PP1/**-1A	PP1/**-3A	PP1/**-1A	PP1/**-3A	PP1/**-1A	PP1/**-3A	PP1/**-1A	PP1/**-3A
1.0	1.0	0.60	0.60	0.60	0.60	0.70	0.70	0.85	0.85

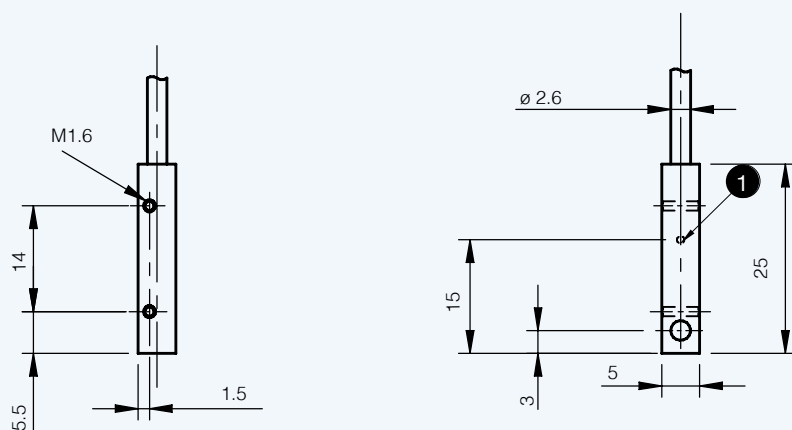


response diagram



installation



5 x 5 mm cubic
miniaturized

1 LED



IL8 / IL9 series

8 x 8 mm cubic
miniaturized inductive sensors



8 x 8 mm cubic
miniaturized

features

- Complete range of cubic inductive sensors:
 - IL8 series: 8x8 mm with sensing head at the top
 - IL9 series: 8x8 mm with sensing head at the centre
- IP67 protection degree



web contents



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- Photos
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code description (*)

	IL	8	/	A	P	-	3	A
series	IL	Cubic inductive sensor						
housing	8	8 x 8 mm, sensing head at the top						
	9	8 x 8 mm, sensing head at the centre						
output state	A	NO output state						
	C	NC output state						
output logic	N	NPN logic output						
	P	PNP logic output						
distance	1	Standard shielded model 1.5 mm						
	3	Long distance shielded model 2 mm						
	5	Extended distance shielded model 2.5 mm						
connect.	A	2 m cable exit in PUR						
	F	M8 plug cable exit						
	VF80	Free connector M8 + cable 200 mm PUR (**)						

(*) ATEX models available, contact our Sales Dept. for further information.

(**) Models without UL certification.

IL8 available model

diameter	installation	distance	plug	distance	NPN/NO	NPN/NC	PNP/NO	PNP/NC
8 x 8 detection top	shielded	standard	cable	1.5 mm	IL8/AN-1A	IL8/CN-1A	IL8/AP-1A	IL8/CP-1A
			M8		IL8/AN-1F	IL8/CN-1F	IL8/AP-1F	IL8/CP-1F
			pigtail M8		IL8/AN-1AVF80	IL8/CN-1AVF80	IL8/AP-1AVF80	IL8/CP-1AVF80
		long distance	cable	2 mm	IL8/AN-3A	IL8/CN-3A	IL8/AP-3A	IL8/AN-3A
			M8		IL8/AN-3F	IL8/CN-3F	IL8/AP-3F	IL8/CP-3F
			pigtail M8		IL8/AN-3AVF80	IL8/CN-3AVF80	IL8/AP-3AVF80	IL8/CP-3AVF80
		expanse extended	cable	2.5 mm	IL8/AN-5A	IL8/CN-5A	IL8/AP-5A	IL8/CP-5A
			M8		IL8/AN-5F	IL8/CN-5F	IL8/AP-5F	IL8/CP-5F
			pigtail M8		IL8/AN-5AVF80	IL8/CN-5AVF80	IL8/AP-5AVF80	IL8/CP-5AVF80

IL9 available models

diameter (mm)	installation	distance	plug	distance (mm)	NPN/NO	NPN/NC	PNP/NO	PNP/NC
8 x 8 detection center	shielded	standard	cable	1.5	IL9/AN-1A	IL9/CN-1A	IL9/AP-1A	IL9/CP-1A
			M8		IL9/AN-1F	IL9/CN-1F	IL9/AP-1F	IL9/CP-1F
			pigtail M8		IL9/AN-1VF80	IL9/CN-1VF80	IL9/AP-1VF80	IL9/CP-1VF80
		long distance	cable	2	IL9/AN-3A	IL9/CN-3A	IL9/AP-3A	IL9/AN-3A
			M8		IL9/AN-3F	IL9/CN-3F	IL9/AP-3F	IL9/CP-3F
			pigtail M8		IL9/AN-3VF80	IL9/CN-3VF80	IL9/AP-3VF80	IL9/CP-3VF80
		expanse extended	cable	2.5	IL9/AN-5A	IL9/CN-5A	IL9/AP-5A	IL9/CP-5A
			M8		IL9/AN-5F	IL9/CN-5F	IL9/AP-5F	IL9/CP-5F
			pigtail M8		IL9/AN-5VF80	IL9/CN-5VF80	IL9/AP-5VF80	IL9/CP-5VF80

technical specifications

according to IEC EN 60947-5-2

	IL8/**-1* IL9/**-1*	IL8/**-3* IL9/**-3*	IL8/**-5* IL9/**-5*
nominal sensing distance	1.5 mm	2 mm	2.5 mm
operating distance	0...1.21 mm	0...1.62 mm	0...2.02 mm
hysteresis	1...20%		
standard target	8x8 mm FE360		
repeatability	5% @UB=20...30 V; Ta = 23°C ±5°C		
operating voltage	10...30 Vcc		
max. ripple content	≤ 10%		
output current	≤ 200 mA		
output voltage drop	≤ 1.5 V @ 200 mA		
no-load supply current	≤ 10 mA		
logic output	PNP or NPN		
output state	NO or NC		
leakage current	≤ 10 µA		
switching frequency	≤ 5 kHz		
power on delay	≤ 50 ms		
ambient temperature range	-25°C...+70°C		
temperature drift of Sr	≤ 10%		
short circuit protection	●		
induction protection	●		
voltage reversal protection	●		
shocks and vibrations	IEC 60947-5-2		
LEDs	yellow (output state)		
protection degree	IP67		
EMC	in conformity with the EMC Directive according to IEC 60947-5-2		
housing material	AISI303 stainless steel housing		
active head material	PBT		
connection	M8 plug cable exit / 2m PUR cable exit		

correction factors

code	steel FE 360	copper	alluminium	brass	stainless steel
IL8/AP-1F	1	0.15	0.12	0.25	0.61
IL8/AP-3F		0.21	0.15	0.27	0.60
IL8/AP-5F		0.22	0.17	0.26	
IL9/AP-1F		0.16	0.11	0.22	0.61
IL9/AP-3F		0.19	0.15	0.25	
IL9/AP-5F		0.18	0.16	0.26	0.58

electrical diagrams of the connections

PNP

NPN

BN

brown

BU

blue

BK

black

WH

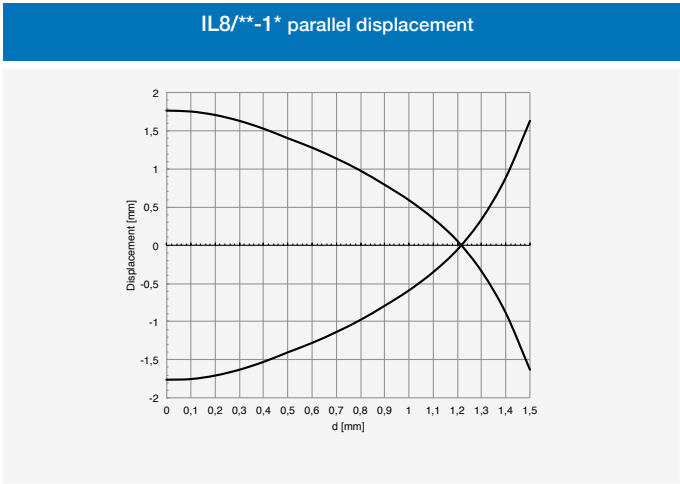
white

8 x 8 mm cubic
miniaturized

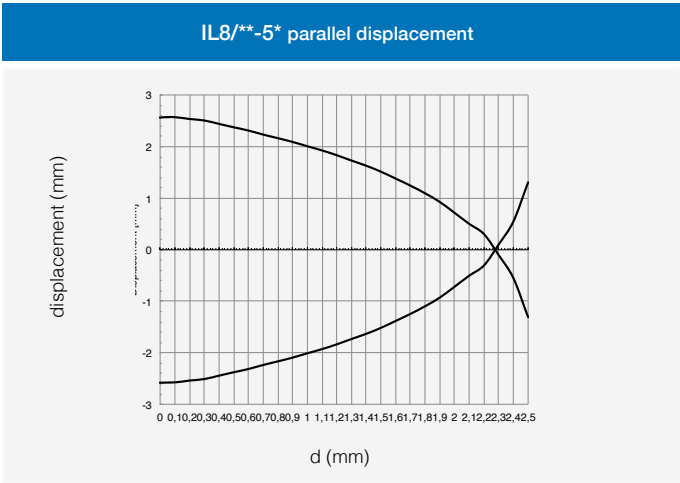
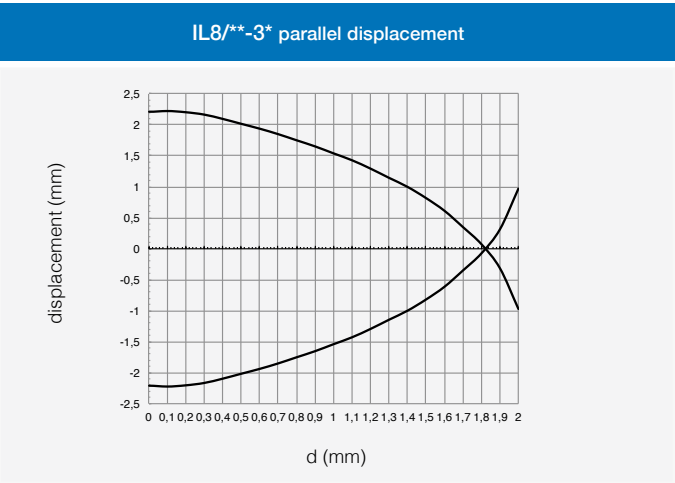
plug

M8

response diagram



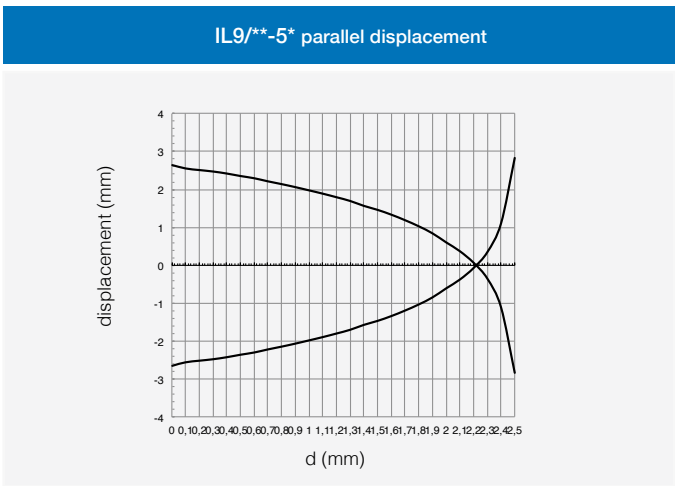
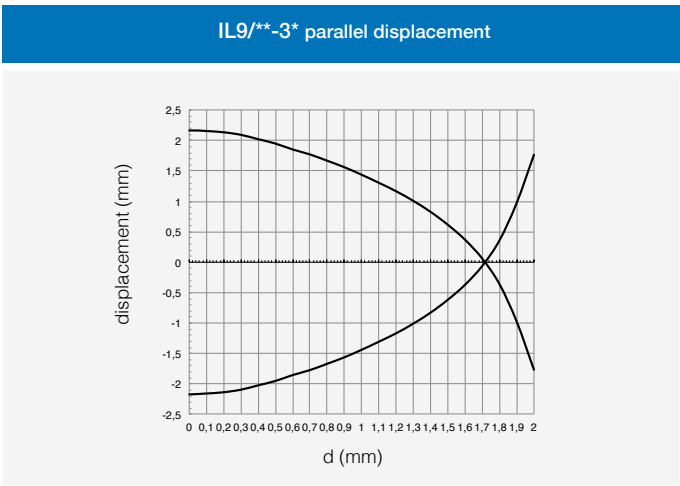
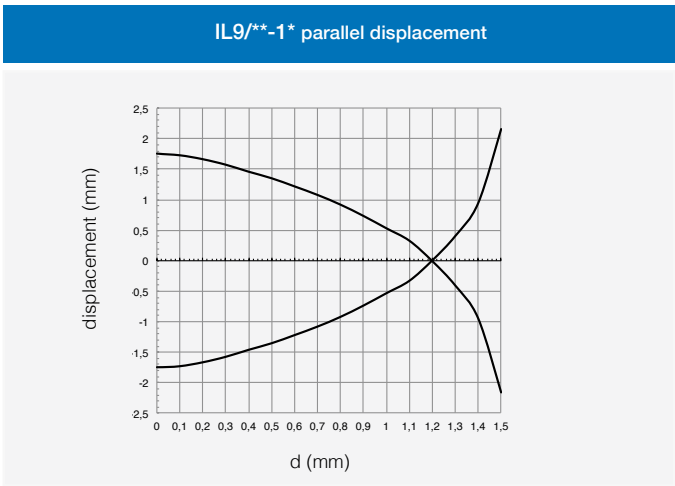
response diagram



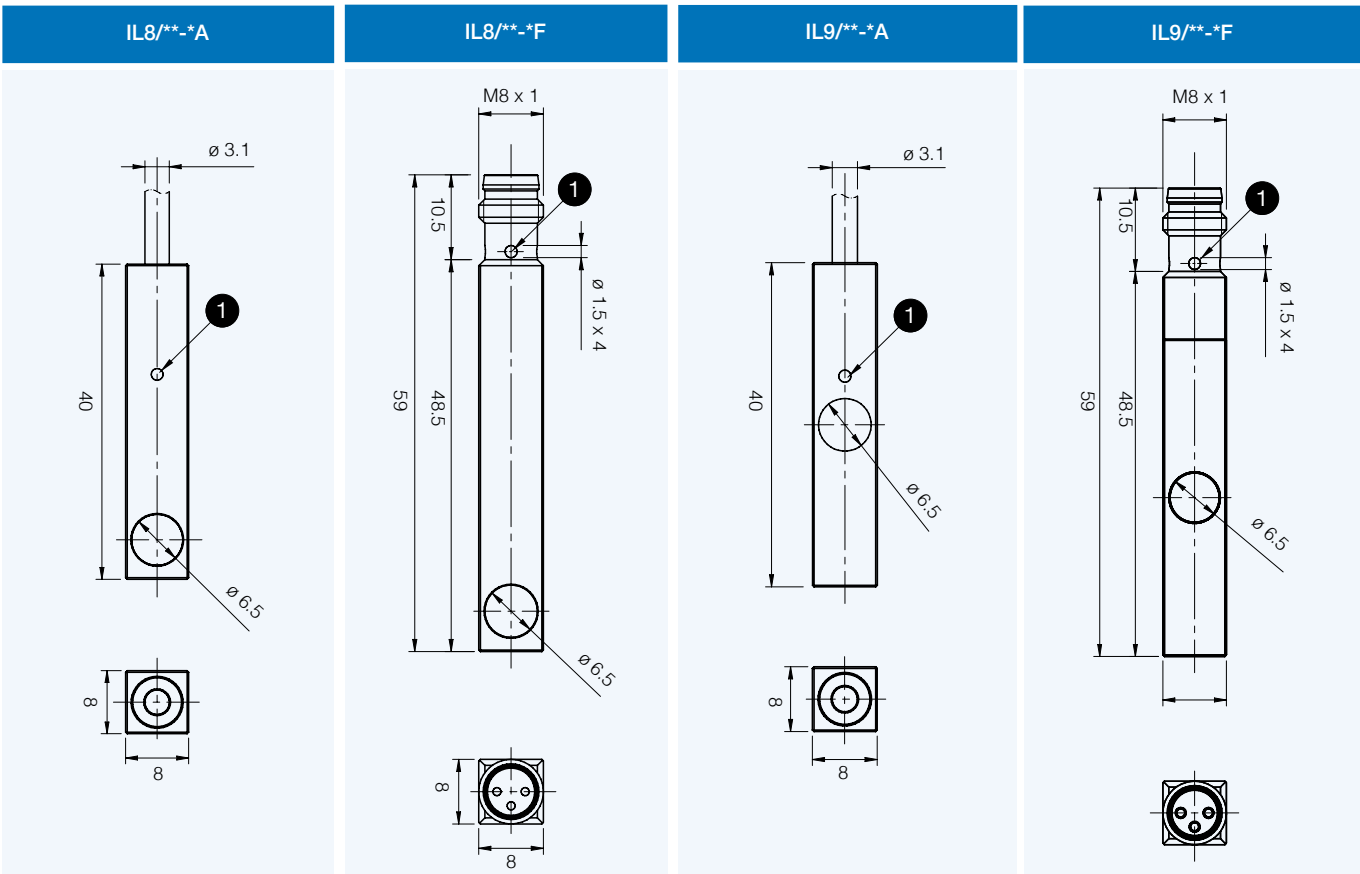
IL8 / IL9

8 x 8 mm cubic
miniaturized

response diagram



dimensions (mm)



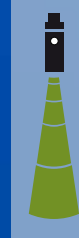
1 LED

IL8 / IL9



IL1 series

10 x 28 x 16 mm
cubic miniaturized inductive sensors



10 x 28 x 16 mm
cubic miniaturized

features

- Compact dimensions: 10 x 28 x 16 mm
- Supply voltage 10...30 Vdc, output current 300 mA
- LED status indicator
- IP 67 housing protection
- Complete protection against electrical damages



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code description

IL1 / A P - 3 A

series	IL1	10 x 28 x 16 mm inductive proximity switch
output state	A	NO output state
	C	NC output state
logica uscita	N	NPN logic output
	P	PNP logic output
distance	3	Shielded model long distance 3 mm
	4	Unshielded model long distance 6 mm
connect.	A	Cable exit output
	F	M8 plug cable exit

available models

dimension (mm)	installation	distance	plug	distance (mm)	NPN/NO	NPN/NC	PNP/NO	PNP/NC	
10 x 28 x16	shielded	long distance	cable	3	IL1/AN-3A	IL1/CN-3A	IL1/AP-3A	IL1/CP-3A	
			M8		IL1/AN-3F	IL1/CN-3F	IL1/AP-3F	IL1/CP-3F	
	unshielded		cable	6	IL1/AN-4A	IL1/CN-4A	IL1/AP-4A	IL1/CP-4A	
			M8		IL1/AN-4F	L1/CN-4F	IL1/AP-4F	IL1/CP-4F	



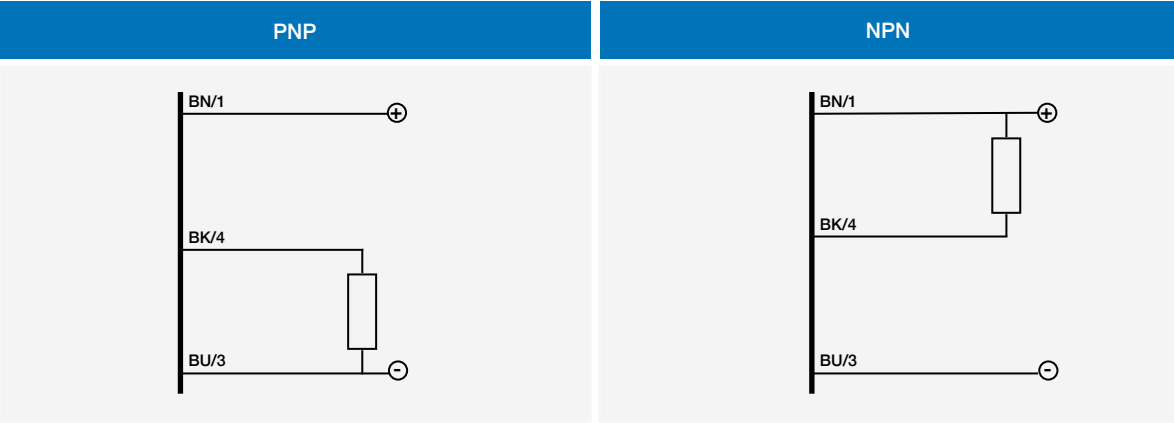
10 x 28 x 16 mm
cubic miniaturized

technical specification

	IL1/**-3*	IL1/**-4*
		
nominal sensing distance Sn	3 mm	6 mm
hysteresis	0 ... 2.4 mm	0 ... 4.8 mm
operating distance	1...20% Sr	
standard target	12x12 mm	18x18 mm
repeatability	≤ 5%	
operating voltage	10...30 Vdc	
output type	NPN or PNP - NO or NC	
max ripple content	≤ 10%	
output current	≤ 300 mA	
output voltage drop	≤ 1.5 V @ 100 mA	
max. output cacacity	1µF	
no-load supply current	≤ 10 mA	
leakage current	≤ 0.12 mA	
switching frequency	≤ 3 kHz	
power on delay	≤ 100 ms	
ambient temperature range	-25...+70 °C	
temperature drift of Sr	≤ 10%	
short-circuit protection	●	
voltage reversal protection	●	
induction protection	●	
shocks and vibration	IEC 60947-5-2	
weight	7 g connector 63 g cable	
protection degree	IP 67	
EMC	in conformity with the EMC Directive according to IEC 60947-5-2	
active head material	PA	
connection	2 m cable 3x0.25 mm²	

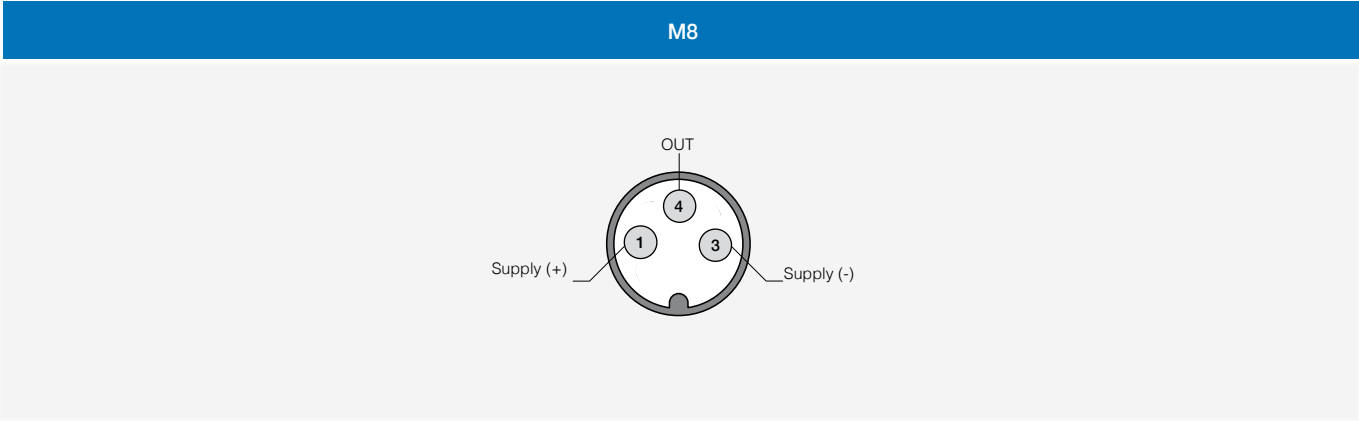
correction factors

steel FE 360		copper		alluminium		brass		stainless steel	
IL1/**-3*	IL1/**-4*	IL1/**-3*	IL1/**-4*	IL1/**-3*	IL1/**-4*	IL1/**-3*	IL1/**-4*	IL1/**-3*	IL1/**-4*
1.0	1.0	0.25	0.41	0.28	0.50	0.37	0.55	0.63	0.75

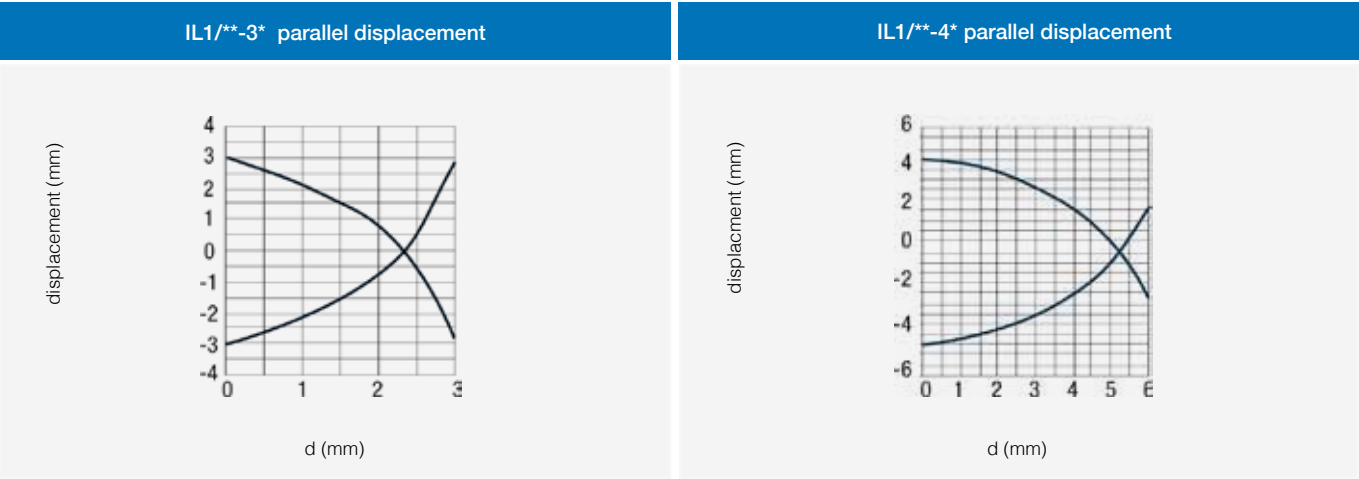


10 x 28 x 16 mm
cubic miniaturized

plug



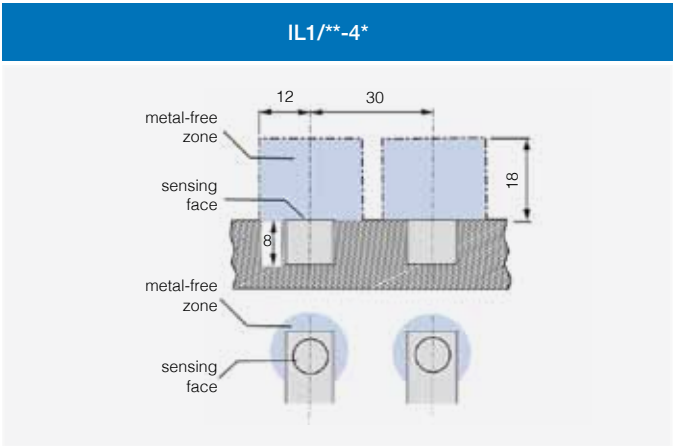
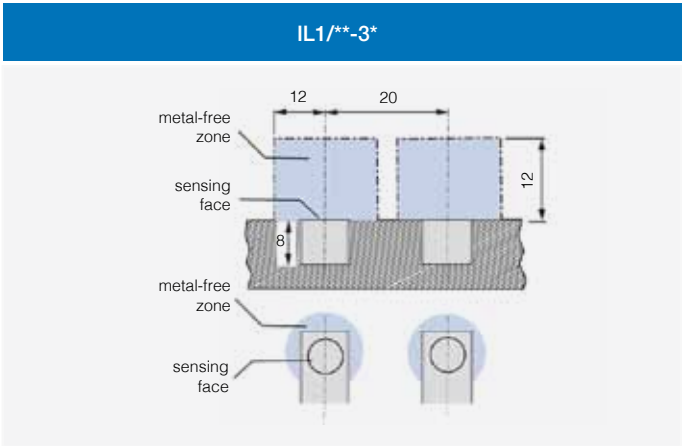
response diagram



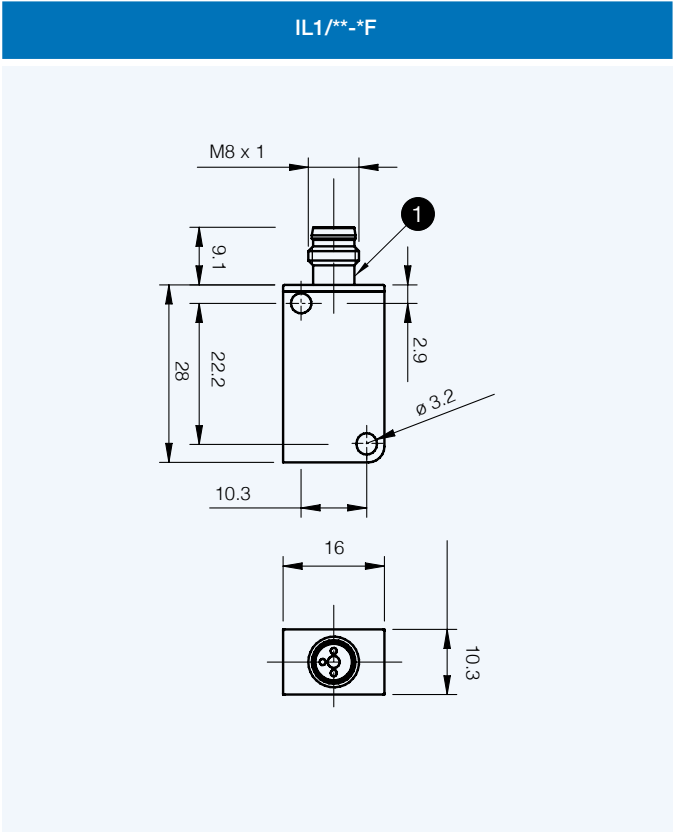
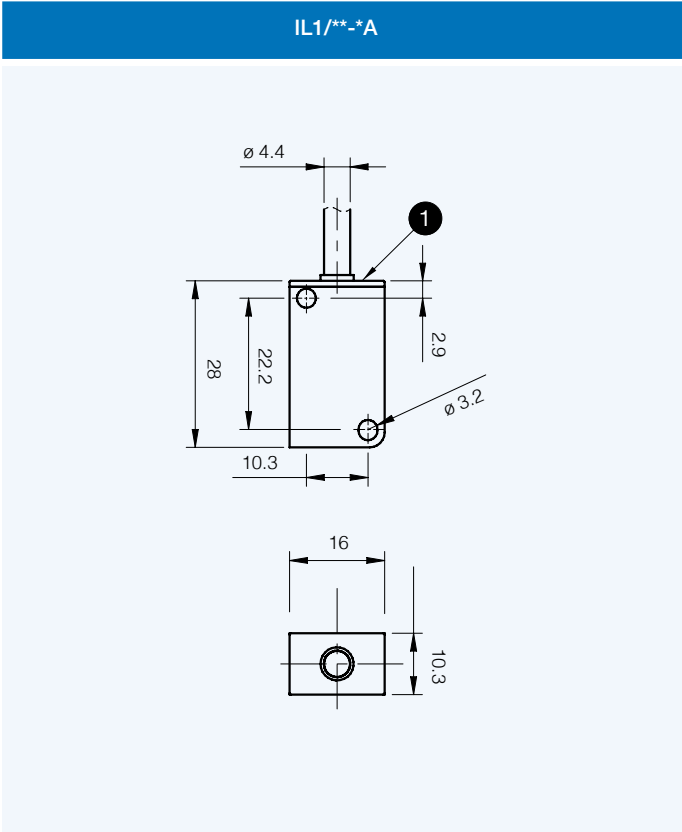


10 x 28 x 16 mm
cubic miniaturized

installation



dimensions (mm)



1 LED



AH series

Ø 6.5 mm cylindrical
inductive sensors



Ø 6.5 mm cylindrical

features

- Extremely reduced dimensions
- Metal housing (stainless steel)
- LED status indicator 360° visible
- IP 67 protection degree
- ATEX models, cat. 3, available on request
- Complete protection against electrical damages
- Standard and long distance models
- Standard and short body housing



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code description (*)

	AH	1	/	A	P	-	1	A
series	AH	Ø 6.5 mm inductive proximity switch						
housing	1	Standard body						
	6	Short body						
output state	A	NO output state						
	C	NC output state						
output logic	N	NPN logic output						
	P	PNP logic output						
distance	1	Shielded standard 1.5 mm						
	2	Unshielded standard 2.5 mm						
	3	Long distance shielded 2 mm						
	4	Unshielded long distance 4 mm						
connect.	A	Axial cable exit						
	F	M8 plug cable exit						
	H	M12 plug cable exit						

(*) ATEX models available, contact our Sales Dept. for further information.

Ø 6.5 mm cylindrical

available models

standard housing

diameter (mm)	installation	distance	connection	distance	NPN/NO	NPN/NC	PNP/NO	PNP/NC
Ø 6,5	shielded	standard	cable	1.5	AH1/AN-1A	AH1/CN-1A	AH1/AP-1A	AH1/CP-1A
			M8		AH1/AN-1F	AH1/CN-1F	AH1/AP-1F	AH1/CP-1F
			M12		AH1/AN-1H	AH1/CN-1H	AH1/AP-1H	AH1/CP-1H
	unshielded		cable	2.5	AH1/AN-2A	AH1/CN-2A	AH1/AP-2A	AH1/CP-2A
			M8		AH1/AN-2F	AH1/CN-2F	AH1/AP-2F	AH1/CP-2F
			M12		AH1/AN-2H	AH1/CN-2H	AH1/AP-2H	AH1/CP-2H
	shielded	long distance	cable	2	AH1/AN-3A	AH1/CN-3A	AH1/AP-3A	AH1/CP-3A
			M8		AH1/AN-3F	AH1/CN-3F	AH1/AP-3F	AH1/CP-3F
			M12		AH1/AN-3H	AH1/CN-3H	AH1/AP-3H	AH1/CP-3H
	shielded		cable	4	AH1/AN-4A	AH1/CN-4A	AH1/AP-4A	AH1/CP-4A
			M8		AH1/AN-4F	AH1/CN-4F	AH1/AP-4F	AH1/CP-4F
			M12		AH1/AN-4H	AH1/CN-4H	AH1/AP-4H	AH1/CP-4H

available models

short housing

diameter (mm)	installation	distance	connection	distance (mm)	NPN/NO	NPN/NC	PNP/NO	PNP/NC
Ø 6,5	shielded	standard	cable	1.5	AH6/AN-1A	AH6/CN-1A	AH6/AP-1A	AH6/CP-1A
			M8		AH6/AN-1F	AH6/CN-1F	AH6/AP-1F	AH6/CP-1F
	unshielded		cable	2.5	AH6/AN-2A	AH6/CN-2A	AH6/AP-2A	AH6/CP-2A
			M8		AH6/AN-2F	AH6/CN-2F	AH6/AP-2F	AH6/CP-2F
	shielded	long distance	cable	2	AH6/AN-3A	AH6/CN-3A	AH6/AP-3A	AH6/CP-3A
			M8		AH6/AN-3F	AH6/CN-3F	AH6/AP-3F	AH6/CP-3F
	unshielded		cable	4	AH6/AN-4A	AH6/CN-4A	AH6/AP-4A	AH6/CP-4A
			M8		AH6/AN-4F	AH6/CN-4F	AH6/AP-4F	AH6/CP-4F

correction factors

code	steel FE 360	copper	alluminium	brass	stainless steel
AH*/**-1*	1	0.06	0.13	0.24	0.56
AH*/**-2*		0.39	0.45	0.54	0.81
AH*/**-3*		0.1	0.17	0.25	0.6
AH*/**-4*		0.42	0.47	0.52	0.77

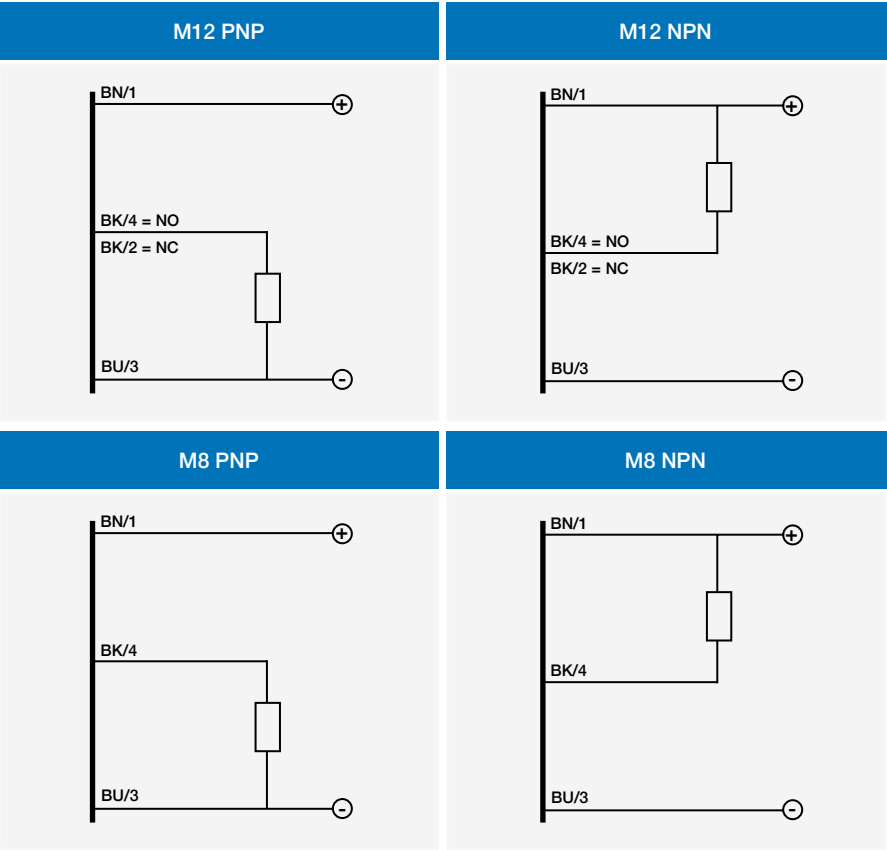


	AH*/**-1*	AH*/**-2*	AH*/**-3*	AH*/**-4*
				
nominal sensing	1.5 mm	2.5 mm	2 mm	4 mm
working distance	0...1.35 mm	0...2.25 mm	0...1.8 mm	0...3.5 mm
hysteresis	1...20% Sr			
standard target	8x8 mm FE360			12x12 mm FE360
repeatability	5%			
operating voltage	10...30 Vdc			
max ripple content	≤ 10%			
output type	NPN or PNP - NO or NC			
output current	≤ 200 mA			
output voltage drop	≤ 1.8 V @ 200 mA			
no-load supply current	10 mA			
leakage current	≤10 µA			
switching frequency	5 kHz			
power on delay	50 ms			
ambient temperature range	-25...+70 °C			
temperature drift of Sr	10%			
short-circuit protection	•			
voltage reversal protection	•			
induction protection	•			
shocks and vibrations	IEC 60947-5-2			
weight	5 g connector / 5 g cable			
LEDs	yellow LED output state			
protection degree	IP 67 (EN60529)			
EMC	in conformity with the EMC Directive, according to IEC 60947-5-2			
housing material	stainless steel			
active head material	PBT			
connection	cable 2 m PVC - plug M8 or M12			

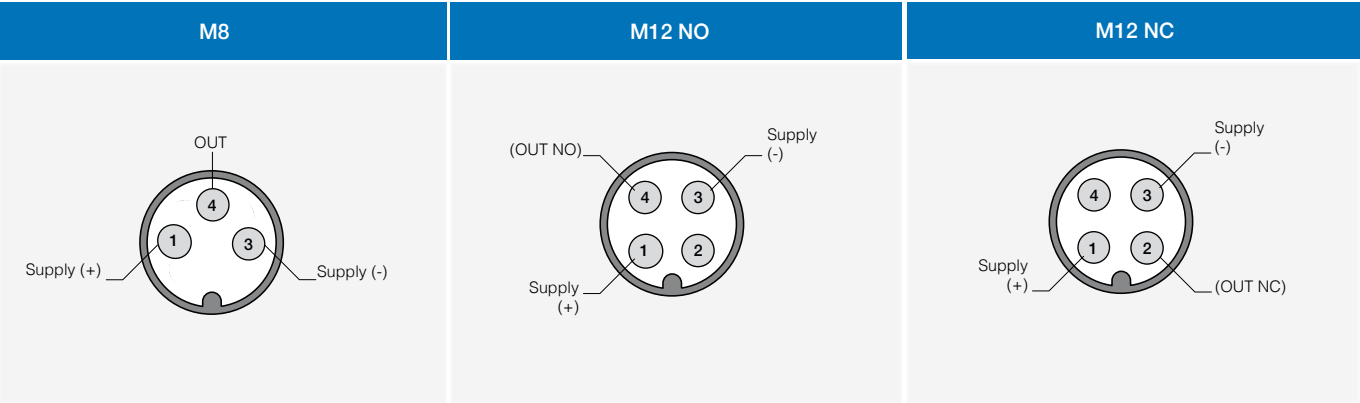


Ø 6.5 mm cylindrical

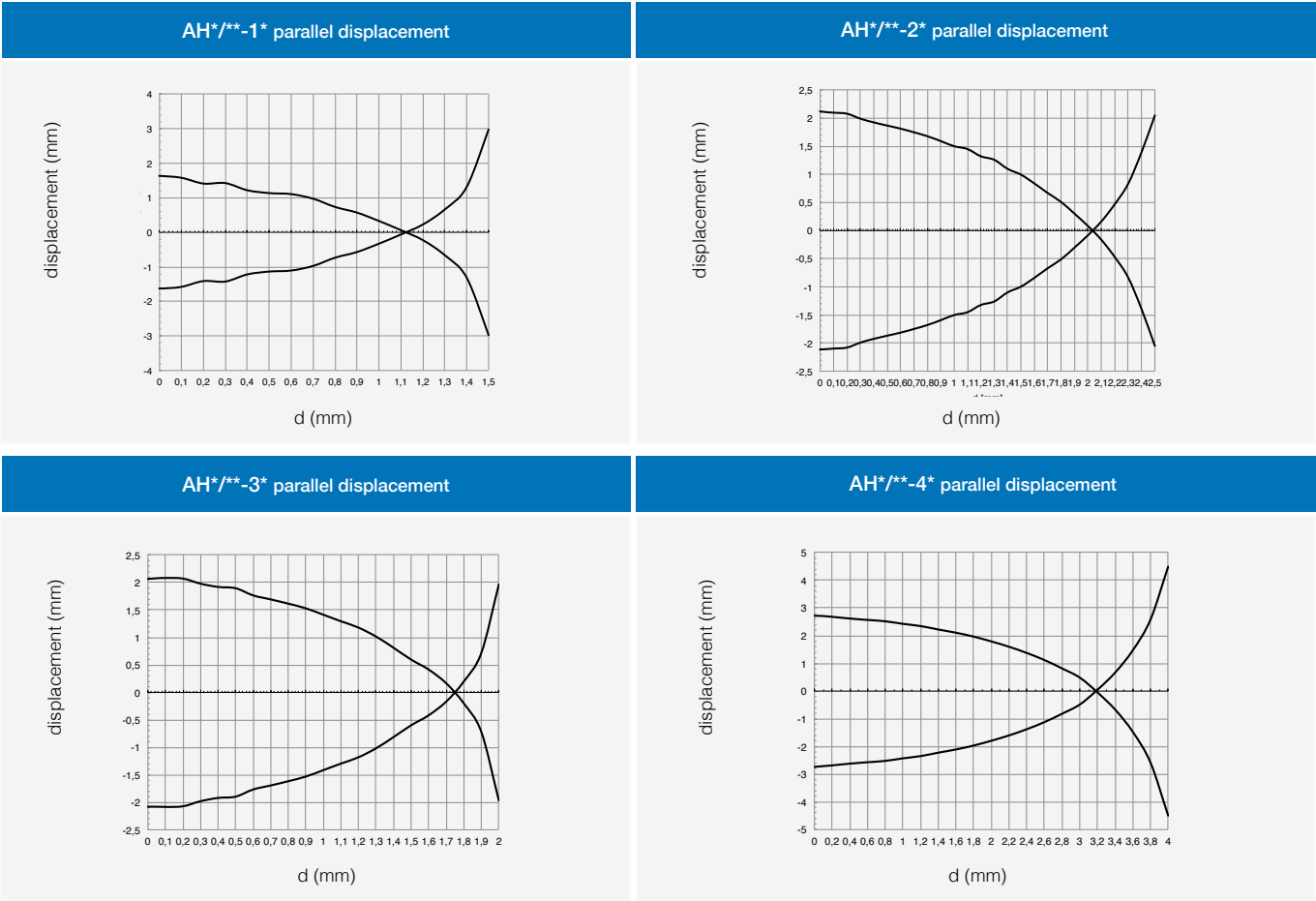
electrical diagrams of connections



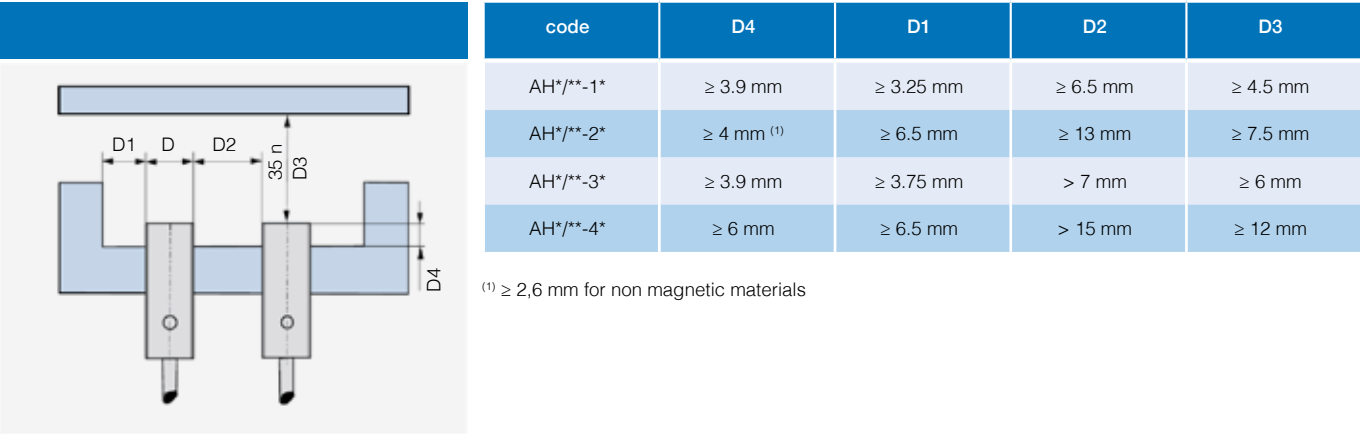
plug



response diagram



installation





Ø 6.5 mm cylindrical

dimensions (mm)

