



# 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



## web contents



- Application notes
- Photos
- Catalogue / Manuals



## code description (\*)

AH 1 / AP - 1 A

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

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



## available models

standard housing

Ø 6.5 mm cylindrical

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	aluminium	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



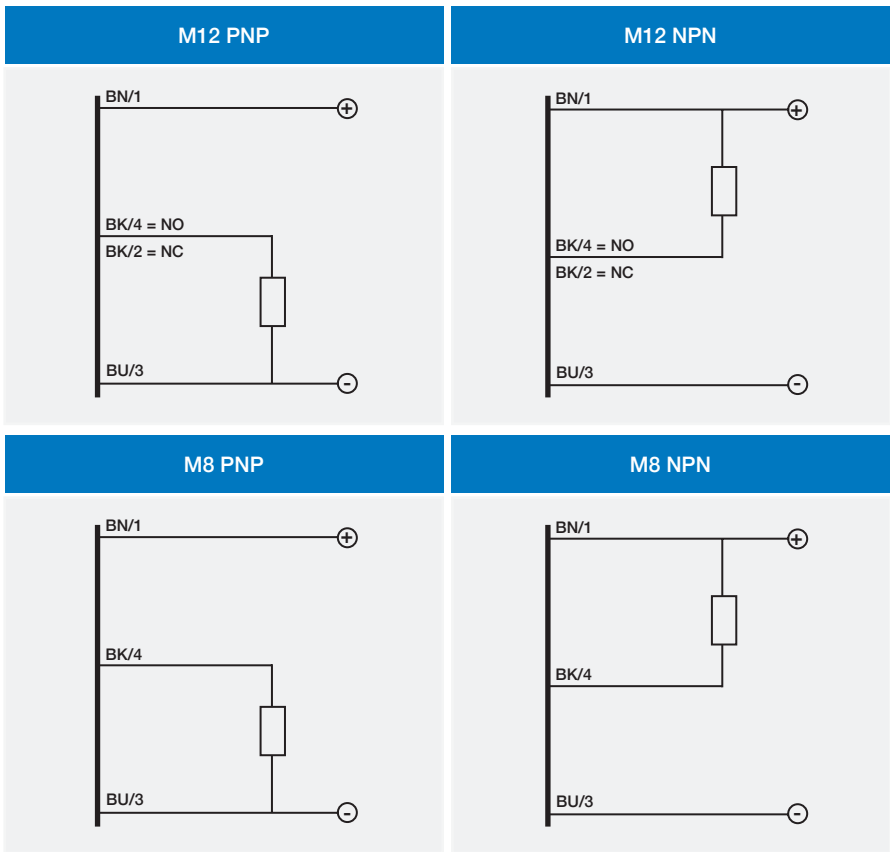
Ø 6.5 mm cylindrical

	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			



# electrical diagrams of connections

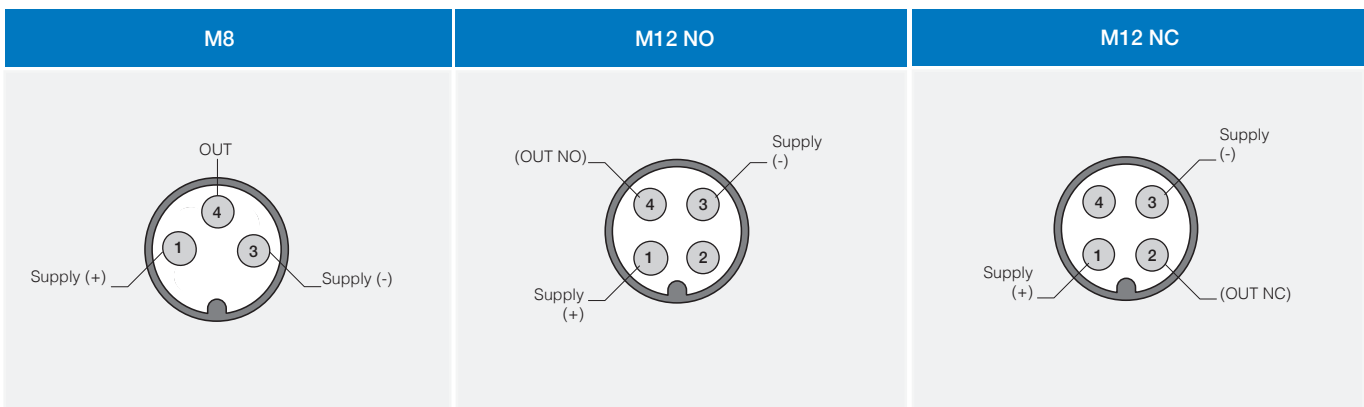
Ø 6.5 mm cylindrical



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

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

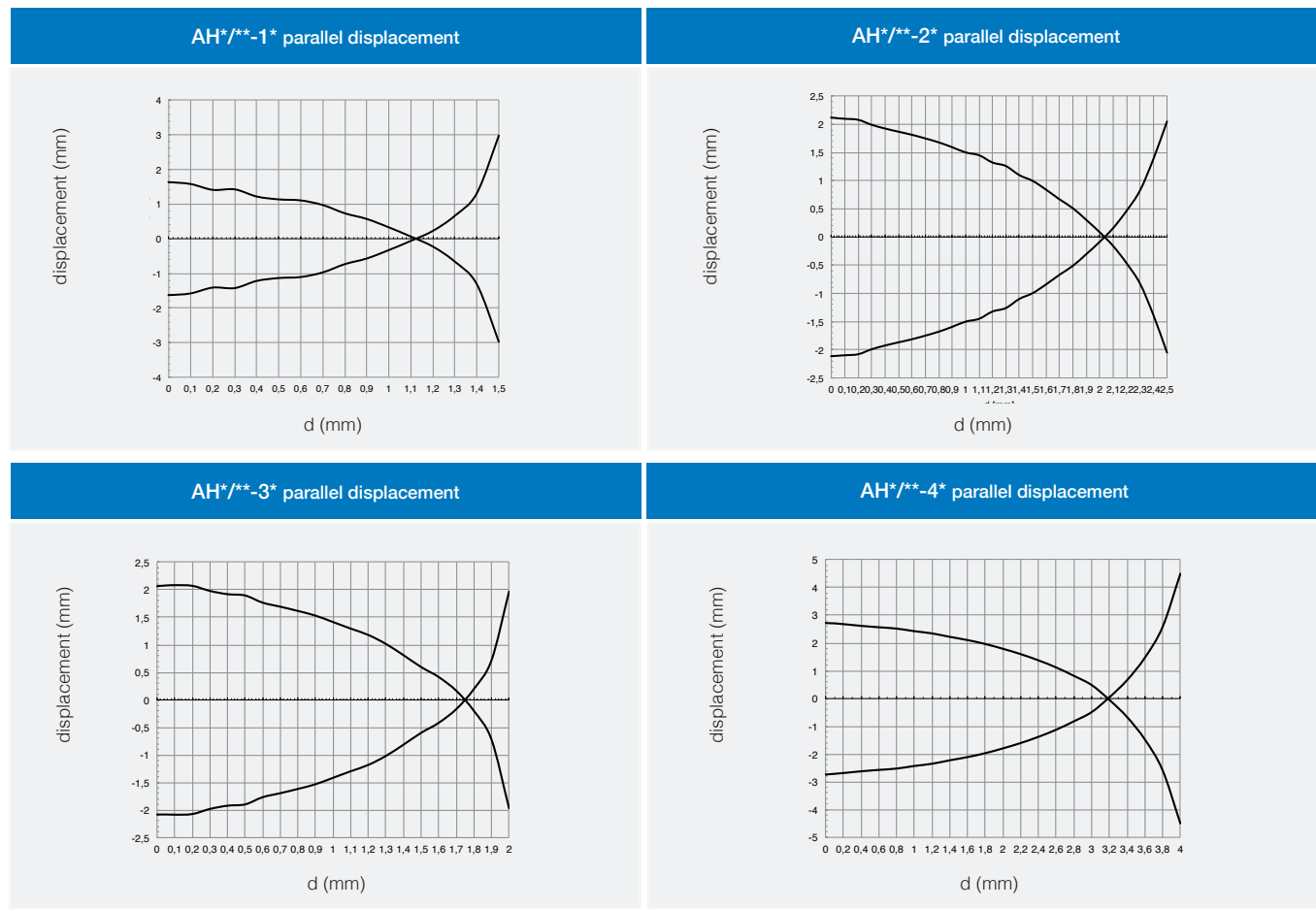
# plug



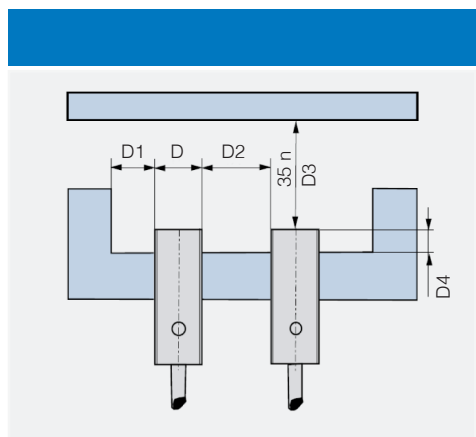