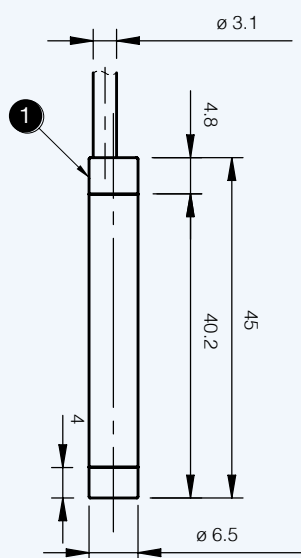
AH1/**-1A AH1/**-3A	AH1/**-1F AH1/**-3F	AH1/**-1H AH1/**-3H
AH6/**-1A AH6/**-3A	AH6/**-1F AH6/**-3F	

1 LED

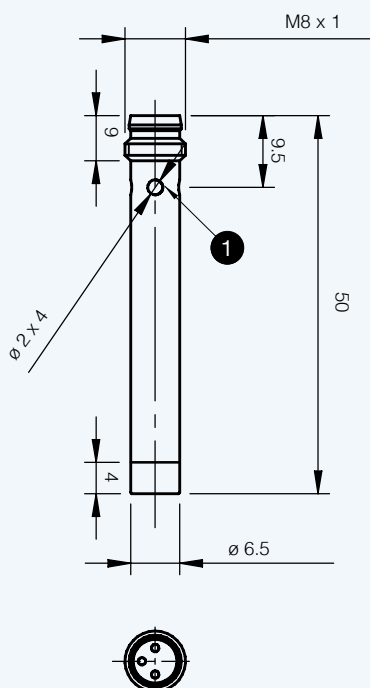


Ø 6.5 mm cylindrical

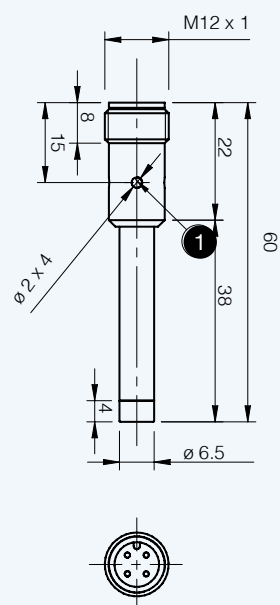
AH1/**-2A
AH1/**-4A



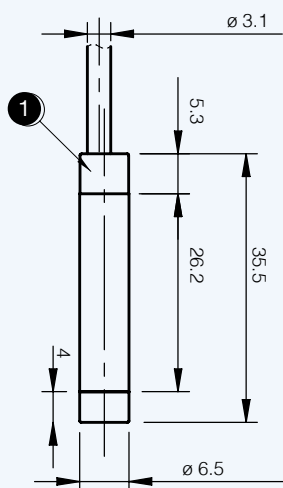
AH1/**-2F
AH1/**-4F



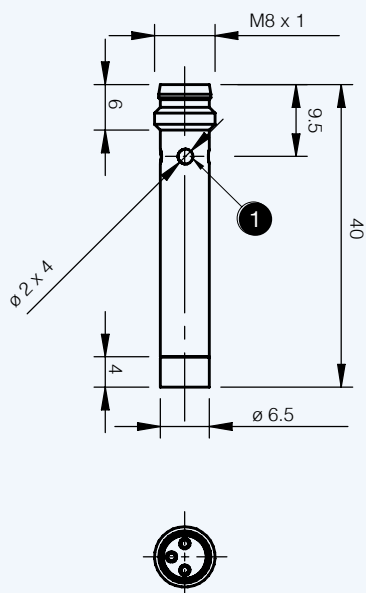
AH1/**-2H
AH1/**-4H



AH6/**-2A
AH6/**-4A



AH6/**-2F
AH6/**-4F



1 LED

AH





AE series

M8 cylindrical inductive sensors



M8 cylindrical

features

- Extremely reduced measure
- Metal housing
- LED status indicator 360° visible
- IP 67 housing protection
- ATEX models, cat. 3, available on request
- Complete protection against electrical damages
- Standard and long distance models
- Standard and short body housing



web contents



- Application notes
- Photos
- Catalogue / Manuals



code description

	AE	1	/	A	P	-	1	A
series	AE	M8 inductive proximity switch						
housing	1	Standard body						
	6	Short body						
output state	A	NO output state						
	C	NC output state						
output logic	N	NPN logic output						
	P	PNP logic output						
distance	1	Shielded standard 1.5 mm						
	2	Unshielded standard 2.5 mm						
	3	Long distance shielded 2 mm						
	4	Unshielded long distance 4 mm						
connect.	A	Axial cable exit						
	F	M8 plug cable exit						
	H	M12 plug cable exit						

(*) ATEX models available, contact our Sales Dept. for further information.

available models

standard housing

diameter	installation	distance	plug	distance (mm)	NPN/NO	NPN/NC	PNP/NO	PNP/NC
M8	shielded	standard	cable	1.5	AE1/AN-1A	AE1/CN-1A	AE1/AP-1A	AE1/CP-1A
			M8		AE1/AN-1F	AE1/CN-1F	AE1/AP-1F	AE1/CP-1F
			M12		AE1/AN-1H	AE1/CN-1H	AE1/AP-1H	AE1/CP-1H
	unshielded		cable	2.5	AE1/AN-2A	AE1/CN-2A	AE1/AP-2A	AE1/CP-2A
			M8		AE1/AN-2F	AE1/CN-2F	AE1/AP-2F	AE1/CP-2F
			M12		AE1/AN-2H	AE1/CN-2H	AE1/AP-2H	AE1/CP-2H
	shielded	long distance	cable	2	AE1/AN-3A	AE1/CN-3A	AE1/AP-3A	AE1/CP-3A
			M8		AE1/AN-3F	AE1/CN-3F	AE1/AP-3F	AE1/CP-3F
			M12		AE1/AN-3H	AE1/CN-3H	AE1/AP-3H	AE1/CP-3H
	unshielded		cable	4	AE1/AN-4A	AE1/CN-4A	AE1/AP-4A	AE1/CP-4A
			M8		AE1/AN-4F	AE1/CN-4F	AE1/AP-4F	AE1/CP-4F
			M12		AE1/AN-4H	AE1/CN-4H	AE1/AP-4H	AE1/CP-4H

available models

short housing

diameter	installation	distance	plug	distance (mm)	NPN/NO	NPN/NC	PNP/NO	PNP/NC
M8	shielded	standard	cable	1.5	AE6/AN-1A	AE6/CN-1A	AE6/AP-1A	AE6/CP-1A
			M8		AE6/AN-1F	AE6/CN-1F	AE6/AP-1F	AE6/CP-1F
	unshielded		cable	2.5	AE6/AN-2A	AE6/CN-2A	AE6/AP-2A	AE6/CP-2A
			M8		AE6/AN-2F	AE6/CN-2F	AE6/AP-2F	AE6/CP-2F
	shielded	long distance	cable	2	AE6/AN-3A	AE6/CN-3A	AE6/AP-3A	AE6/CP-3A
			M8		AE6/AN-3F	AE6/CN-3F	AE6/AP-3F	AE6/CP-3F
	unshielded		cable	4	AE6/AN-4A	AE6/CN-4A	AE6/AP-4A	AE6/CP-4A
			M8		AE6/AN-4F	AE6/CN-4F	AE6/AP-4F	AE6/CP-4F

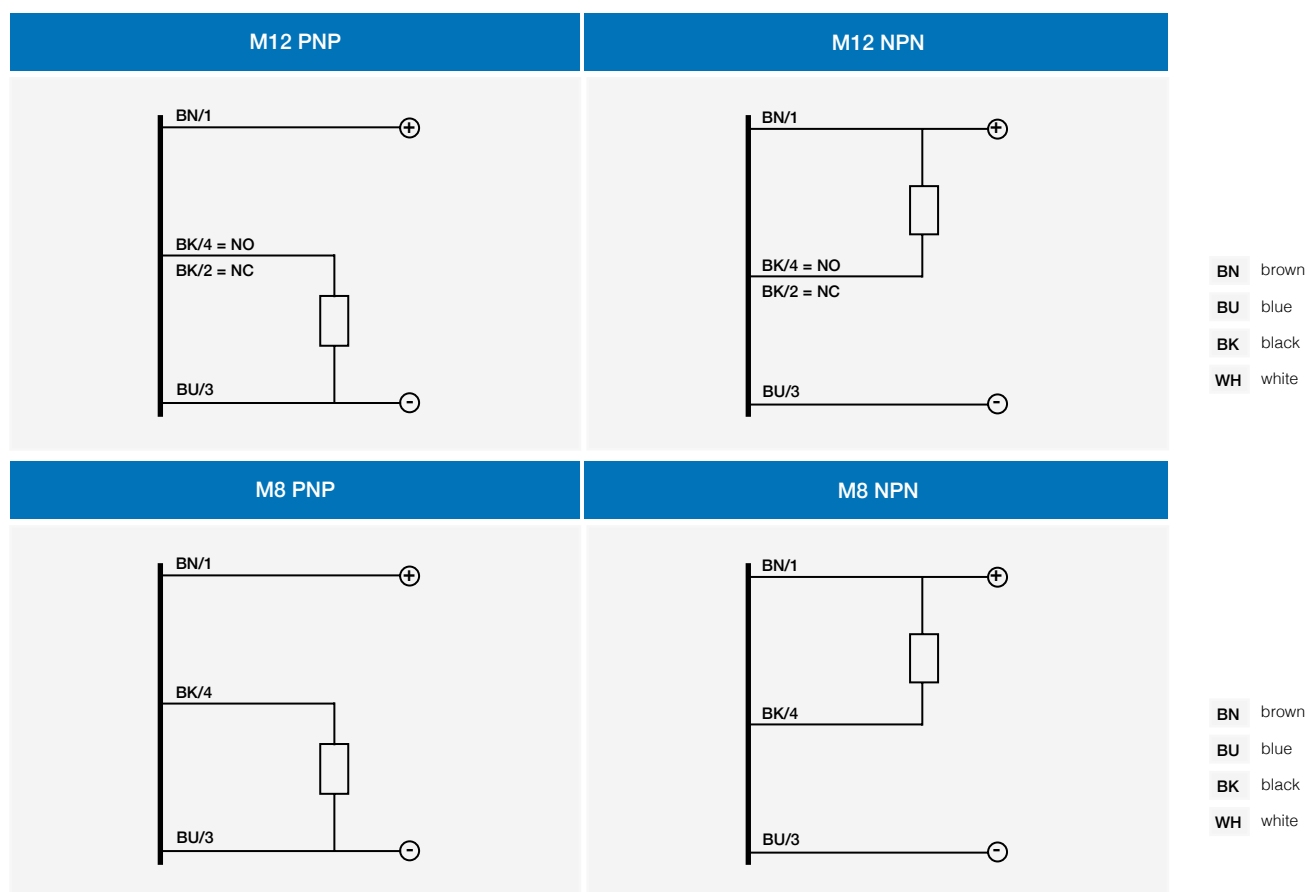
correction factors

code	steel FE 360	copper	alluminium	brass	stainless steel
AE*/**-1*	1	0.29	0.38	0.49	0.78
AE*/**-2*		0.43	0.51	0.59	0.83
AE*/**-3*		0.35	0.43	0.52	0.78
AE*/**-4*		0.47	0.52	0.58	0.79

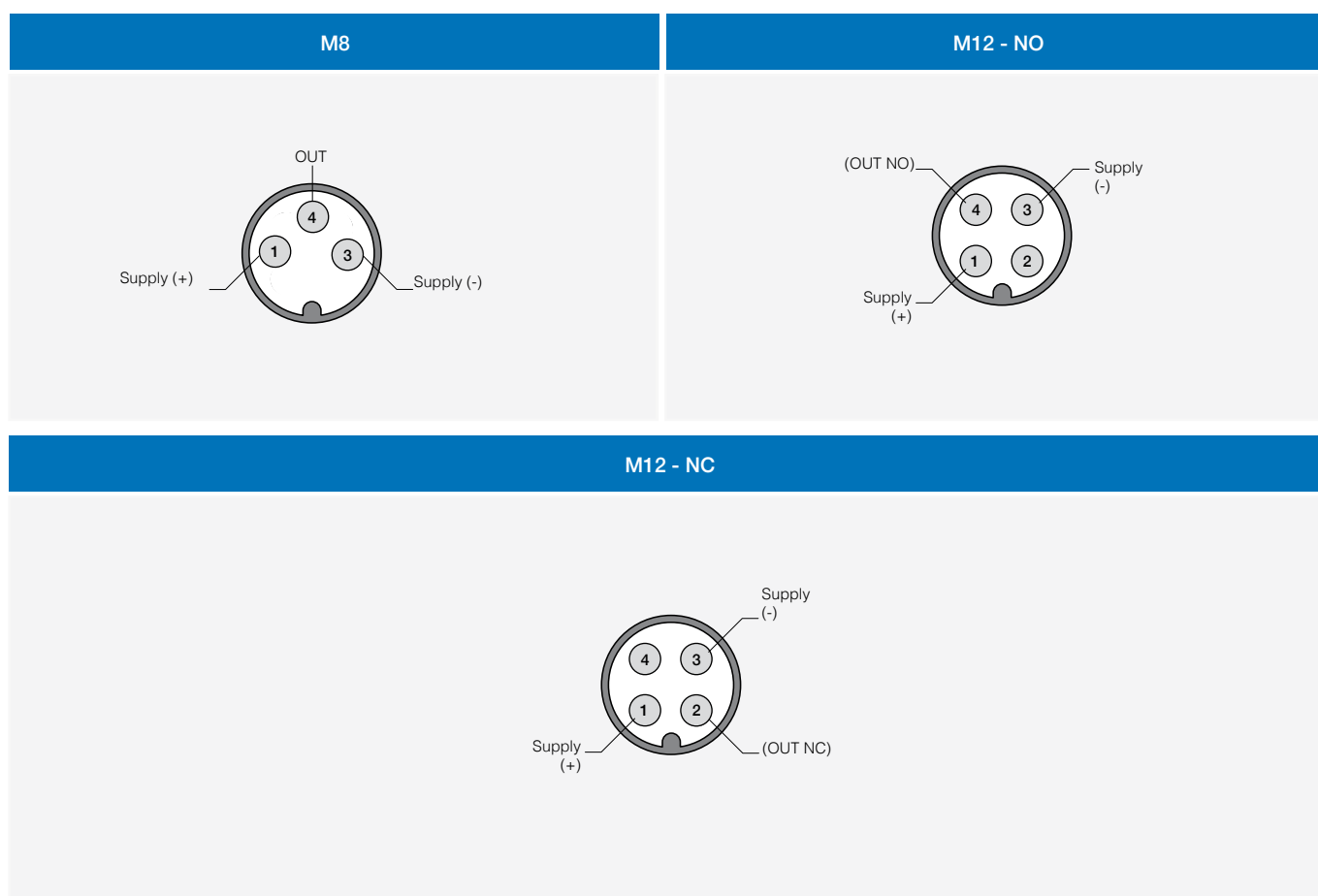


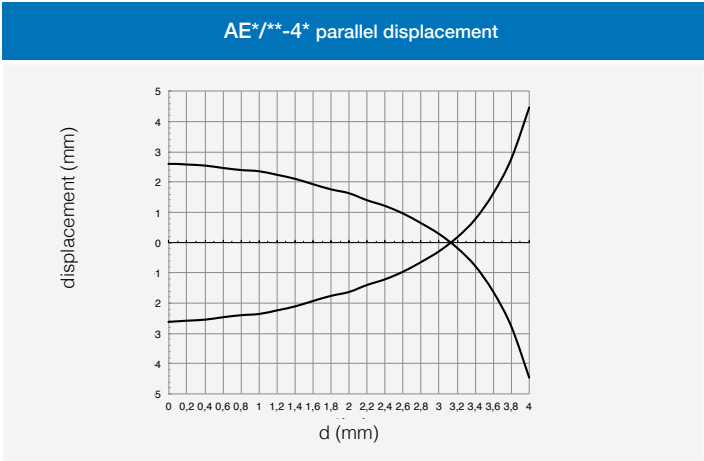
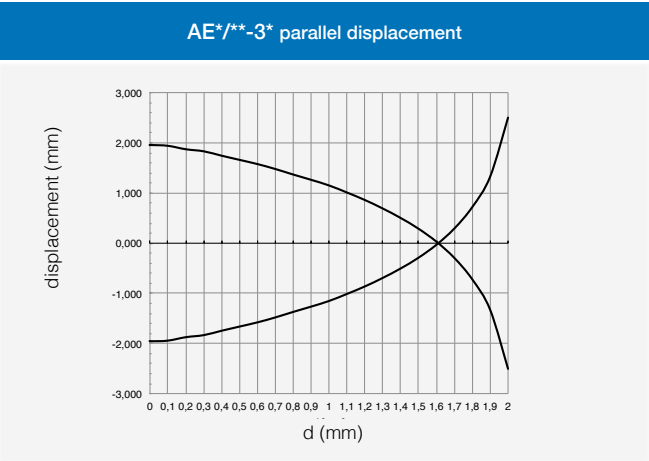
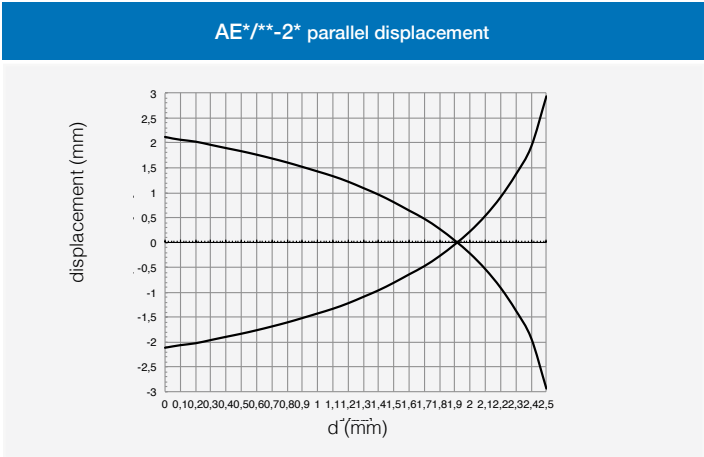
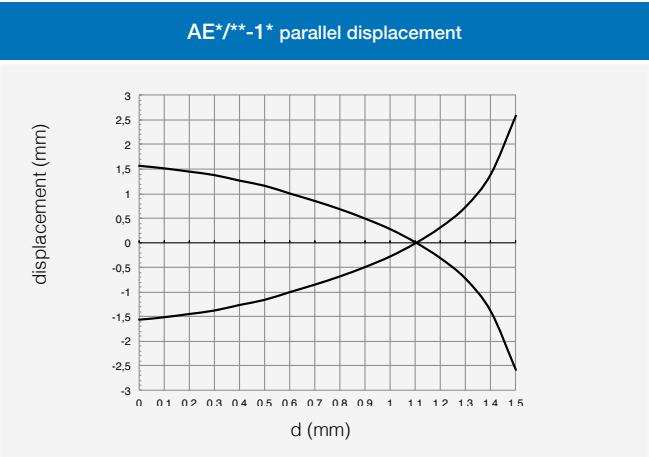
	AE*/**-1*	AE*/**-2*	AE*/**-3*	AE*/**-4*
				
nominal sensing distance	1.5 mm	2.5 mm	2 mm	4 mm
operating distance	0...1.21 mm	0...2.02 mm	0...1.62 mm	0...3.24 mm
hysteresis	1...20% Sr			
standard target	8x8 mm FE360			12x12 mm FE360
repeatability	5%			
operating voltage	10...30 Vdc			
max ripple content	≤ 10%			
output type	NPN or PNP - NO or NC			
output current	≤ 200 mA			
output voltage drop	≤ 1,8 V @ 200 mA			
no-load supply current	10 mA			
leakage current	≤ 10 µA			
switching frequency	5 kHz			
power on delay	50 ms			
ambient temperature range	-25...+70 °C			
temperature drift of Sr	10%			
short-circuit protection	●			
voltage reversal protection	●			
induction protection	●			
shocks and vibrations	IEC 60947-5-2			
weight	20 g connector / 45 g cable			
LEDs	yellow LED output state			
protection degree	IP 67 (EN60529)			
EMC	in conformity with the EMC Directive, according to IEC 60947-5-2			
housing material	nickel-plated brass			
active head material	PBT			
connection	cable 2 m PVC / plug M8 or M12			
tightening torque	3 Nm			

electrical diagrams of connections

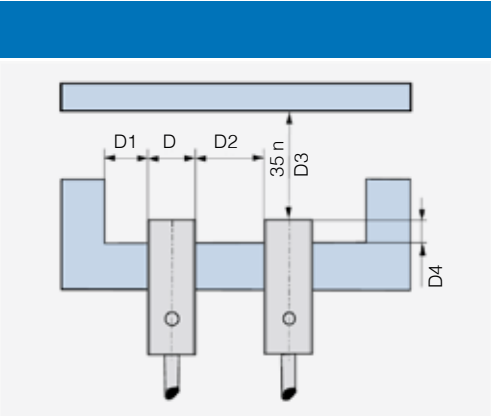


plug





installation

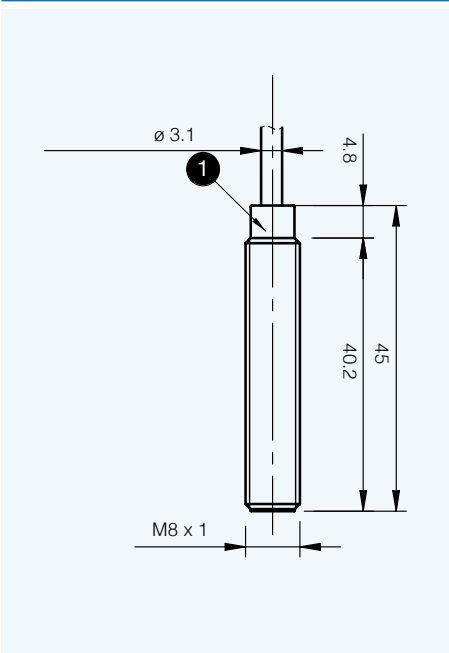


code	D4	D1	D2	D3
AE*/**-1*	≥ 0 mm	≥ 3.25 mm	≥ 6.5 mm	≥ 4.5 mm
AE*/**-2*	≥ 4 mm ⁽¹⁾	≥ 6.5 mm	> 17 mm	≥ 7.5 mm
AE*/**-3*	≥ 0 mm	≥ 3.25 mm	≥ 6.5 mm	≥ 6 mm
AE*/**-4*	≥ 4 mm	≥ 6.5 mm	> 17 mm	≥ 12 mm

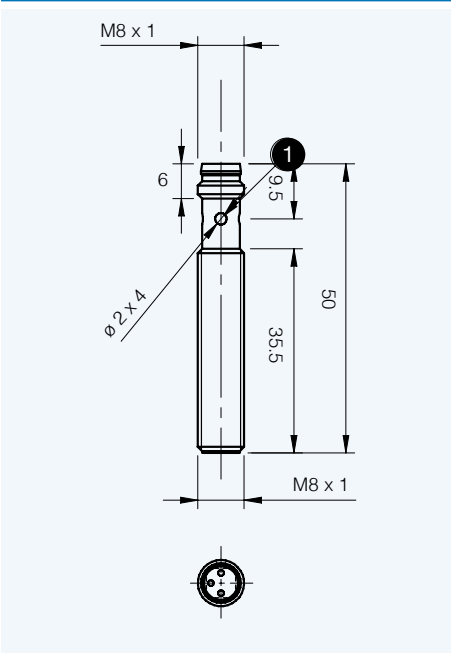
(1) ≥ 0 mm for non magnetic materials

dimensions (mm)

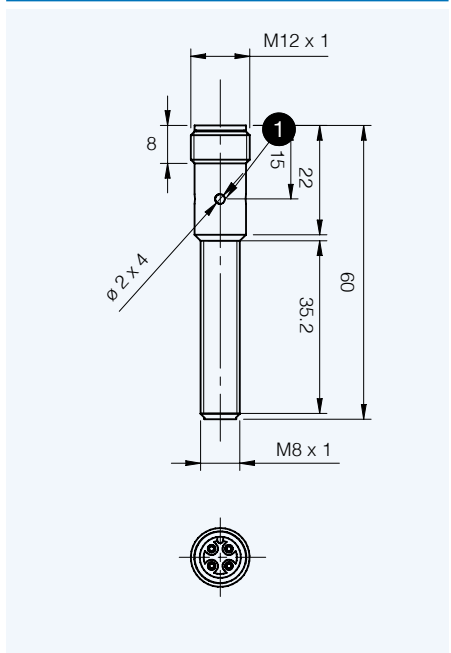
AE1/**-1A
AE1/**-3A



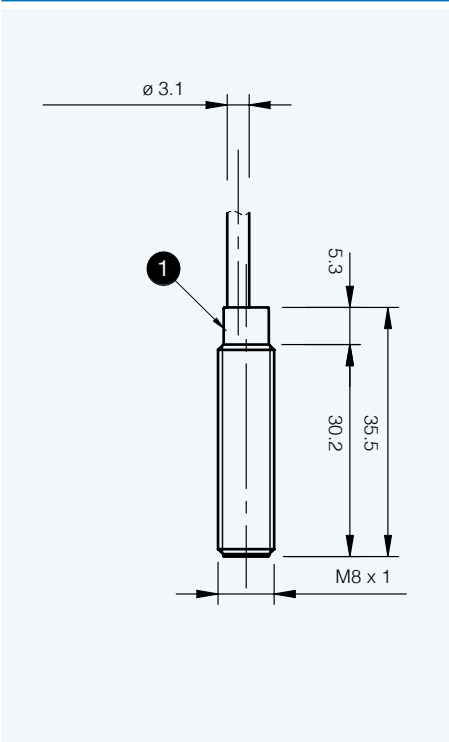
AE1/**-1F
AE1/**-3F



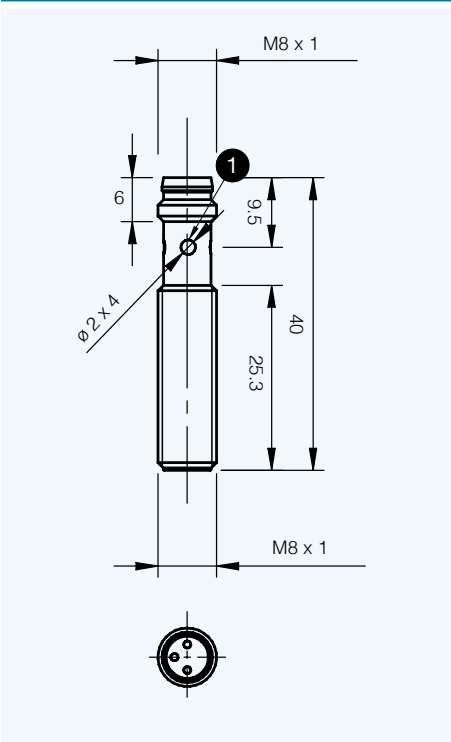
AE1/**-1H
AE1/**-3H



AE6/**-1A
AE6/**-3A



AE6/**-1F
AE6/**-3F

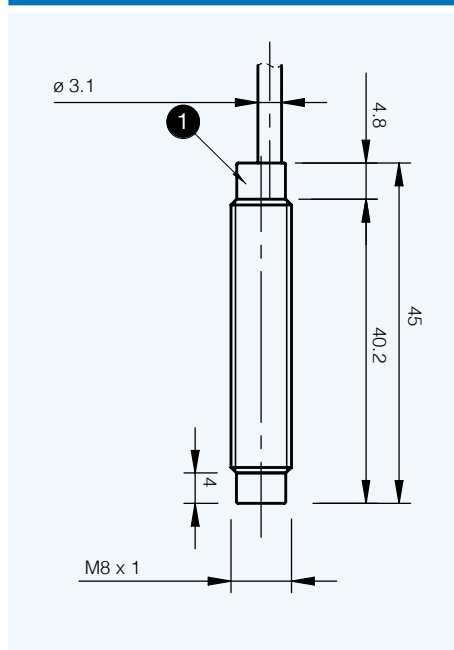


1 LED

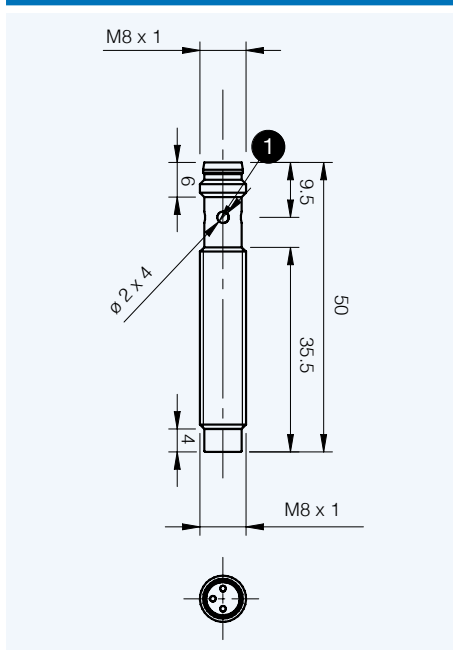


M8 cylindrical

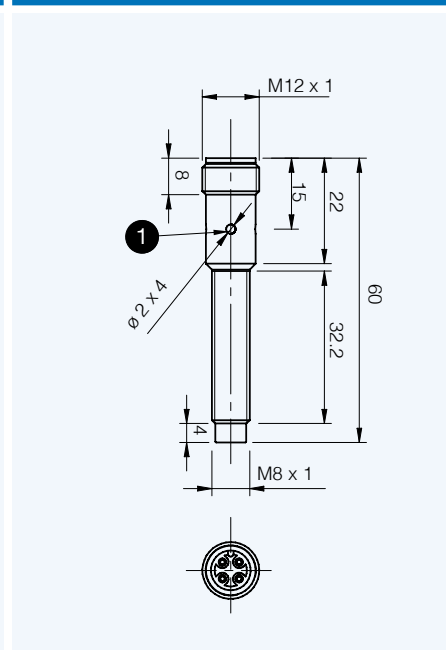
AE1/**-2A
AE1/**-4A



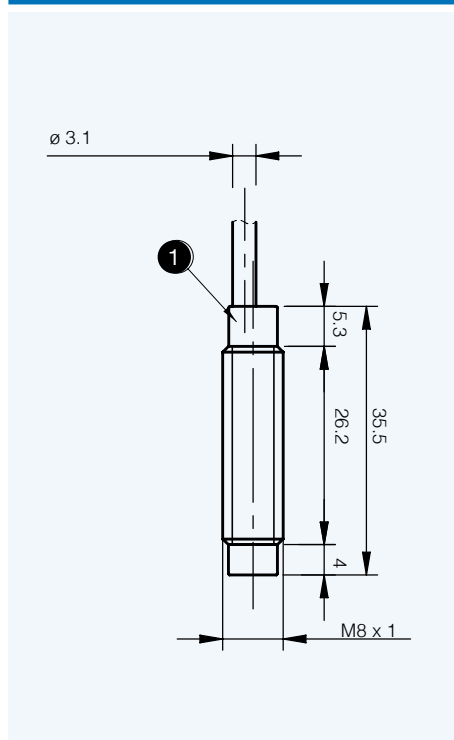
AE1/**-2F
AE1/**-4F



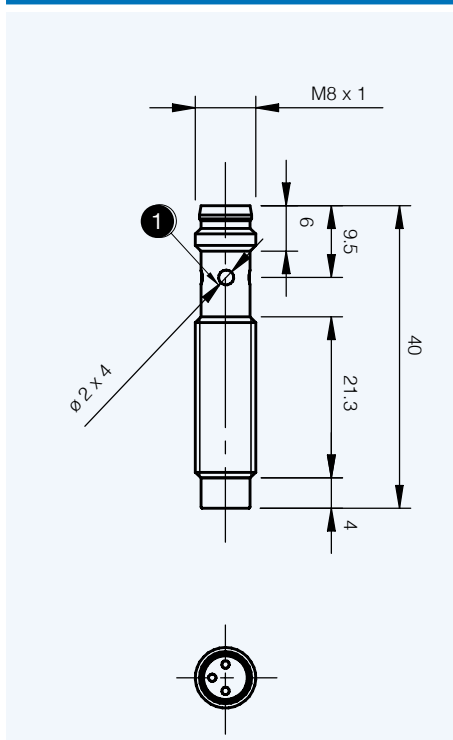
AE1/**-2H
AE1/**-4H



AE6/**-2A
AE6/**-4A

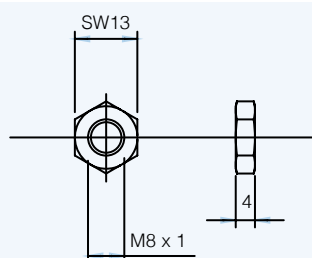


AE6/**-2F
AE6/**-4F



dimensions (mm)

accessories included



metallic
nut (2 x)

AE





AM series

M12 cylindrical inductive sensors



M12 cylindrical

features

- Wide range of models: standard, short body, long distance
- Output: cable, M12 and M8 plug cable exit
- Models with 2, 3 wires
- ATEX models, cat. 3, available on request



web contents



- Application notes
- Photos
- Catalogue / Manuals



code description (*)

	AM	1	/	A	P	-	1	A
series	AM	M12 inductive proximity switch						
housing	1	Standard body						
	6	Short body						
output state	A	NO output state						
	C	NC output state						
output logic	N	NPN logic output						
	0	2 wires version						
	P	PNP logic output						
distance	1	Shielded standard 2 mm						
	2	Unshielded standard 4 mm						
	3	Long distance shielded 4 mm						
	4	Unshielded long distance 8 mm						
connect.	A	Axial cable exit						
	C	Right angle cable exit						
	F	M8 plug cable exit						
	H	M12 plug cable exit						

(*) ATEX models available, contact our Sales Dept. for further information.

available models

diameter	installation	distance	connection	distance (mm)	NPN/NO	PNP/NO	NPN/NC	PNP/NC
M12	shielded	standard	cable	2	AM1/AN-1A	AM1/AP-1A	AM1/CN-1A	AM1/CP-1A
			cable 90°		AM1/AN-1C	AM1/AP-1C	AM1/CN-1C	AM1/CP-1C
			M8		AM1/AN-1F	AM1/AP-1F	AM1/CN-1F	AM1/CP-1F
			M12		AM1/AN-1H	AM1/AP-1H	AM1/CN-1H	AM1/CP-1H
	unshielded		cable	4	AM1/AN-2A	AM1/AP-2A	AM1/CN-2A	AM1/CP-2A
			cable 90°		AM1/AN-2C	AM1/AP-2C	AM1/CN-2C	AM1/CP-2C
			M8		AM1/AN-2F	AM1/AP-2F	AM1/CN-2F	AM1/CP-2F
			M12		AM1/AN-2H	AM1/AP-2H	AM1/CN-2H	AM1/CP-2H
	shielded	cable	8	AM1/AN-3A	AM1/AP-3A	AM1/CN-3A	AM1/CP-3A	
		M12		AM1/AN-3H	AM1/AP-3H	AM1/CN-3H	AM1/CP-3H	
	unshielded	cable	8	AM1/AN-4A	AM1/AP-4A	AM1/CN-4A	AM1/CP-4A	
		M12		AM1/AN-4H	AM1/AP-4H	AM1/CN-4H	AM1/CP-4H	

available models

short housing

diameter	installation	distance	connection	distance (mm)	NPN/NO	PNP/NO	NPN/NC	PNP/NC
M12	shielded	standard	cable	2	AM6/AN-1A	AM6/AP-1A	AM6/CN-1A	AM6/CP-1A
			cable 90°		AM6/AN-1C	AM6/AP-1C	AM6/CN-1C	AM6/CP-1C
			M12		AM6/AN-1H	AM6/AP-1H	AM6/CN-1H	AM6/CP-1H
	unshielded		cable	4	AM6/AN-2A	AM6/AP-2A	AM6/CN-2A	AM6/CP-2A
			cable 90°		AM6/AN-2C	AM6/AP-2C	AM6/CN-2C	AM6/CP-2C
			M12		AM6/AN-2H	AM6/AP-2H	AM6/CN-2H	AM6/CP-2H
	shielded	long distance	cable	8	AM6/AN-3A	AM6/AP-3A	AM6/CN-3A	AM6/CP-3A
			M12		AM6/AN-3H	AM6/AP-3H	AM6/CN-3H	AM6/CP-3H
	unshielded		cable	8	AM6/AN-4A	AM6/AP-4A	AM6/CN-4A	AM6/CP-4A
			M12		AM6/AN-4H	AM6/AP-4H	AM6/CN-4H	AM6/CP-4H

available models

DC 2 wires models

diameter	installation	distance	connection	distance (mm)	NO - NPN/PNP
M12	shielded	standard	cable	2	AM1/A0-1A
			M12		AM1/A0-1H
	unshielded		cable	4	AM1/A0-2A
			M12		AM1/A0-2H
	shielded	long distance	cable		AM1/A0-3A
			M12		AM1/A0-3H
	unshielded		cable	8	AM1/A0-4A
			M12		AM1/A0-4H

	AM*/**-1*	AM*/**-2*	AM*/**-3*	AM*/**-4*
				
nominal sensing distance Sn	2 mm	4 mm	4 mm	8 mm
operating distance	0...1.6 mm	0...3.2 mm	0...3.2 mm	0...6.4 mm
hysteresis	1...20%			
standard target	12x12 mm FE 360			24x24 mm FE 360
repeatability	5% UB 20-30 V Ta = 23°C ± 5°C			
operating voltage	10...30 Vdc			
max ripple content	≤ 10%			
output type	NPN or PNP - NO or NC (3 wires models), NPN/PNP - NO (2 wires models)			
output current	≤ 200 mA (3...100 mA for 2 wires versions)			
output voltage drop	≤ 1.8 V @ 200 mA (2,8 V @ 100 mA for 2 wires versions)			
no-load supply current	10 mA			
leakage current	10 µA (0.8 mA for 2 wires versions)			
switching frequency	2 kHz (1.5 kHz for 2 wires)		2 kHz (750 Hz for 2 wires)	
power on delay	50 ms			
ambient temperature range	-25...+70 °C			
temperature drift of Sr	10%			
short-circuit protection	●			
voltage reversal protection	●			
induction protection	●			
shocks and vibrations	IEC/EN60947-5-2			
weight	30 g connector (20 g short body) 70 g cable (60 g short body)			
LEDs	yellow LED output state			
protection degree	IP67 ⁽¹⁾ (EN60529)			
EMC	in conformity with the EMC Directive, according to IEC 60947-5-2			
housing material	nickel-plated brass			
active head material	PBT			
connection	cable 2 m PVC - plug M8 or M12			
tightening torque	10 Nm			

⁽¹⁾Protection guaranteed only with plug cable wall mounted

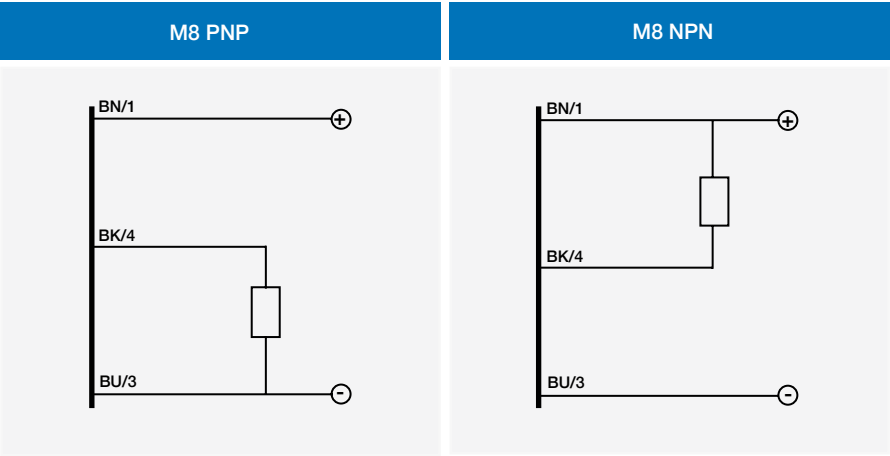


correction factors

code	steel FE 360	copper	alluminium	brass	stainless steel
AM*/**-1*	1	0.22	0.31	0.41	0.77
AM*/**-2*		0.41	0.47	0.56	1.15
AM*/**-3*		0.33	0.4	0.5	1.05
AM*/**-4*		0.41	0.46	0.52	0.71
AM*/0-1*		0.3	0.35	0.5	0.8
AM*/0-2*		0.52	0.57	0.62	0.87
AM*/A0-3*		0.42	0.47	0.55	0.8

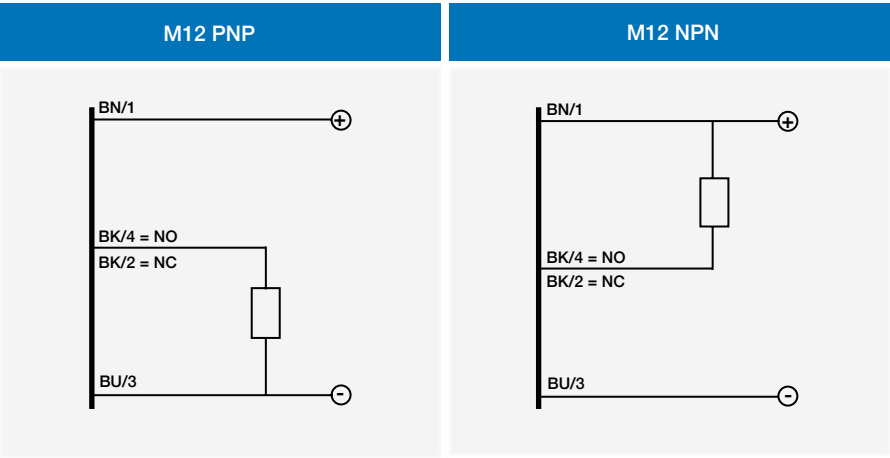
electrical diagrams of connections

3 wires versions



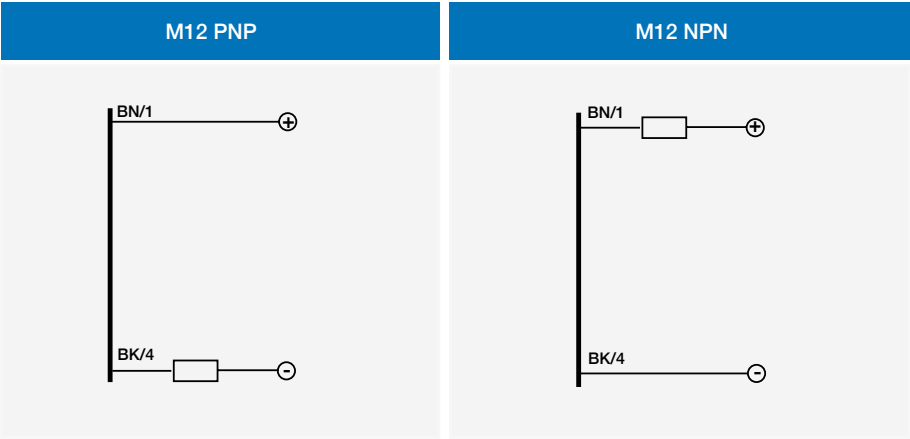
electrical diagrams of connections

3 wires versions



electrical diagrams of connections

2 wires versions

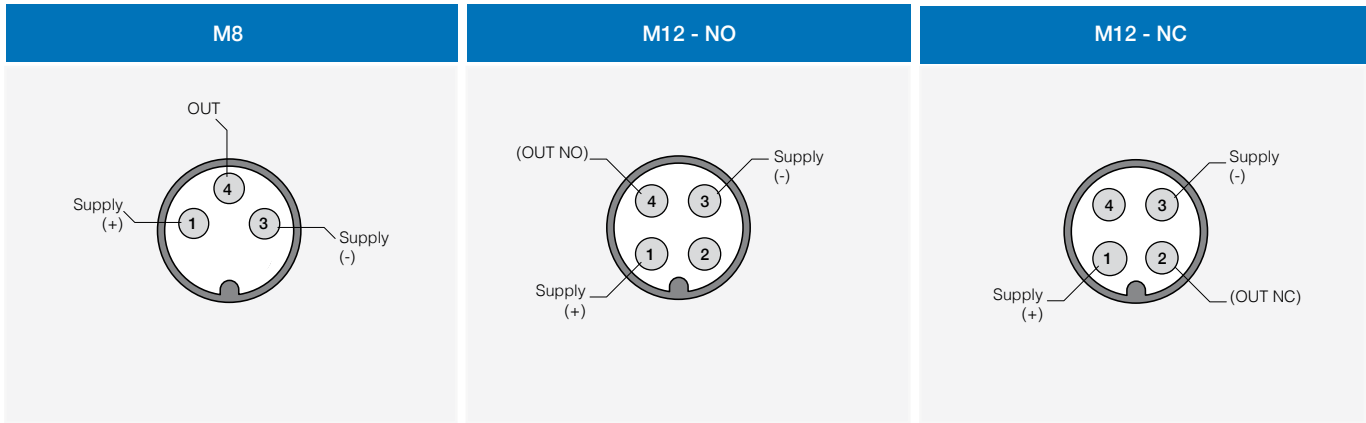


- BN brown
- BU blue
- BK black
- WH white

M12 cylindrical

plug

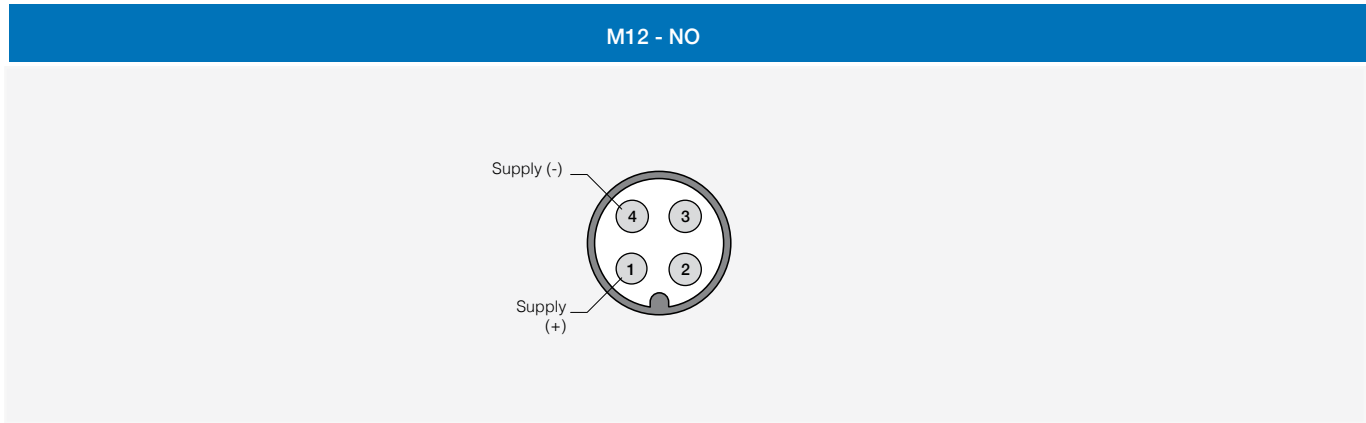
3 wires versions



Connectors CD series

plug

2 wires versions

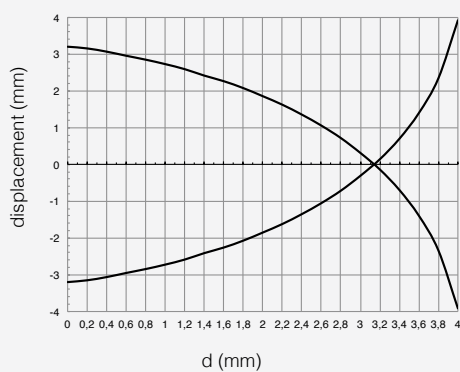


Connectors CD series

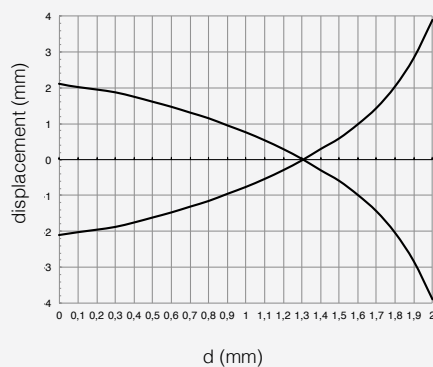
AM

response diagram

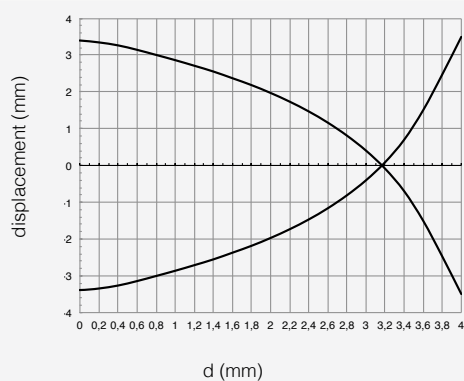
AM*/**-2* parallel displacement



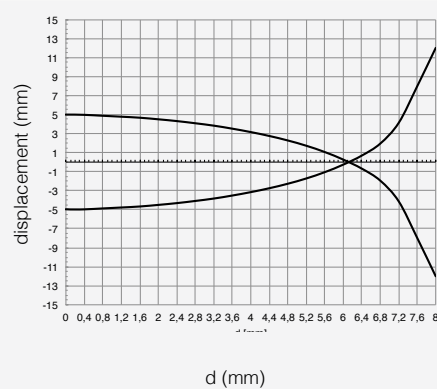
AM6/**-1* parallel displacement



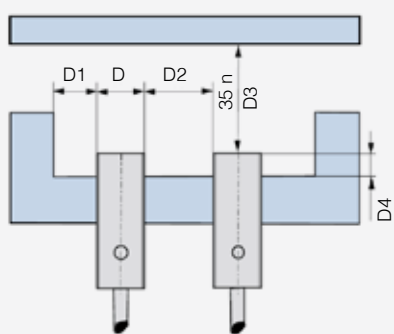
AM*/**-3* parallel displacement



AM*/**-4* parallel displacement



installation



code	D4	D1	D2	D3
AM*/**-1*	≥ 0 mm	≥ 6 mm	≥ 12 mm	≥ 6 mm
AM*/**-2*	≥ 1.2 mm	≥ 12 mm	≥ 24 mm	≥ 12 mm
AM*/**-3*	≥ 12 mm ⁽¹⁾	> 7 mm	≥ 12 mm	≥ 12 mm
AM*/**-4*	≥ 8 mm	≥ 12 mm	> 27 mm	≥ 24 mm
AM*/0-1*	≥ 2.4 mm	≥ 6 mm	≥ 12 mm	≥ 6 mm
AM*/0-2*	≥ 8 mm	≥ 12 mm	≥ 24 mm	≥ 12 mm
AM*/0-3*	≥ 2.4 mm	≥ 6 mm	≥ 12 mm	≥ 12 mm
AM*/0-4*	≥ 16 mm	≥ 12 mm	≥ 24 mm	≥ 24 mm

⁽¹⁾ ≥ 2 mm for non magnetic material



M12 cylindrical

AM1/*0-1A	AM1/*0-1H	AM1/*0-2A
AM1/*0-2H	AM1/*0-1C	AM1/*0-2C

1 LED

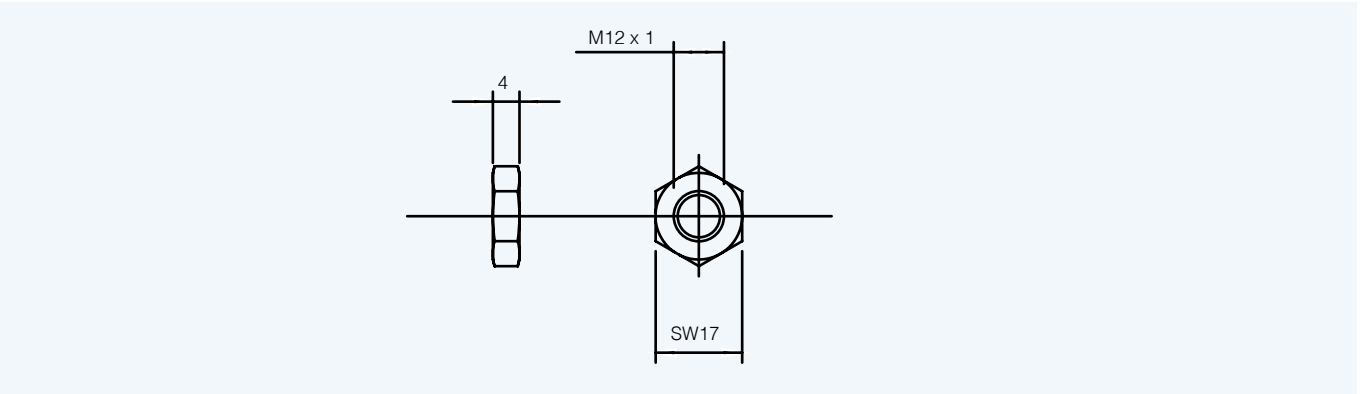
dimensions (mm)

AM1/**-1A AM1/**-3A	AM1/**-1H AM1/**-3H
AM1/**-2A AM1/**-4A	AM1/**-2H AM1/**-4H

1 LED

AM6/**-1A AM6/**-3A	AM6/**-1H AM6/**-3H
AM6/**-2A AM6/**-4A	AM6/**-2H AM6/**-4H

1 LED







PM3 series

M12 DECOUT®
cylindrical inductive sensors



M12 DECOUT®
cylindrical

features

- Wide range of models: standard, DECOUT output
- Output: cable, M12 plug cable exit
- Models with 4 wires
- ATEX models, cat. 3, available on request



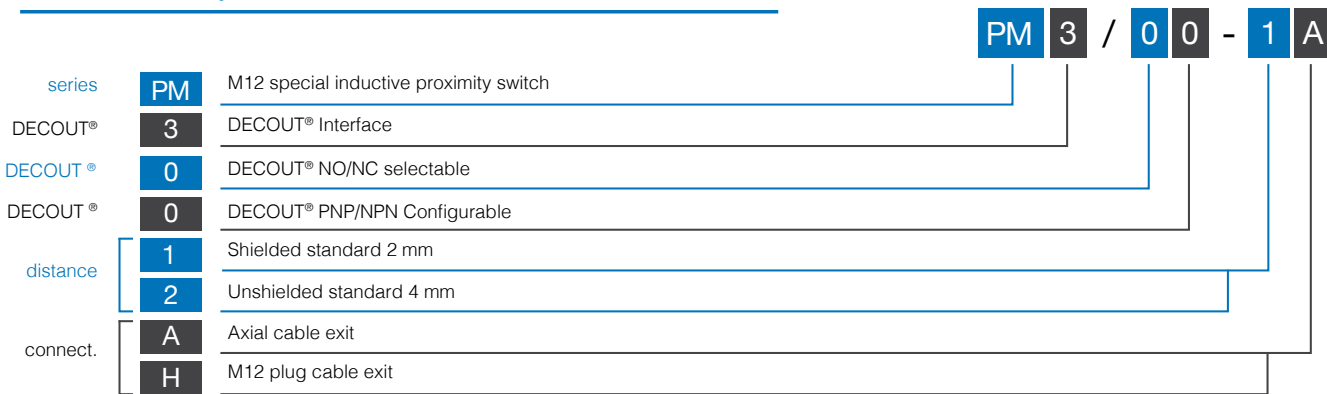
web contents



- Application notes
- Photos
- Catalogue / Manuals



code description (*)



(*) ATEX models available, contact our Sales Dept. for further information.

available models

DECOUT models

diameter	installation	distance	plug	distance (mm)	NO/NC - PNP/NPN
M12	shielded	standard	cavo	2	PM3/00-1A
			M12		PM3/00-1H
	unshielded		cavo	4	PM3/00-2A
			M12		PM3/00-2H



M12 DECOU®
cylindrical

technical specification

	PM3/00-1*	PM3/00-2*
		
nominal sensing distance Sn	2 mm	4 mm
operating distance	0...1.6 mm	0...3.2 mm
hysteresis	1...20%	
standard target	12x12 mm FE 360	
repeatability	5% (UB 20-30 V Ta = 23°C ± 5°C)	
operating voltage	10...30 Vcc	
max ripple content	≤ 10%	
output type	NPN/PNP - NO/NC	
output current	≤ 100 mA	
output voltage drop	≤ 1.2 V @ 100 mA	
no-load supply current	30 mA	
leakage current	10 µA	
switching frequency	1 kHz	
power on delay	100 ms	
ambient temperature range	-25...+70 °C	
temperature drift of Sr	10%	
short-circuit protection	●	
voltage reversal protection	●	
induction protection	●	
shocks and vibrations	IEC/EN60947-5-2	
weight	29 g connector / 66 g cable	
LEDs	output state	
protection degree	IP 67 ⁽¹⁾ (EN60529)	
EMC	in conformity with the EMC Directive according to IEC 60947-5-2	
housing material	nickel-plated brass (Stainless steel for "W" version)	
active head material	PBT	
connection	cable 2 m PVC - plug M12	

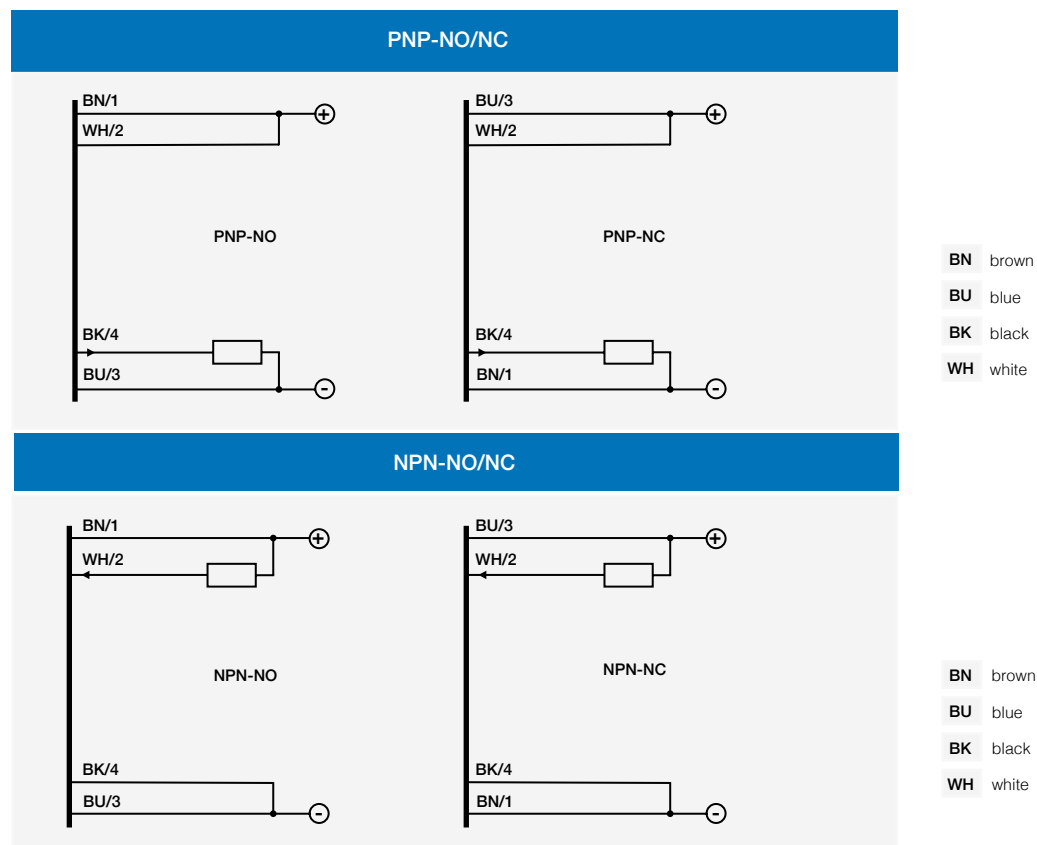
⁽¹⁾ Protection guaranteed only with plug cable well mounted

correction factors

code	steel FE 360	copper	alluminium	brass	stainless steel
PM3/00-1*	1	0.3	0.35	0.5	0.8
PM3/00-2*		0.52	0.57	0.62	0.87

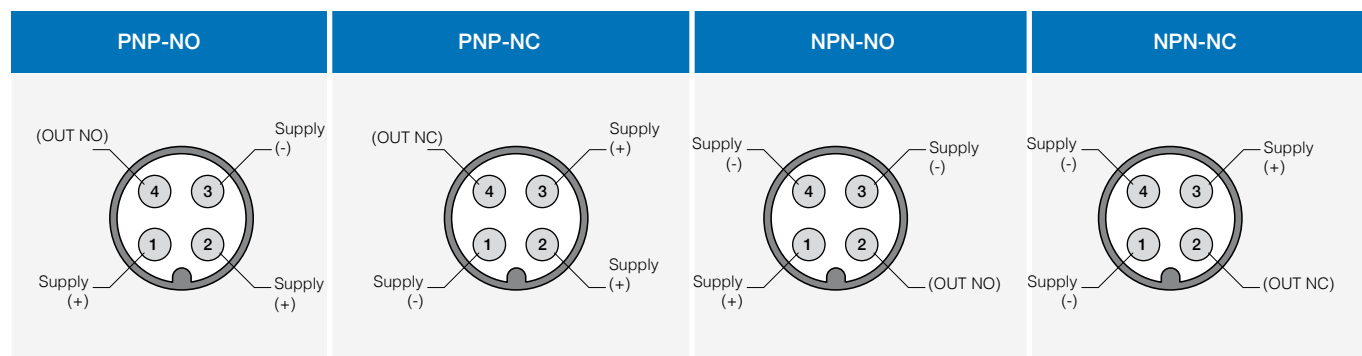
electrical diagrams of connections

PM3 DECOUT® versions

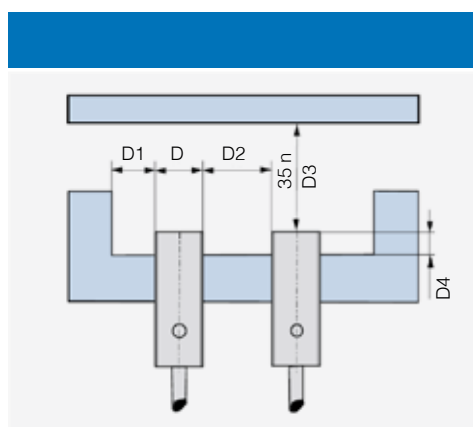


plug

PM3 DECOUT® versions



installation



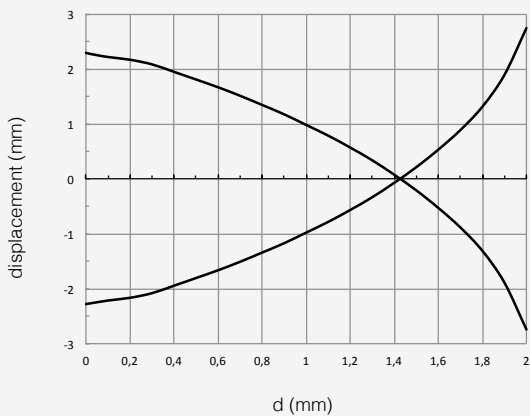
code	D4	D1	D2	D3
PM3/00-1*	≥ 0 mm	≥ 6 mm	≥ 12 mm	≥ 6 mm
PM3/00-2*	≥ 1.2 mm	≥ 12 mm	≥ 24 mm	≥ 12 mm



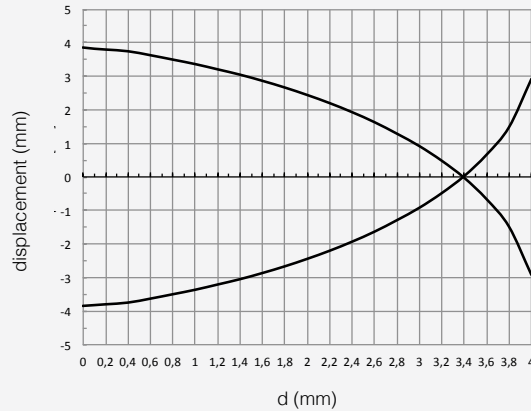
M12 DECOULT®
cylindrical

response diagram

PM3/**-1*

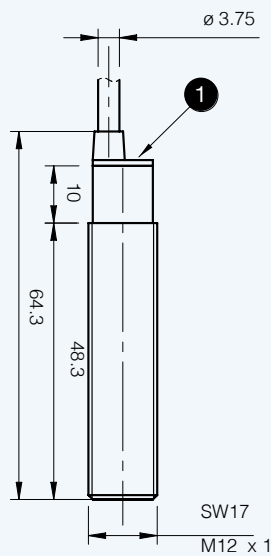


PM3/**-2*

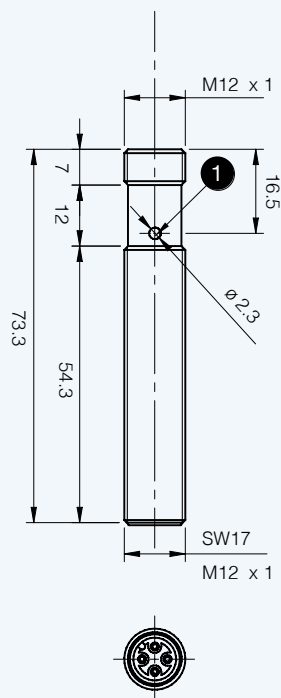


dimensions (mm)

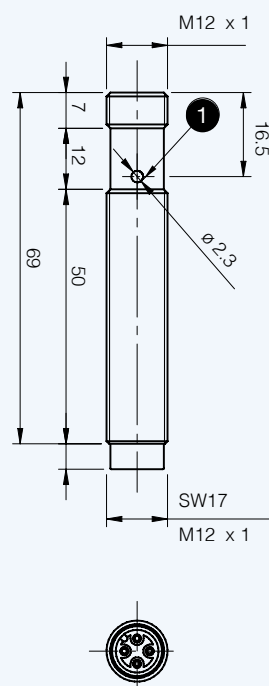
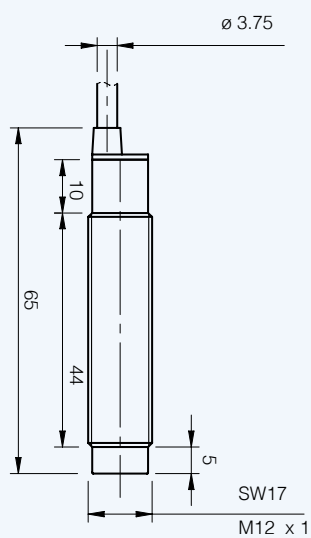
PM3/00-1A



PM3/00-*H



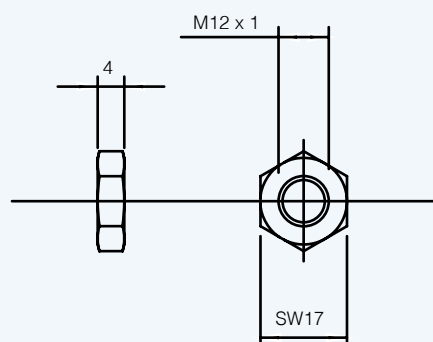
1 LED



1 LED

dimensions (mm)

accessories included



metallic
nut (2 x)





AK series

M18 cylindrical inductive sensors



M18 cylindrical

features

- Wide range of models: standard, long distance
- Output: cable, M12 and plug cable exit
- Models with 2, 3, and 4 wires
- ATEX models, cat. 3, available on request
- Models with complementary output (NO+NC)



web contents



- Application notes
- Photos
- Catalogue / Manuals



code description^(*)

	AK	1	/	A	P	-	1	A
series	AK	M18 inductive proximity switch						
housing	1	Standard body						
	6	Short body						
output state	A	NO output state						
	C	NC output state						
	B	NO and NC complementary outputs						
output logic	N	NPN logic output						
	0	2 wires version						
	P	PNP logic output						
distance	1	Shielded standard 5 mm						
	2	Unshielded standard 8 mm						
	3	Long distance shielded 8 mm						
	4	Unshielded long distance 12 mm						
connect.	A	Axial cable exit						
	C	Right angle cable exit						
	H	M12 plug cable exit						

(*) ATEX models available, contact our Sales Dept. for further information.

available models

standard housing

diameter	installation	distance	exit	distance (mm)	NPN/NO	PNP/NO	NPN/NC	PNP/NC
M18	shielded	standard	cable	5	AK1/AN-1A	AK1/AP-1A	AK1/CN-1A	AK1/CP-1A
			cable 90°		AK1/AN-1C	AK1/AP-1C	AK1/CN-1C	AK1/CP-1C
			M12		AK1/AN-1H	AK1/AP-1H	AK1/CN-1H	AK1/CP-1H
	unshielded		cable	8	AK1/AN-2A	AK1/AP-2A	AK1/CN-2A	AK1/CP-2A
			cable 90°		AK1/AN-2C	AK1/AP-2C	AK1/CN-2C	AK1/CP-2C
			M12		AK1/AN-2H	AK1/AP-2H	AK1/CN-2H	AK1/CP-2H
	shielded	long distance	cable		AK1/AN-3A	AK1/AP-3A	AK1/CN-3A	AK1/CP-3A
			M12		AK1/AN-3H	AK1/AP-3H	AK1/CN-3H	AK1/CP-3H
	unshielded		cable	12	AK1/AN-4A	AK1/AP-4A	AK1/CN-4A	AK1/CP-4A
			M12		AK1/AN-4H	AK1/AP-4H	AK1/CN-4H	AK1/CP-4H

available models

short housing

diameter	installation	distance	exit	distance (mm)	NPN/NO	PNP/NO	NPN/NO + NC	PNP/NO + NC
M18	shielded	standard	cable	5	AK6/AN-1A	AK6/AP-1A	AK6/BN-1A	AK6/BP-1A
	unshielded			8	AK6/AN-2A	AK6/AP-2A	AK6/BN-2A	AK6/BP-2A
	shielded	long distance			AK6/AN-3A	AK6/AP-3A	AK6/BN-3A	AK6/BP-3A
	unshielded			12	AK6/AN-4A	AK6/AP-4A	AK6/BN-4A	AK6/BP-4A
	shielded	standard	M12	5	AK6/AN-1H	AK6/AP-1H	AK6/BN-1H	AK6/BP-1H
	unshielded			8	AK6/AN-2H	AK6/AP-2H	AK6/BN-2H	AK6/BP-2H
	shielded	long distance			AK6/AN-3H	AK6/AP-3H	AK6/BN-3H	AK6/BP-3H
	unshielded			12	AK6/AN-4H	AK6/AP-4H	AK6/BN-4H	AK6/BP-4H

available models

DC 2 wires models

diameter	installation	distance	exit	distance (mm)	NO - PNP/NPN
M18	shielded	standard	cable	5	AK1/A0-1A
			M12		AK1/A0-1H
	unshielded		cable	8	AK1/A0-2A
			M12		AK1/A0-2H
	shielded	long distance	cable		AK1/A0-3A
			M12		
	unshielded		cable	12	AK1/A0-4A
			M12		AK1/A0-4H

correction factors

code	steel FE 360	copper	alluminium	brass	stainless steel
AK1/**-1*	1	0.4	0.48	0.72	0.86
AK1/**-2*		0.45	0.53	0.56	0.77
AK1/**-3*		0.4	0.45	0.5	0.75
AK1/**-4*		0.45	0.53	0.56	0.77
AK6/**-1*		0.12	0.2	0.26	0.62
AK6/**-2*		0.3	0.37	0.46	0.78
AK6/**-3*		0.13	0.2	0.24	0.61
AK6/**-4*		0.32	0.39	0.42	0.69

technical specification

	AK1/**-1*	AK1/**-2*	AK1/**-3*	AK1/**-4*
				
nominal sensing distance	5 mm	8 mm	8 mm	12 mm
operating distance	0...4 mm	0...6.5 mm	0...6.5 mm	0...9.7 mm
hysteresis	1...20%			
standard target	18 x 18 mm FE 360	24 x 24 mm FE 360		36 x 36 mm FE 360
repeatability	5%			
operating voltage	10...30 Vdc			
output type	NPN or PNP - NO or NC (3 wires models), NPN/PNP- NO (2 wires models)			
max ripple content	≤ 10%			
output current	≤ 400 mA (3...100 mA or 2 wires versions)			
output voltage drop	≤ 1V @ 400 mA (2.8 V @ 100 mA or 2 wires versions)			
no-load supply current	20 mA			
leakage current	10 µA (0.8 mA or 2 wires versions)			
switching frequency	600 Hz (300 Hz for 2 wires)		300 Hz (150 Hz for 2 wires)	
power on delay	50 ms			
ambient temperature range	-25...+70 °C			
temperature drift of Sr	10%			
short-circuit protection	●			
voltage reversal protection	●			
induction protection	●			
shocks and vibrations	IEC 60947-5-2			
weight	55 g connector 130 g cable			
LEDs	yellow LED output state			
protection degree	IP 67 ⁽¹⁾ (EN60529)			
EMC	in conformity with the EMC Directive according to IEC 60947-5-2			
housing material	nickel-plated brass			
active head material	PBT			
connection	cable 2 m PVC - plug M12			
tightening torque	25 Nm			

⁽¹⁾ Protection guaranteed only with plug cable well mounted



technical specification

	AK6/**-1*	AK6/**-2*	AK6/**-3*	AK6/**-4*
				
nominal sensing distance	5 mm	8 mm	8 mm	12 mm
operating distance	0...4 mm	0...6.5 mm	0...6.5 mm	0...9.7 mm
hysteresys	0...20%			
standard target	18x18 mm FE 360	24x24 mm FE 360		36x36 mm FE 360
repeatability	5% Ub 20-30V Ta=23°C±5°C			
operating voltage	10...30 Vdc			
ripple	≤ 10 %			
output current	≤ 400 mA			
output voltage drop	≤ 1.5 V @ 400 mA			
no-load current	≤ 10 mA			
logic output	PNP or NPN			
output state	NO or NO+NC			
leakage current	10 µA			
switching frequency	2,5 KHz	2 KHz	2,5 KHz	2 KHz
power on delay	≤ 50 ms			
temperature range	-25°C...+70°C			
temperature drift	≤ 10%			
short circuit protection	● (autoreset)			
induction protection	●			
voltage reversal protection	●			
EMC	in conformity with the EMC Directive, according to IEC 60947-5-2			
shocks and vibrations	IEC 60947-5-2			
protection degree	IP67			
housing material	nickelplated brass			
active head material	PBT			
LEDs	output on (yellow LED)			
connections	M12 connector, 2 m PVC cable			
tightening torque	25 Nm			

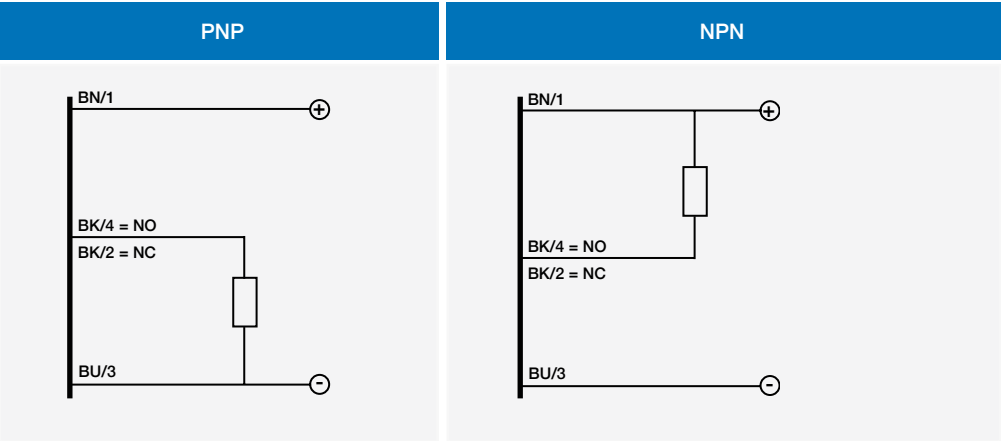
⁽¹⁾ Protection guaranteed only with plug cable well mounted

correction factors

code	steel FE 360	copper	alluminium	brass	stainless steel
AK6/00-1*	1	0.36	0.43	0.49	0.80
AK6/00-2*	1	0.43	0.38	0.75	0.31
AK6/00-3*	1	0.39	0.45	0.51	0.77
AK6/00-4*	1	0.47	0.42	0.74	0.36

electrical diagrams of connections

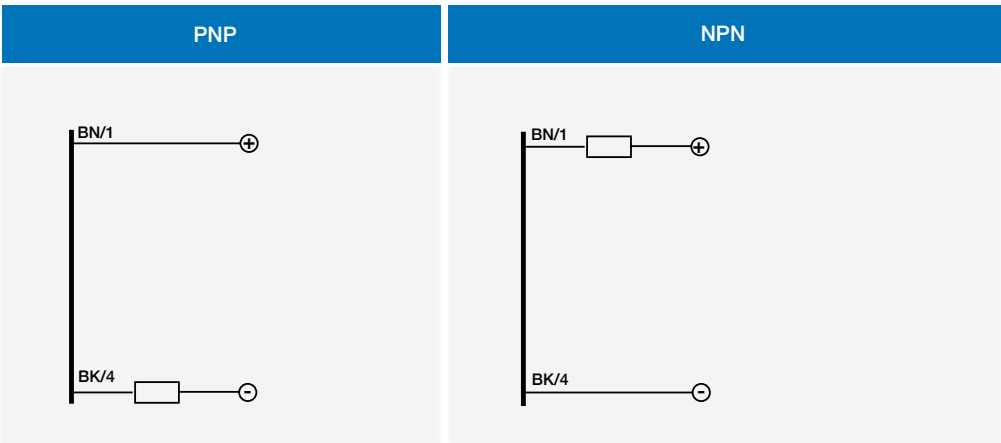
3 wires versions



- BN brown
- BU blue
- BK black
- WH white

electrical diagrams of connections

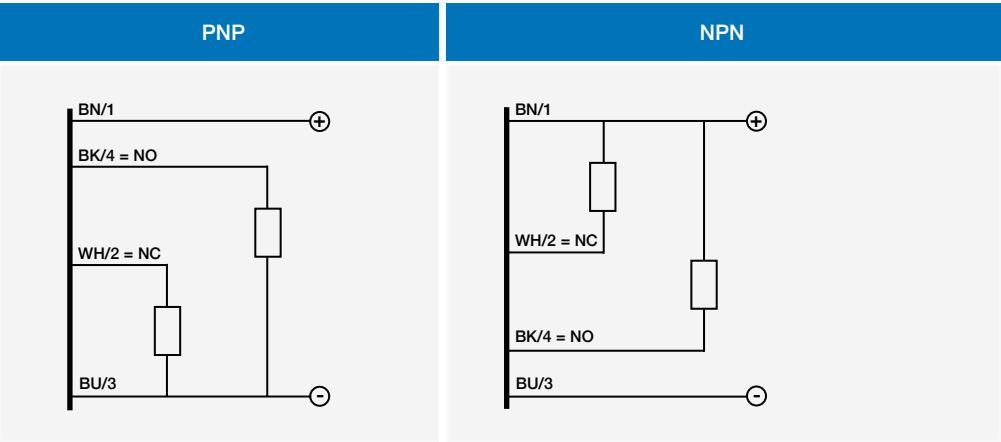
2 wires versions



- BN brown
- BU blue
- BK black
- WH white

electrical diagrams of connections

PKS-PKW complementary outputs versions



- BN brown
- BU blue
- BK black
- WH white

plug

3 wires versions



plug

2 wires versions



plug

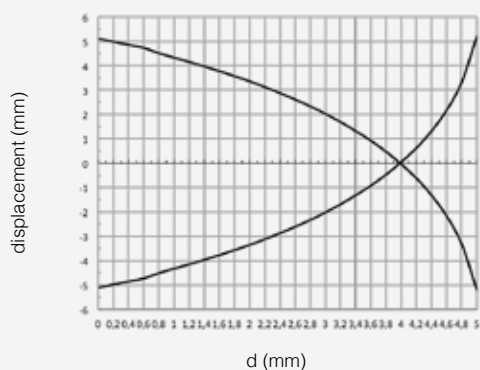
versioni complementary outputs versions

installation

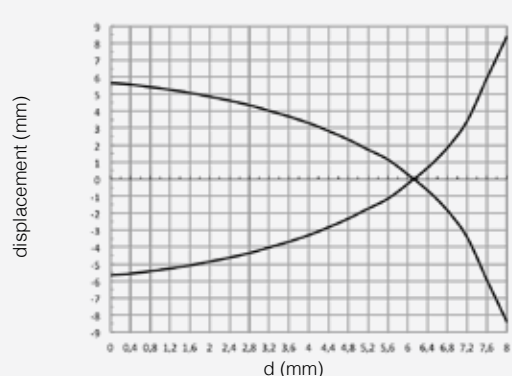
	code	D4	D1	D2	D3
	AK/**-1*	≥ 3.6 mm	≥ 9 mm	≥ 18 mm	≥ 15 mm
	AK/**-2* -	≥ 16 mm	≥ 18 mm	≥ 36 mm	≥ 24 mm
	AK1/**-3*	≥ 3.6 mm	≥ 9 mm	≥ 18 mm	≥ 24 mm
	AK1/**-4*	≥ 16 mm	≥ 18 mm	≥ 36 mm	≥ 36 mm
	AK6/**-1*	≥ 3.6 mm	≥ 9 mm	≥ 18 mm	≥ 15 mm
	AK6/**-2*	≥ 12 mm	≥ 18 mm	≥ 36 mm	≥ 24 mm
	AK6/**-3*	≥ 1.8 mm ⁽¹⁾	≥ 9 mm	≥ 18 mm	≥ 24 mm
	AK6/**-4*	≥ 16 mm	≥ 18 mm	≥ 36 mm	≥ 36 mm

⁽¹⁾ ≥ 5.4 mm for not magnetic materials

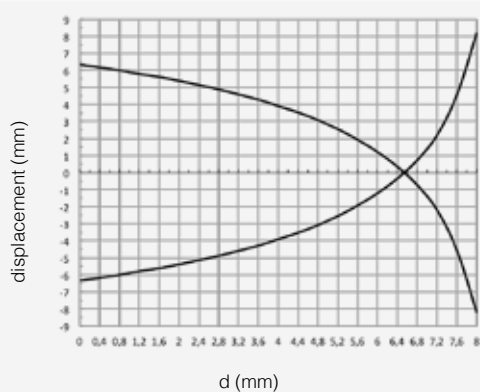
AK1/**-1* parallel displacement



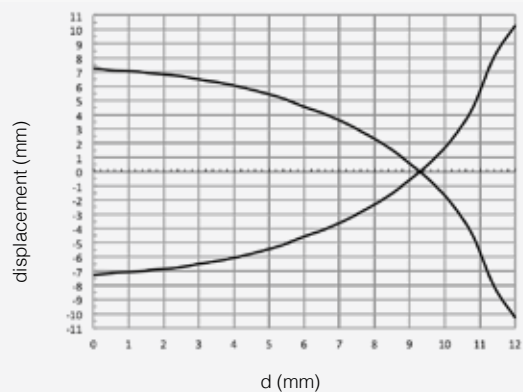
AK1/**-2* parallel displacement



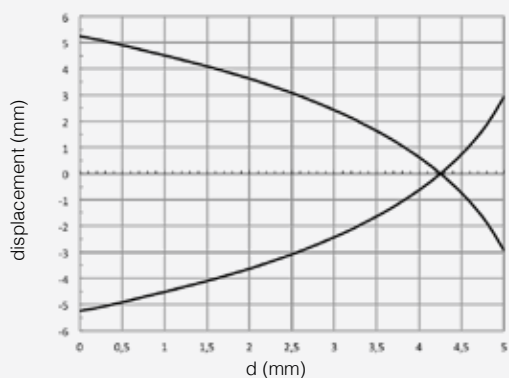
AK1/**-3* parallel displacement



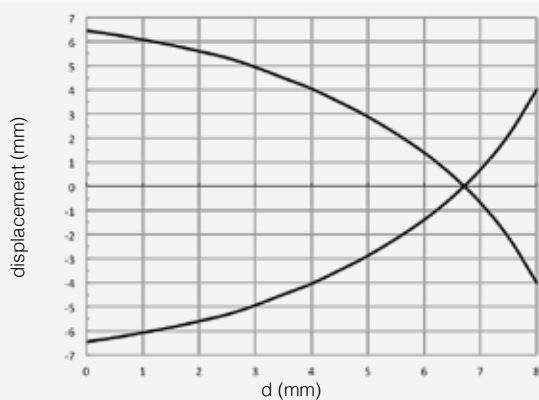
AK1/**-4* parallel displacement



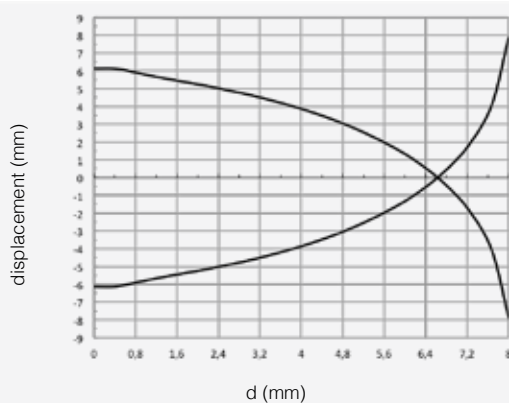
AK6/**-1* parallel displacement



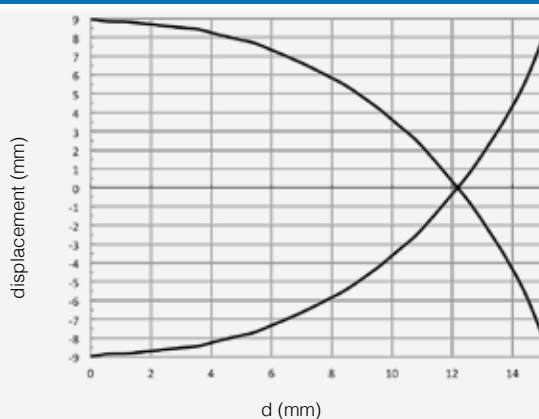
AK6/**-2* parallel displacement



AK6/**-3* parallel displacement



AK6/**-4* parallel displacement



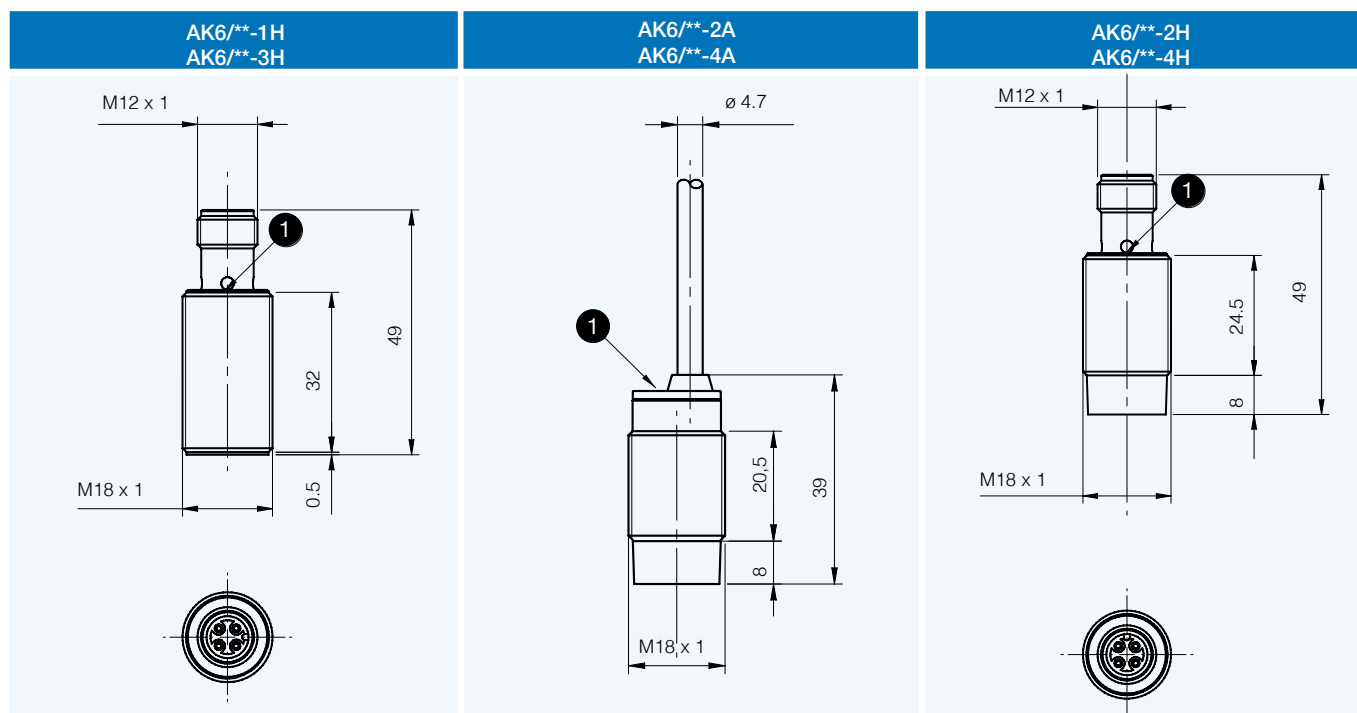
dimensions (mm)

AK1/**-1A AK1/**-3A	AK1/**-1H AK1/**-3H	AK1/**-2A AK1/**-4A
AK1/**-2C AK1/**-4C	AK1/**-2H AK1/**-4H	AK6/**-1A AK6/**-3A

1 LED



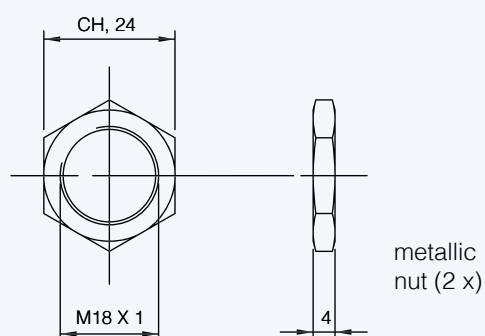
M18 cylindrical



1 LED

dimensions (mm)

accessories included







PK3 series

M18 DECOUT®

cylindrical inductive sensors



M18 DECOUT®
cylindrical

features

- Wide range of models: standard, long distance, DECOUT output
- Output: cable, M12 and plug cable exit
- Models with 4 wires
- ATEX models, cat. 3, available on request
- Special models with double enclosure immersion proof (IP 68)
- Models with complementary output (NO+NC)



web contents



- Application notes
- Photos
- Catalogue / Manuals



code description (*)

	PK	3	/	0	0	-	1	A
series	PK	M18 special inductive proximity switch						
DECOUT®	3	DECOUT® Interface						
DECOUT®	0	DECOUT® NO/NC selectable						
DECOUT®	0	DECOUT® PNP/NPN Configurable						
distance	1	Shielded standard 5 mm						
	2	Unshielded standard 8 mm						
connect.	A	Axial cable exit						
	H	M12 plug cable exit						

(*) ATEX models available, contact our Sales Dept. for further information.

available models

DECOUT® models

diameter	installation	distance	plug	distance	NO/NC - PNP/NPN
M18	shielded	standard	cable	5 mm	PK3/00-1A
			M12		PK3/00-1H
	unshielded		cable	8 mm	PK3/00-2A
			M12		PK3/00-2H

correction factors

code	steel FE 360	copper	alluminium	brass	stainless steel
PK3/00-1*	1	0.4	0.48	0.72	0.86
PK3/00-2*	1	0.45	0.53	0.56	0.77

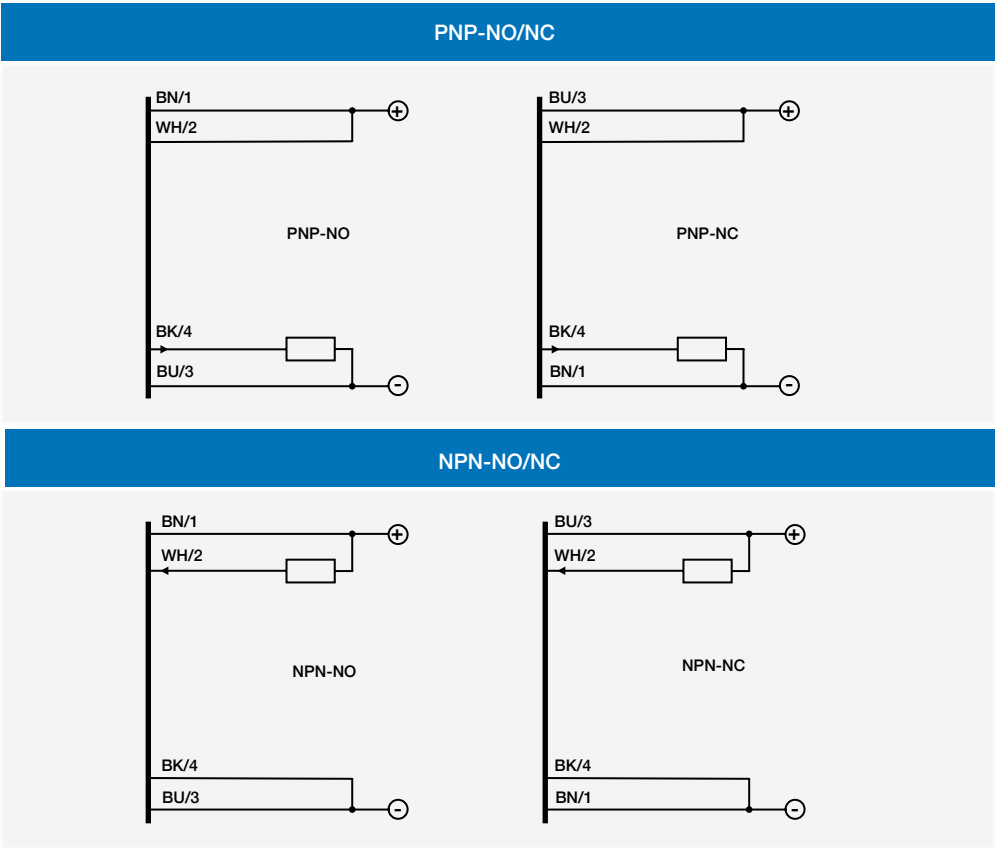


	PK3/00-1*	PK3/00-2*
		
nominal sensing distance S_n	5 mm	8 mm
operating distance	0...4 mm	0...6.5 mm
hysteresis	1...20%	
standard target	18x18 mm FE 360	
repeatability	5%	
operating voltage	10...30 Vdc	
output type	NPN/PNP - NO/NC	
max ripple content	≤ 10%	
output current	≤ 100 mA	
output voltage drop	≤ 1.2 V @ 100 mA	
no-load supply current	30 mA	
leakage current	10 µA	
switching frequency	0.3 kHz	
power on delay	100 ms	
ambient temperature range	-25...+70 °C	
temperature drift of S_r	10%	
short-circuit protection	●	
voltage reversal protection	●	
induction protection	●	
shocks and vibrations	IEC 60947-5-2 / 7.4	
weight	58 g connector 130 g cable	
LEDs	output state	
protection degree	IP 67 ⁽¹⁾ (EN60529)	
EMC	in conformity with the EMC Directive according to IEC 60947-5-2	
housing material	nickel-plated brass (stainless steel for W version)	
active head material	PBT	
connection	cable 2 m PVC - plug M12	
tightening torque	25 Nm	