## response diagram



Ø 6.5 mm cylindrical



## installation



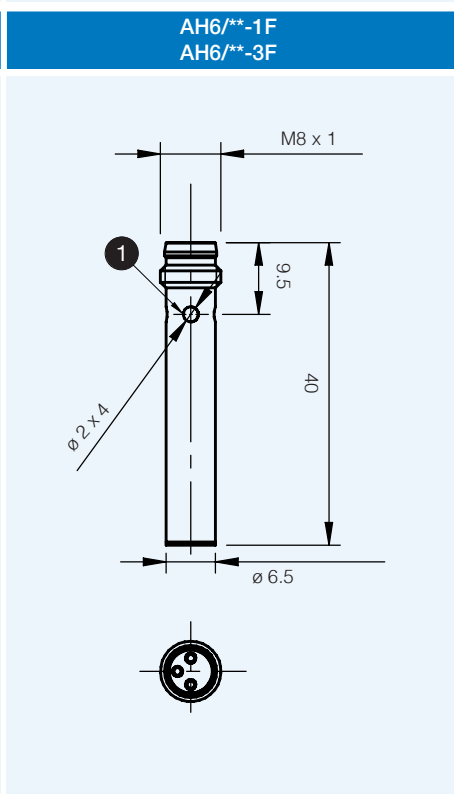
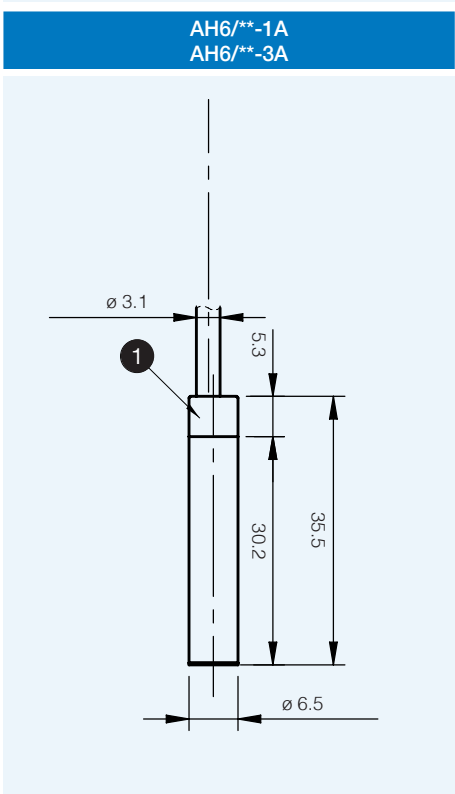
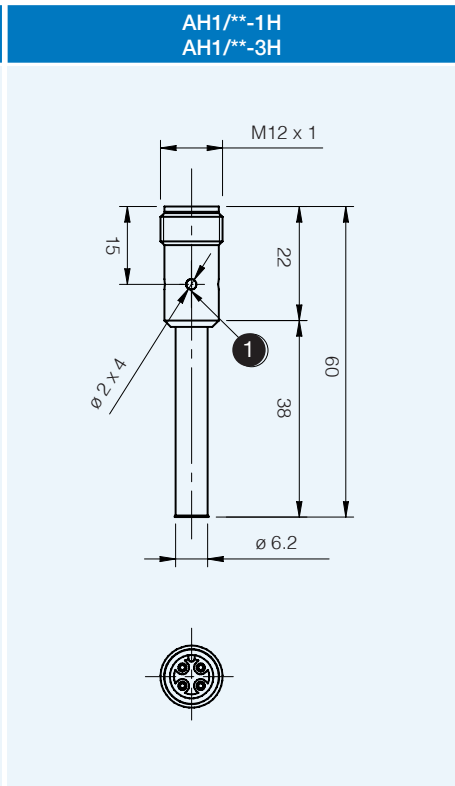
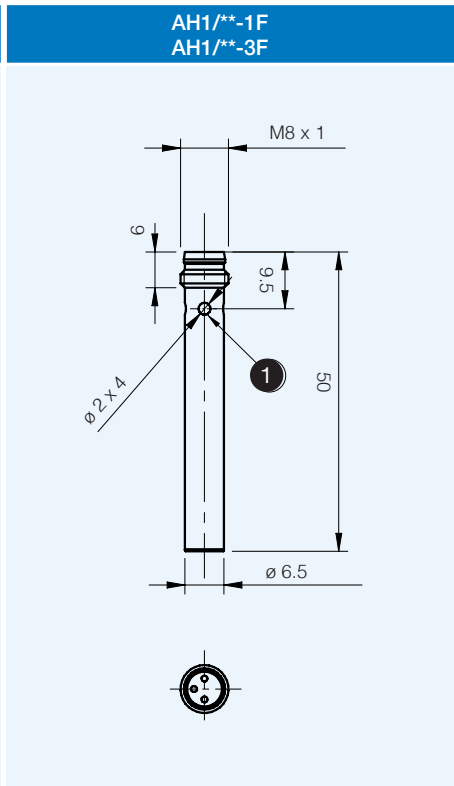
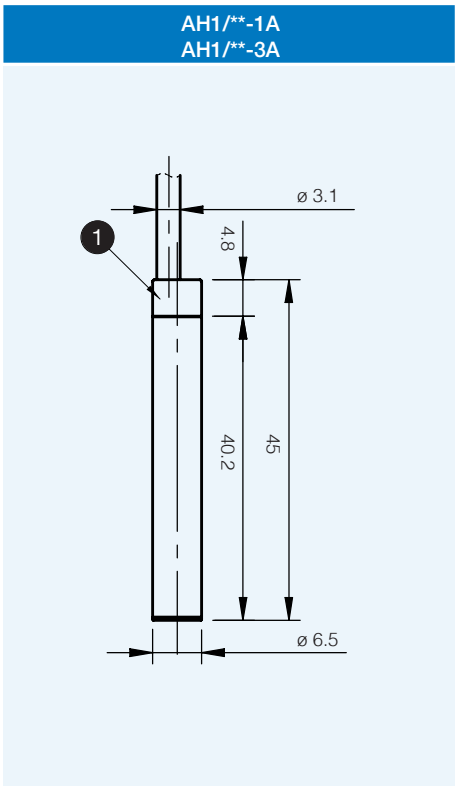
code	D4	D1	D2	D3
AH/**-1*	≥ 3.9 mm	≥ 3.25 mm	≥ 6.5 mm	≥ 4.5 mm
AH/**-2*	≥ 4 mm <sup>(1)</sup>	≥ 6.5 mm	≥ 13 mm	≥ 7.5 mm
AH/**-3*	≥ 3.9 mm	≥ 3.75 mm	> 7 mm	≥ 6 mm
AH/**-4*	≥ 6 mm	≥ 6.5 mm	> 15 mm	≥ 12 mm