⁽¹⁾ Protection guaranteed only with plug cable well mounted

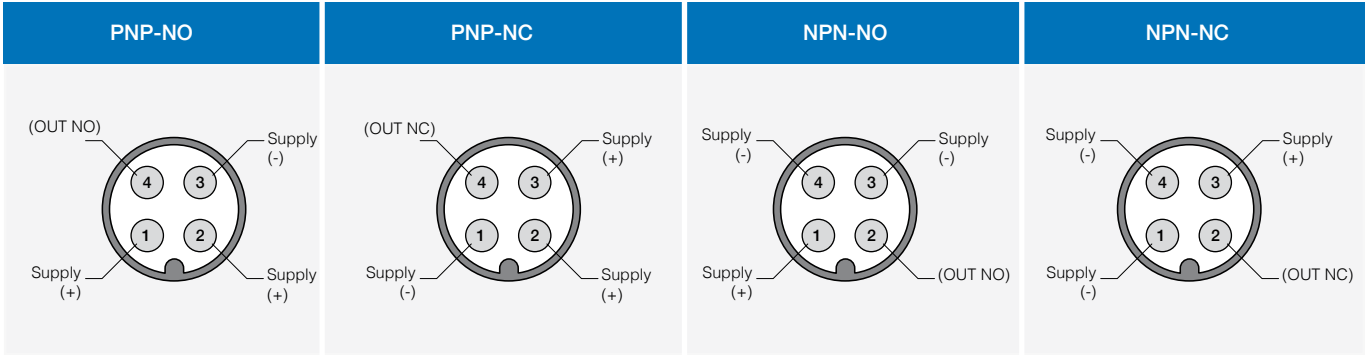
electrical diagrams of connections

PK3 DECOUT versions

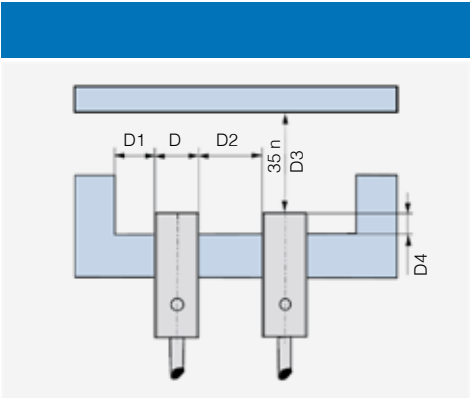


plug

PK3 DECOUT® versions



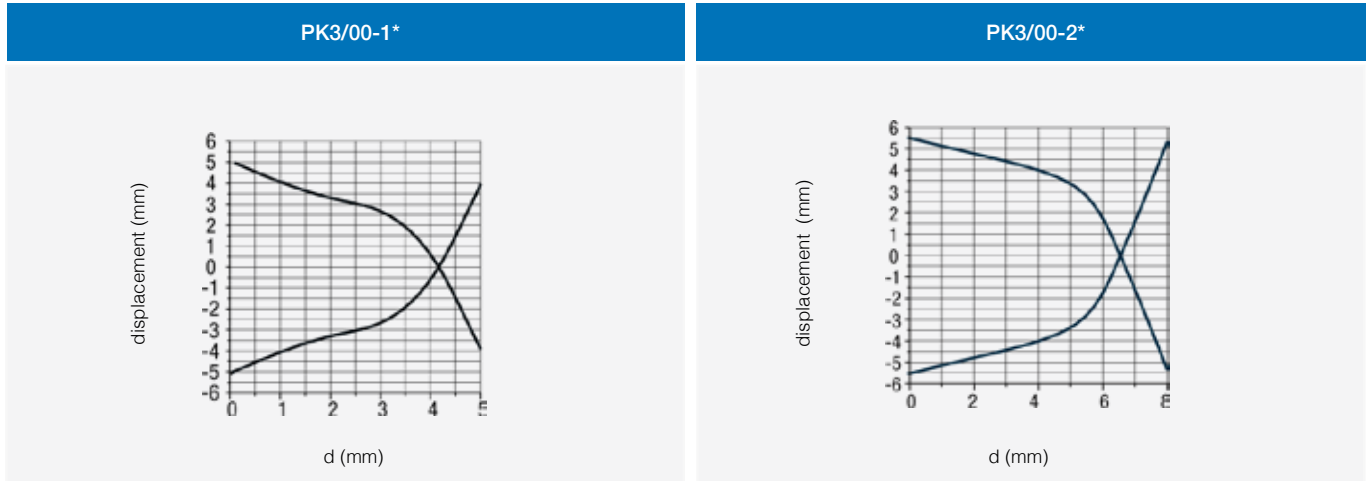
installation



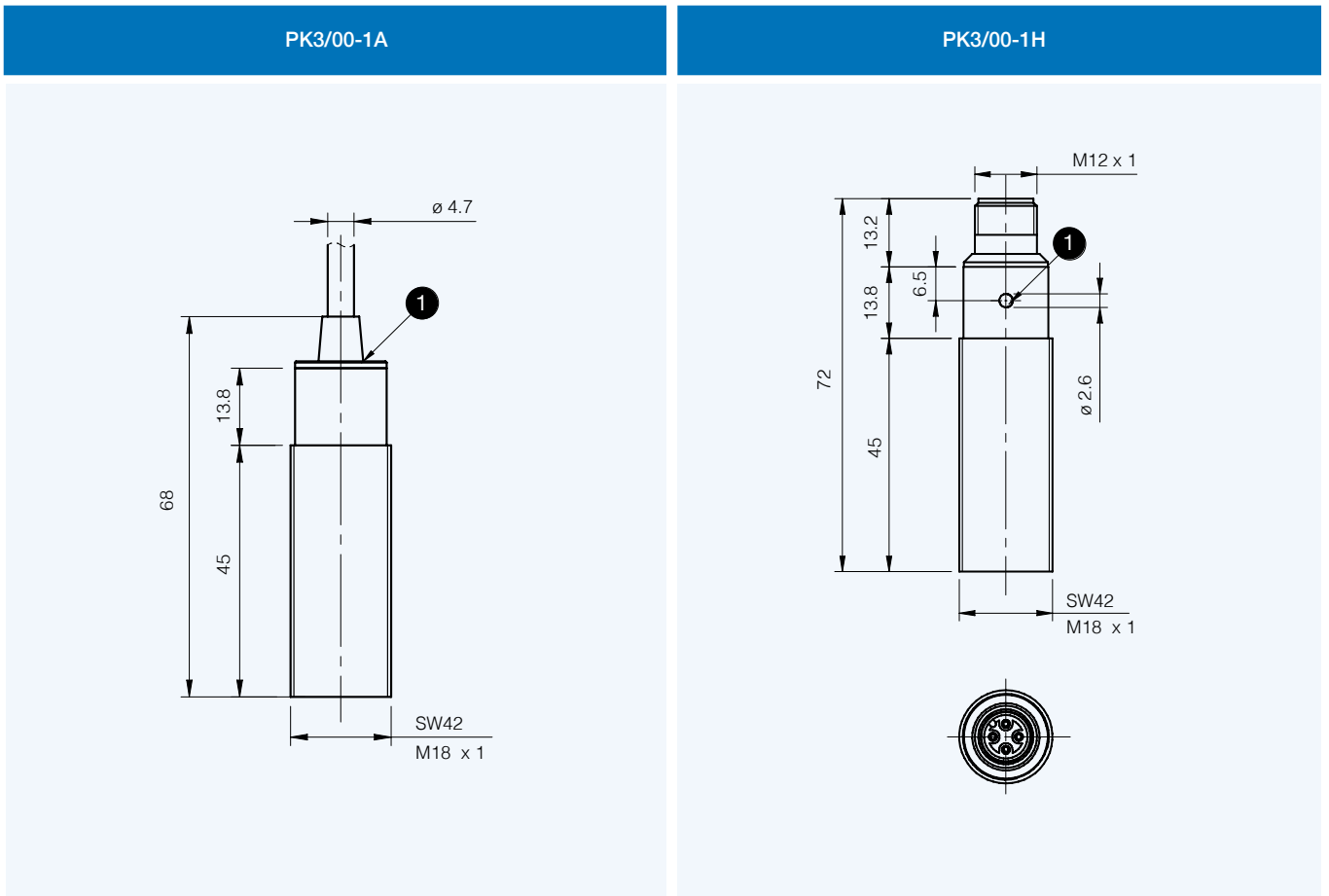
code	D4	D1	D2	D3
PK3/00-1*	≥ 3.6 mm	≥ 9 mm	≥ 18 mm	≥ 15 mm
PK3/00-2*	≥ 16 mm	≥ 18 mm	≥ 36 mm	≥ 24 mm



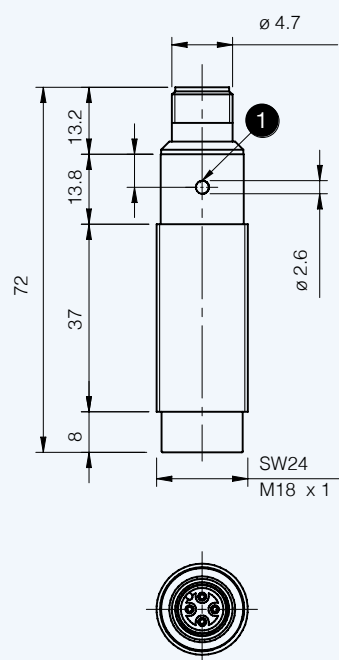
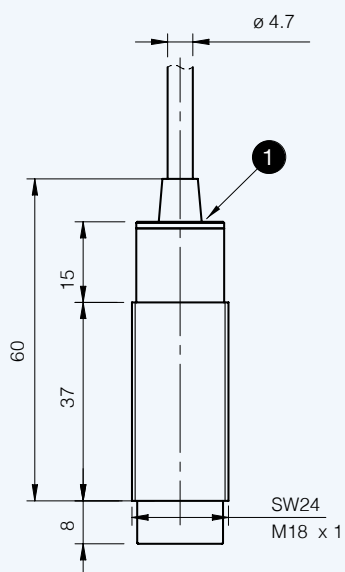
response diagram



dimensions (mm)



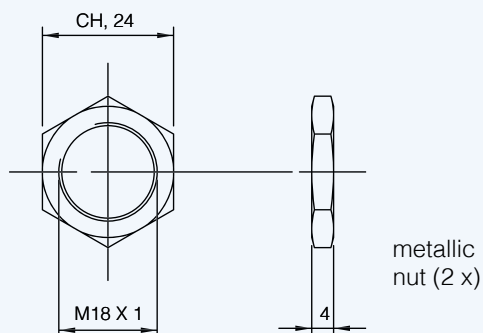
1 LED



1 LED

dimensions (mm)

accessories included







PMS - PKS / PMW - PKW series

M12 & M18 IP67/68 cylindrical
for harsh environments - DC



M12 & M18 IP67/68 cylindrical
for harsh environments - DC



features

- Innovative housing (double enclosure)
- Cutting oils resistant (for machines tool)
- Immersion proof (sealing IP 67/68)
- High frequency switching
- Complementary output (NO+NC), M12 plug cable exit
- ATEX models, cat. 3, available on request
- LED indicator visible at wide angle
- Complete protection against electrical damages

web contents



- Application notes
- Photos
- Catalogue / Manuals



code description (*)

	PMS	/	0	N	-	1	H
series	PMS	M12 inductive proximity sensors (IP 67/68) brass housing					
	PKS	M18 inductive proximity sensors (IP 67/68) brass housing					
	PMW	M12 inductive proximity sensors (IP 67/68) stainless steel housing					
	PKW	M18 inductive proximity sensors (IP 67/68) stainless steel housing					
output state	0	NO+NC complementary output					
output logic	N	NPN logic output					
	P	PNP logic output					
distance	1	Standard shielded (2/5 mm)					
	2	Standard unshielded (4/8 mm)					
connect.	H	M12 plug cable exit					

(*) ATEX models available, contact our Sales Dept. for further information.

available models

diameter	housing	installation	distance (mm)	plug	NPN/NO+NC	PNP/NO+NC
M12	nickel plated brass	shielded	2	M12	PMS/0N-1H	PMS/0P-1H
		unshielded	4		PMS/0N-2H	PMS/0P-2H
	stainless steel	shielded	2		PMW/0N-1H	PMW/0P-1H
		unshielded	4		PMW/0N-2H	PMW/0P-2H

available models

diameter	housing	installation	distance (mm)	plug	NO+NC	NO+NC
M18	nickel plated brass	shielded	5	M12	PKS/0N-1H	PKS/0P-1H
		unshielded	8		PKS/0N-2H	PKS/0P-2H
	stainless steel	shielded	5		PKW/0N-1H	PKW/0P-1H
		unshielded	8		PKW/0N-2H	PKW/0P-2H

technical specification

	PM*/0*-1H	PM*/0*-2H
		
nominal sensing distance	2 mm	4 mm
operating distance	0...1.62 mm	0...3.24 mm
hysteresis	1...20%	
repeatability	5%	
operating voltage	10...30 Vdc	
max ripple content	≤ 10%	
no-load supply current	15 mA	
load current	≤ 200 mA	
leakage current	10 µA	
voltage drop	2 V@200 mA	
output type	NPN or PNP - NO + NC	
switching frequency	2 kHz	
power on delay	50 ms	
power supply protections	polarity reversal, transient	
output protection	short circuit (autoreset)	
temperature range	-25°...+70°C	
temperature drift	10% Sr	
EMC	in conformity with the EMC Directive according to IEC 60947-5-2	
shocks and vibrations	IEC 60947-5-2	
protection degree	IEC IP 67/68 ⁽¹⁾	
LEDs	yellow LED (NO output energized)	
housing material	nickel-plated brass (PMS) stainless steel AISI303 (PMW)	
active head material	PPS	
tightening torque	8 Nm	
weight (approximate)	35 g	

⁽¹⁾ Only in fully locked position with its splug.

Notes: good chemicals and oils resistance, but test should be made in advance when using in harsh environment.



	PK*/0*-1H	PK*/0*-2H
		
nominal sensing distance	5 mm	8 mm
operating distance	0...4.05 mm	0...6.48 mm
hysteresis	1...20%	
repeatability	5%	
operating voltage	10...30 Vdc	
max ripple content	≤ 10%	
no-load supply current	15 mA	
load current	≤ 400 mA	
leakage current	10 µA	
voltage drop	2 V@200 mA	
output type	NPN or PNP - NO + NC	
switching frequency	1.5 kHz	
power on delay	50 ms	
power supply protections	polarity reversal, transient	
output protection	short circuit (autoreset)	
temperature range	-25°...+70°C	
temperature drift	10% Sr	
EMC	in conformity with the EMC Directive according to IEC 60947-5-2	
shocks and vibrations	IEC 60947-5-2	
protection degree (DIN 40 050)	IEC IP 67/68 ⁽¹⁾	
LEDs	yellow (NO output energized)	
housing materials	nickel-plated brass (PKS) stainless steel AISI303 (PKW)	
active head materials	PPS	
tightening torque	50 Nm	
weight (approximate)	50 g PKS - 55 g PKW	

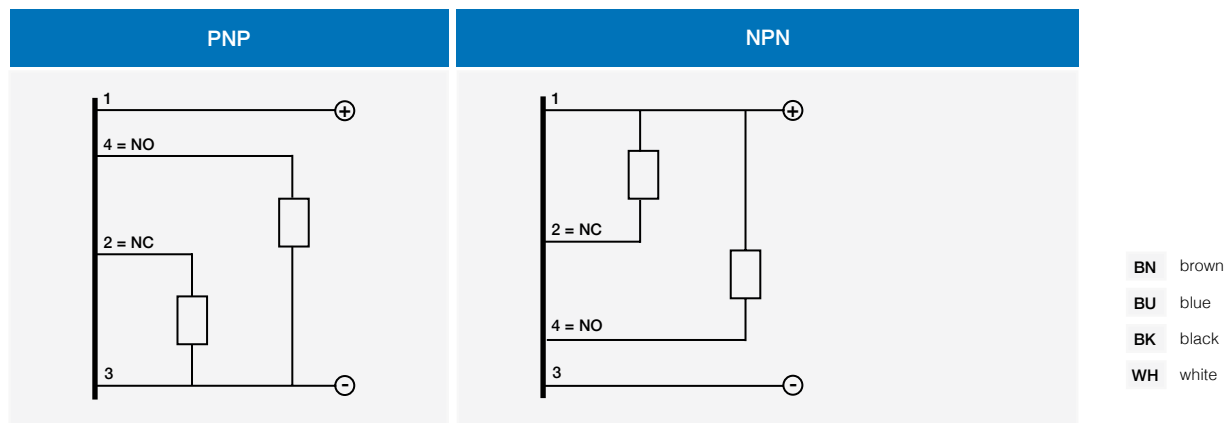
⁽¹⁾ Only in fully locked position with slugs.

Notes: good chemicals and oils resistance, but test should be made in advance when using in harsh environment

correction factors

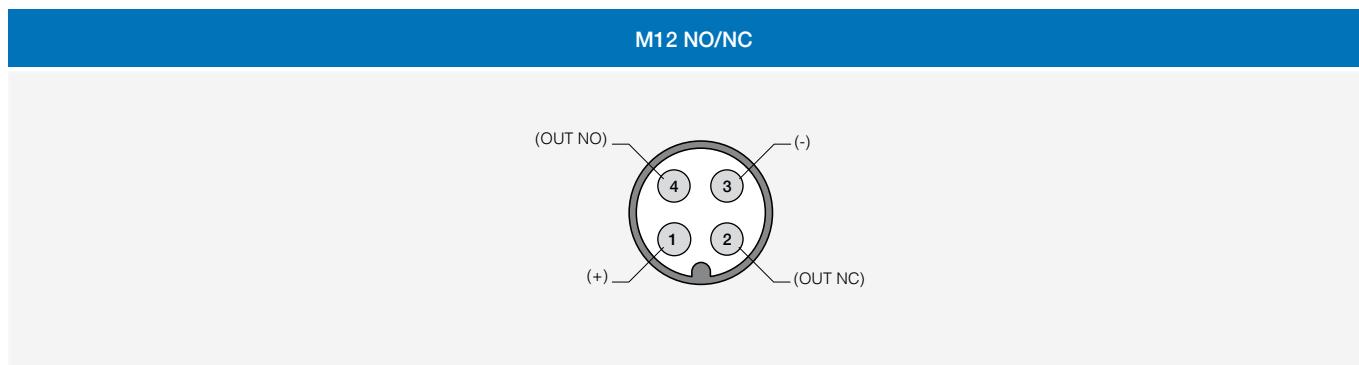
code	steelFE 360	copper	alluminium	brass	stainless steel
PMS/**-1*	1	0.22	0.31	0.41	0.77
PMS/**-2*		0.41	0.47	0.56	1.15
PMW/**-1*		0.02	0,08	0.2	0.68
PMW/**-2*		0.34	0,41	0.51	0.88
PKS/**-1*		0.3	0.35	0.65	0.76
PKS/**-2*		0.38	0.48	0.5	0.7
PKW/**-1*		0.12	0.2	0.26	0.62
PKW/**-2*		0.3	0.37	0.46	0.78

electrical diagrams of connections



The max. admissible capacity $C = 1\mu F$ for max. output voltage and current.

plug



Connectors CD series

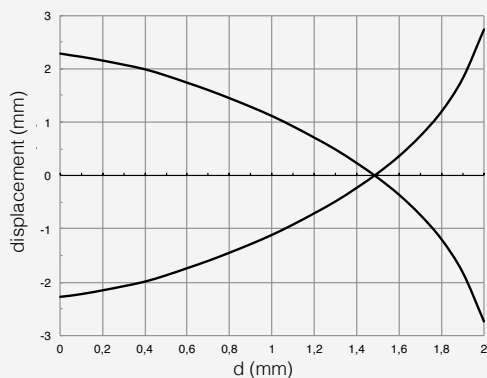
installation

	code	D4	D1	D2	D3
	PMS/**-1*	≥ 0 mm	≥ 6 mm	≥ 12 mm	≥ 6 mm
	PMS/**-2*	≥ 1.2 mm	≥ 12 mm	≥ 24 mm	≥ 12 mm
	PMW/**-1*	≥ 0 mm ⁽¹⁾	≥ 6 mm	≥ 12 mm	≥ 6 mm
	PMW/**-2*	≥ 6 mm ⁽²⁾	≥ 12 mm	≥ 24 mm	≥ 12 mm
	PKS/**-1*	≥ 3 mm	≥ 9 mm	≥ 18 mm	≥ 15 mm
	PKS/**-2*	≥ 12 mm	≥ 18 mm	≥ 36 mm	≥ 24 mm
	PKW/**-1*	≥ 3.6 mm	≥ 9 mm	≥ 18 mm	≥ 15 mm
	PKW/**-2*	≥ 12 mm	≥ 18 mm	≥ 36 mm	≥ 24 mm

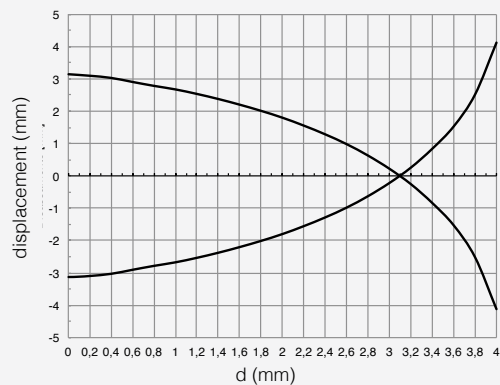
⁽¹⁾ ≥ 2.4 for non magnetic material
⁽²⁾ ≥ 0 mm for non magnetic material

response diagram

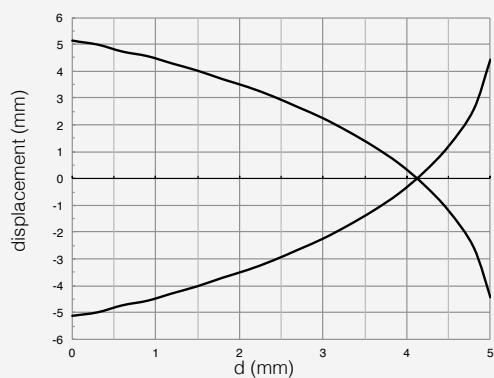
PMS**/-1* parallel displacement



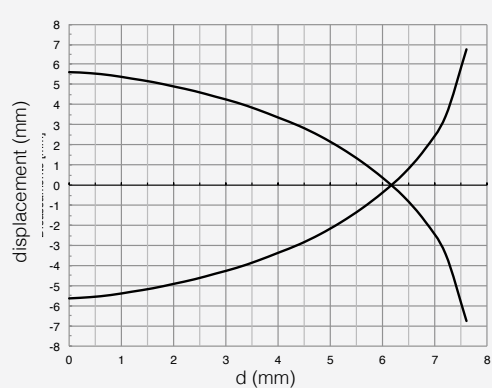
PMS**/-2* parallel displacement



PK**/-1* parallel displacement

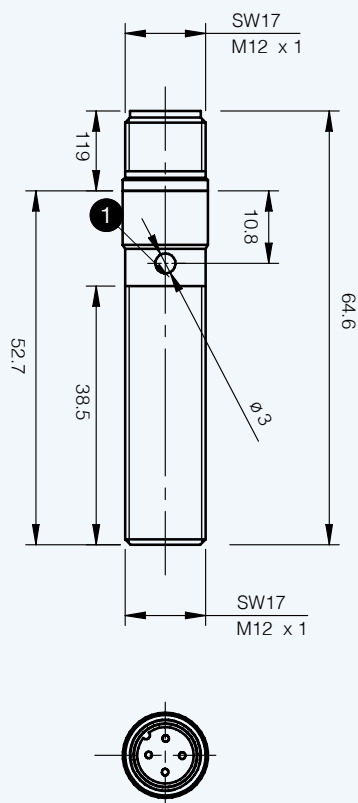


PK**/-2* parallel displacement

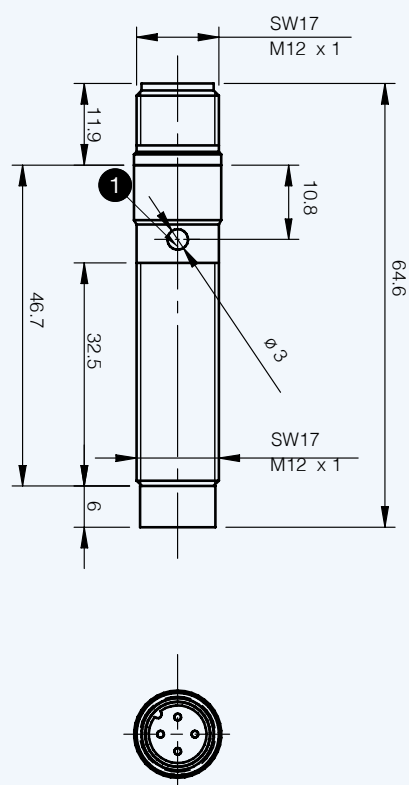


dimensions (mm)

PM**/-1H



PM**/-2H



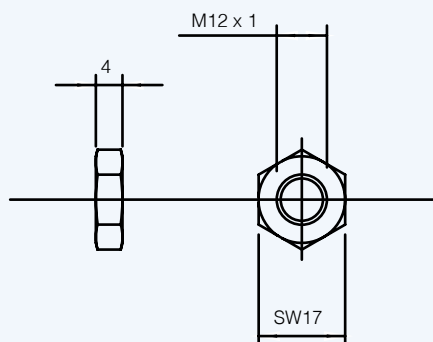
1 LED

201601_MD_Product Catalogue



dimensions (mm)

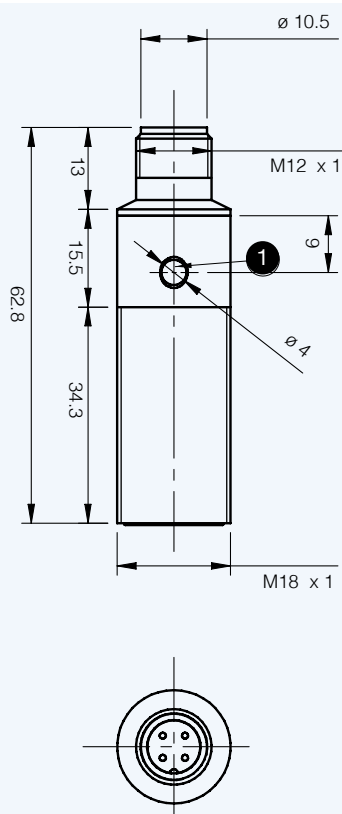
accessories included



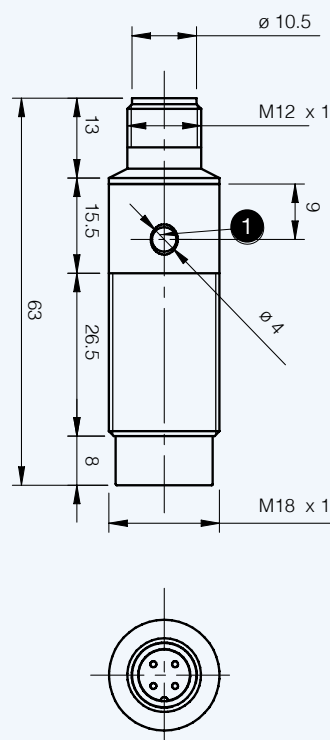
metallic
nut (2 x)

dimensions (mm)

PK*/**-1H



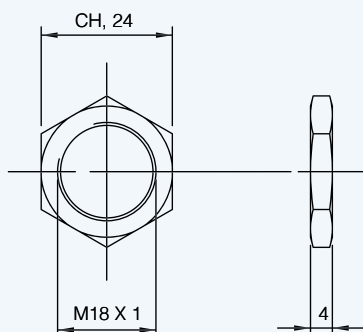
PK*/**-2H



1 LED

dimensions (mm)

accessories included in all M18 models



metallic
nut (2 x)



ET series

Cylindrical with extended temperature range



Cylindrical with extended temperature range

features

- Stainless steel housing
- M12, M18 models
- IP68 protection degree
- Complete protection against electrical damages



web contents



- Application notes
- Photos
- Catalogue / Manuals



code description

ET M 1 / B N - 1 H

series	ET	Extended working temperature range inductive sensors
dims.	M	M12 diameter
	K	M18 diameter
housing	1	Standard housing
output state	B	NO + NC complementary output
output logic	P	PNP logic
	N	NPN logic
distance	1	Shielded standard (2/5 mm)
	2	Unshielded standard (4/8 mm)
connect.	H	M12 plug cable exit

available models

diameter	installation	plug	distance (mm)	PNP / NO + NC	NPN / NO + NC
M12	shielded	M12	2	ETM1/BP-1H	ETM1/BN-1H
	unshielded		4	ETM1/BP-2H	ETM1/BN-2H
M18	shielded		5	ETK1/BP-1H	ETK1/BN-1H
	unshielded		8	ETK1/BP-2H	ETK1/BN-2H

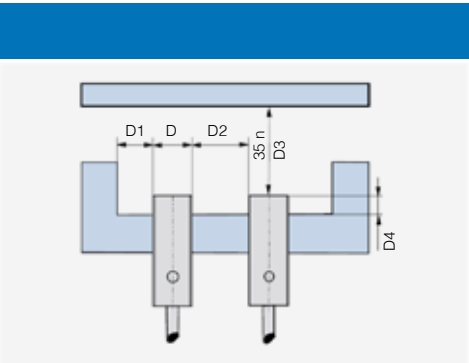
technical specification

	ETM1/B*-1H	ETM1/B*-2H	ETK1/B*-1H	ETK1/B*-2H
				
nominal sensing distance Sn	2 mm	4 mm	5 mm	8 mm
working distance	0...1.62 mm	0...3.24 mm	0...4 mm	0...6.5 mm
hysteresis	1...20%			
standard target	12 x 12 mm FE360		18 x 18 mm FE360	24 x 24 mm FE360
repeatability	5% @UB=20...30 V; Ta = 23°C ±5°C			
operating voltage	10...30 Vdc			
output type	NPN or PNP - NO + NC			
max ripple content	≤ 10%			
output current	≤ 80 mA		≤ 150 mA	
output voltage drop	≤ 2 V @ Io		≤ 1.5 V @ Io	
no-load supply current	≤ 20 mA			
leakage current	≤ 10 µA			
switching frequency	1,5 kHz		1,2 kHz	
power on delay	100 ms			
ambient temperature range	-25...+110 °C			
temperature drift of Sr	≤ 10% Sr			
short circuit protection	●			
voltage reversal protection	●			
induction protection	●			
shocks and vibration	IEC EN 60947-5-2			
weight	30 g		55 g	
LEDs	No			
protection degree	IP68 (1m, 7 days)			
EMC	in conformity with the EMC Directive, according to IEC 60947-5-2			
shocks and vibrations	IEC 60947-5-2			
housing material	AISI 303 stainless steel			
active head material	PPS		PSU	
connection			M12 plug	
tightening torque (on nuts)	20 Nm		50 Nm	
tightening torque (on plug)	2.w5 Nm			

correction factors

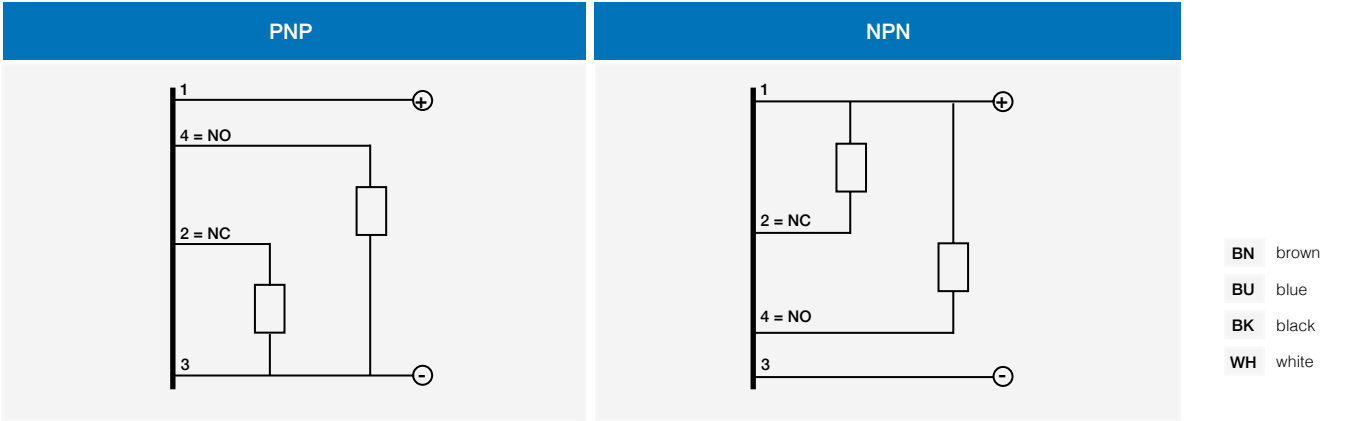
model	FE 360	copper	alluminium	brass	stainless steel
ETM1/B*-1H	1	0.10 ± 10%	0.20 ± 10%	0.30 ± 10%	0.70 ± 10%
ETM1/B*-2H		0.40 ± 10%	0.50 ± 10%	0.60 ± 10%	0.90 ± 10%
ETK1/B*-1H		0.20 ± 10%	0.30 ± 10%	0.40 ± 10%	0.70 ± 10%
ETK1/B*-2H		0.40 ± 10%	0.50 ± 10%	0.50 ± 10%	0.80 ± 10%

installation



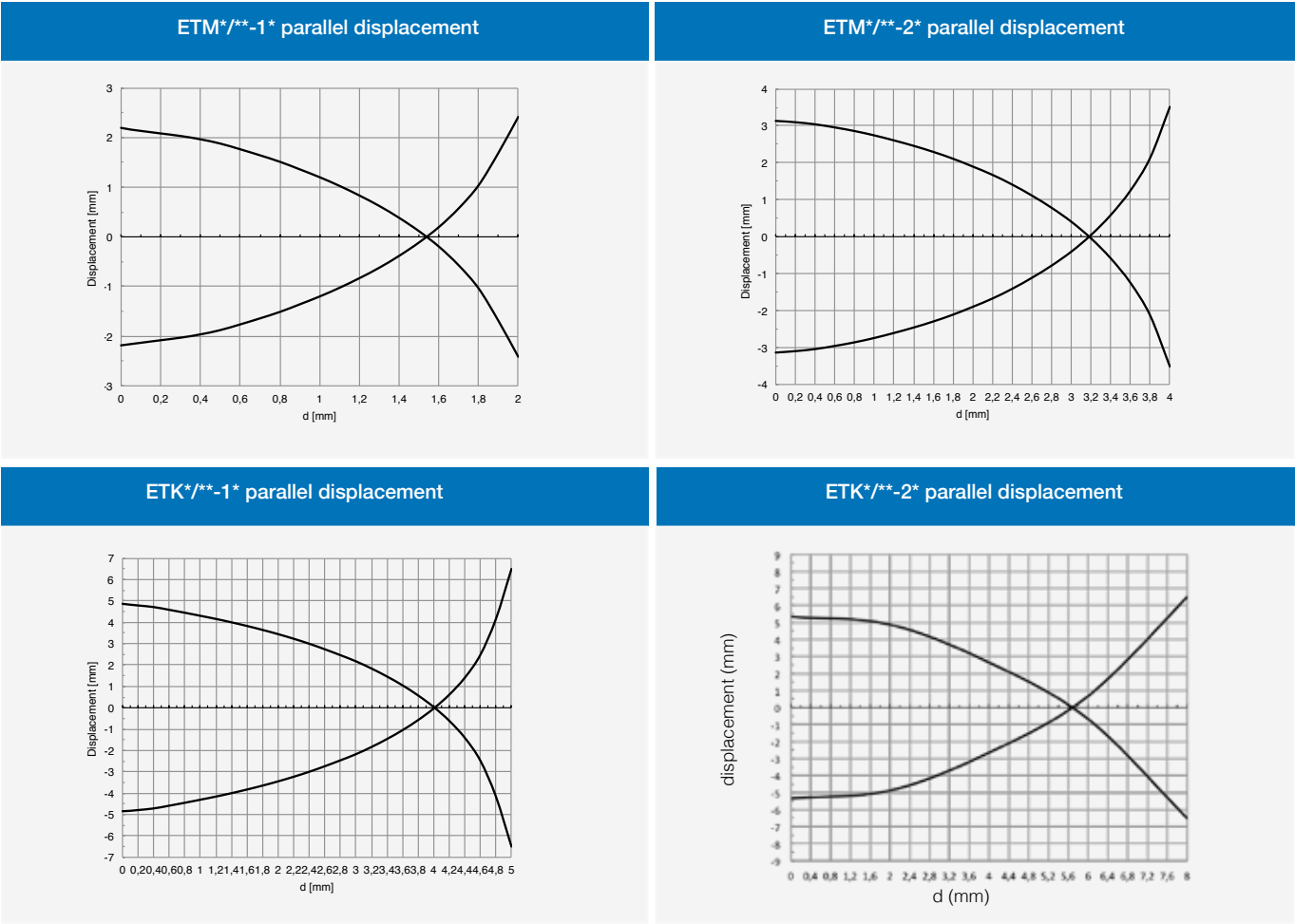
model	D4	D1	D2	D3
ETM1/**-1H	≥ 0 mm ⁽¹⁾	≥ 6 mm	≥ 12 mm	≥ 6 mm
ETM1/**-2H	≥ 6 mm ⁽²⁾	≥ 12 mm	≥ 24 mm	≥ 12 mm
ETK1/**-1H	≥ 0 mm ⁽³⁾	≥ 9 mm	≥ 18 mm	≥15 mm
ETK1/**-2H	≥ 8 mm ⁽⁴⁾	≥ 18 mm	≥ 36 mm	≥ 24 mm

⁽¹⁾ ≥ 1,2 mm without ferro-magnetic material
⁽²⁾ ≥ 0 mm without ferro-magnetic material
⁽³⁾ ≥ 3 mm without ferro-magnetic material
⁽⁴⁾ ≥ 12 mm without ferro-magnetic material



Cylindrical with extended temperature range

response diagram

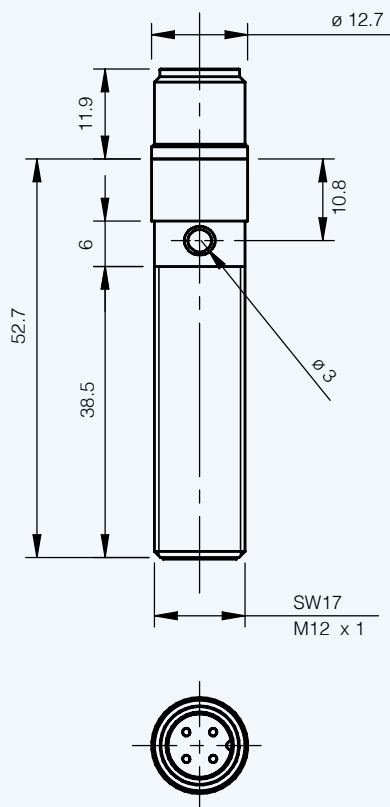




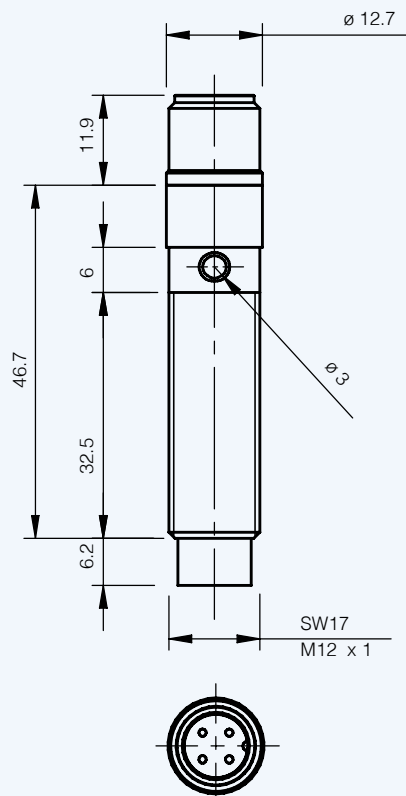
dimensions (mm)

Cylindrical with extended
temperature range

ETM1/B*-1H

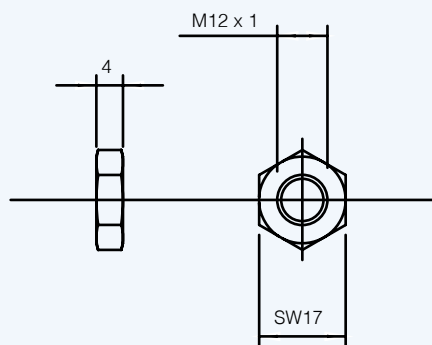


ETM1/B*-2H



dimensions (mm)

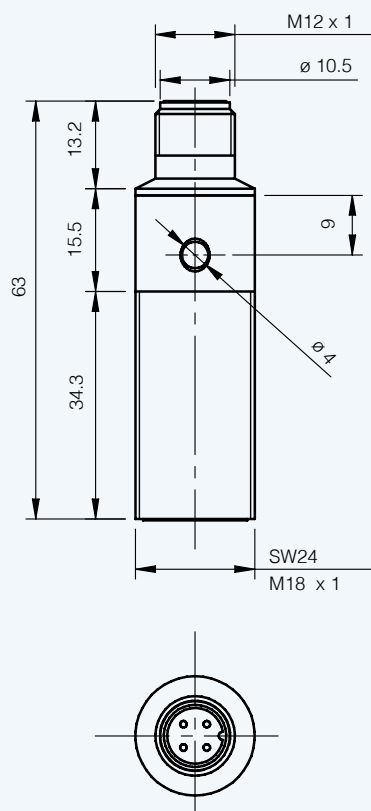
accessories included in all M12 models



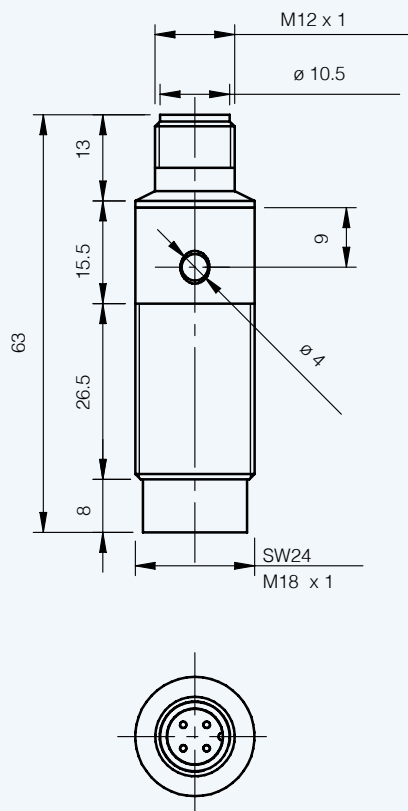
metallic
nut (2 x)



ETK1/B*-1H

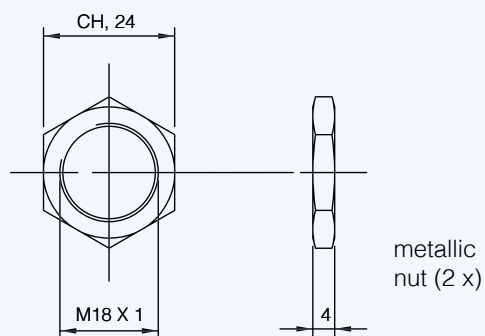


ETK1/B*-2H



dimensions (mm)

accessories included in all M18 models







AT series

M30 cylindrical
inductive sensors



M30 cylindrical

features

- Wide range of models: standard, long distance
- Output: cable, M12 and plug cable exit
- Models with 2, 3, and 4 wires
- ATEX models, cat. 3, available on request
- Models with complementary output (NO + NC)
- Complete protection against electrical damages



web contents



- Application notes
- Photos
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code description (*)

	AT	1	/	A	P	-	1	A
series	AT	M30 inductive proximity switch						
housing	1	Standard body						
output state	A	NO output state						
	C	NC output state						
	0	NO+NC complementary output						
output logic	N	NPN logic output						
	0	2 wires version						
	P	PNP logic output						
distance	1	Shielded standard 10 mm						
	2	Unshielded standard 15 mm						
	3	Long distance shielded 15 mm						
	4	Long distance unshielded 20 mm						
connect.	A	Axial cable exit						
	B	Axial cable exit with tang						
	H	M12 plug cable exit						

(*) ATEX models available, contact our Sales Dept. for further information.

AT



M30 cylindrical

available models

4 wires standard housing

diameter	installation	distance	plug	distance (mm)	PNP/NO+NC
M30	shielded	standard	M12	10	AT1/0P-1H
	unshielded			15	AT1/0P-2H
	shielded	long distance			
	unshielded			20	AT1/0P-4H

available models

3 wires standard housing

diameter	installation	distance	plug	distance (mm)	NPN/NO	NPN/NC	PNP/NO	PNP/NC
M30	shielded	standard	cable	10	AT1/AN-1A	AT1/CN-1A	AT1/AP-1A	AT1/CP-1A
			cable with tang		AT1/AN-1B	AT1/CN-1B	AT1/AP-1B	AT1/CP-1B
			M12		AT1/AN-1H	AT1/CN-1H	AT1/AP-1H	AT1/CP-1H
	unshielded		cable	15	AT1/AN-2A	AT1/CN-2A	AT1/AP-2A	AT1/CP-2A
			cable with tang		AT1/AN-2B	AT1/CN-2B	AT1/AP-2B	AT1/CP-2B
			M12		AT1/AN-2H	AT1/CN-2H	AT1/AP-2H	AT1/CP-2H
	shielded	long distance	cable	15	AT1/AN-3A	AT1/CN-3A	AT1/AP-3A	AT1/CP-3A
			M12		AT1/AN-3H	AT1/CN-3H	AT1/AP-3H	AT1/CP-3H
	unshielded		cable	20	AT1/AN-4A	AT1/CN-4A	AT1/AP-4A	AT1/CP-4A
			M12		AT1/AN-4H	AT1/CN-4H	AT1/AP-4H	AT1/CP-4H

available models

DC 2 wires models

diameter	installation	distance	plug	distance (mm)	NO
M30	shielded	standard	cable	10	AT1/A0-1A
					AT1/A0-1H
	unshielded		M12	15	AT1/A0-2A
					AT1/A0-2H
	shielded	long distance	cable	15	AT1/A0-3A
					AT1/A0-3H
	unshielded		M12	20	AT1/A0-4A
					AT1/A0-4H

AT



	AT*/**-1*	AT*/**-2*	AT*/**-3*	AT*/**-4*
				
nominal sending distance	10 mm	15 mm	15 mm	20 mm
operating distance	0...8.1 mm	0...12.1 mm	0...12.1 mm	0...16.2 mm
hysteresis	1...20%			
standard target	30 x 30 mm FE 360	45 x 45 mm FE 360	45 x 45 mm FE 360	60 x 60 mm FE 360
repeatability	5% U _B 20-30 V Ta = 23°C ± 5°C			
operating voltage	10...30 Vdc			
output type	NPN or PNP - NO or NC (3 wires models), PNP - NO + NC (4 wires models), NPN/PNP - NO (2 wires models)			
max ripple content	≤ 10%			
output current	≤ 400 mA (3...100 mA for 2 wires versions)			
output voltage drop	≤ 1V @ 400 mA (2.8 V @ 100 mA for 2 wires versions)			
no-load supply current	20 mA			
leakage current	10 µA / 0,8 mA for 2 wires versions			
switching frequency	200 Hz / 100 Hz for 2 wires versions		200 Hz / 100 Hz for 2 wires versions	
power on delay	100 ms (50 ms for 2 wires versions)			
ambient temperature range	-25...+70 °C			
temperature drift of Sr	10%			
short-circuit protection	●			
voltage reversal protection	●			
induction protection	●			
shocks and vibrations	IEC 60947-5-2 / 7.4			
weight	150 g connector, 230 g cable			
LEDs	yellow LED output state			
protection degree	IP 67 ⁽¹⁾ (EN60529)			
EMC	in conformity with the EMC Directive according to IEC 60947-5-2			
shocks and vibrations	IEC 60947-5-2			
housing material	nickel-plated brass			
active head material	PBT			
connection	cable 2 m PVC - plug M8 or M12			
tightening torque	50 Nm			

⁽¹⁾ Protection guaranteed only with plug cable well mounted.

correction factors

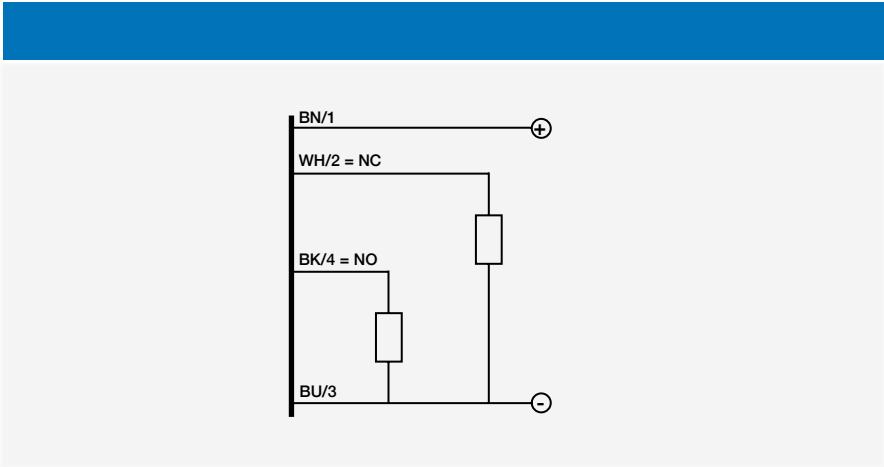
code	steel FE 360	copper	alluminium	brass	stainless steel
AT*/**-1*	1	0.35	0.45	0.50	0.75
AT*/**-2*		0.45	0.50	0.55	0.80
AT*/**-3*		0.35	0.45	0.50	0.70
AT*/**-4*		0.45	0.50	0.55	0.75



M30 cylindrical

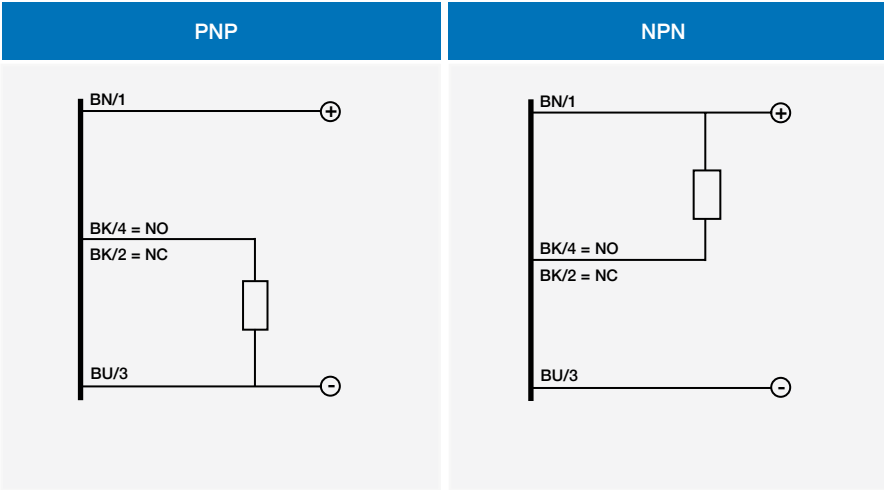
electrical diagrams of connections

4 wires versions



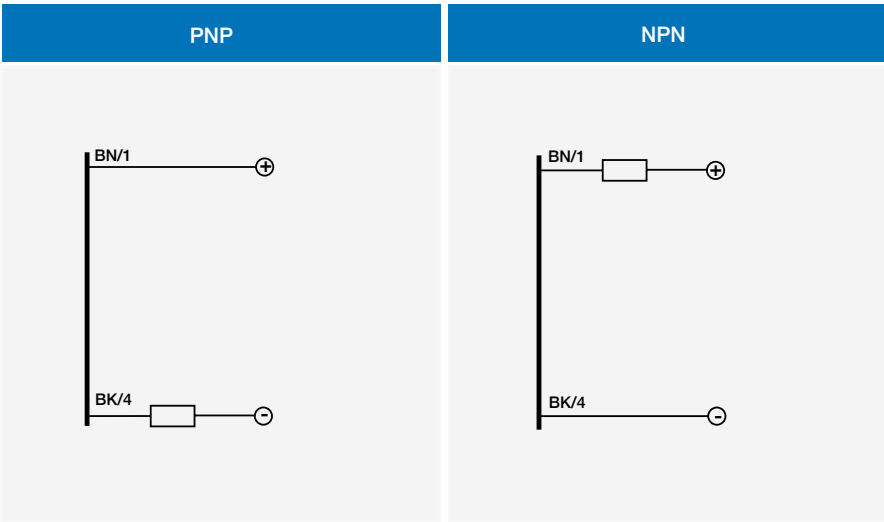
electrical diagrams of connections

3 wires versions



electrical diagrams of connections

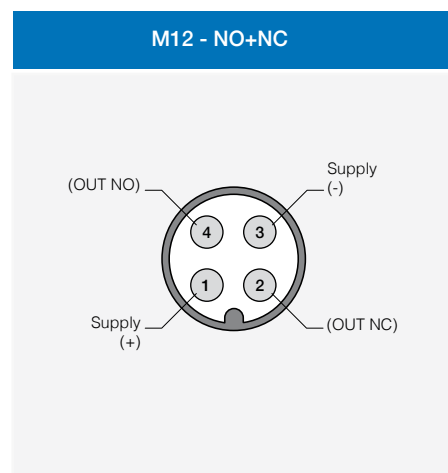
2 wires versions



AT

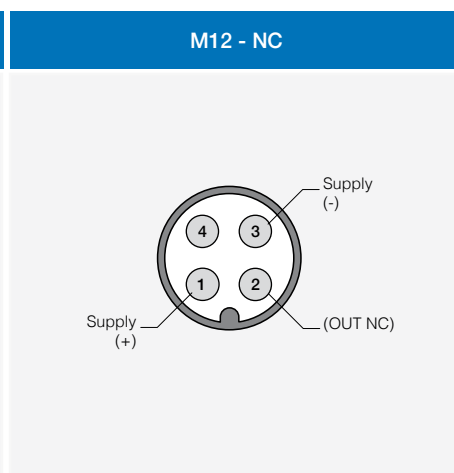
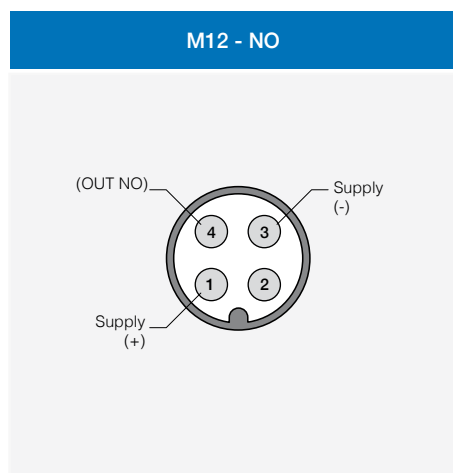
plug

4 wires versions



plug

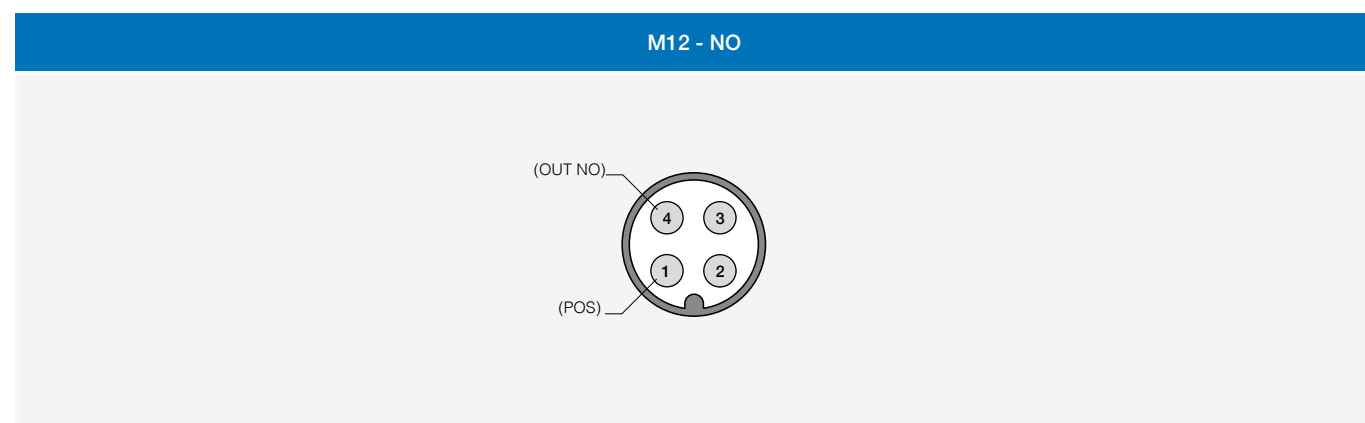
3 wires versions



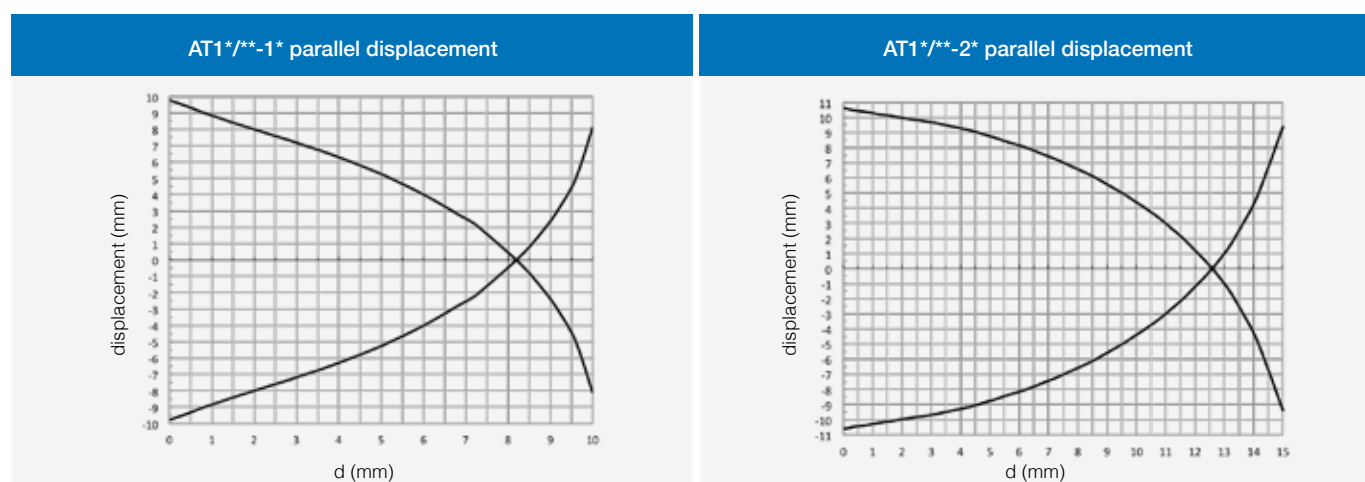
M30 cylindrical

plug

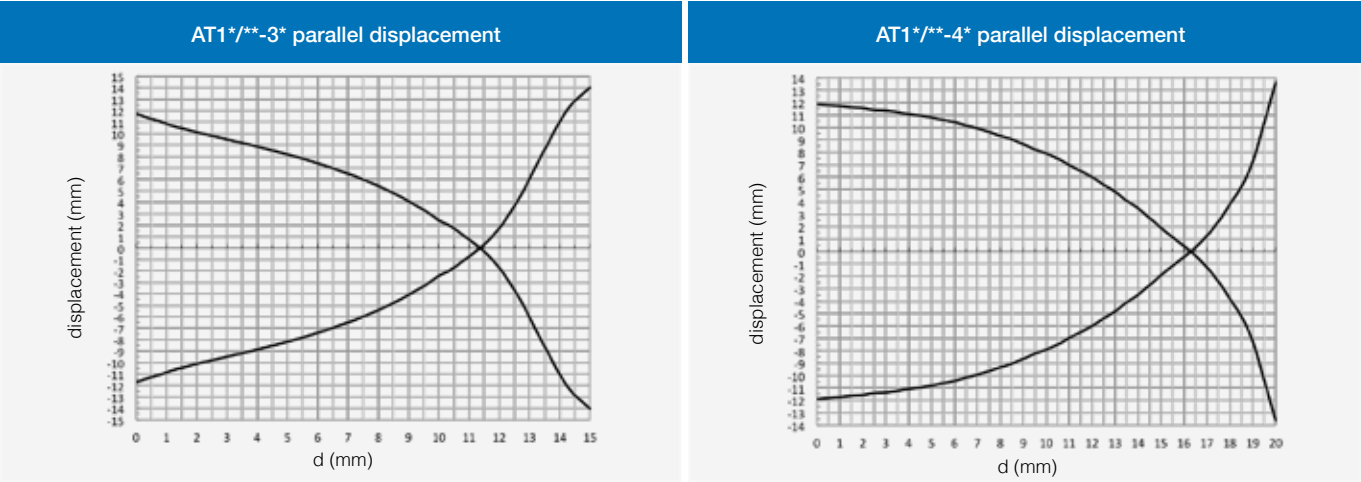
2 wires versions



response diagram



response diagram

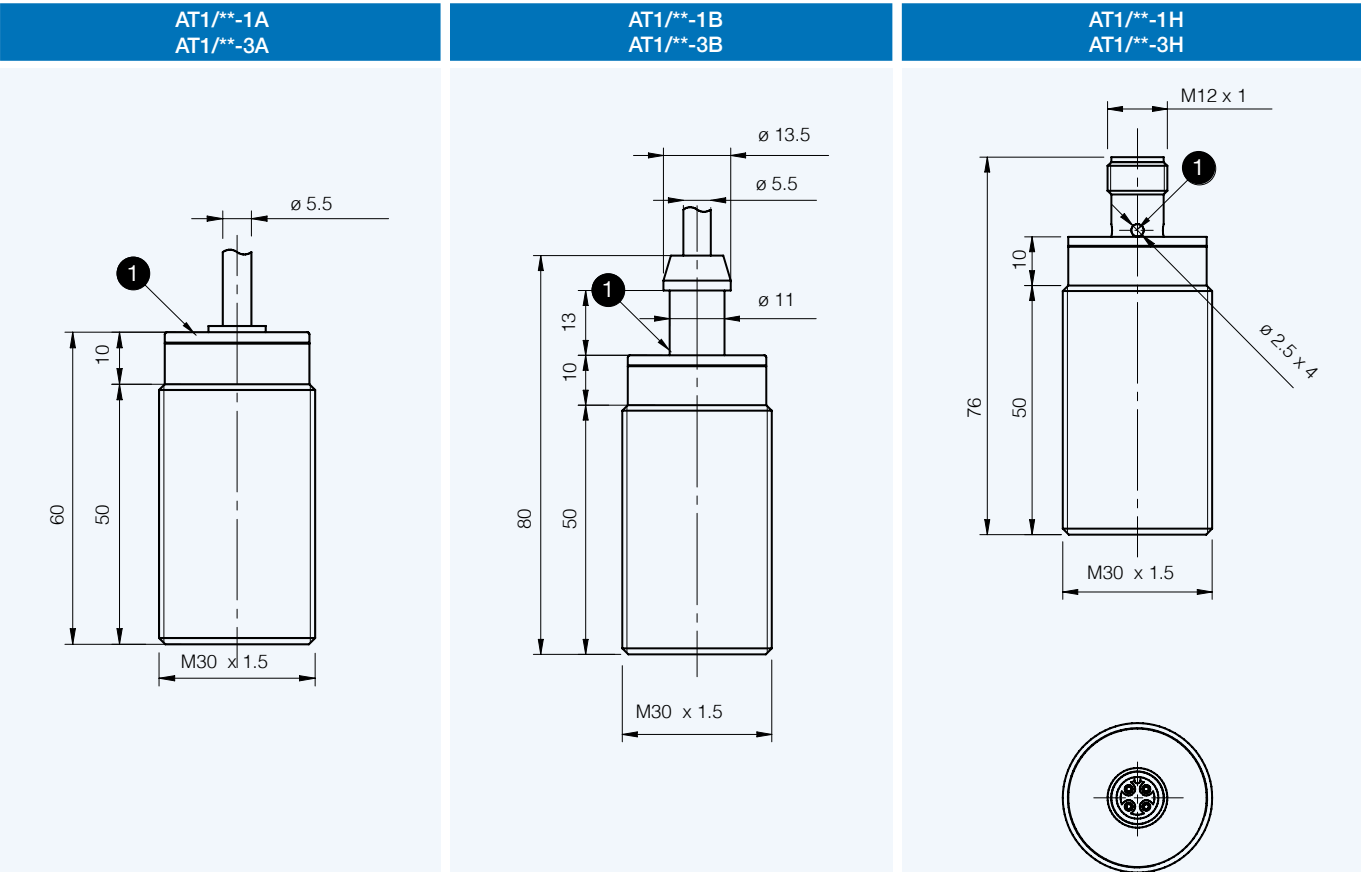


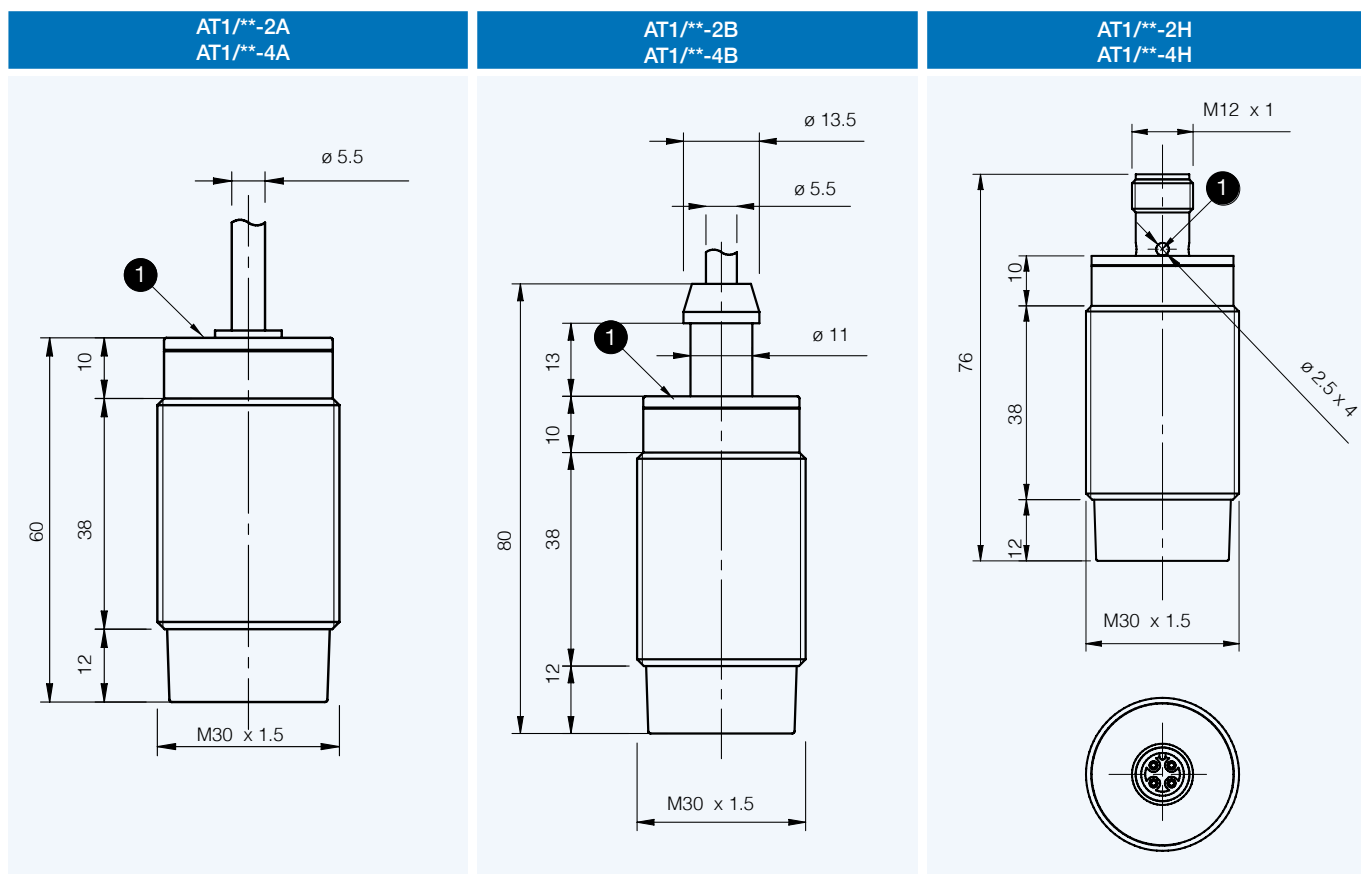
installation

code	D4	D1	D2	D3
AT1/**-1*	≥ 0 mm	≥ 10 mm	≥ 30 mm	≥ 30 mm
AT1/**-2*	≥ 18 mm ⁽¹⁾	≥ 15 mm	≥ 45 mm	≥ 45 mm
AT1/**-3	≥ 3 mm	≥ 15 mm	≥ 40 mm	≥ 45 mm
AT1/**-4*	≥ 20 mm ⁽¹⁾	≥ 20 mm	≥ 60 mm	≥ 60 mm

⁽¹⁾ ≥ for non magnetic materials

dimensions (mm)

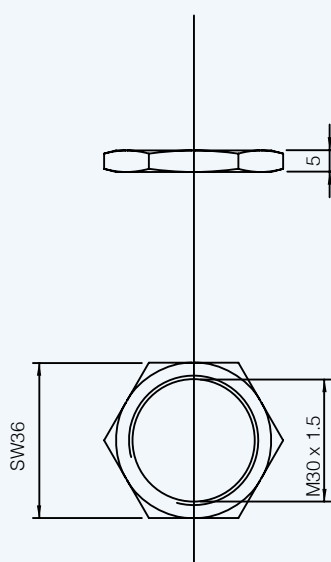




1 LED

dimensions (mm)

accessories included in all models







VM series

Cylindrical M12 in AC
inductive sensors



Cylindrical M12 in AC

features

- Output: cable and M12 plug cable exit
- Models with 2 wires
- IP67 protection degree
- Multivoltage 20 ...253 Vac



web contents



- Application notes
- Photos
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code description

	VM	2	/	A	0	-	1	B
series	VM	AC M12 inductive proximity switch						
housing	2	Standard body						
output state	A	NO output state						
	C	NC output state						
version	0	2 wires version						
distance	1	Shielded standard 2 mm						
	2	Unshielded standard 4 mm						
connect.	B	Cable exit with tang						
	H	M12 plug cable exit						

available models

diameter	installation	distance	plug	distance (mm)	NO	NC
M12	shielded	standard	cable with tang	2	VM2/A0-1B	VM2/C0-1B
			M12		VM2/A0-1H	VM2/C0-1H
	unshielded		cable with tang	4	VM2/A0-2B	VM2/C0-2B
			M12		VM2/A0-2H	VM2/C0-2H

VM

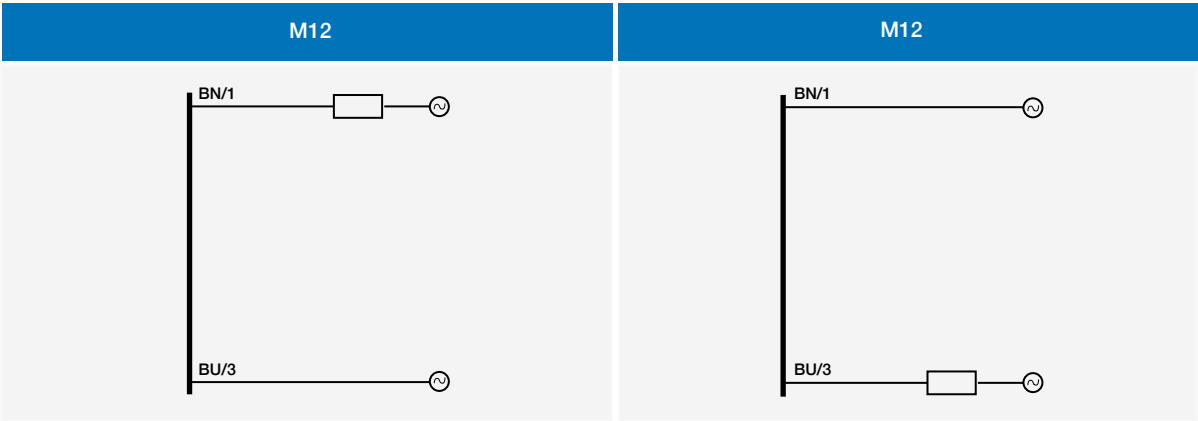
technical specification

	VM2/**-1*	VM2/**-2*
		
nominal sensing distance S_n	2 mm	4 mm
operating distance	0 ... 1.6 mm	0 ... 3.2 mm
hysteresis	1 ... 20%	
standard target	12x12 mm FE360	
repeatability	5%	
operating voltage	20 ... 253 Vac – 50/60 Hz	
inrush current	7A (Ton = 10 ms)	
output current	5 ... 300 mA RMS	
output type	TRIAC – NO or NC	
leakage current	1 mA RMS max.	
switching frequency	25 Hz	
power on delay	200 ms	
ambient temperature range	-25° ... +70°C	
temperature drift of Sr	10% Sr	
short-circuit protection	-	
LEDs	yellow (output energized)	
protection degree	IP 67 ⁽¹⁾	
EMC	in conformity with the EMC Directive according to IEC 60947-5-2	
shocks and vibrations	IEC 60947-5-2	
housing material	nickel-plated brass	
active head material	PBT	
connection	cable 2 m PVC - plug M12	
weight	30 g M12 connector / 100 g cable	
tightening torque	10 Nm	

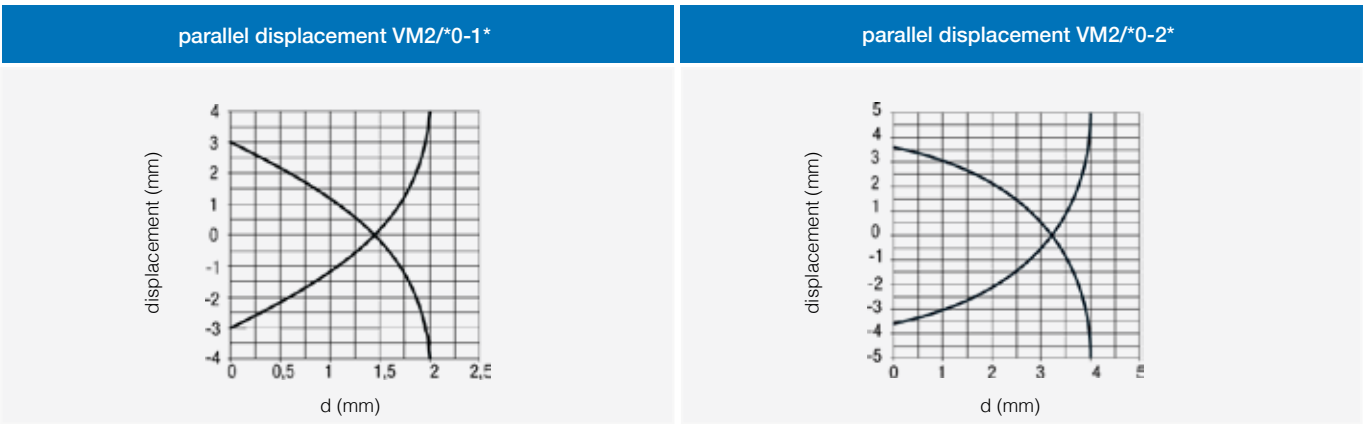
⁽¹⁾ Protection guaranteed only with plug cable well mounted

correction factors

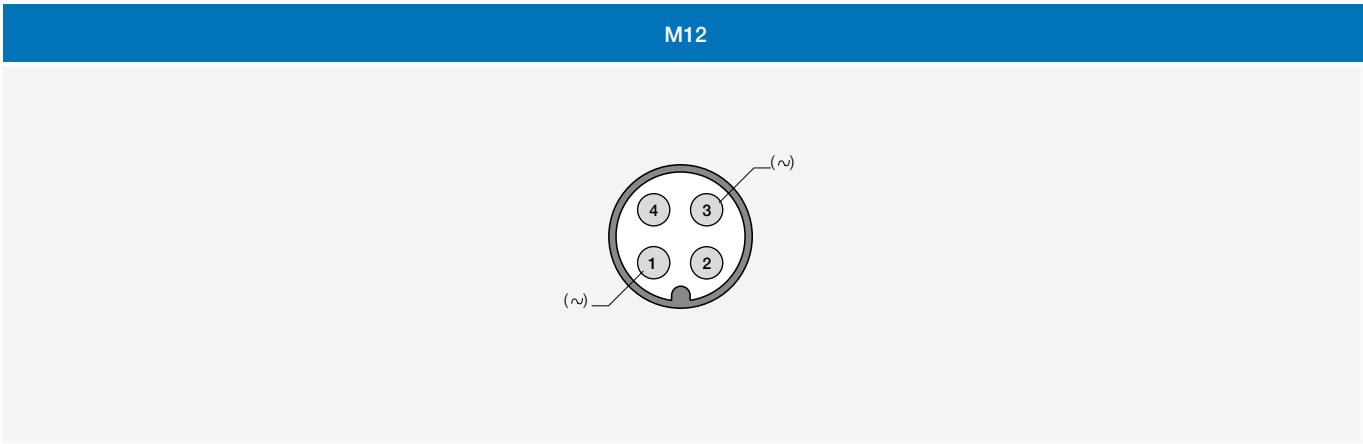
code	steel FE 360	copper	alluminium	brass	stainless steel
VM2/**-1*	1	0.40	0.50	0.55	0.75
VM2/**-2*		0.45		0.60	0.80



response diagram

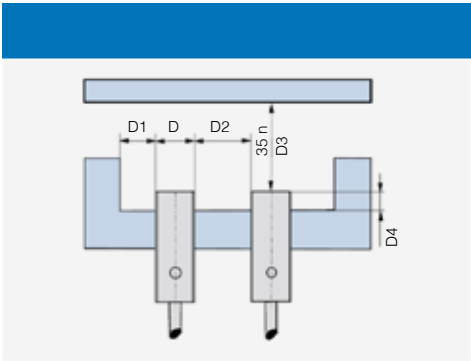


plug



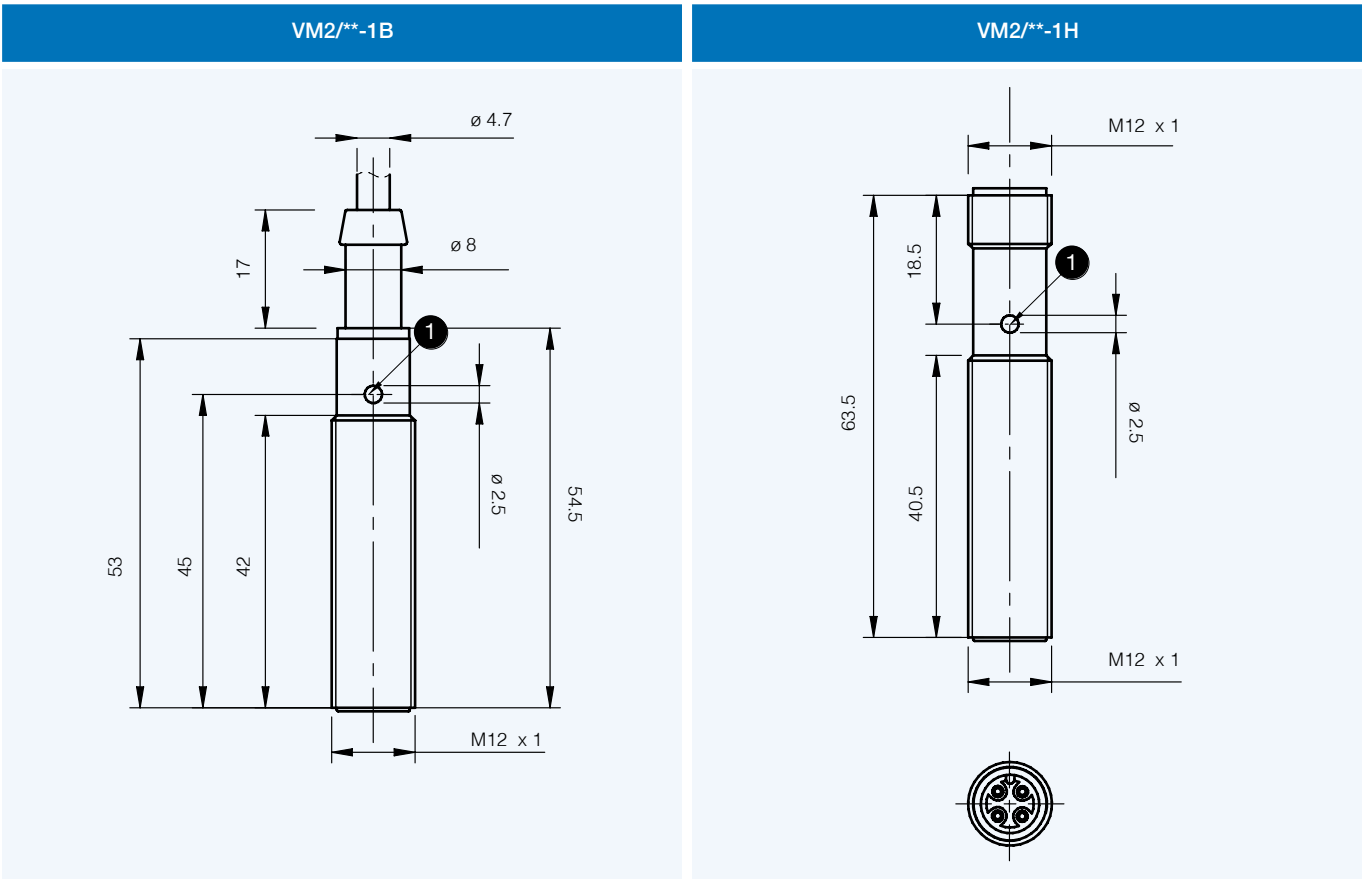


installation



code	D4	D1	D2	D3
VM2/**-1*	≥ 1.2 mm	≥ 2 mm	≥ 12 mm	≥ 6 mm
VM2/**-2*	≥ 5 mm	≥ 4 mm	≥ 24 mm	≥ 12 mm

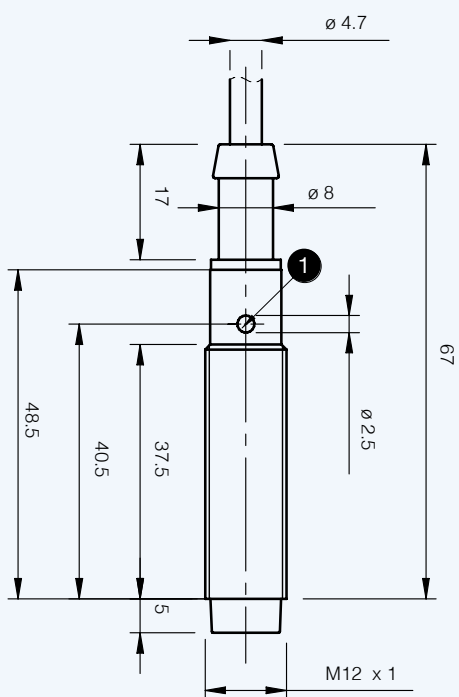
dimensions (mm)



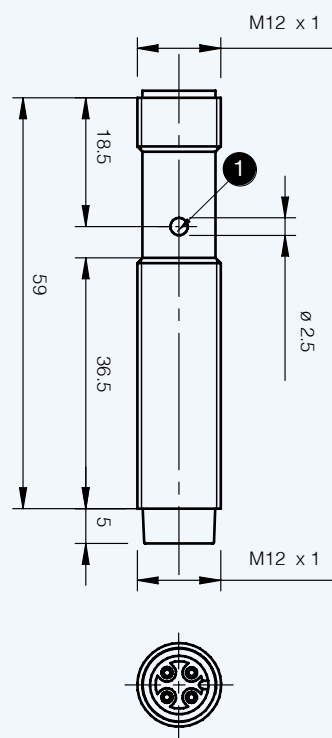
1 LED



VM2/**-2B

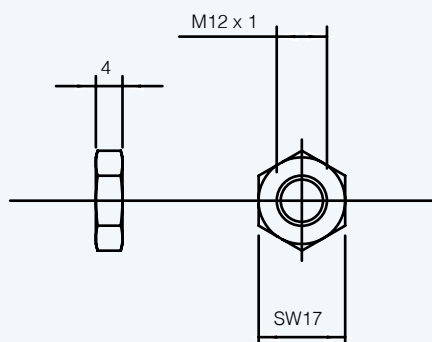


VM2/**-2H



dimensions (mm)

accessories included in all M12 models



metallic
nut (2 x)





VK series

Cylindrical M18 in AC
inductive sensors



Cylindrical M18 in AC

features

- Output: cable and M12 plug cable exit
- Models with 2 wires
- IP 67 protection degree
- Multivoltage 20 ...253 Vac



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code description

VK 2 / A 0 - 1 B

series	VK	AC M18 inductive proximity switch
housing	2	Standard body
output state	A	NO output state
	C	NC output state
version	0	2 wires version
distance	1	Shielded standard 5 mm
	2	Unshielded standard 8 mm
connect.	B	Cable exit with tang
	H	M12 plug cable exit

available models

diameter	installation	distance	plug	distance (mm)	NO	NC
M12	shielded	standard	cable with tang	5	VK2/A0-1B	VK2/C0-1B
			M12		VK2/A0-1H	VK2/C0-1H
	unshielded		cable with tang	8	VK2/A0-2B	VK2/C0-2B
			M12		VK2/A0-2H	VK2/C0-2H

VK

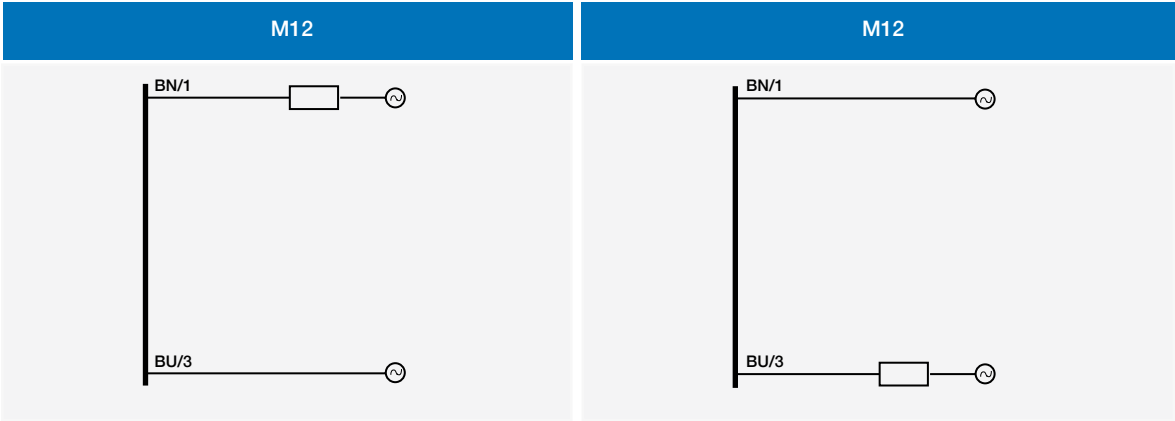
technical specification

	VK2/**-1*	VK2/**-2*
		
nominal sensing distance S_n	5 mm	8 mm
operating distance	0 ... 4 mm	0 ... 6.5 mm
hysteresis	1 ... 20%	
standard target	18x18 mm FE360	24x24 mm FE360
repeatability	5%	
operating voltage	20 ... 253 Vac – 50/60 Hz	
inrush current	7 A ($T_{on} = 10$ ms)	
output current	5 ... 300 mA RMS	
output type	TRIAC – NO or NC	
leakage current	1 mA RMS max.	
switching frequency	25 Hz	
power on delay	200 ms	
ambient temperature range	-25° ... +70°C	
temperature drift of S_r	10% S_r	
short-circuit protection	-	
LEDs	yellow (output energized)	
protection degree	IP 67 ⁽¹⁾	
EMC	in conformity with the EMC Directive according to IEC 60947-5-2	
shocks and vibrations	IEC 60947-5-2	
housing material	nickel-plated brass	
active head material	PBT	
connection	cable 2 m PVC - plug M12	
weight	30 g M12 connector 107 g cable	
tightening torque	25 Nm	

⁽¹⁾ Protection guaranteed only with plug cable well mounted

correction factors

code	steel FE 360	copper	aluminium	brass	stainless steel
VK2/**-1*	1	0.35	0.40	0.50	0.80
VK2/**-2*		0.40	0.45	0.55	0.95



BN

brown

BU

blue

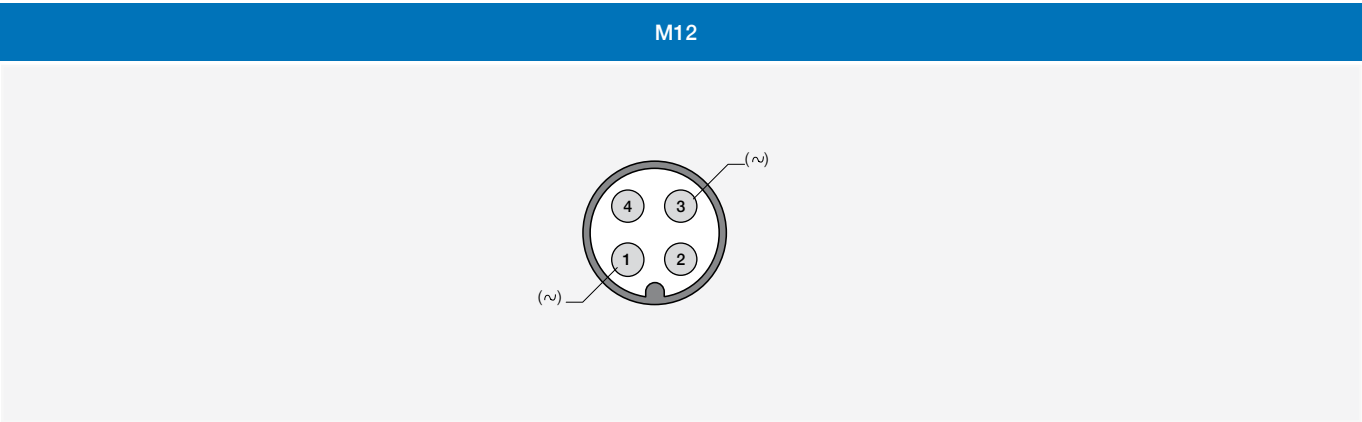
BK

black

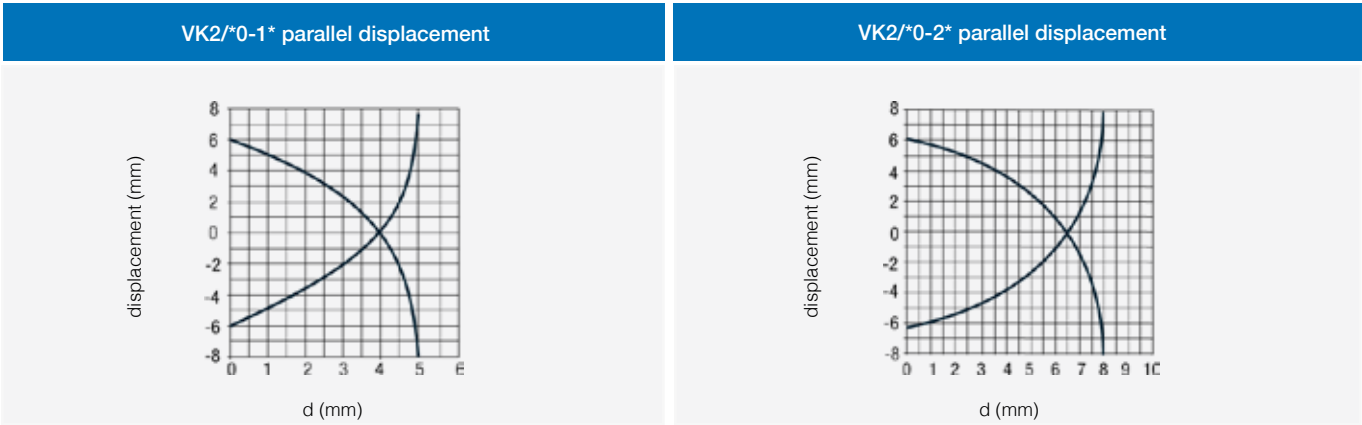
WH

white

plug

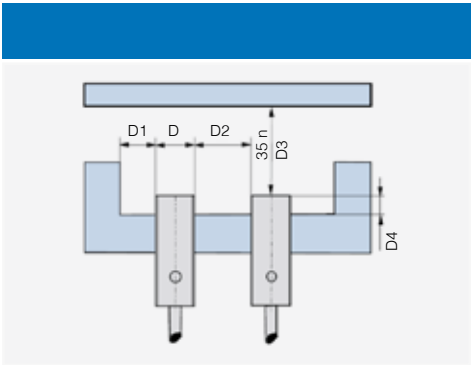


response diagram



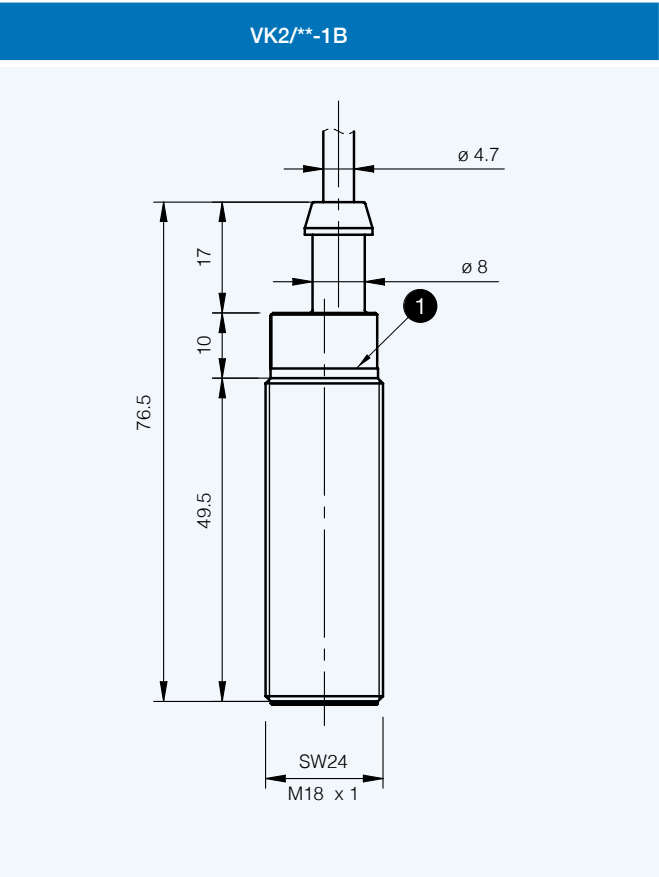


installation

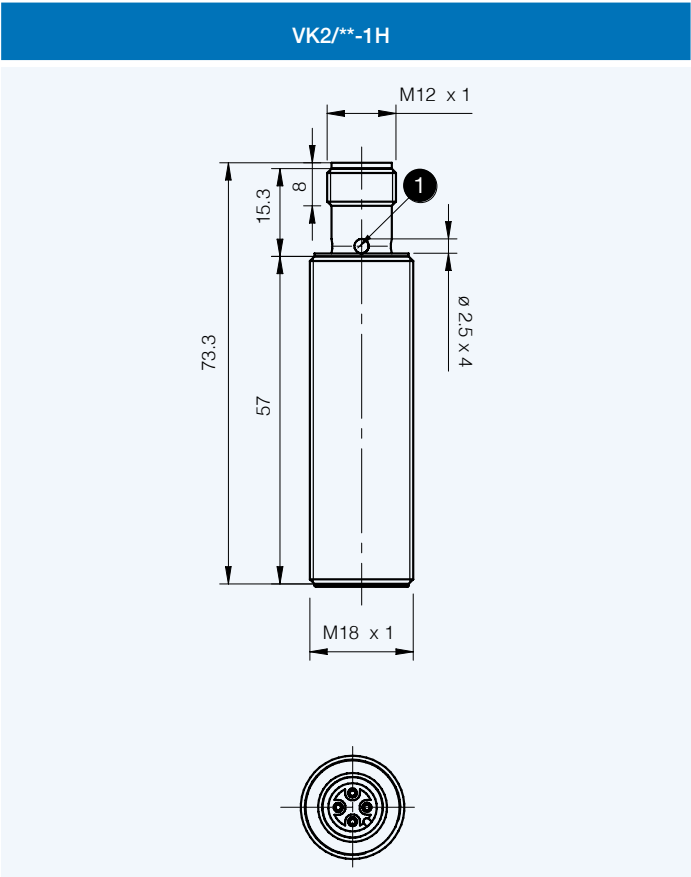


code	D4	D1	D2	D3
VK2/**-1*	≥ 1.35 mm	≥ 5 mm	≥ 18 mm	≥ 15 mm
VK2/**-2*	≥ 8.5 mm	≥ 8 mm	≥ 36 mm	≥ 24 mm

dimensions (mm)