<sup>(1)</sup> ≥ 2,6 mm for non magnetic materials



# dimensions (mm)

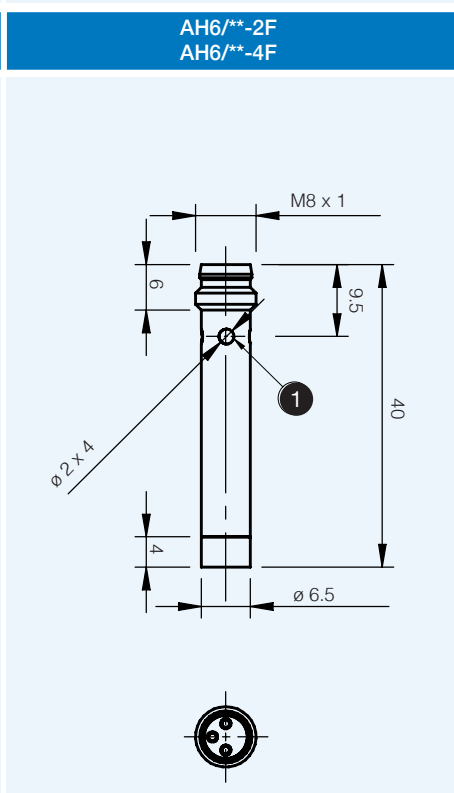
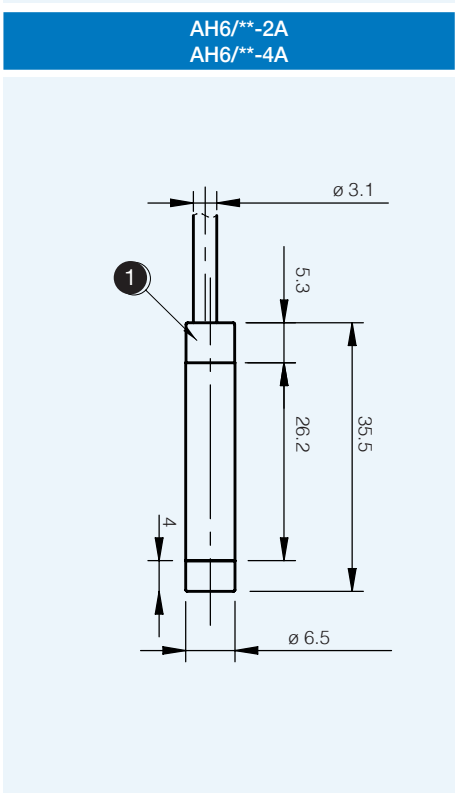
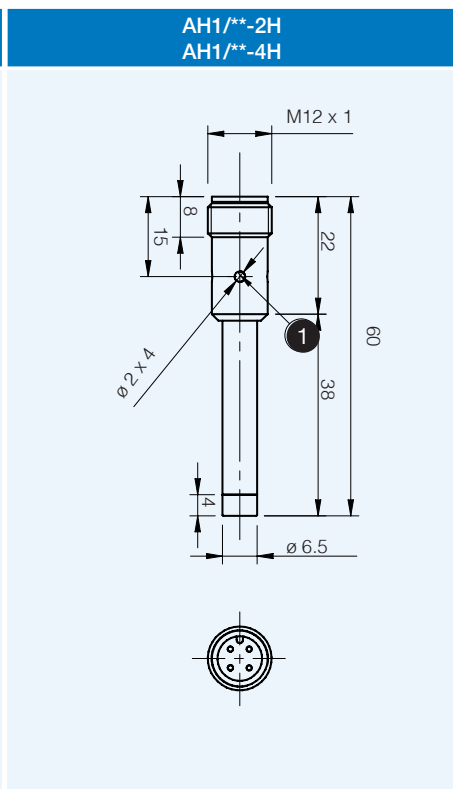
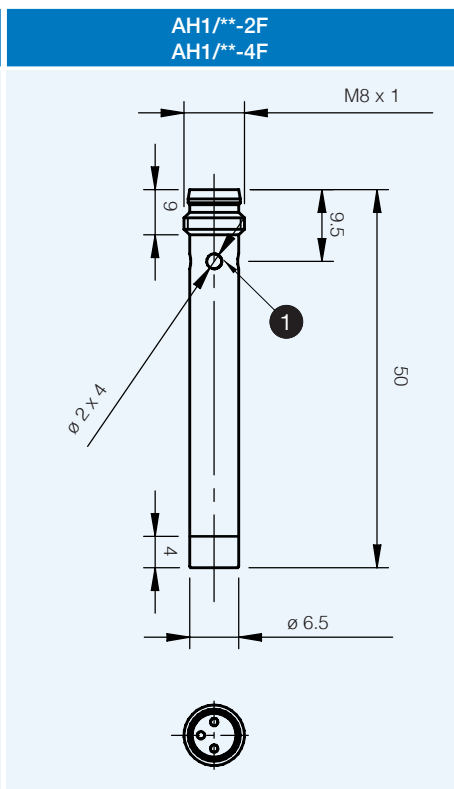
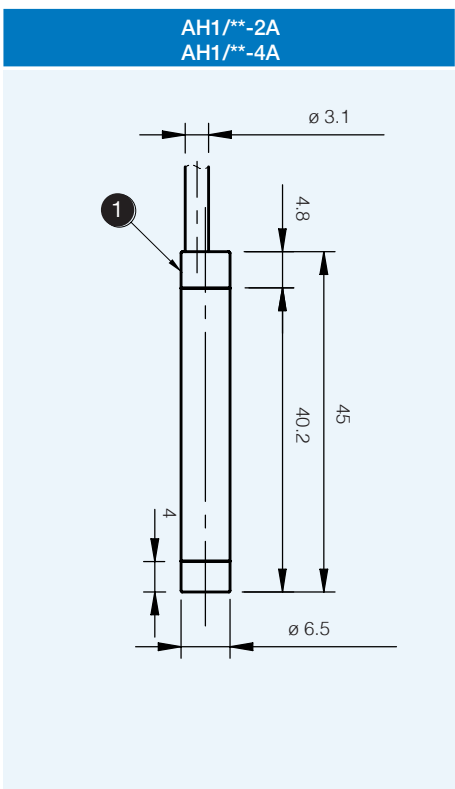
Ø 6.5 mm cylindrical



1 LED



Ø 6.5 mm cylindrical



1 LED



## notes

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20 horizontal light blue lines for writing notes.