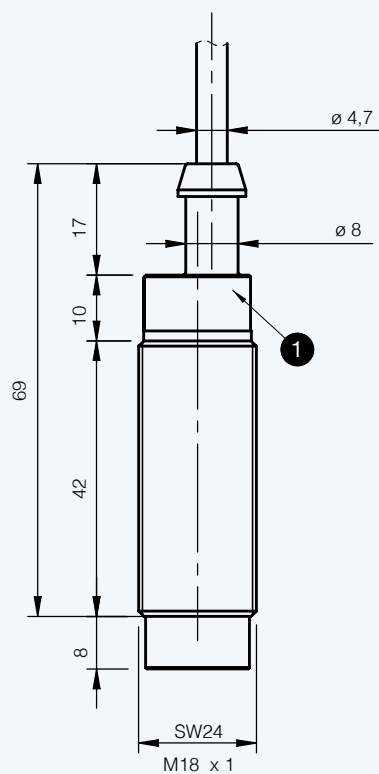


1 LED

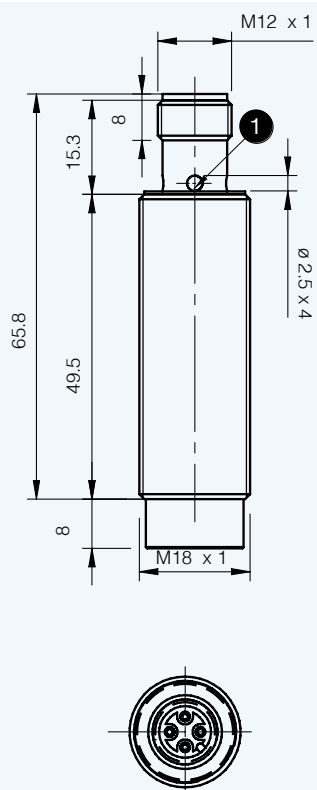




VK2/**-2B

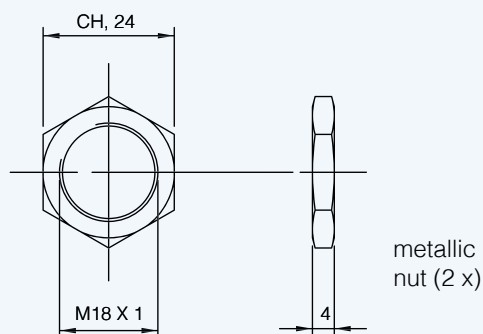


VK2/**-2H



dimensions (mm)

accessories included in all M18 models







VT series

Cylindrical M30 in AC inductive sensors



features

- Output: cable and M12 plug cable exit
- Models with 2 wires
- IP 67 protection degree
- Multivoltage 20 ...253 Vac



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Cylindrical M30 in AC

code description

VT 2 / A 0 - 1 B

series	VT	AC M30 inductive proximity switch
housing	2	Standard body
output state	A	NO output state
	C	NC output state
version	0	2 wires version
distance	1	Shielded standard 10 mm
	2	Unshielded standard 15 mm
connect.	B	Cable exit with tang
	H	M12 connector exit

available models

diameter	installation	distance	connection	distance (mm)	NO	NC
M12	shielded	standard	wire with tang	10	VT2/A0-1B	VT2/C0-1B
			M12		VT2/A0-1H	VT2/C0-1H
	unshielded		wire with tang	15	VT2/A0-2B	VT2/C0-2B
			M12		VT2/A0-2H	VT2/C0-2H

VT

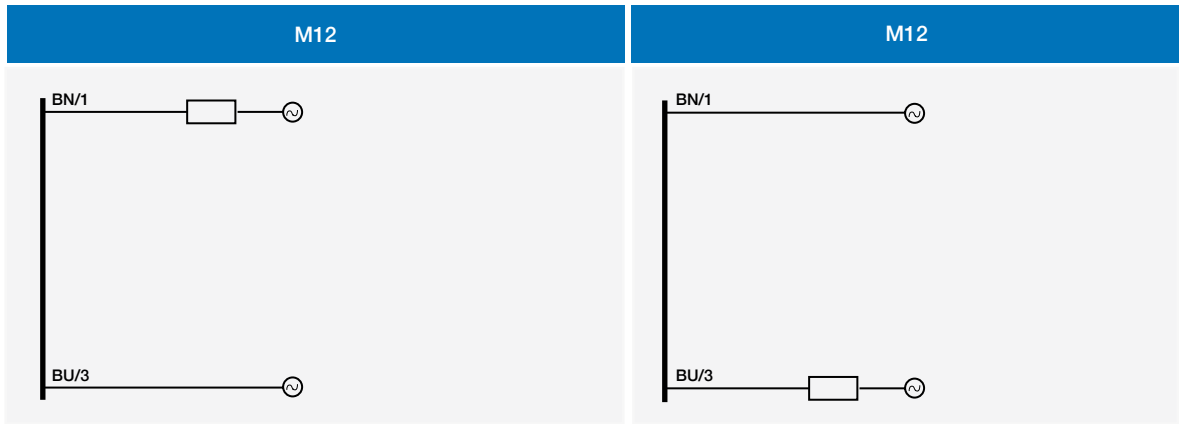
technical specification

	VT2/**-1*	VT2/**-2*
		
nominal sensing distance	10 mm	15 mm
operating distance	0 ... 8.1 mm	0 ... 12.1 mm
hysteresis	1 ... 20%	
standard target	12x12 mm FE360	
repeatability	5%	
operating voltage	20 ... 253 Vac – 50/60 Hz	
inrush current	7A (Ton = 10 ms)	
output current	5 ... 300 mA RMS	
output type	TRIAC – NO or NC	
leakage current	1 mA RMS max.	
switching frequency	25 Hz	
power on delay	200 ms	
ambient temperature range	-25° ... +70°C	
temperature drift of Sr	10% Sr	
short-circuit protection	-	
LEDs	yellow (output energized)	
protection degree	IP 67 ⁽¹⁾	
EMC	in conformity with the EMC Directive according to IEC 60947-5-2	
shocks and vibrations	IEC 60947-5-2	
housing material	nickel-plated brass	
active head material	PBT	
connection	cable or M12 plug	
weight	30 g M12 connector 100 g cable	
tightening torque	50 Nm	

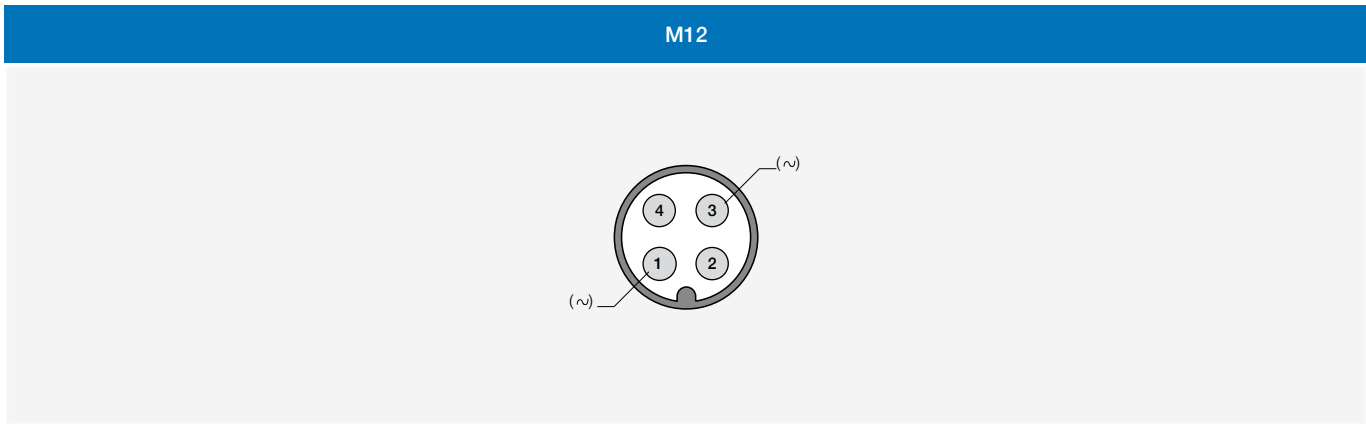
⁽¹⁾ Protection guaranteed only with plug cable well mounted

correction factors

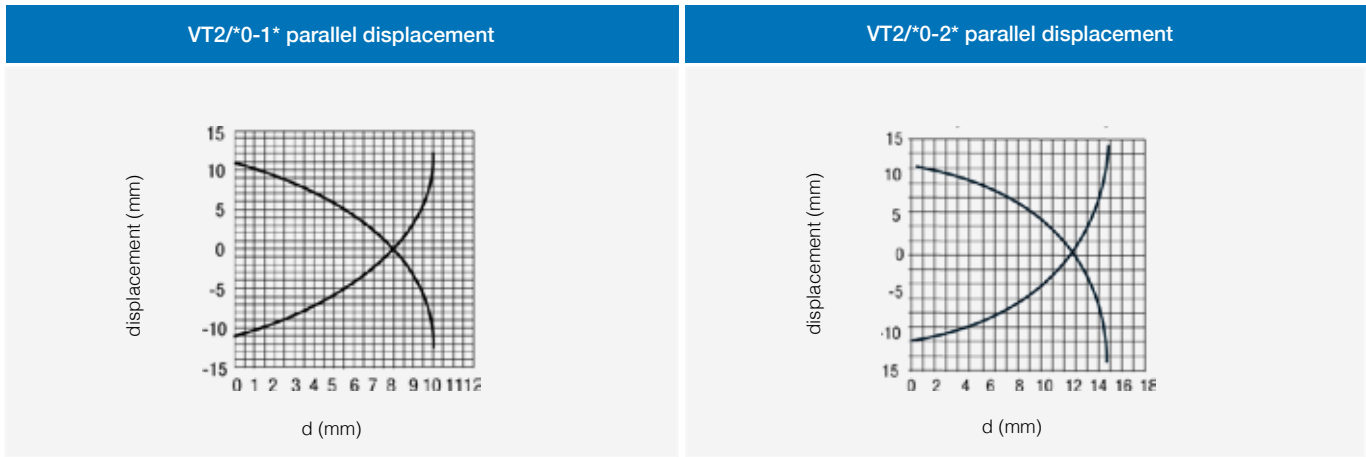
code	steel FE 360	copper	alluminium	brass	stainless steel
VT2/**-1*	1	0,40	0,50	0,55	0,75
VT2/**-2*		0,45		0,60	0,80



plug

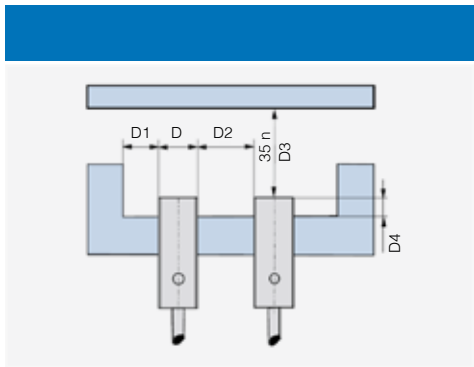


response diagram



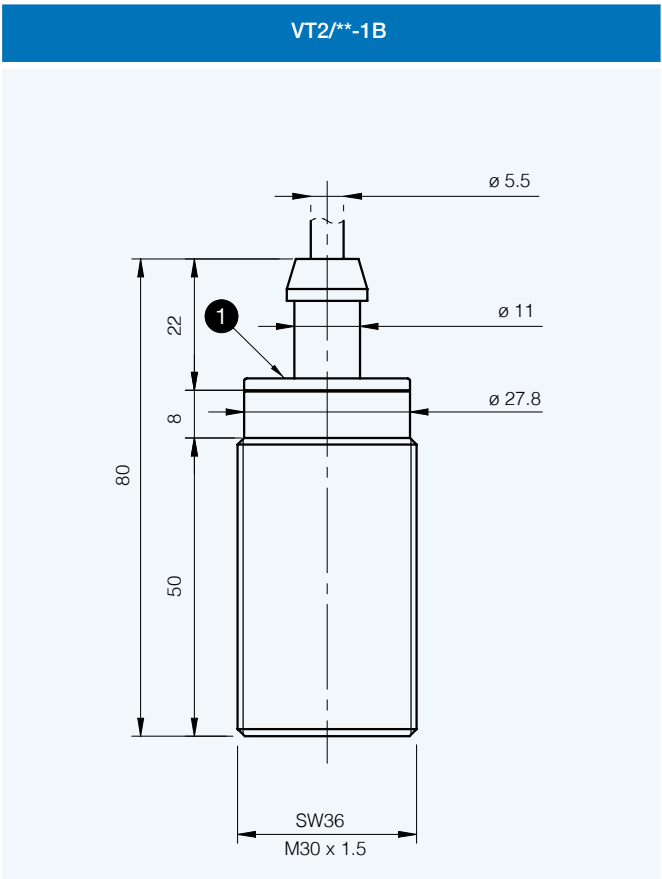


installation

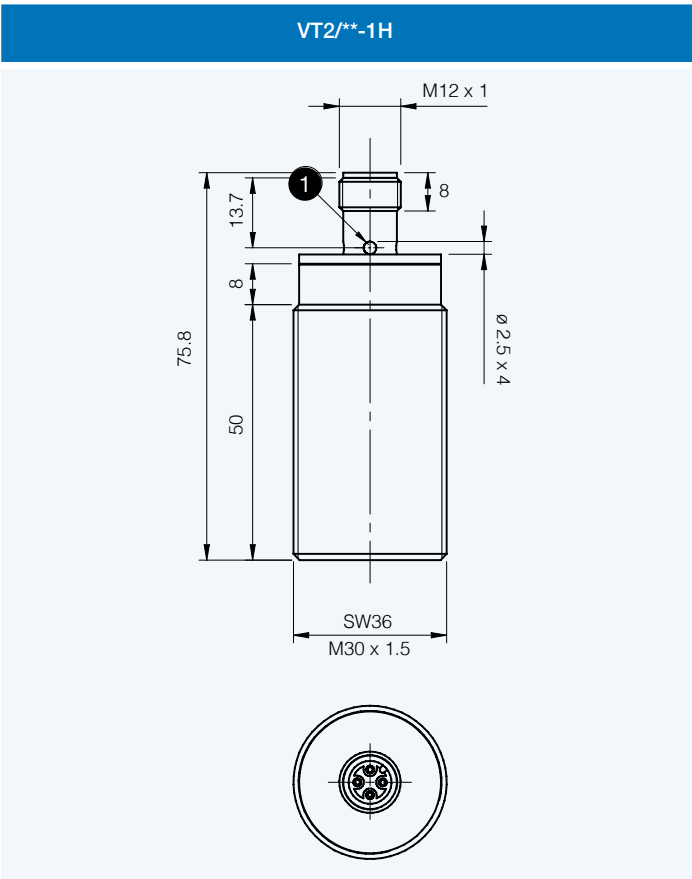


code	D4	D1	D2	D3
VT2/**-1*	≥ 1.2 mm	≥ 2 mm	≥ 12 mm	≥ 6 mm
VT2/**-2*	≥ 5 mm	≥ 4 mm	≥ 24 mm	≥ 12 mm

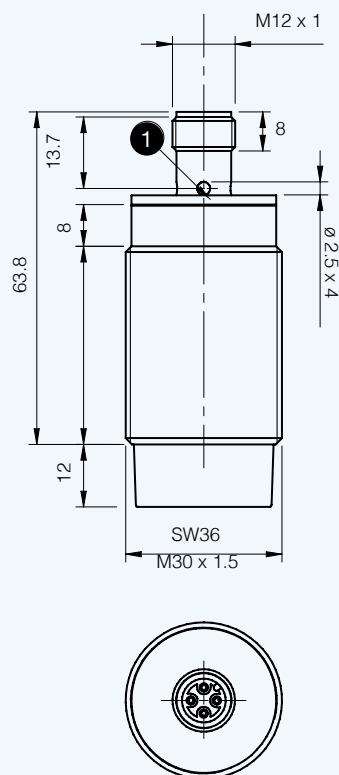
dimensions



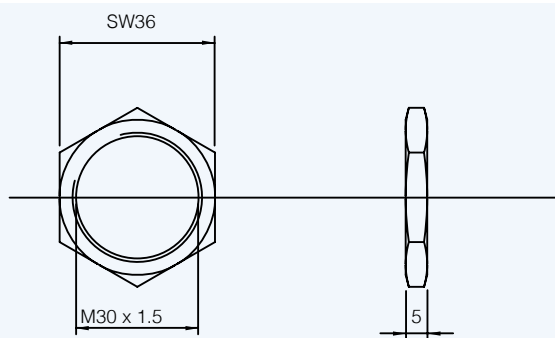
1 LED



VT2/**-2H



accessories included in all models







PFM series

M12 cylindrical inductive sensors
for food and beverage applications



M12 cylindrical for food
and beverage applications

features

- AISI 316L (DIN 1.4404) stainless steel housing
- LED status indicator
- IP67 – IP68 – IP69K protection degree
- ATEX models, cat. 3, available on request
- Complete protection against electrical damages
- Standard and long distance models



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- Photos
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code description (*)

	PFM	1	/	A	P	-	1	H	26
series	PFM	M12 inductive sensor for food+beverage applications							
housing	1	Standard housing							
output state	A	NO output							
	B	NO+NC complementary output							
output logic	N	NPN output							
	P	PNP output							
distance	1	2 mm standard shielded							
	2	4 mm standard unshielded							
	3	4 mm long distance shielded							
	4	8 mm long distance unshielded							
connect.	H	M12 plug exit							
special models	26	Extended temperature range models							

(*) ATEX models available, contact our Sales Dept. for further information.

available models

standard models

model	installation	sensing	plug	distance (mm)	NPN/NO	PNP/NO
M12	shielded	standard	M12	2	PFM1/AN-1H	PFM1/AP-1H
	unshielded			4	PFM1/AN-2H	PFM1/AP-2H
	shielded	long distance			PFM1/AN-3H	PFM1/AP-3H
	unshielded			8	PFM1/AN-4H	PFM1/AP-4H

available models

models with complementary output

model	installation	sensing	plug	distance (mm)	NPN/NO+NC	PNP/NO+NC
M12	shielded	standard	M12	2	PFM1/BN-1H	PFM1/BP-1H
	unshielded			4	PFM1/BN-2H	PFM1/BP-2H
	shielded	PFM1/BN-3H			PFM1/BP-3H	
	unshielded	long distance			8	PFM1/BN-4H

available models

models with extended temperature range

model	installation	sensing	plug	distance (mm)	PNP/NO+NC
M12	shielded	standard	M12	2	PFM1/BP-1H 26
	unshielded			4	PFM1/BP-2H 26

correction factors

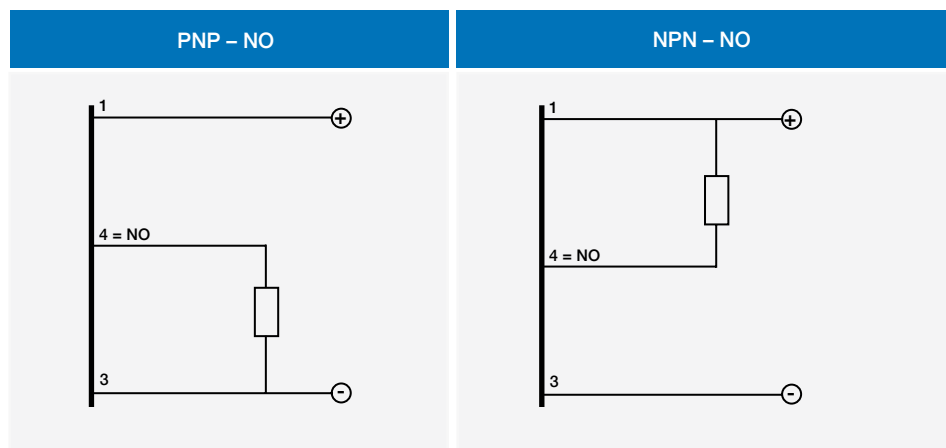
code	steel FE 360	copper	alluminium	brass	stainless steel
PFM1/**-1H*	1	0.25	0.3	0.4	0.75
PFM1/**-2H*		0.33	0.4	0.5	0.8
PFM1/**-3H*		0.3	0.35	0.4	0.75
PFM1/**-4H*		0.33	0.4	0.45	

Tolerance ±10%



	PFM1/**-1H	PFM1/**-2H	PFM1/**-3H	PFM1/**-4H
				
rated operative distance Sn	2 mm	4 mm		8 mm
working distance	0...1.62 mm	0...3.24 mm		0...6.5 mm
hysteresis	1...20%			
standard target	12x12 mm FE360			24x24 mm FE360
repeatability	5%			
operating voltage	10...30 Vcc			
output type	NPN or PNP - NO + NC or NO			
max ripple content	≤ 10%			
output current	≤ 200 mA			
output voltage drop	≤ 2 V			
no-load supply current	≤15 mA			
leakage current	≤15 µA			
switching frequency	2 kHz			
power on delay	50 ms			
ambient temperature range	-40...+80 °C short exposure (15') to 100°C (during cleaning processes) / -25...+110°C (PFM-26 models)			
temperature drift of Sr	10%			
short-circuit protection	●			
voltage reversal protection	●			
induction protection	●			
shocks and vibration	IEC 60947-5-2 / 7.4			
weight	30 g			
LEDs	NO output state / no led -25...+110°C PFM-26 models)			
protection degree	IP67, IP68 (1m, 7days); IP69K (according to DIN 40050 part 9)			
EMC	in conformity with the EMC Directive according to IEC 60947-5-2			
housing material	stainless Steel AISI316L (DIN 1.4404)			
active head material	PPS (FDA certified)			
connection	M12 plug with gold-plated pins			
tightening torque	25 Nm			

electrical diagrams of connections

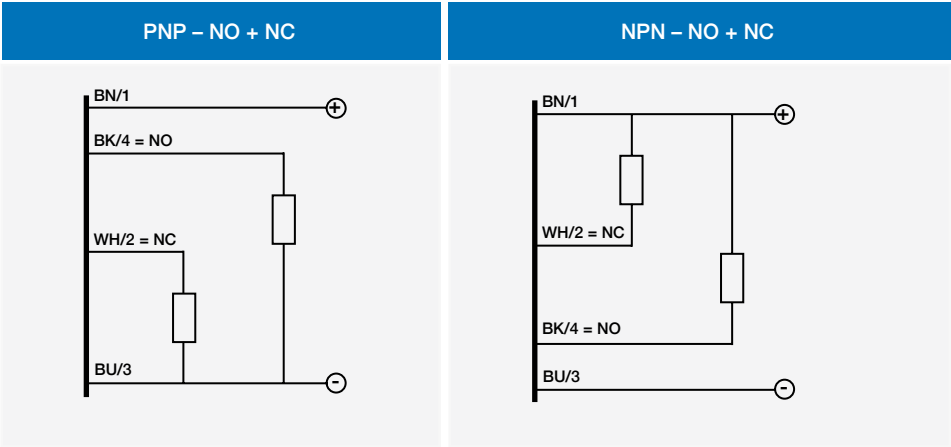


BN brown
BU blue
BK black
WH white

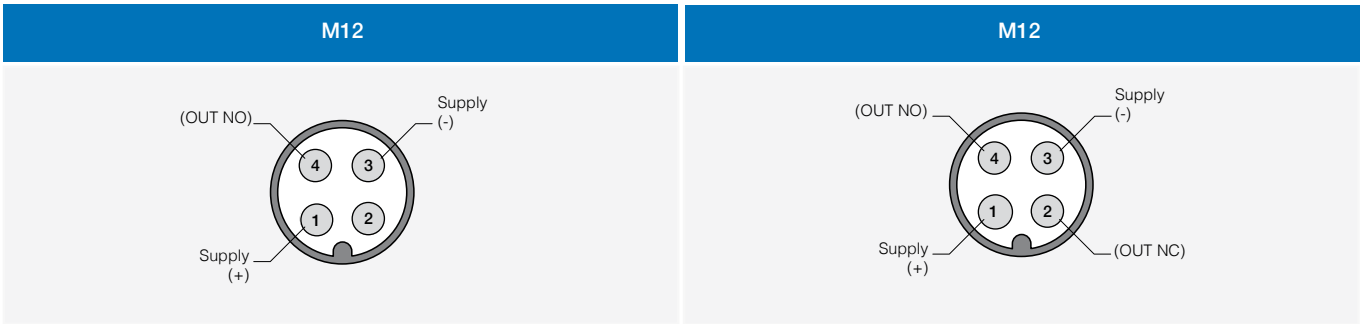


M12 cylindrical for food and beverage applications

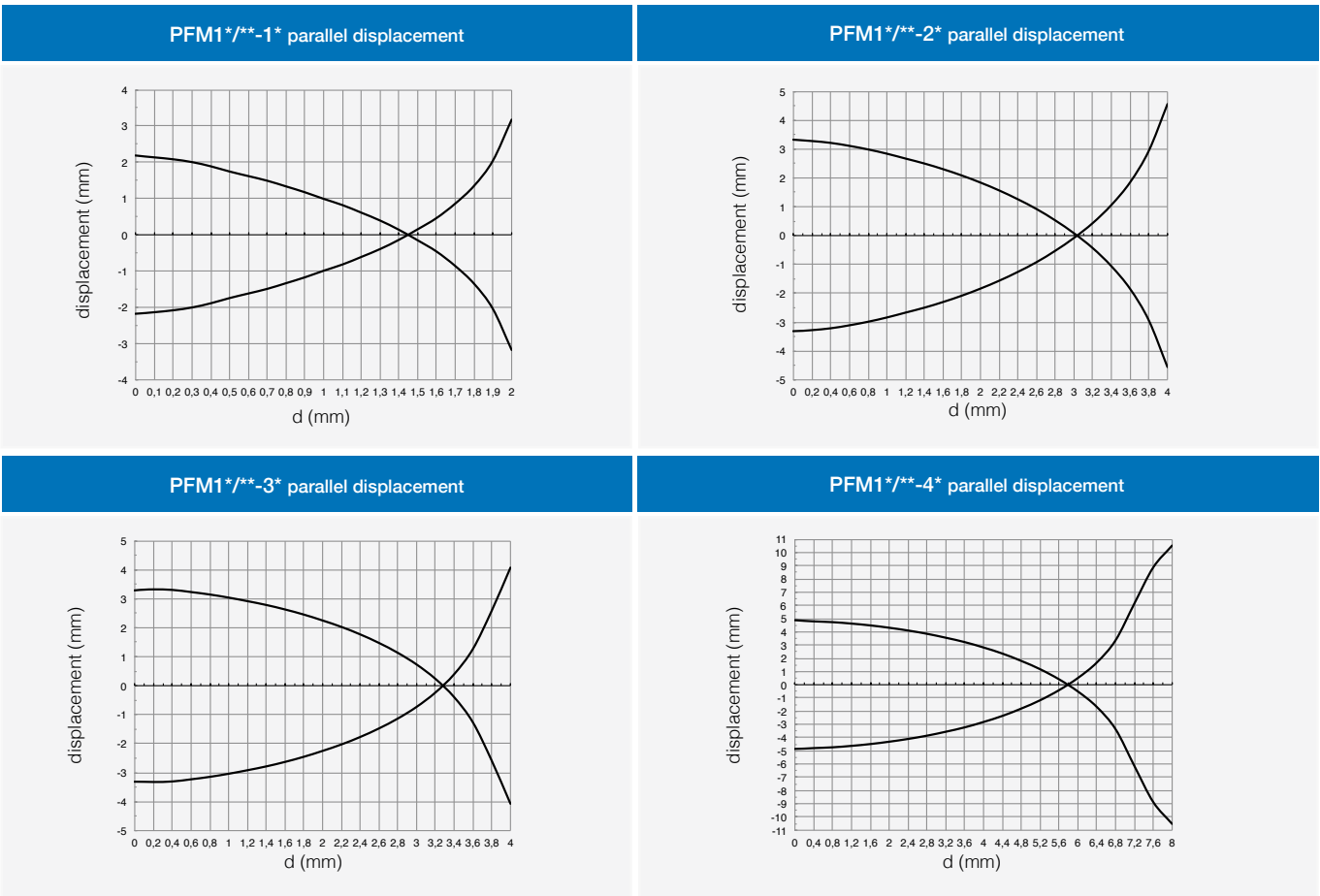
electrical diagrams of connections



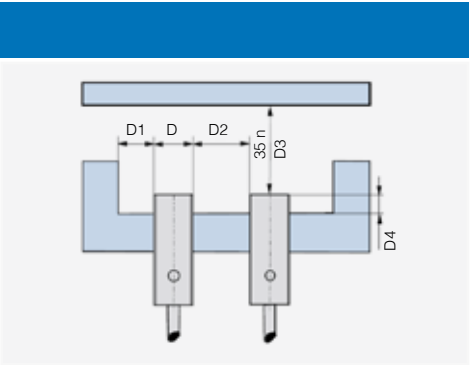
plug



response diagram



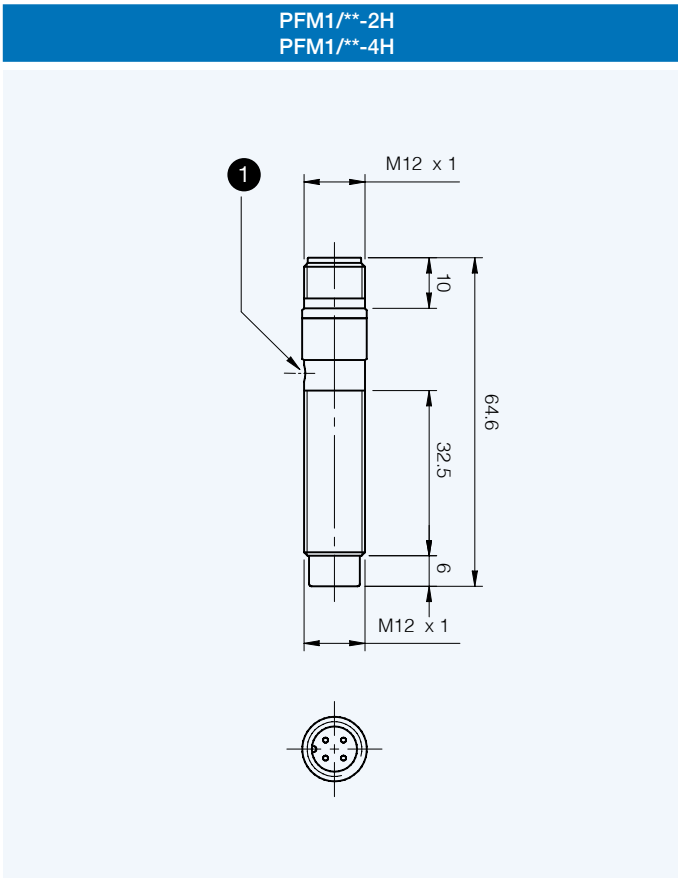
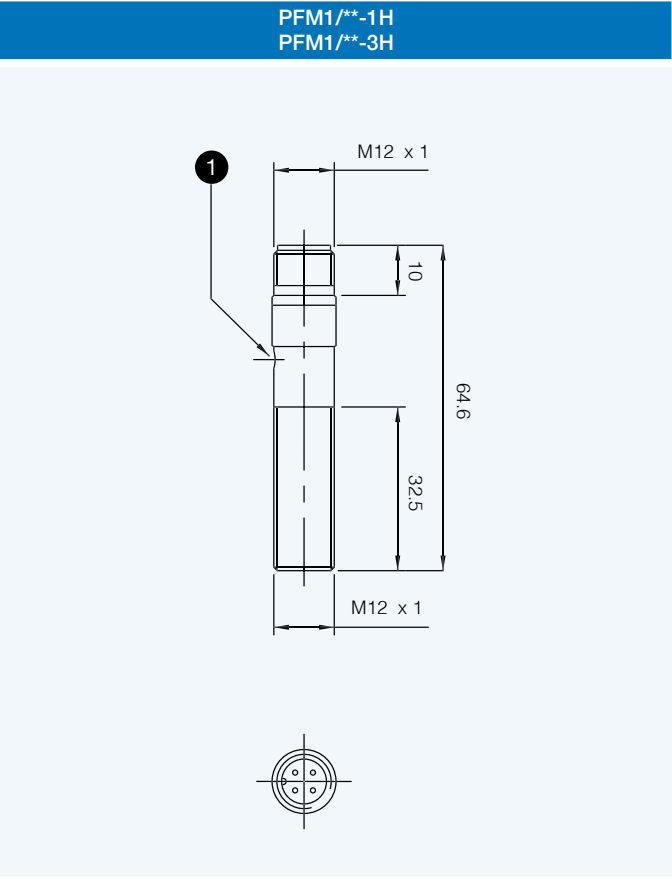
installation



code	D4	D1	D2	D3
PFM1/**-1*	$\geq 0\text{ mm}^{(1)}$	$\geq 6\text{ mm}$	$\geq 12\text{ mm}$	$\geq 6\text{ mm}$
PFM1/**-2*	$\geq 6\text{ mm}^{(2)}$	$\geq 12\text{ mm}$	$\geq 24\text{ mm}$	$\geq 12\text{ mm}$
PFM1/**-3*	$\geq 0\text{ mm}^{(3)}$	$\geq 6\text{ mm}$	$\geq 12\text{ mm}$	
PFM1/**-4*	$\geq 12\text{ mm}$	$\geq 12\text{ mm}$	$> 29\text{ mm}$	$\geq 24\text{ mm}$

(1) $\geq 2\text{ mm}$ for non magnetic material
(2) $\geq 0\text{ mm}$ for non magnetic material
(3) $\geq 2.4\text{ mm}$ for non magnetic material

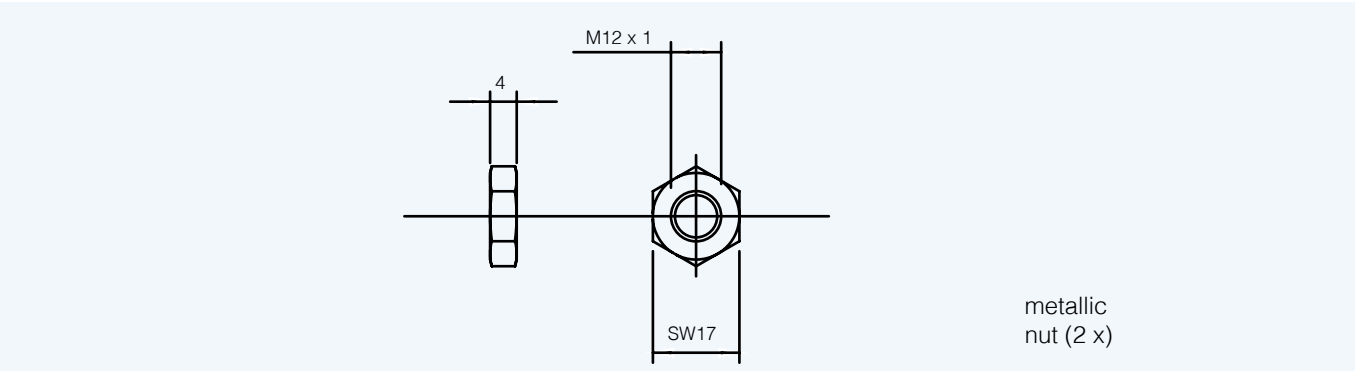
dimensions



1 LED (no LED in PFM-26 models)

dimensions (mm)

accessories included in all M12 models



metallic
nut (2 x)





PFK series

M18 cylindrical inductive sensors
for food and beverage applications



M18 cylindrical for food and
beverage applications

features

- AISI 316L (DIN 1.4404) stainless steel housing
- LED status indicator
- IP67 – IP68 – IP69K protection degree
- ATEX models, cat. 3, available on request
- Complete protection against electrical damages
- Standard and long distance models



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code description (*)

	PFK	1	/	A	P	-	1	H	V5
series	PFK	M18 inductive sensor for food+beverage applications							
housing	1	Standard housing							
output state	A	NO output							
	B	NO+NC complementary output							
output logic	P	PNP output							
	N	NPN output							
distance	1	5 mm standard shielded							
	2	8 mm standard unshielded							
	3	8 mm long distance shielded							
	4	12 mm long distance unshielded							
connect.	H	M12 plug exit							
special models	V5	Smooth housing							
	26	Extended temperature range models							

(*) ATEX models available, contact our Sales Dept. for further information.

available models

standard models

model	installation	sensing	plug	distance (mm)	NPN/NO	PNP/NO
M18	shielded	standard	M12	5	PFK1/AN-1H	PFK1/AP-1H
	unshielded			8	PFK1/AN-2H	PFK1/AP-2H
	shielded	long distance			PFK1/AN-3H	PFK1/AP-3H
	unshielded			12	PFK1/AN-4H	PFK1/AP-4H

available models

models with complementary output

model	installation	sensing	plug	distance (mm)	NPN/NO+NC	PNP/NO+NC
M8	shielded	standard	M12	5	PFK1/BN-1H	PFK1/BP-1H
	unshielded			8	PFK1/BN-2H	PFK1/BP-2H
	shielded	long distance			PFK1/BN-3H	PFK1/BP-3H
	unshielded			12	PFK1/BN-4H	PFK1/BP-4H

available models

models with extended temperature range

model	installation	sensing	plug	distance (mm)	NPN/NO+NC	PNP/NO+NC
M18	shielded	standard	M18	5	PFK1/BN-1H26	PFK1/BP-1H26
	unshielded			8	PFK1/BN-2H26	PFK1/BP-2H26

correction factors

code	steel FE 360	copper	alluminium	brass	stainless steel
PFK1/**-1*	1	0.25	0.35	0.4	0.7
PFK1/**-2*		0.27		0.42	
PFK1/**-3*		0.2	0.3	0.4	0.65
PFK1/**-4*		0.3	0.38	0.42	

Tolerance ±10%

technical specification

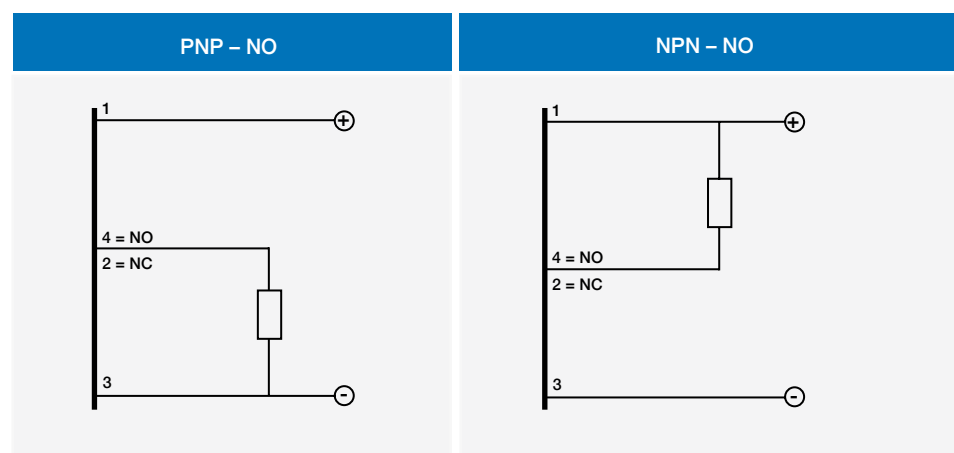
according to IEC EN 60947-5-2 / DIN 44030



M18 cylindrical for food and beverage applications

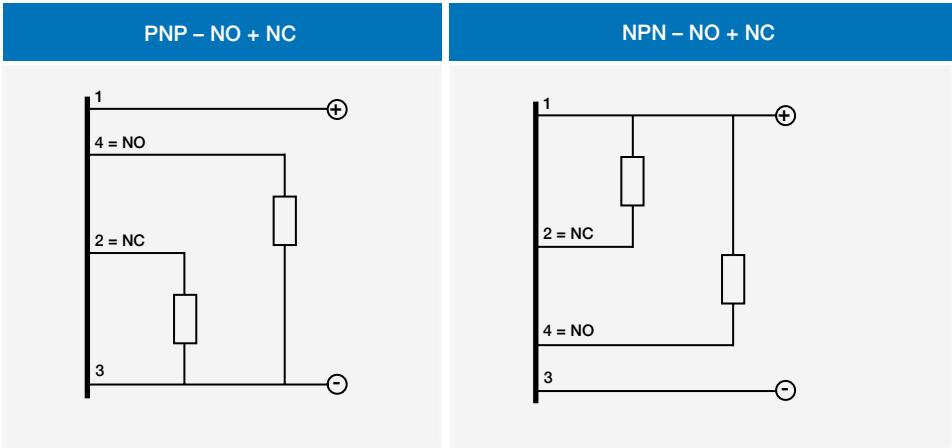
	PFK1/**-1H	PFK1/**-2H	PFK1/**-3H	PFK1/**-4H
				
nominal sensing distance	5 mm	8 mm		12 mm
working distance	0...4 mm	0...6.5 mm		0...9.72 mm
hysteresis		1...20%		
standard target	18x18 mm FE360			36x36 mm FE360
repeatability		5%		
operating voltage		10...30 Vcc		
max ripple content		≤ 10%		
output type		NPN or PNP - NO + NC or NO		
output current		≤ 200 mA		
output voltage drop		≤ 2 V		
no-load supply current		≤ 15 mA		
leakage current		≤ 10 µA		
switching frequency		15 kHz		
power on delay		50 ms		
ambient temperature range		-40...+80 °C short exposure (15') to 100°C (during cleaning processes) / -25°C...+110°C (PFK-26 models)		
temperature drift of Sr		10%		
short-circuit protection		•		
voltage reversal protection		•		
induction protection		•		
shocks and vibration		IEC 60947-5-2 / 7.4		
weight		55 g (40 g smooth housing)		
LEDs		NO output state / (no led PFK-26 models)		
protection degree		IP67, IP68 (1m, 7 days); IP69K (according to DIN 40050 part 9)		
EMC		in conformity with the EMC Directive according to IEC 60947-5-2		
housing material		Stainless Steel AISI316L (DIN 1.4404)		
active head material		PPS (FDA certified)		
connection		M12 plug with gold-plated pins		
tightening torque		50 Nm		

electrical diagrams of connections



BN brown
BU blue
BK black
WH white

electrical diagrams of connections



plug

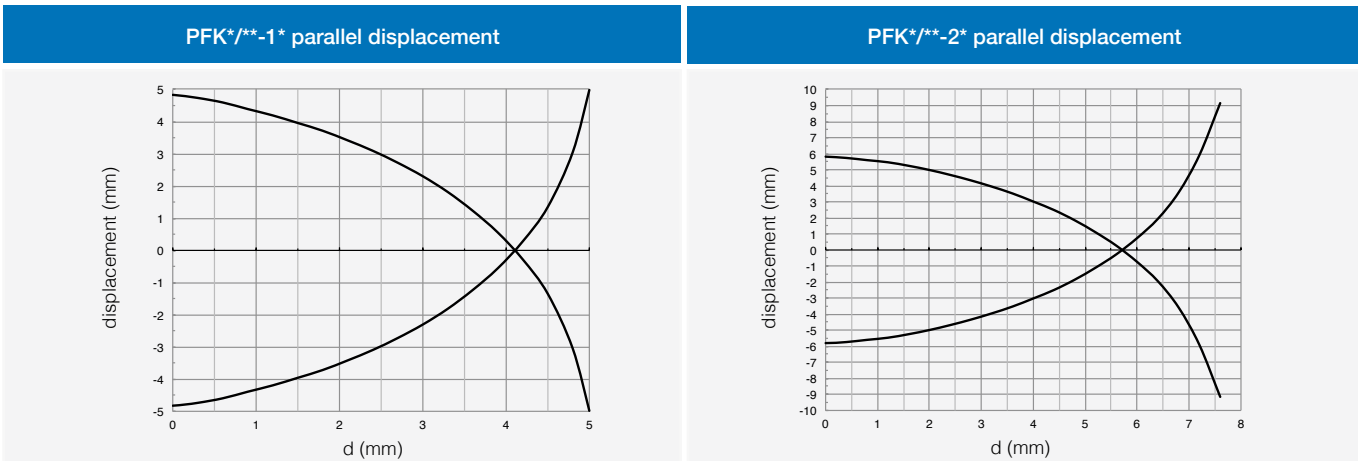


installation

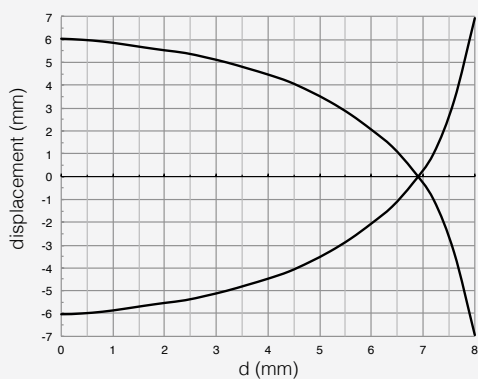
code	D4	D1	D2	D3
PFK1/**-1*	≥ 3.6 mm	≥ 9 mm	≥ 18 mm	≥ 15 mm
PFK1/**-2*	≥ 12 mm	≥ 18 mm	≥ 36 mm	≥ 24 mm
PFK1/**-3*	≥ 1.8 mm ⁽¹⁾	≥ 9 mm	> 19 mm	≥ 24 mm
PFK1/**-4*	≥ 16 mm	≥ 18 mm	> 37 mm	≥ 36 mm