# 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



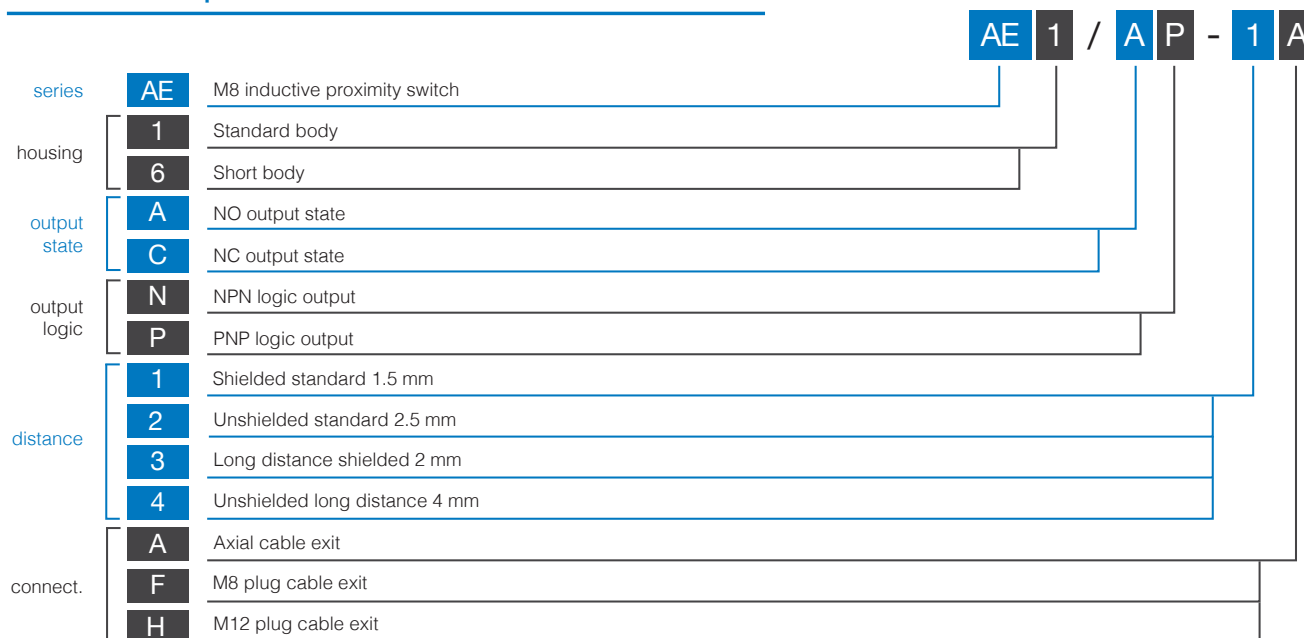
## web contents



- Application notes
- Photos
- Catalogue / Manuals



## code description



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



## available models

standard housing

M8 cylindrical

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	2.5	cable	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	2	cable	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	4	cable	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	
			M12		AE6/AN-1H	AE6/CN-1H	AE6/AP-1H	AE6/CP-1H	
			unshielded	2.5	cable	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
					M12	AE6/AN-2H	AE6/CN-2H	AE6/AP-2H	AE6/CP-2H
	shielded	long distance	2	cable	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	
				M12	AE6/AN-3H	AE6/CN-3H	AE6/AP-3H	AE6/CP-3H	
			unshielded	4	cable	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
					M12	AE6/AN-4H	AE6/CN-4H	AE6/AP-4H	AE6/CP-4H

## correction factors

code	steel FE 360	copper	aluminium	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