⁽¹⁾ ≥ 5.4 mm for non magnetic material

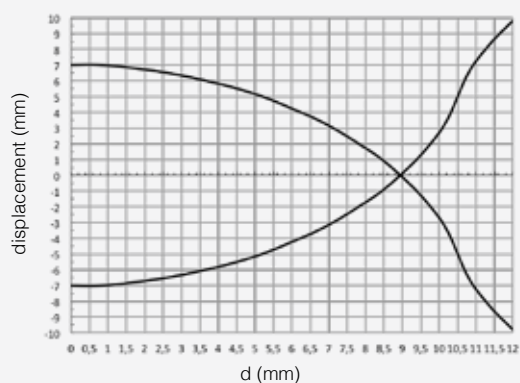
response diagram



PFK*/**-3* parallel displacement

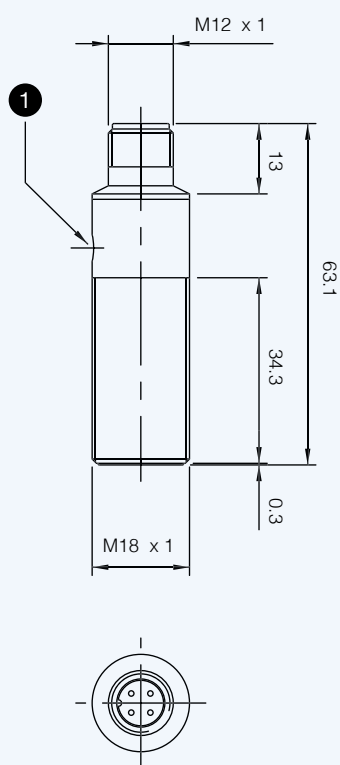


PFK*/**-4* parallel displacement

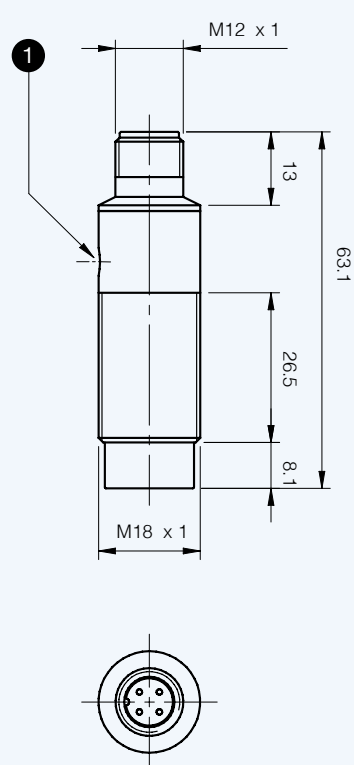


dimensions (mm)

PFK1/**-1H
PFK1/**-3H

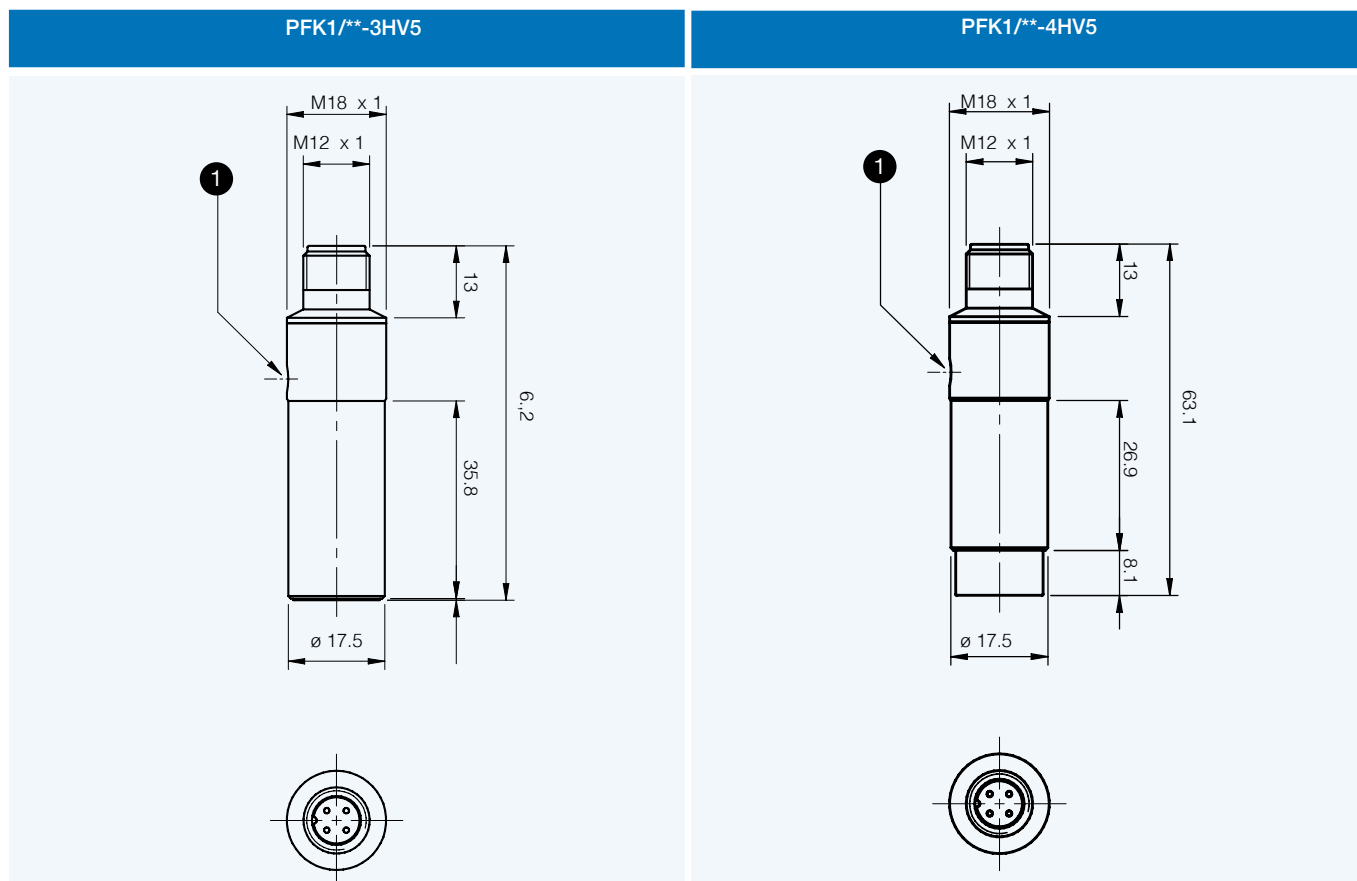


PFK1/**-2H
PFK1/**-4H



1 LED (no LED in PFK-26 models)

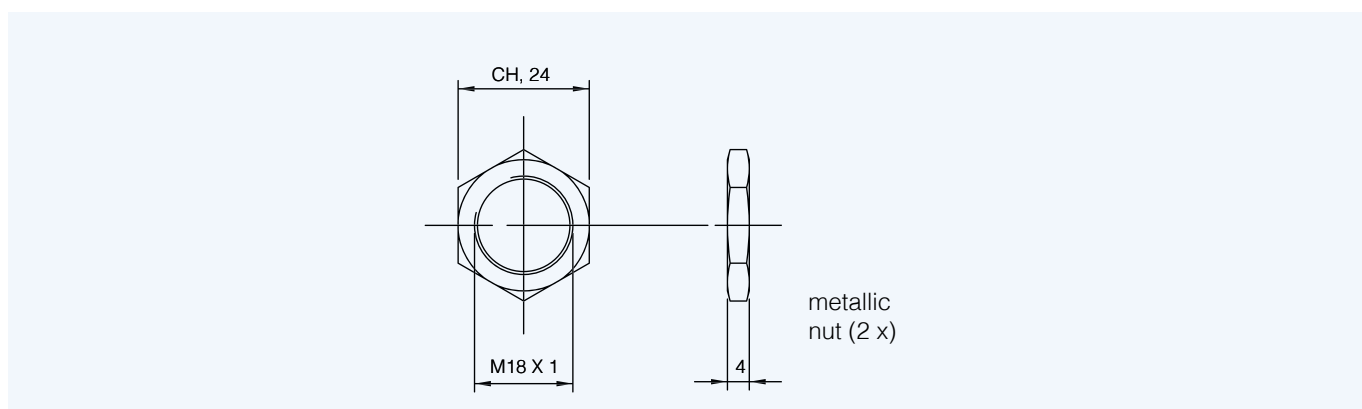
dimensions (mm)



1 LED (no LED in PFK-26 models)

dimensions (mm)

accessories included in all M18 models





AE - AM - AK series

Cylindrical inductive sensors
with analogue output



Cylindrical with
analogue output

features

- Wide choice of sizes M8, M12 and M18
- Wide usable sensing ranges: 4 mm for M8, 6 mm for M12 and 10 mm for M18
- Excellent resolution (no digitalization)
- Excellent temperature stability at low distances
- Voltage and current output in the same device (M12 and M18 only)



web contents



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- Photos
- Catalogue / Manuals



code description

		AM 1 / D 2 - 5 A				
housing	AE	M8 housing				
	AM	M12 housing				
	AK	M18 housing				
housing	1	Standard length housing				
	6	Short housing				
output state	D	Analog output				
output logic	1	0-10 Vdc voltage output				
	2	0-10 Vdc voltage and 4-20 mA current outputs				
distance	5	Quasi-embeddable 3x: 6 mm for M12 and 10 mm for M18				
	7	Quasi-embeddable 4x: 4 mm for M8				
connect.	A	Cable connection				
	F	M8 plug connection				
	H	M12 plug connection				

available models

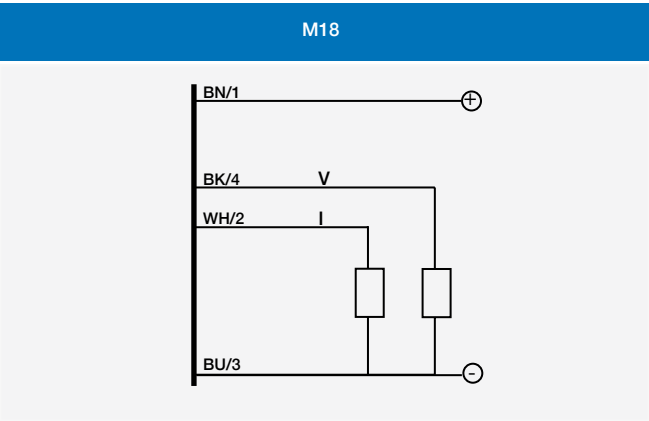
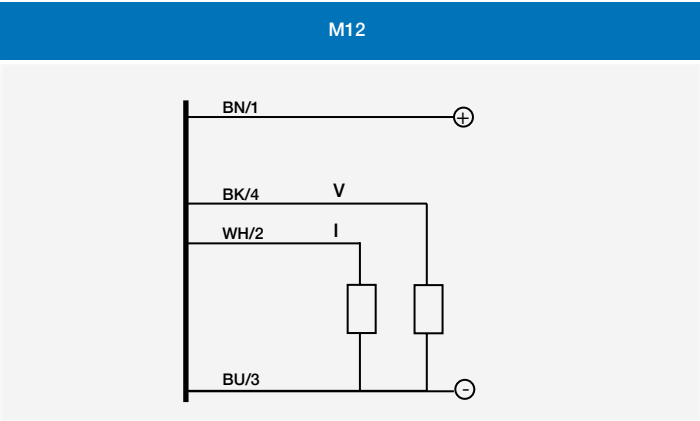
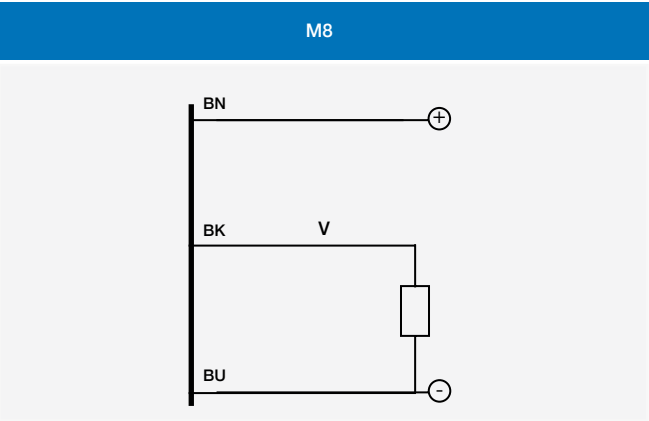
diameter	installation	distance	output	distance (mm)	0...10 V	0...10 V 4...20 mA
M8	quasi-embeddable	extended	cable	4	AE1/D1-7A	-
M12				6	-	AM1/D2-5A
			M12		-	AM1/D2-5H
M18			cable	10	-	AK6/D2-5A
	M12	-			AK6/D2-5A	

technical specification

according to IEC EN 60947-5-2

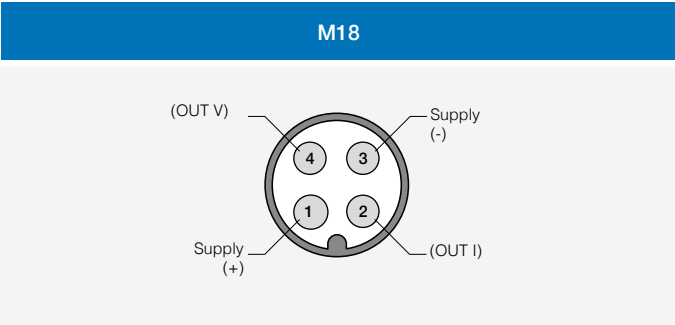
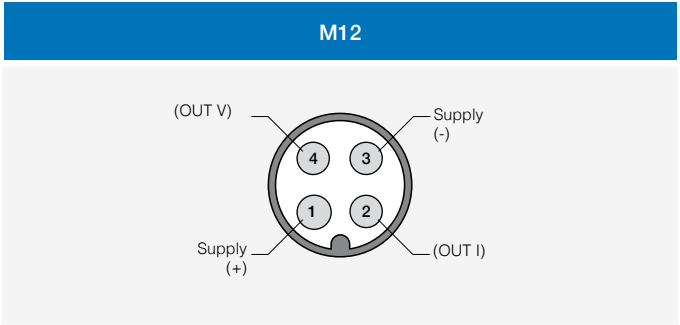
Cylindrical with
analogue output

	AE1/D1-7A	AM1/D2-5A	AM1/D2-5H	AK6/D2-5A	AK6/D2-5H
					
sensing range Sd	0...4 mm	0...6 mm		0...10 mm	
standard target	12 x 12 x 1 mm	18 x 18 x 1 mm		30 x 30 x 1 mm	
repeatability	0.3 mm (UB = 20...30 Vdc TA= 23°C ± 5°C)				
repeatability (TA=const.)	± 0.01 mm			± 0.02 mm	
resolution	≤ 1 µm			≤ 2 µm	
operating voltage UB	15...30 Vdc				
max. ripple content	≤ 20 % UB				
output voltage A1	0 V - 0 + 0.4 V (23°C) + 5,2 V ± 0.4 V (23°C) + 10 V ± 0.4 V (23°C)				
S = 0 MM					
S = 1/2 Sd					
S = Sd					
load current at: A1	≤ 10 mA				
output current A2	-	4 mA ± 0.8 mA (23°C) 20 mA ± 0.8 mA (23°C)			
S = 0 mm					
S = Sd					
max load at: A2	-	500 Ω (UB = 15 V) / 1 K Ω (UB = 30 V)			
no-load supply current	≤ 10 mA	≤ 12 mA			
cut-off frequency (-3dB 1/2 Sd)	1600 Hz	1000 Hz		500 Hz	
time delay before availability	≤ 50 ms				
ambient temperature range	- 25...+ 70°C				
temperature drift % Sr	± 5 % (0...+70°C) ± 10 % (-25...0°C)			≤ 10 %	
mounting	quasi-embeddable				
short-circuit protection	●				
voltage reversal protection	●				
shocks and vibration	IEC 60947-5-2				
EMC	in conformity with the EMC Directive according to IEC 60947-5-2				
protection degree	IP 67				
weight	50 g	95 g	33 g	116 g	55 g
housing materials	nichel plated brass				
active head material	PBT				
connection cable	PUR (3 pins)	PUR (4 pins)	-	PUR (4 pins)	-
connector type	-	-	M12 4P	-	M12 4P
tightening torque	3 Nm (AE series), 10 Nm (AM series), 25 Nm (AK series)				

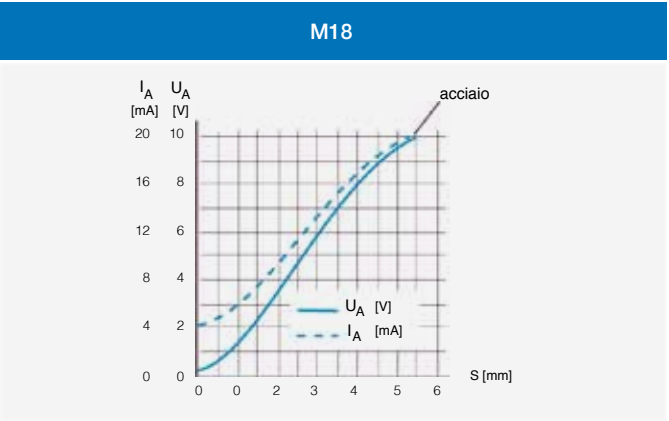
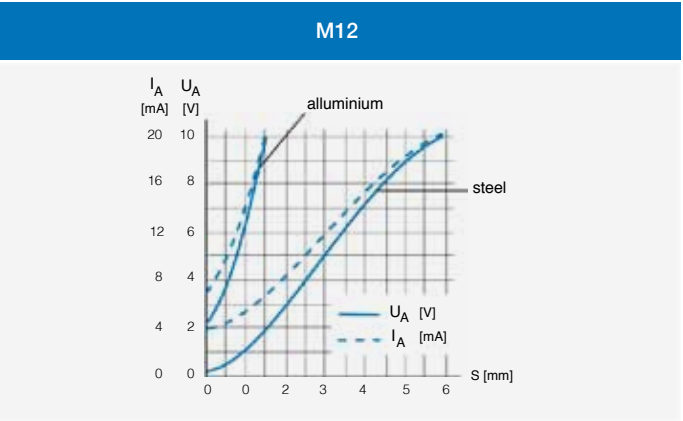
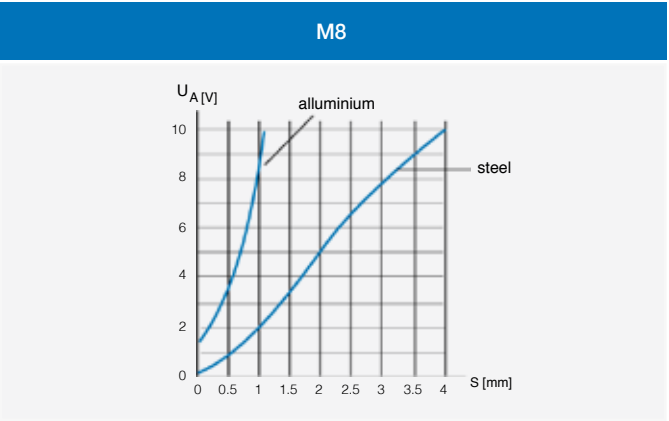


- BN brown
- BU blue
- BK black
- WH white

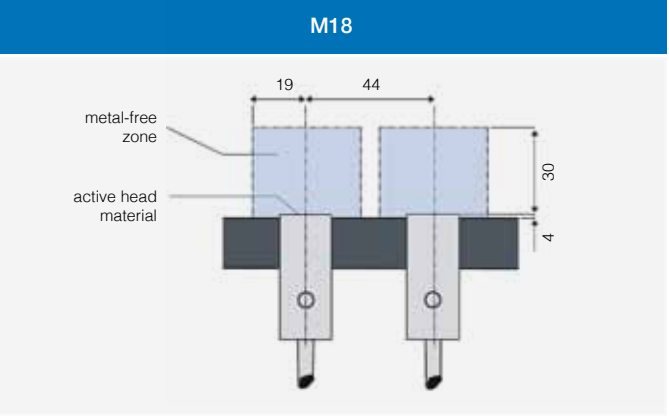
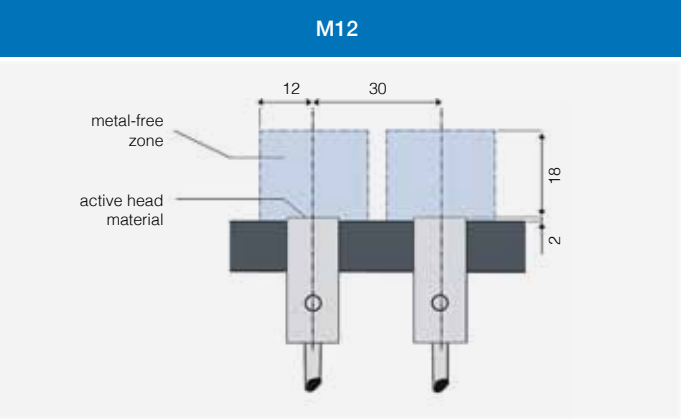
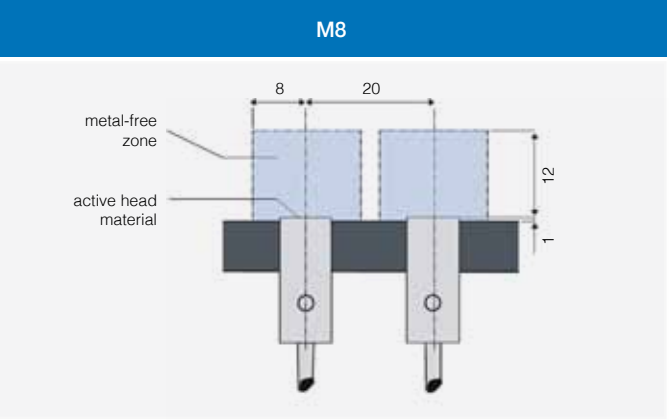
plug



response diagram

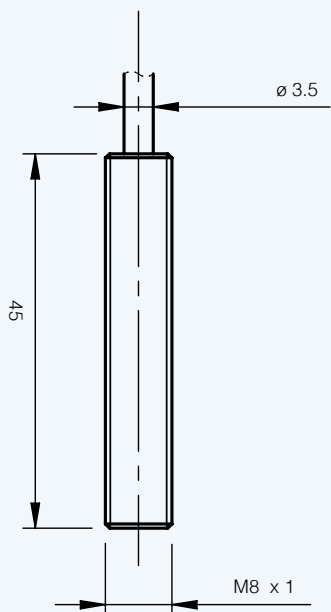


installation



dimensions (mm)

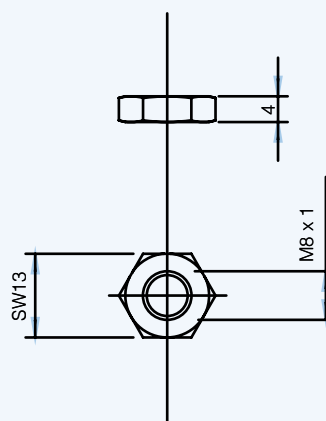
AE1/D1-5A



dimensions (mm)

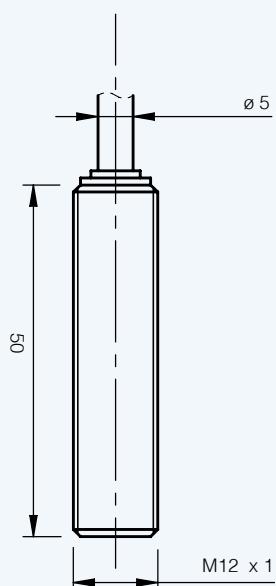
accessories included in all M8 models

metallic
nut (2 x)

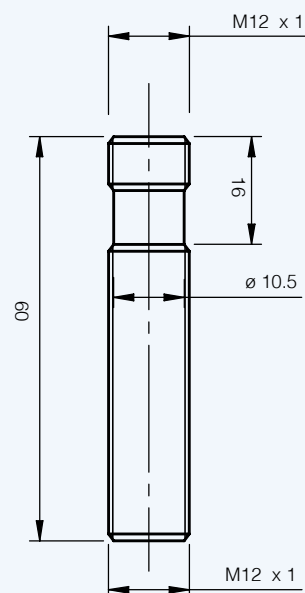


dimensions (mm)

AM1/D2-5A



AM1/D2-5H

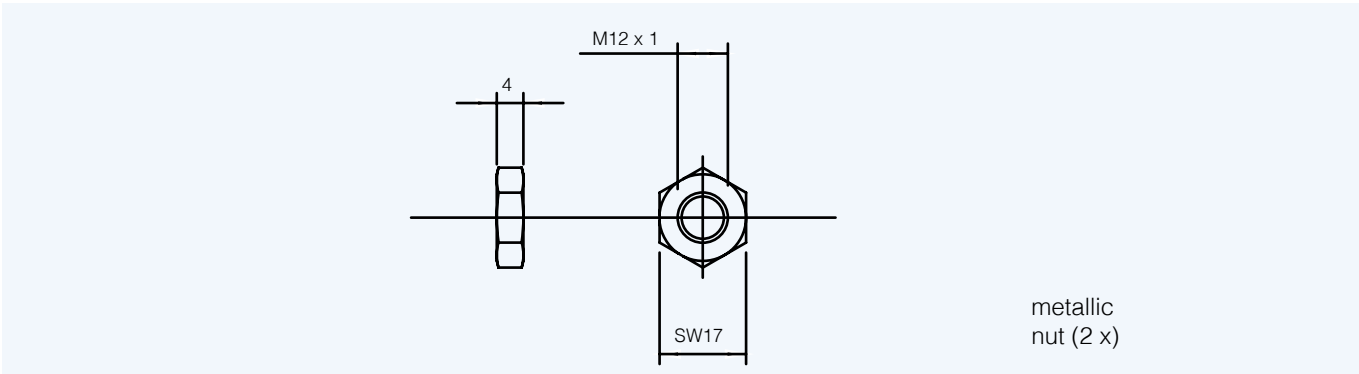


Cylindrical with
analogue output

AE - AM - AK

dimensions (mm)

accessories included in all M12 models

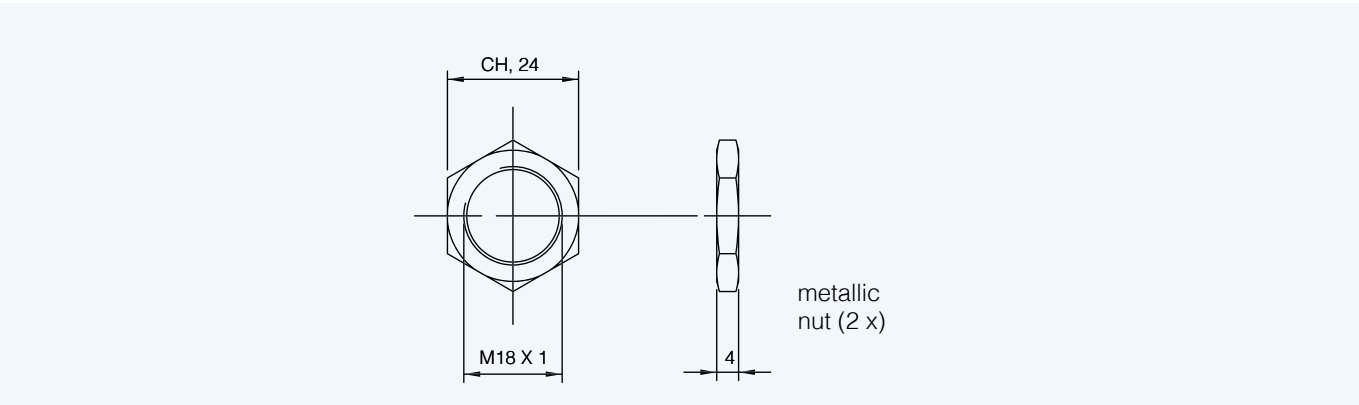


dimensions

AK6/D2-5A	AK6/D2-5H
ø 5 36 M18 x 1	M12 x 1 8 13.5 9 ø 10 27 48.5 M18 x 1

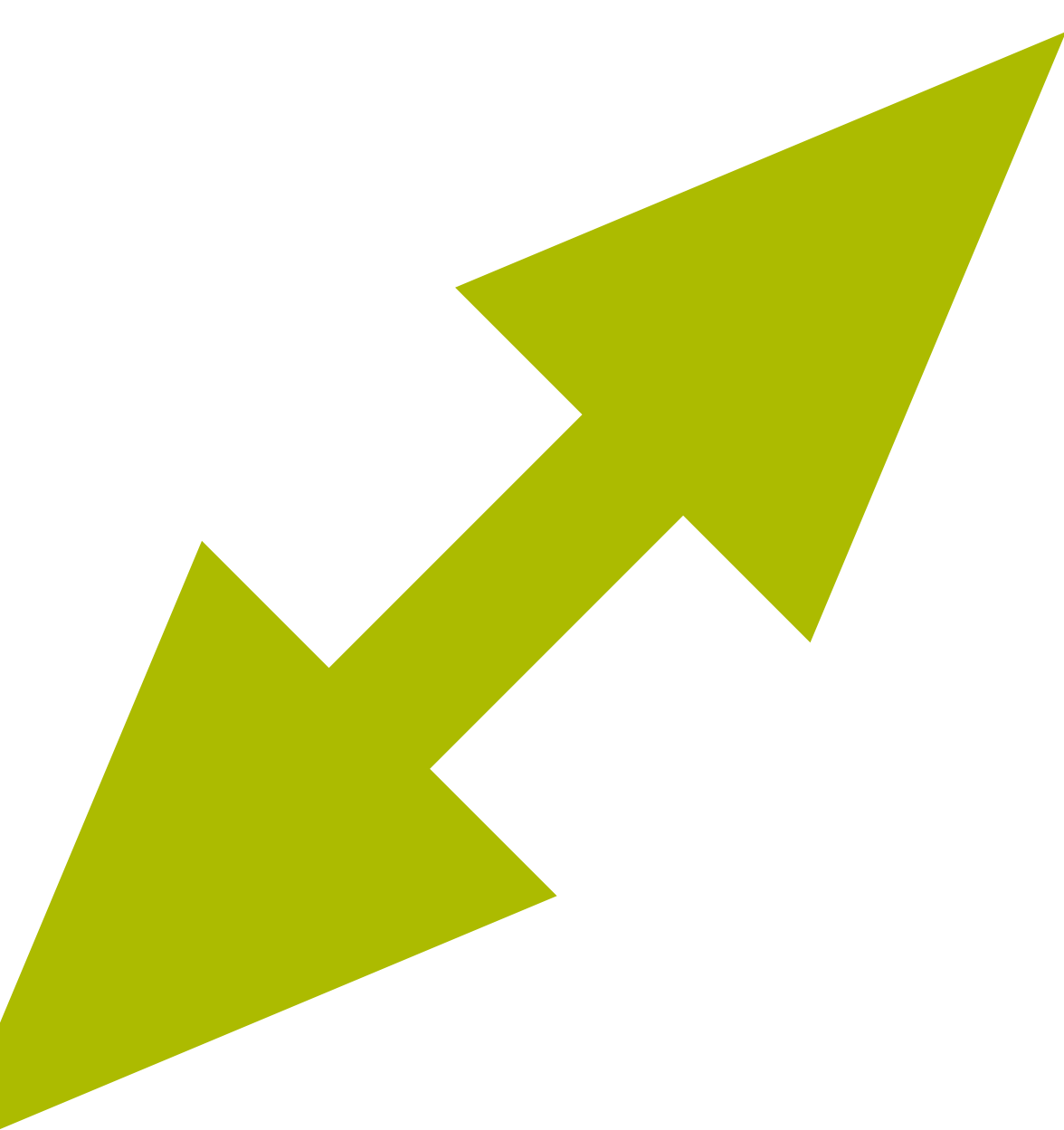
dimensions (mm)

accessories included in all M18 models





Capacitive Proximity Sensors





C18 series

M18 cylindrical capacitive sensors



M18 cylindrical

features

- DC or AC supply voltage
- High noise immunity
- Shielded and unshielded models
- Adjustable sensitivity
- Plastic housing



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available models

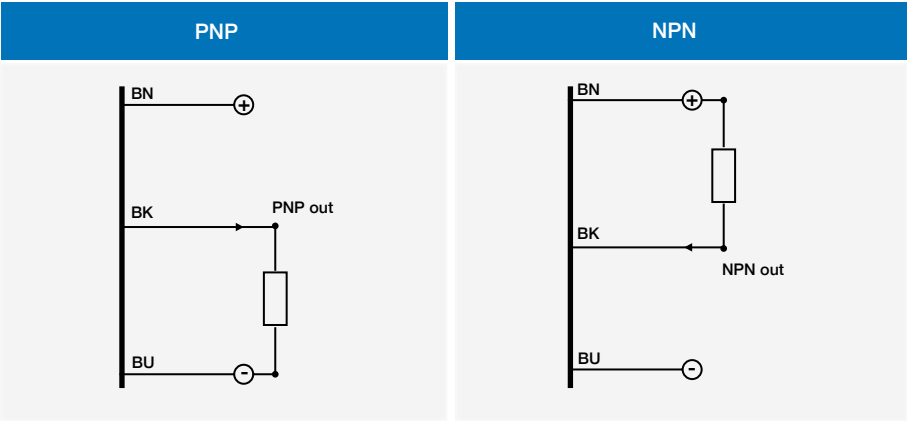
	C18	P	/	B	P	-	1	E
series	C18	M18 capacitive sensor						
housing	P	Plastic housing						
output state	B	NO + NC complementary output						
	A	NO output						
output logic	C	NC output						
	P	PNP logic						
	N	NPN logic						
distance	0	SCR output						
	1	3...8 mm shielded models						
connect.	2	3...12 mm unshielded models						
	E	M12 plug exit						
	A	2 m cable exit						

available models

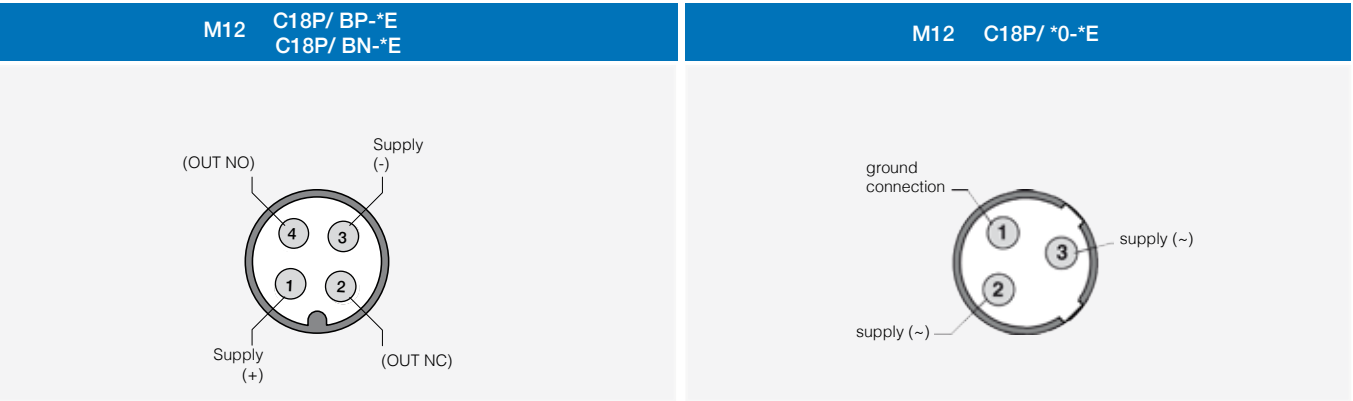
supply	installation	connections	distance	NPN NO + NC	PNP NO + NC	NO	NC
10...40 Vcc	shielded	cable 2 m	3...8 mm	C18P/BN-1A	C18P/BP-1A	-	-
		M12		C18P/BN-1E	C18P/BP-1E	-	-
	unshielded	cable 2 m	3...12 mm	C18P/BN-2A	C18P/BP-2A	-	-
		M12		C18P/BN-2E	C18P/BP-2E	-	-
20...250 Vac	shielded	cable 2 m	3...8 mm	-	-	C18P/A0-1A	C18P/C0-1A
		M12		-	-	C18P/A0-1E	C18P/C0-1E
	unshielded	cable 2 m	3...12 mm	-	-	C18P/A0-2A	C18P/C0-2A
		M12		-	-	C18P/A0-2E	C18P/C0-2E

technical specification

	C18P/**-1*	C18P/**-2*
		
nominal sensing distance	8 mm	12 mm
hysteresis	≤ 20%	
repeatability	5%	
operating voltage	10 ... 40 Vcc oppure 20 ... 250 Vac	
max ripple content	≤ 10 %	
no-load supply current	≤ 12 mA	
load current	≤ 200 mA (dc models), ≤ 500 mA; max. 2,5 A max. 20 ms (ca models)	
leakage current	≤ 100 µA	
output voltage drop Ud	2.5 Vmax @ IL= 200 mA (dc models), ≤ 10 VAC @ IL ≥ 20 mA (ca models)	
output type	NPN or PNP - NO + NC; SCR - NO or NC	
switching frequency	50 Hz (dc models); 10 Hz (ca models)	
power on delay	≤ 200 ms	
power supply protections	polarity reversal, impulsive overvoltage	
output protection	autoreset short circuit, overvoltage (dc models)	
sensitivity adjustment	●	
storage temperature	-40 ... +85° C	
operating temperature range	-25 ... +80° C (without freeze) (ca models); -35 ... +85° C (without freeze) (dc models)	
temperature drift	≤ 20 %	
EMC	in conformity with the EMC Directive, according to IEC 60947-5-2	
protection degree	IP67 (IEC 60529) NEMA 1,3,4,6,13 (ca models); IP67 - IP68/60 min - IP69K (IEC 60529; 60943-1) NEMA 1,2,4,4x,5,6,6p,12 (models dc)	
LEDs	yellow (output status) (ca-models), yellow (object detected), green (supply/stability) (dc models)	
housing material	thermoplastic polyester	
active head material	polyester	
weight	65 g M12 connector / 150 g cable	
tightening torque	2.6 Nm	

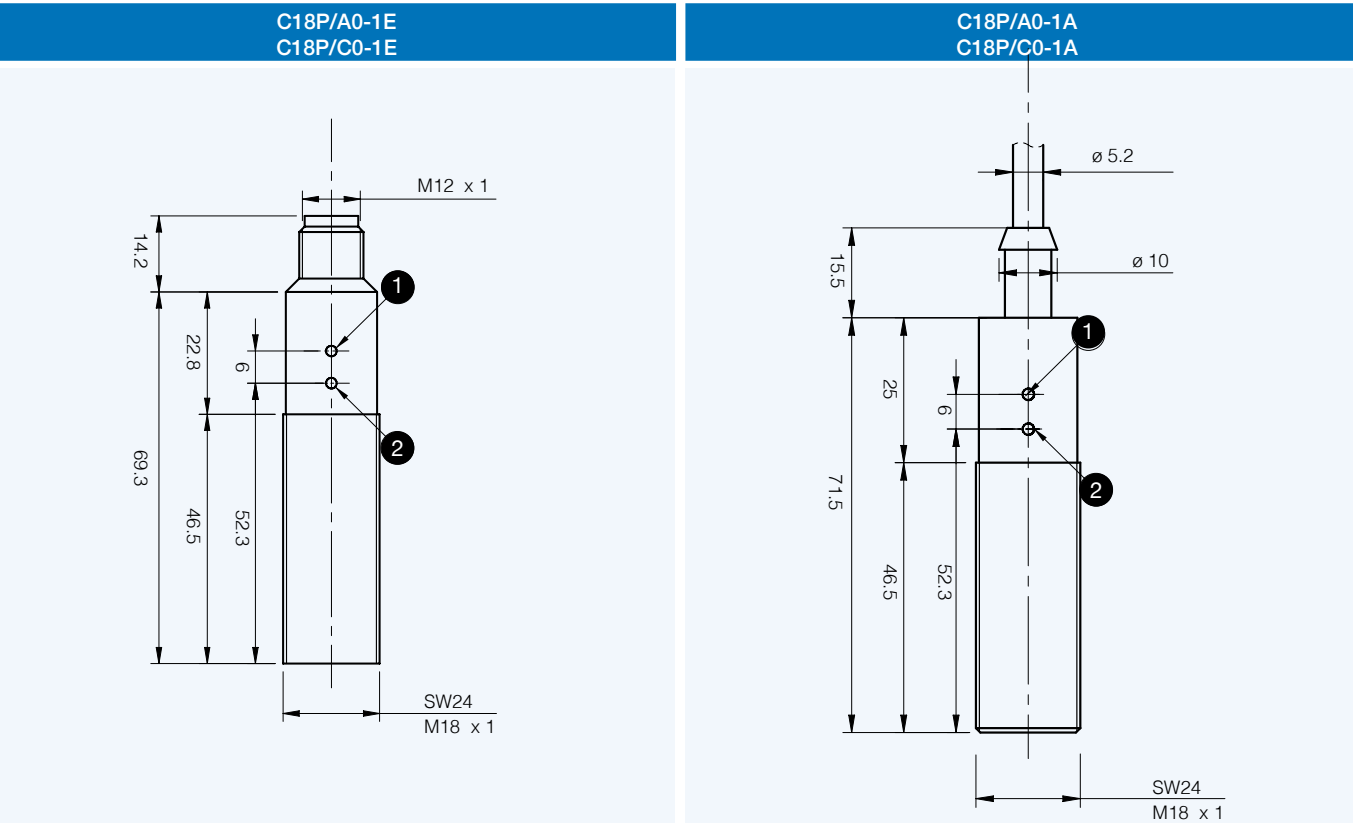


plug



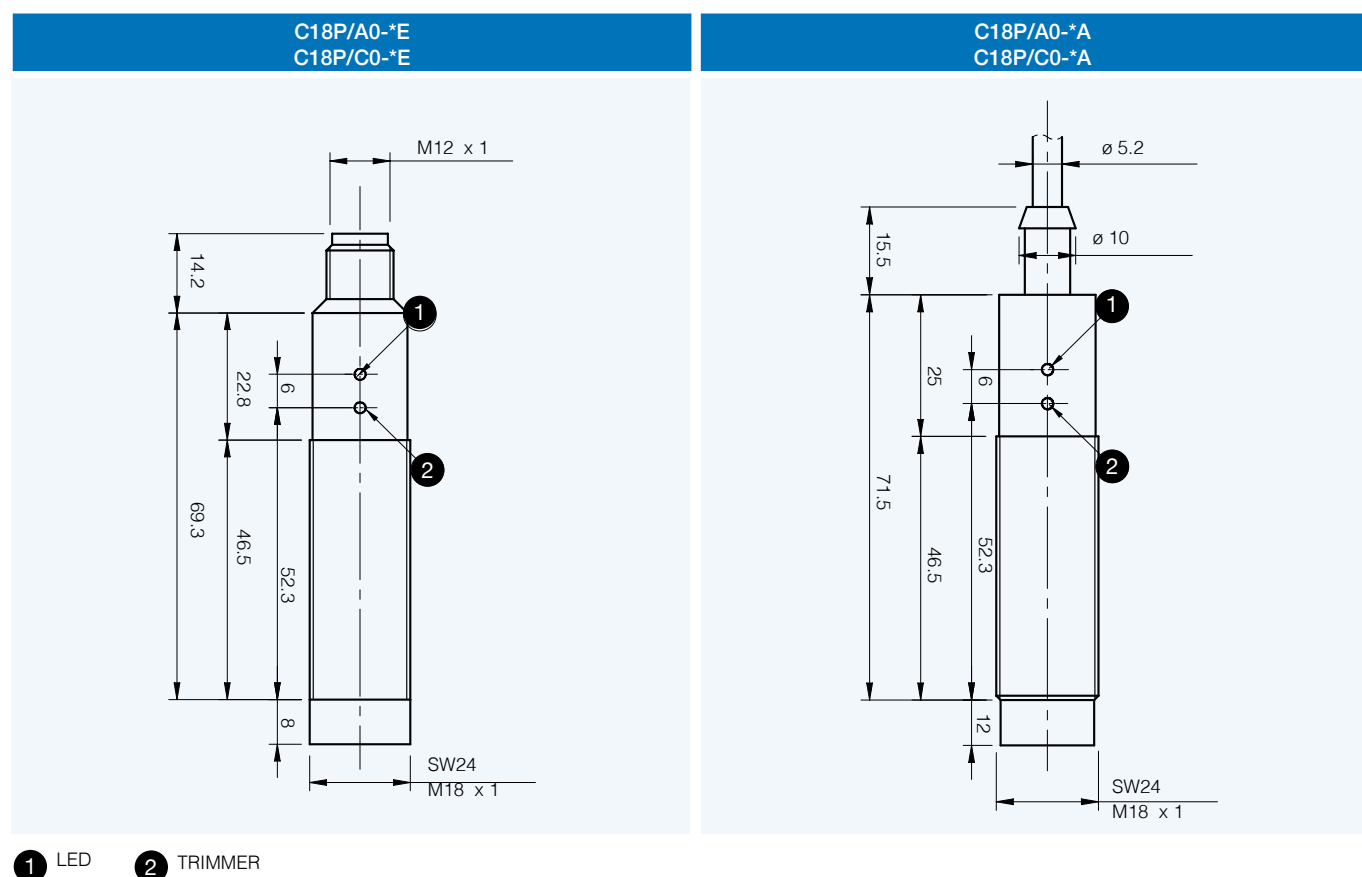
For models with AC power supply using the connection cable series CD12M/AC

dimensions (mm)