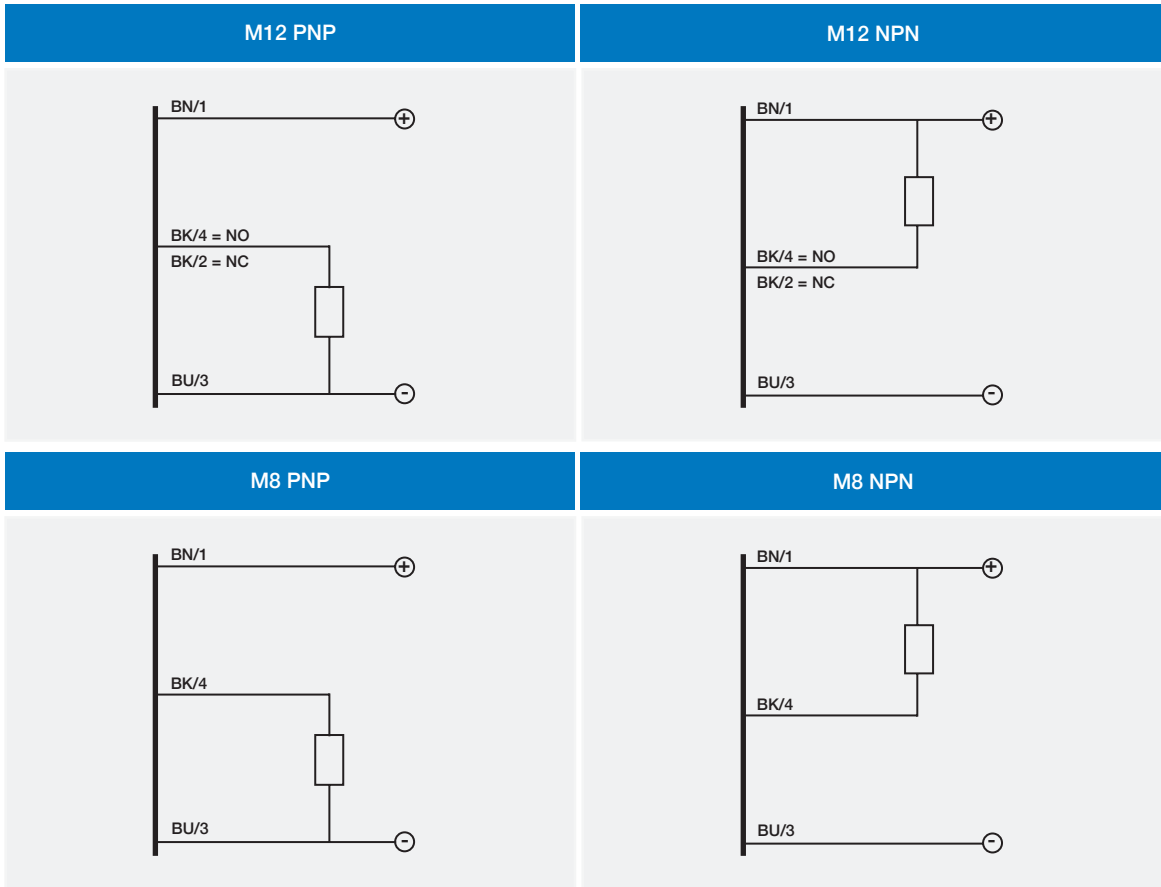


	AE*/**_1*	AE*/**_2*	AE*/**_3*	AE*/**_4*
nominal sensing distance	1.5 mm	2.5 mm	2 mm	4 mm
operating distance	0...1.21 mm	0...2.02 mm	0...1.62 mm	0...3.24 mm
hysteresis	1...20% Sr			
standard target	8x8 mm FE360			12x12 mm FE360
repeatability	5%			
operating voltage	10...30 Vdc			
max ripple content	≤ 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