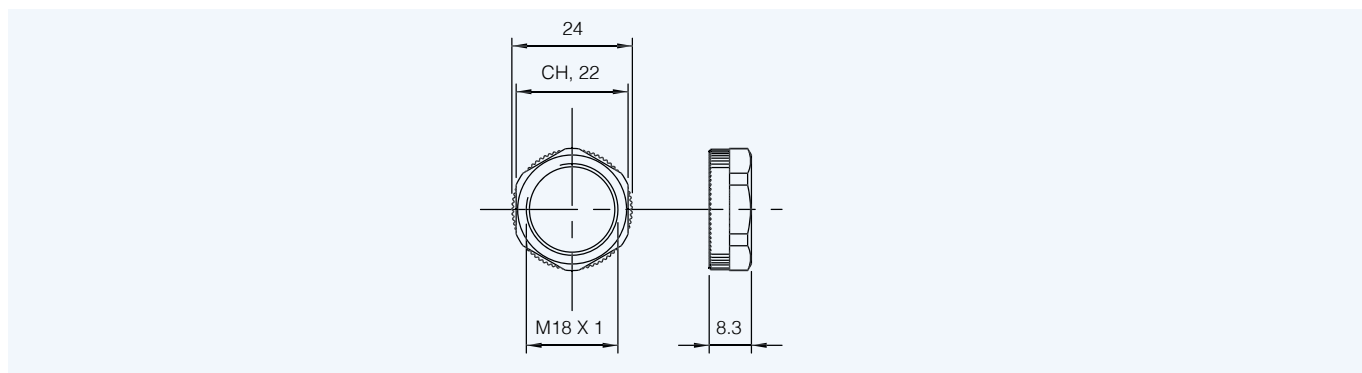
1 LED 2 TRIMMER

dimensions (mm)



dimensions (mm)

accessories included in all models





CE series

Ø 20 mm cylindrical
capacitive sensors



Ø 20 mm cylindrical

features

- Models with or without self-monitoring
- Sensitivity adjustment with trimmer
- NO+NC complementary output
- Stainless steel housing
- IP65 protection degree
- Complete protection against electrical damages
- Axial cable exit or M12 plastic plug cable exit



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code description

	CE	1	/	0	P	-	1	A
series	CE	Capacitive proximity sensor						
housing	1	Standard						
	2	With self-monitoring						
output state	0	NO+NC complementary output						
output logic	N	NPN logic output						
	P	PNP logic output						
distance	1	Standard shielded 10 mm						
connect.	A	Axial cable exit						
	E	M12 plug cable exit						

available models

diameter	installation	distance (mm)	plug	self-monitoring	PNP/NO + NC
Ø 20	shielded	10	cable	-	CE1/0P-1A
			M12		CE1/0P-1E
			cable	●	CE2/0P-1A
			M12		CE2/0P-1E

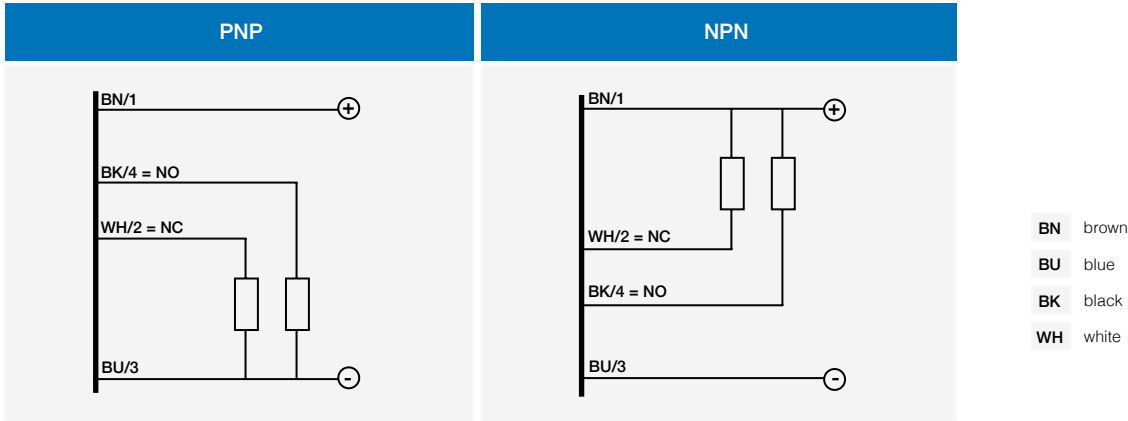


Ø 20 mm cylindrical

technical specification

	CE1/0P-1*	CE2/0P-1*
		
nominal sensing distance Sn	10 mm	
operating distance	1.5...7.2 mm (shielded)	
hysteresis	2...15%	
repeatability	5%	
supply voltage	10...30 Vdc	
ripple	≤ 15%	
no-load supply current	17 mA	
load current	≤ 100 mA	
leakage current	≤ 1 µA	
voltage drop	1.5V max. IL=100 mA	
output type	NPN or PNP NO+NC - open collector	
switching frequency	300 Hz	
self-monitoring pulse frequency	period 4-8 ms (6,2 ms nominal) duration 150-300 µs (220 µs nominal)	
power supply protections	polarity reversal, transient	
output protection	short circuit (autoreset)	
temperature range	-25°...+70°C	
temperature drift	20% Sr	
EMC	in conformity with the EMC Directive, according to IEC 60947-5-2	
shocks and vibrations	IEC 60947-5-2	
protection degree	IP 65	
LEDs	yellow (NO output energized)	
housing material	stainless steel	
active head material	LCP	
weight	80 g M12 connector / 200 g cable	

electrical diagrams of connections

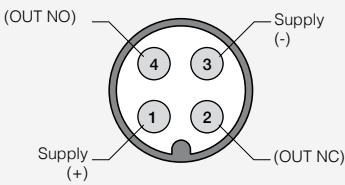


CE

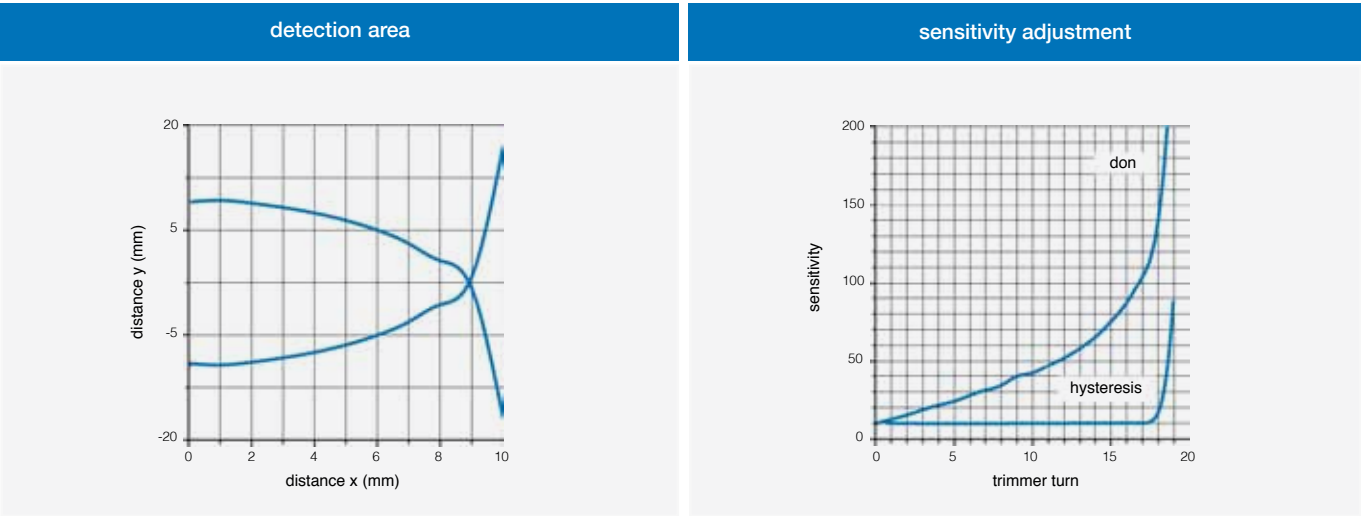


Ø 20 mm cylindrical

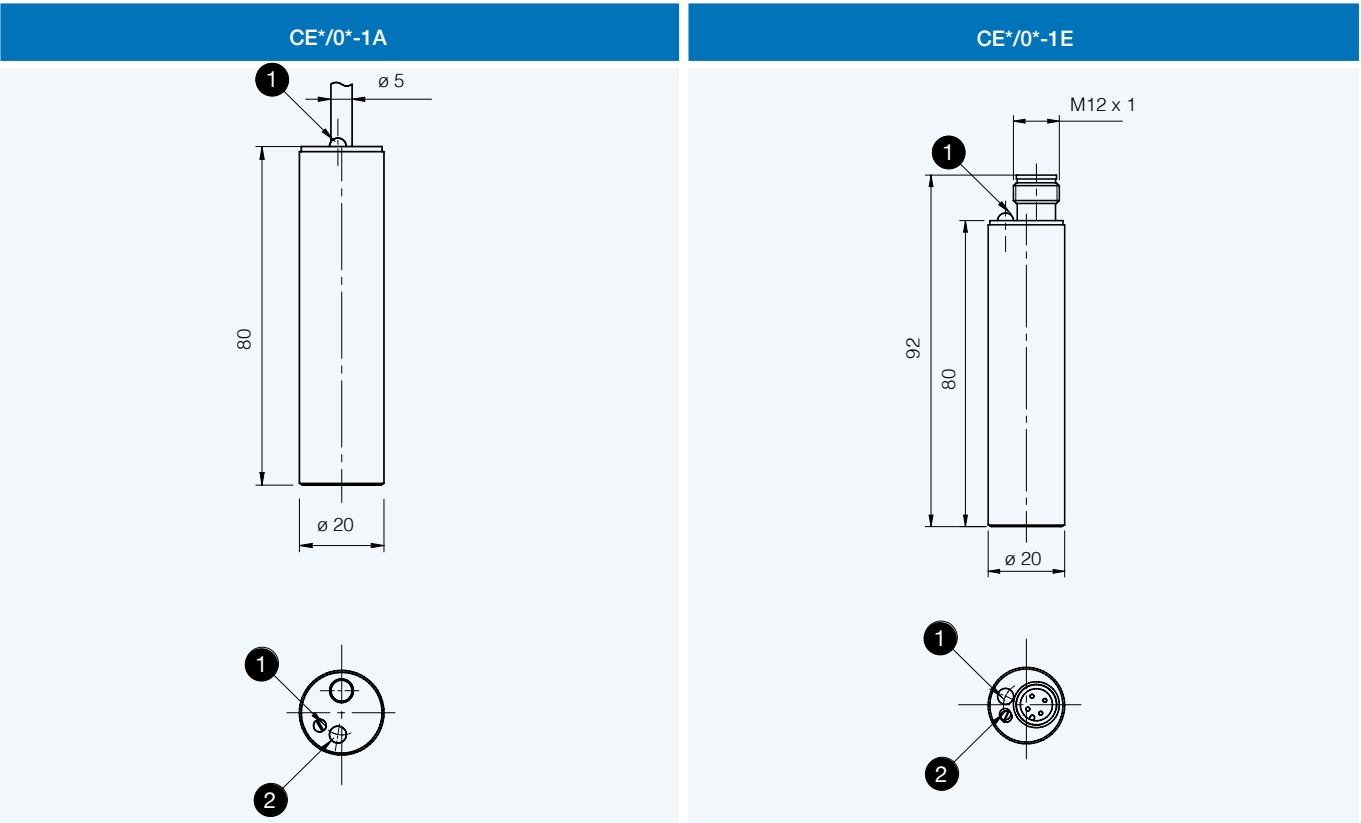
M12 - NO+NC



response diagram



dimensions (mm)



1 LED 2 TRIMMER

CE



CE



CT series

M30 cylindrical capacitive sensors



M30 cylindrical

features

- Sensitivity adjustment with trimmer
- Metal housing
- IP65 protection degree
- Complete protection against electrical damages
- Axial cable exit or M12 plug cable exit



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code description

CT 1 / A N - 1 A

series	CT	Capacitive proximity sensor
housing	1	Standard
output state	A	NO output state
	C	NC output state
output logic	N	NPN logic output
	P	PNP logic output
distance	1	Standard shielded 15 mm
	2	Standard unshielded 20 mm
connect.	A	Axial cable exit
	H	M12 plug cable exit

available models

diameter	installation	distance (mm)	plug	NPN/NO	NPN/NC	PNP/NO	PNP/NC
M30	shielded	15	cable	CT1/AN-1A	CT1/CN-1A	CT1/AP-1A	CT1/CP-1A
			M12	CT1/AN-1H	CT1/CN-1H	CT1/AP-1H	CT1/CP-1H
	unshielded	20	cable	CT1/AN-2A	CT1/CN-2A	CT1/AP-2A	CT1/CP-2A
			M12	CT1/AN-2H	CT1/CN-2H	CT1/AP-2H	CT1/CP-2H

C class codes

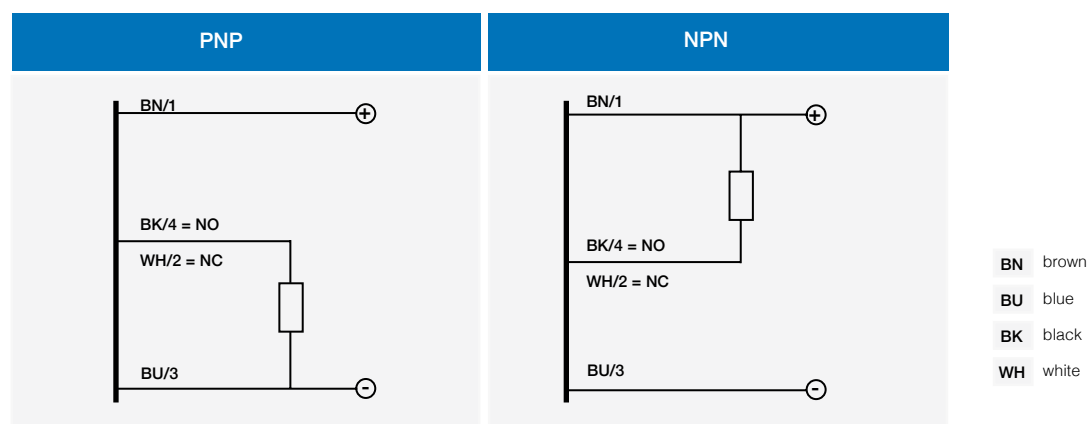
Note: The class C products could be subject to delays in delivery terms or limits for the quantities to be ordered

CT

technical specification

	CT1/0*-1*	CT2/0*-1*
		
nominal sensing distance S_n	2...15 mm	2...20 mm
operating distance	2...12 mm	2...16 mm
hysteresis	2...20 %	
repeatability	10 %	
supply voltage	10...30 Vdc	
ripple	≤ 10 %	
no-load supply current	8 mA	
load current	≤ 200 mA	
leakage current	≤ 10 mA	
voltage drop	0.75/1.8 V max. $I_L=10/200$ mA	
output type	NPN or PNP - NO or NC - open collector	
switching frequency	100 Hz	
time delay before availability	100 ms	
power supply protections	impulsive polarity reversal, transient	
output protection	short circuit (autoreset)	
temperature range	-25°...+70°C	
temperature drift	20% Sr	
EMC	in conformity with the EMC Directive according to IEC 60947-5-2	
shocks and vibrations	IEC 60947-5-2	
protection degree	IP 65	
LEDs	green (supply), red (output energized)	
housing material	nichel plated brass	
active head material	PBT	
weight	185 g M12 connector 260 g cable	
tightening torque	50 Nm	

electrical diagrams of connections



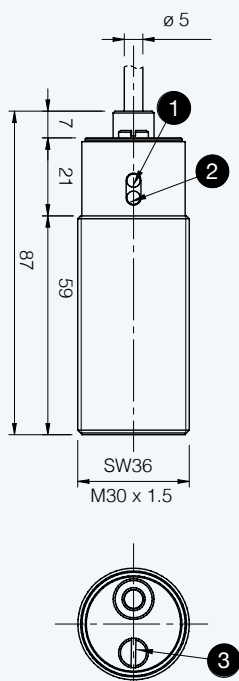


M12 - NO	M12 - NC

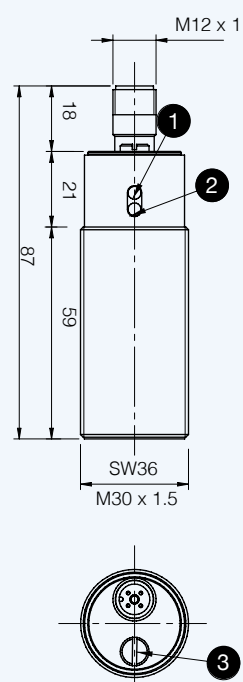
response diagram

CT1/**-1* detection area	CT1/**-1* sensitivity adjustment
CT1/**-2* detection area	CT1/**-2* sensitivity adjustment

CT1/**-1A

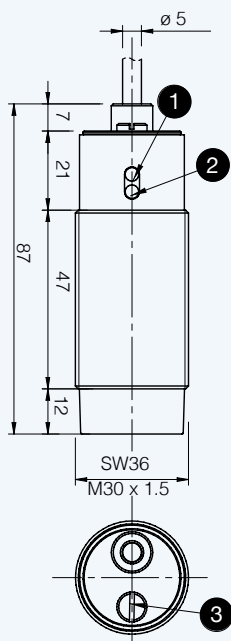


CT1/**-1H

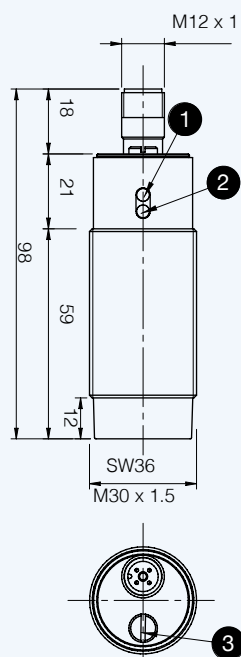




CT1/**-2A



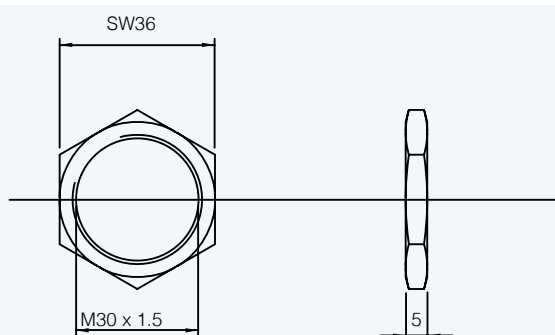
CT1/**-2H



- 1 red LED (supply) 2 yellow LED (active NO output) 3 TRIMMER

dimensions (mm)

accessories included in all models







C30 series

M30 cylindrical capacitive sensors



M30 cylindrical

features

- DC or AC supply voltage
- High noise immunity
- Shielded and unshielded models
- Adjustable sensitivity
- Metallic or plastic housing



web contents



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- Photos
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code description

C30 P / B P - 1 E

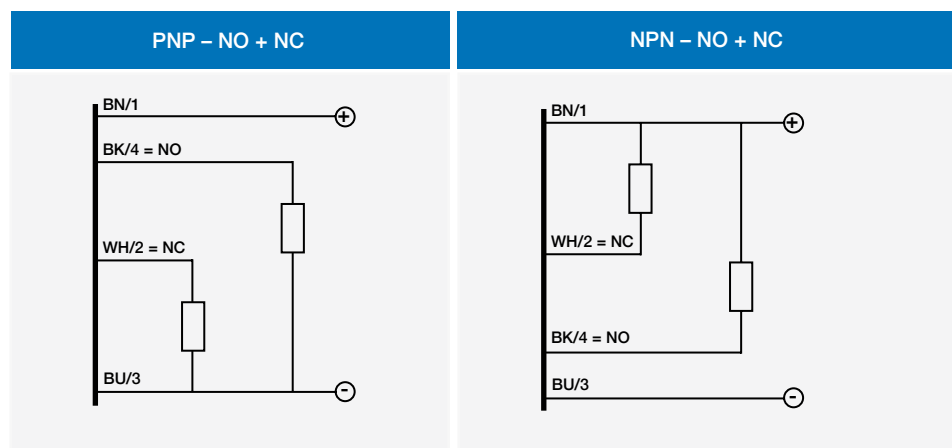
series	C30	M30 capacitive sensor
housing	P	Plastic housing
	M	Metal housing
output state	B	NO + NC complementary output
	0	NO / NC selectable output
output logic	P	PNP logic
	N	NPN logic
	0	SCR output
distance	1	2...16 mm shielded models
	2	4...25 mm unshielded models
connect.	E	M12 plug exit
	A	2 m cable exit

available models

supply	housing	installation	distance (mm)	connections	NPN NO + NC	PNP NO + NC	SCR NO + NC
10...40 Vcc	stainless steel	shielded	2...16	2 m plug	C30M/BN-1A	C30M/BP-1A	-
		unshielded	4...25		C30M/BN-2A	C30M/BP-2A	-
		shielded	2...16	M12	C30M/BN-1E	C30M/BP-1E	-
		unshielded	4...25		C30M/BN-2E	C30M/BP-2E	-
	plastic	shielded	2...16	2 m plug	C30P/BN-1A	C30P/BP-1A	-
		unshielded	4...25		C30P/BN-2A	C30P/BP-2A	-
		shielded	2...16	M12	C30P/BN-1E	C30P/BP-1E	-
		unshielded	4...25		C30P/BN-2E	C30P/BP-2E	-
20...250 Vac	stainless steel	shielded	2...16	2 m plug	-	-	C30M/00-1A
		unshielded	4...25		-	-	C30M/00-2A
		shielded	2...16	M12	-	-	C30M/00-1E
		unshielded	4...25		-	-	C30M/00-2E
	plastic	shielded	2...16	2 m plug	-	-	C30P/00-1A
		unshielded	4...25		-	-	C30P/00-2A
		shielded	2...16	M12	-	-	C30P/00-1E
		unshielded	4...25		-	-	C30P/00-2E

technical specification

	C30*/**-1*	C30*/**-2*
		
nominal sensing distance Sn	16 mm	25 mm
hysteresis	≤ 20 %	
repeatability	5 %	
operating voltage	10 ... 40 Vcc oppure 20 ... 250 Vac	
max ripple content	≤ 10 %	
no-load supply current	≤ 12 mA	
load current	≤ 200 mA (dc models), ≤ 500 mA; max. 2.5 A max. 20 ms (ca models)	
leakage current	≤ 100 µA	
output voltage drop Ud	2.5 Vmax @ IL= 200 mA (dc models), ≤ 10 VAC @ IL ≥ 20 mA (ca models)	
output type	NPN or PNP - NO + NC; SCR - NO / NC	
switching frequency	50 Hz (dc models); 10 Hz (ca models)	
power on delay	≤ 200 ms	
power supply protections	polarity reversal, impulsive overvoltage	
output protection	autoreset short circuit, overvoltage (dc models)	
sensitivity adjustment	●	
storage temperature	-40 ... +85° C	
operating temperature range	-25 ... +80° C (without freeze)	
temperature drift	≤ 20 %	
EMC	in conformity with the EMC Directive, according to EN 60947-5-2	
protection degree	IP67 (EN 60529) NEMA 1,3,4,6,13	
LEDs	yellow (output status LOn/DOn)	
housing material	thermoplastic polyester	
active head material	polyester	
weight	plastic version: 100 g connector M12 / 180 g cable metallic version: 150 g connector / 230 g cable+	
tightening torque	50 Nm	



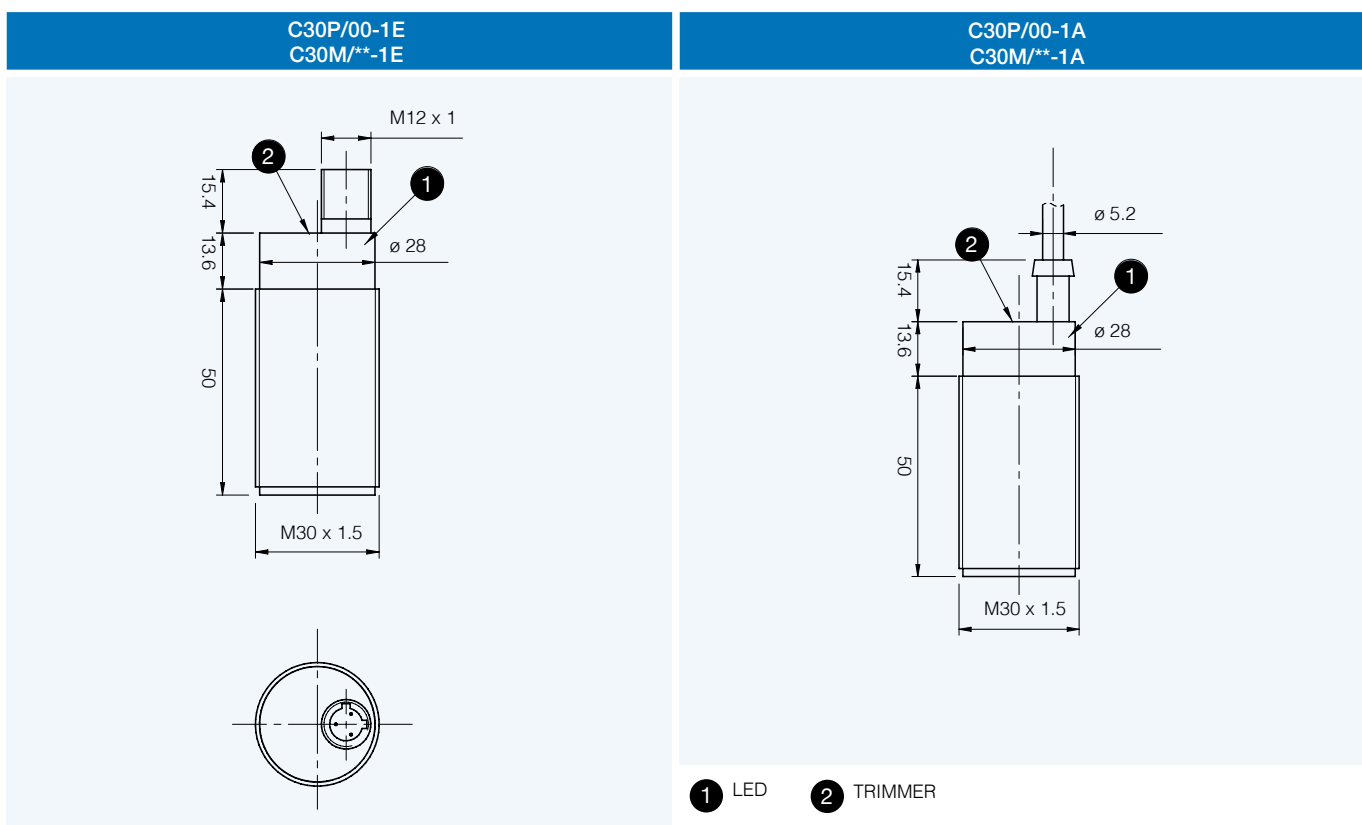
BN brown
BU blue
BK black
WH white

plug



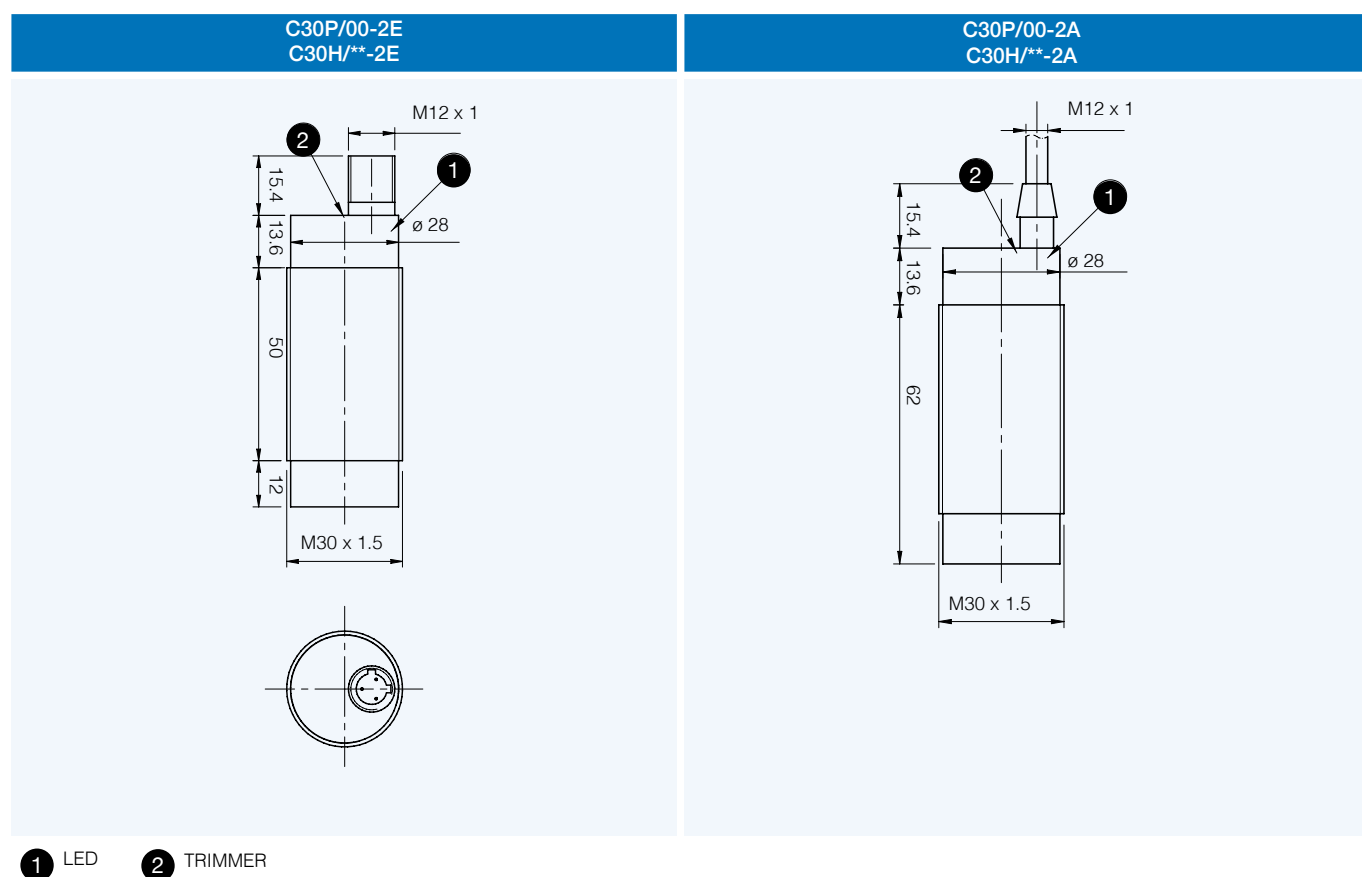
dimensions (mm)

For models with AC power supply using the connection cable series CD12M / AC



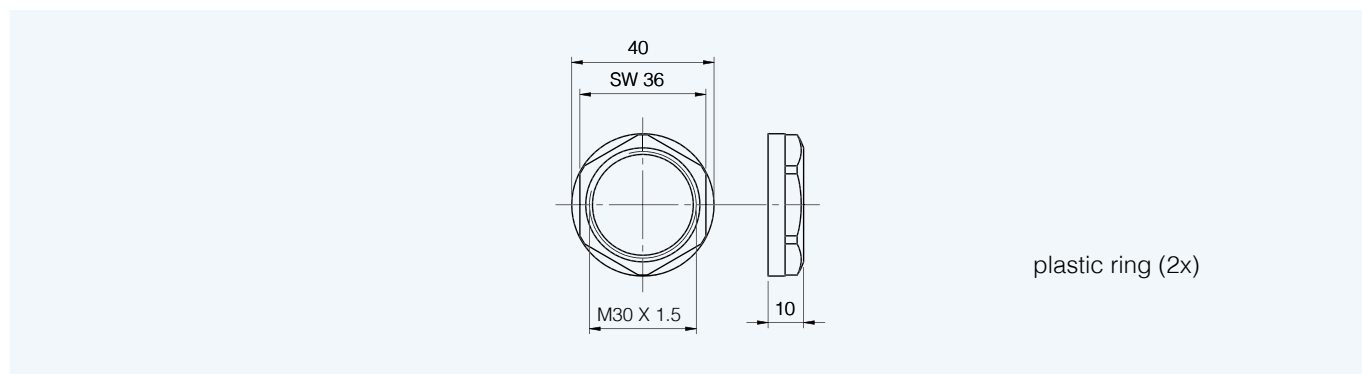
1 LED **2** TRIMMER

dimensions (mm)



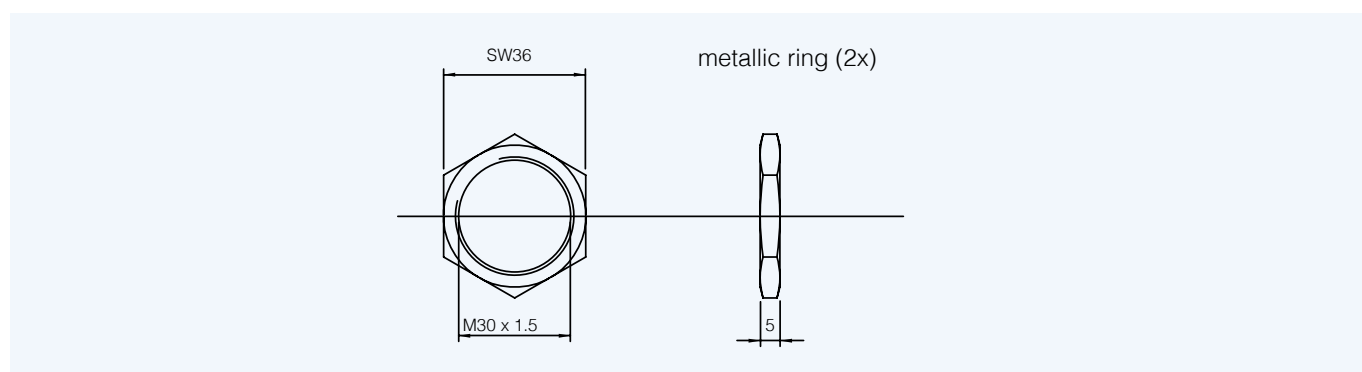
dimensions (mm)

accessories included in all plastic models



dimensions (mm)

accessories included models





CQ50 series

7 x 30 x 50 mm cubic
capacitive sensors



7 x 30 x 50 mm cubic

features

- DC supply voltage
- No adjustable sensitivity
- Flat polycarbonate plastic housing



web contents



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- Photos
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code description

CQ 50 / A P - 3 A

series	CQ	Capacitive sensor (rectangular)
dimens.	50	50 x 30 x 7 mm
output state	A	NO output
	C	NC output
output logic	P	PNP logic
	N	NPN logic
distance	1	5 mm range
	2	6 mm range
	3	7 mm range
	4	10 mm range
connect.	A	Cable exit

available models

supply	distance (mm)	connection	NPN NC	NPN NO	PNP NO
5 Vcc	5	2 m cable	-	CQ50/AN-1A	-
10...30 Vcc	6		-	CQ50/AN-2A	-
	7		CQ50/CN-3A	-	CQ50/AP-3A
	10		CQ50/CN-4A	-	CQ50/AP-4A

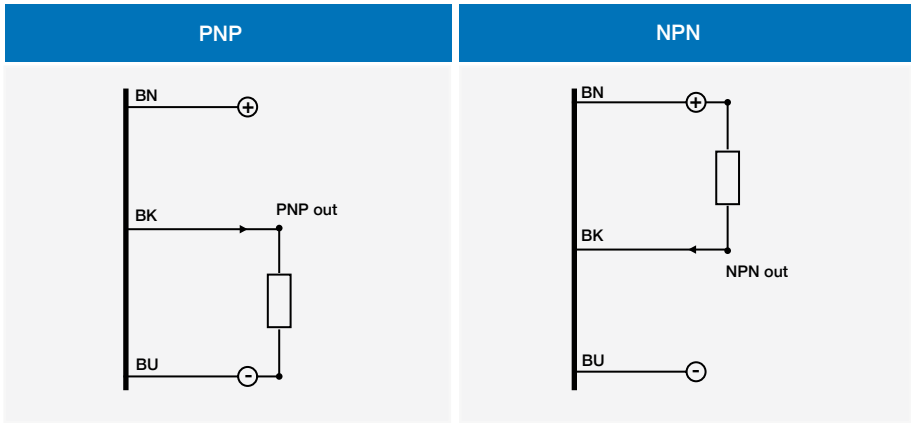


7 x 30 x 50 mm cubic

technical specification

	CQ50/**-1A	CQ50/**-2A	CQ50/**-3A	CQ50/**-4A
				
nominal sensing distance Sn	5 mm	6 mm	7 mm	10 mm
hysteresis	≤ 20%			
repeatability	5%			
operating voltage	5 Vcc	10 ... 30 Vcc		
max ripple content	≤ 10 %			
no-Load supply current	≤ 10 mA			
load current	≤ 50 mA			
leakage current	≤ 100 µA			
output voltage drop Ud	1..5 V max @ IL= 50 mA			
output type	NPN or PNP - NO or NC			
switching frequency	10 Hz			
power on delay	≤ 100 ms			
power supply protections	polarity reversal, impulsive overvoltage			
output protection	autoreset short circuit, overvoltage			
sensitivity adjustment	-			
storage temperature	≤ 20%			
operating temperature range	0 ...+ 60° C (without freeze)			
temperature drift	-30 ...+ 75° C			
EMC	in conformity with the EMC Directive, according to EN 60947-5-2			
protection degree	IP67 (EN 60529) NEMA 1,3,4,6,13			
housing material	noryl			
active head material	noryl			
weight	70 g			

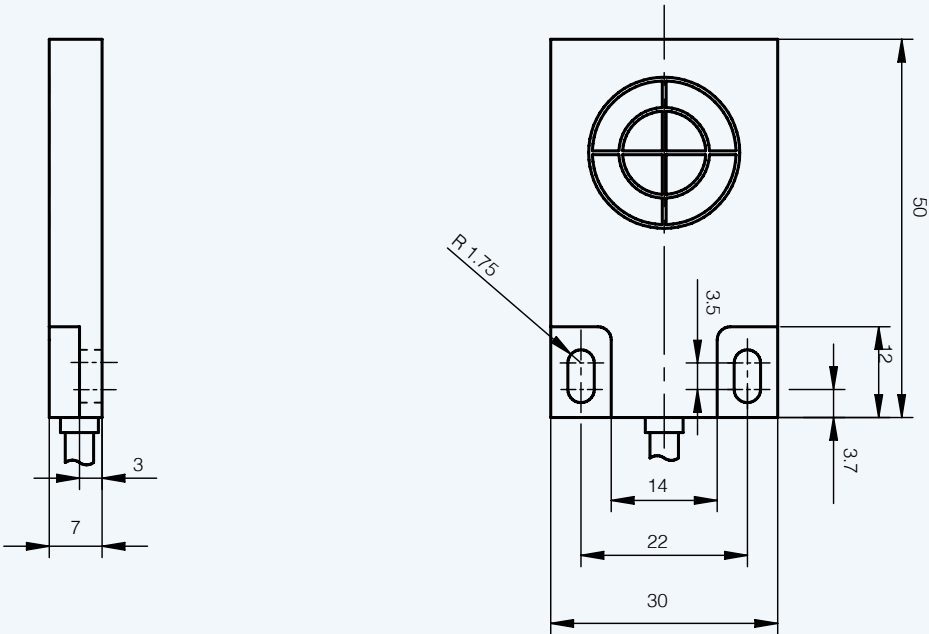
electrical diagrams of connections





7 x 30 x 50 mm cubic

CQ50/**-A







CQ55 series

15 x 35 x 55 mm cubic
capacitive sensors



15 x 35 x 55 mm cubic

features

- DC supply voltage
- Adjustable sensitivity
- Flat polycarbonate plastic housing



web contents



- Application notes
- Photos
- Catalogue / Manuals



code description

	CQ	55	/	B	P	-	3	E
series	CQ	Capacitive sensor (rectangular)						
dimens.	55	55 x 35 x 15 mm						
output state	B	NO + NC complementary output						
output logic	P	PNP logic						
	N	NPN logic						
distance	3	Long distance 4...25 mm (shielded 16 mm - unshielded 25 mm)						
connect.	A	Cable exit						
	E	M12 plug exit						

available models

supply	installation	distance (mm)	connection	NPN NO + NC	PNP NO + NC
10...40 Vcc	shielded / unshielded	4...25	2 m cable	CQ55/BN-3A	CQ55/BP-3A
			M12 plug	CQ55/BN-3E	CQ55/BP-3E



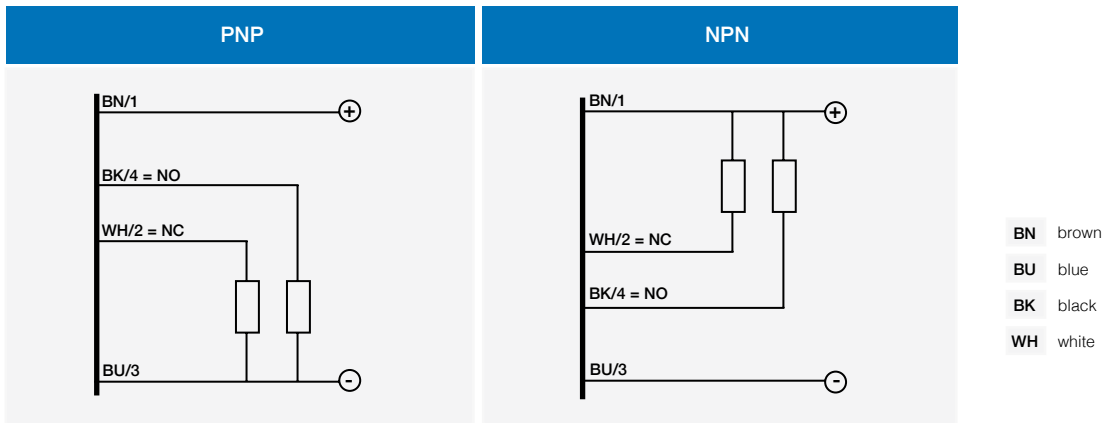
15 x 35 x 55 mm cubic

technical specification

according to IEC EN 60947-5-2

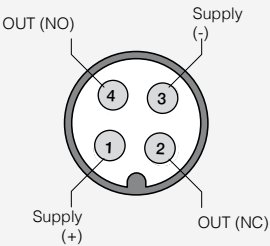
	CQ55/**-3*
	
nominal sensing distance Sn	25 mm
hysteresis	≤ 20%
repeatability	5%
operating voltage	5 Vdc
max ripple content	≤ 10 %
no-Load supply current	≤ 10 mA
load current	≤ 200 mA
leakage current	≤ 10 µA
output voltage drop Ud	2..5 V max @ IL= 200 mA
output type	NPN or PNP - NO + NC
switching frequency	50 Hz
power on delay	≤ 100 ms
power supply protections	polarity reversal, impulsive overvoltage
output protection	autoreset short circuit, overvoltage
sensitivity adjustment	●
storage temperature	-40 ... +85° C
operating temperature range	-25 ... +80° C (without freeze)
temperature drift	≤ 20 %
EMC	in conformity with the EMC Directive, according to EN 60947-5-2
protection degree	IP67 (EN 60529) NEMA 1,3,4,6,13
LEDs	yellow (output status LOn/DOn)
housing material	PC
active head material	PC
weight	65 g connector / 150 g cable

electrical diagrams of connections

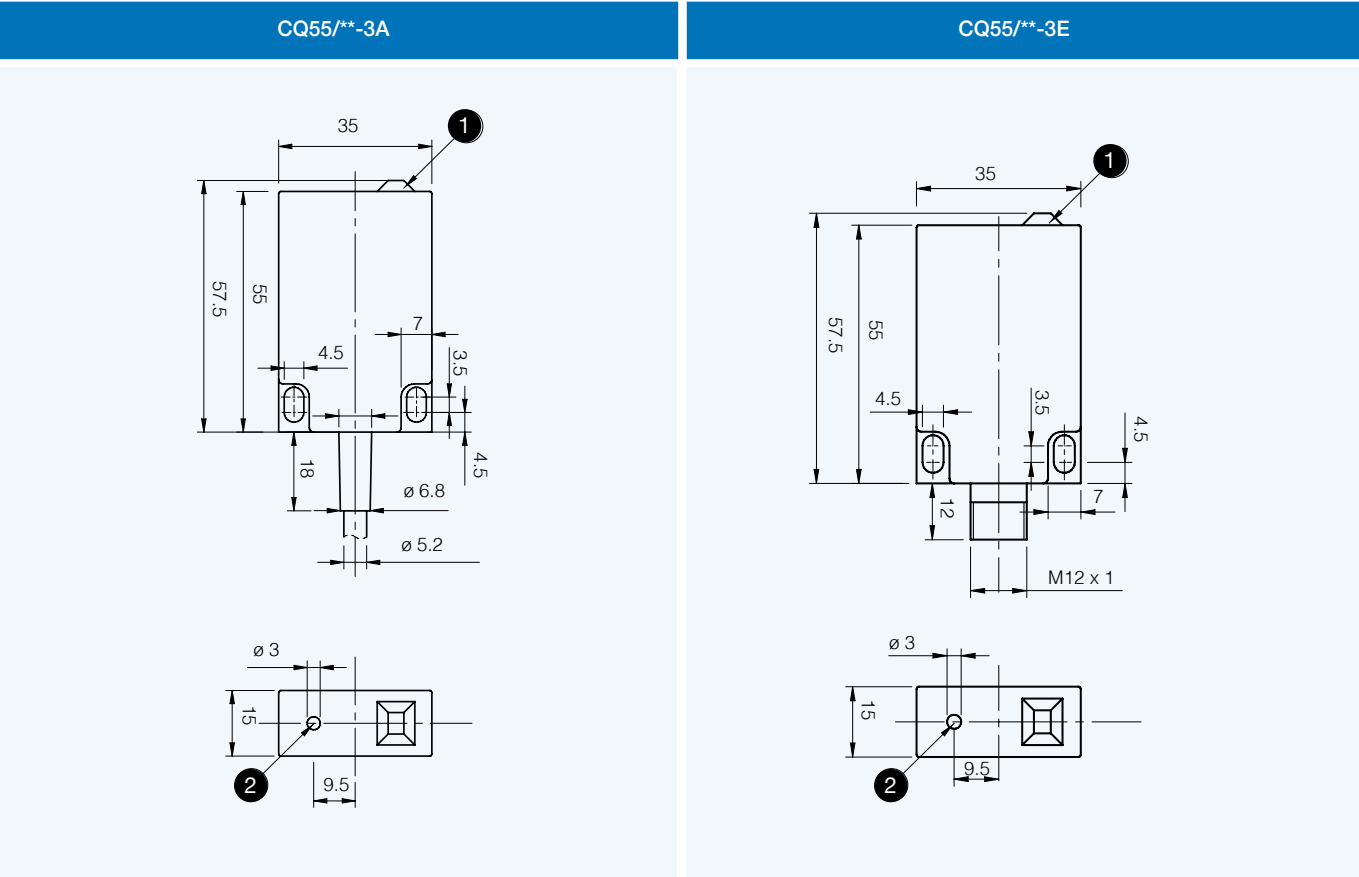




M12 CQ55/**-E



dimensions (mm)



- 1 LED
- 2 TRIMMER