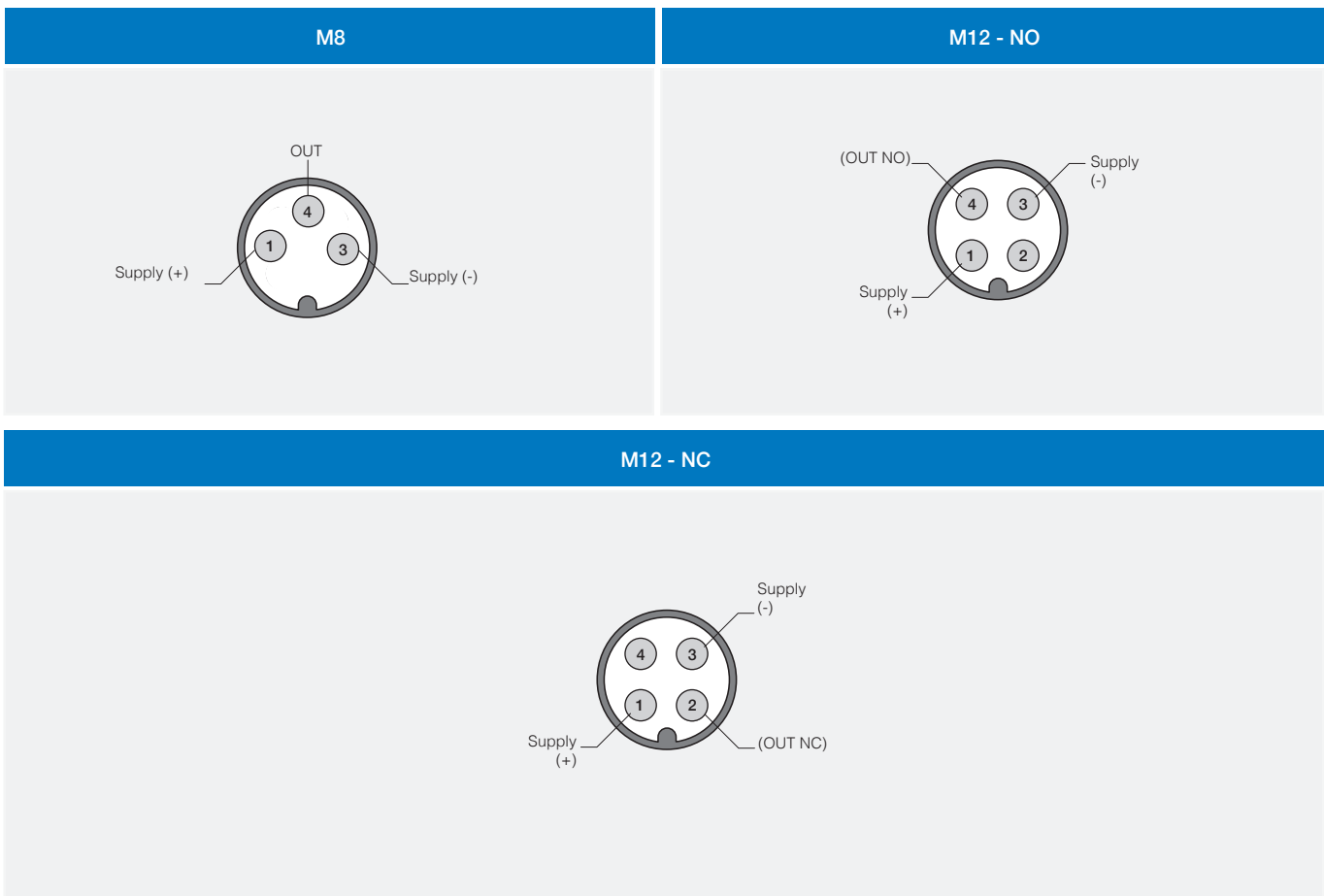
M8 cylindrical



BN brown  
BU blue  
BK black  
WH white

BN brown  
BU blue  
BK black  
WH white

## plug

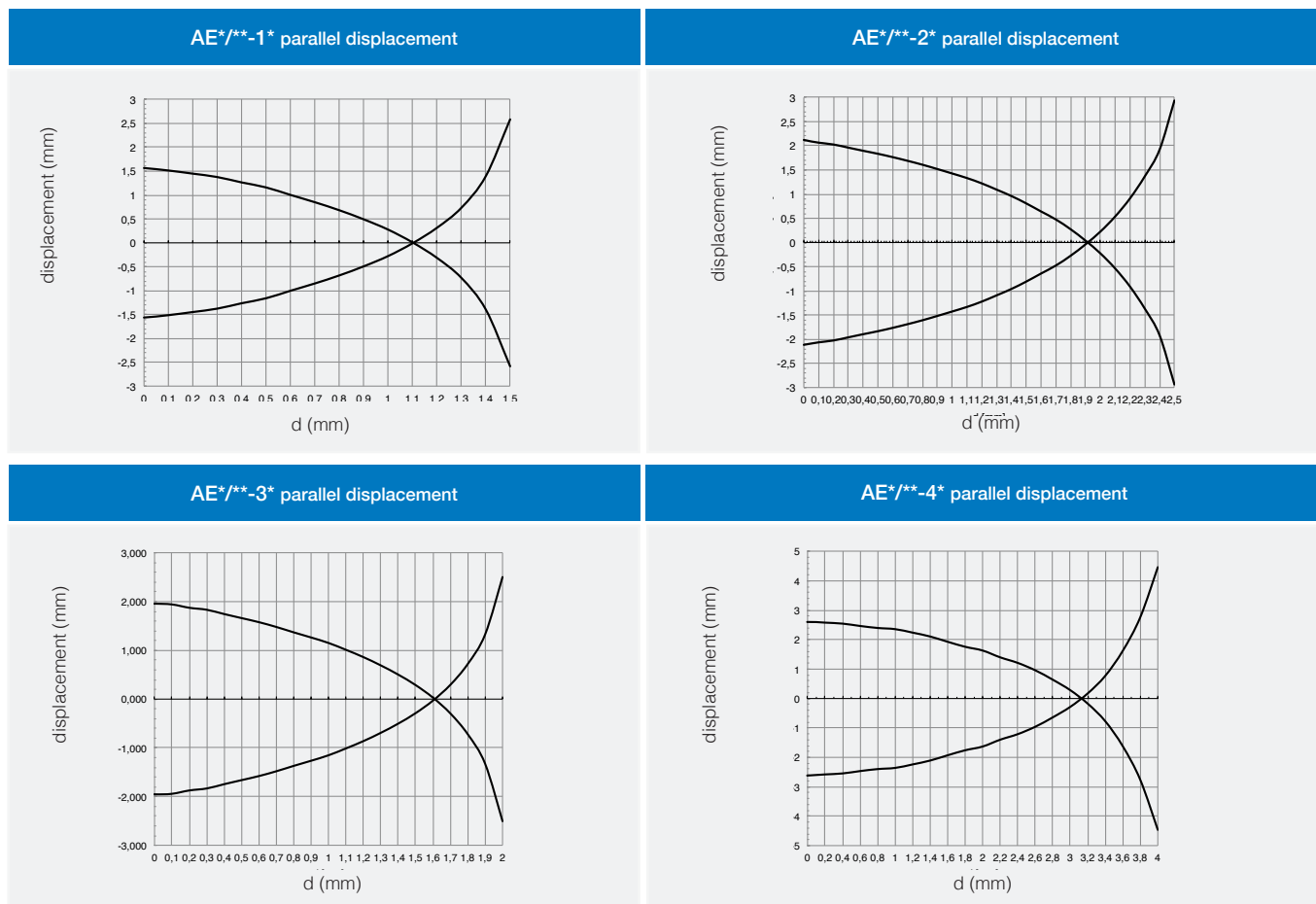


AE

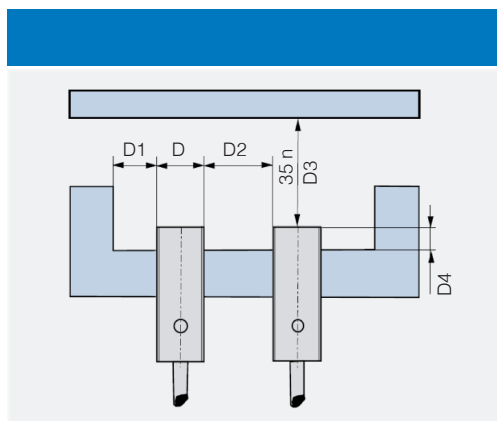
## response diagram



M8 cylindrical



## installation



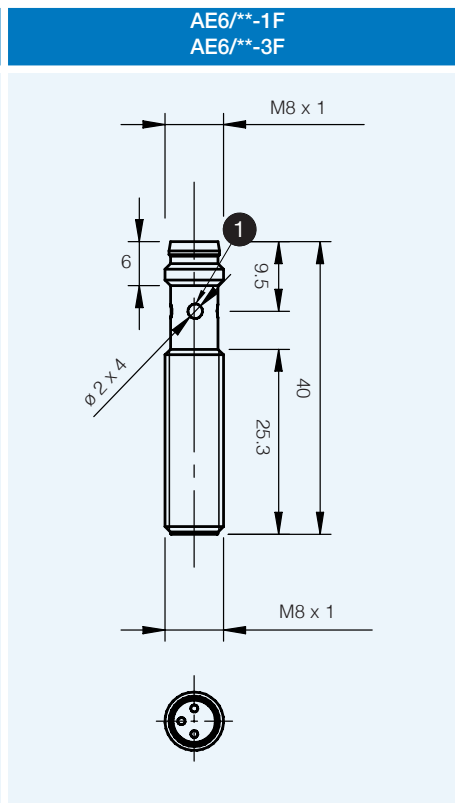
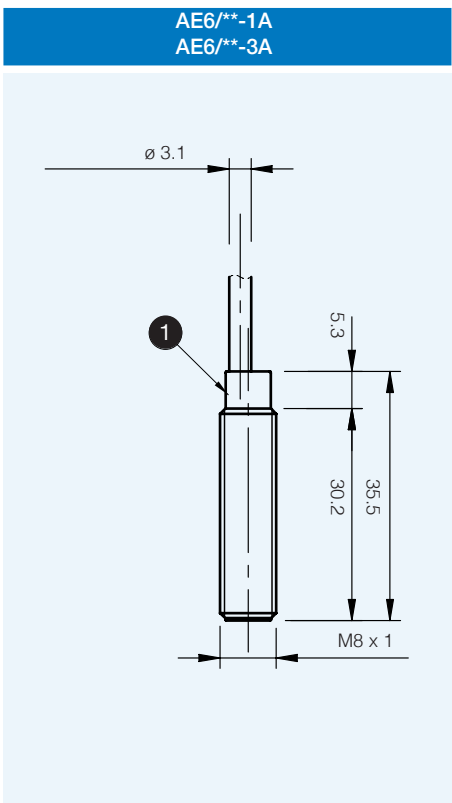
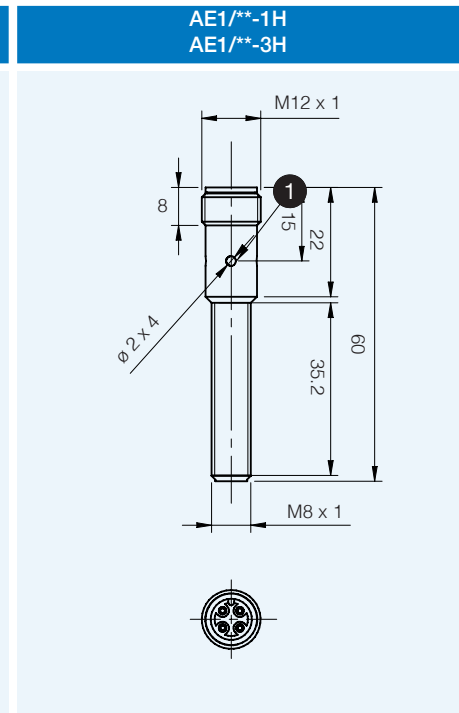
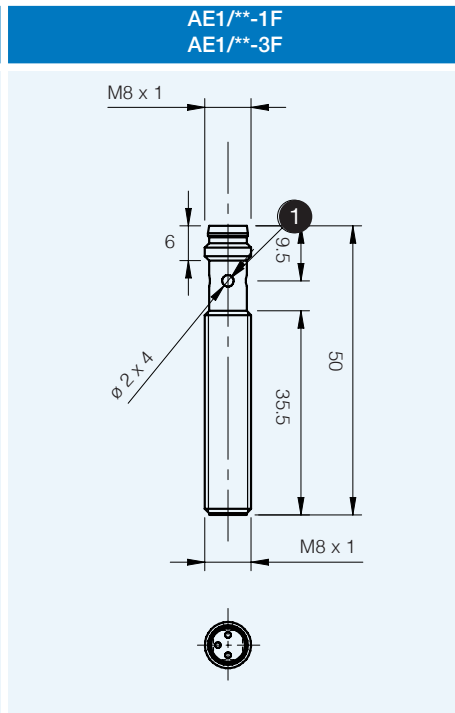
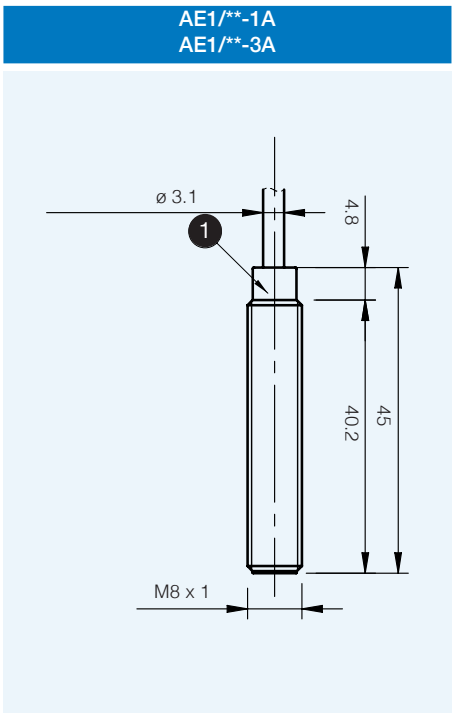
code	D4	D1	D2	D3
AE*/**-1*	≥ 0 mm	≥ 3.25 mm	≥ 6.5 mm	≥ 4.5 mm
AE*/**-2*	≥ 4 mm <sup>(1)</sup>	≥ 6.5 mm	> 17 mm	≥ 7.5 mm
AE*/**-3*	≥ 0 mm	≥ 3.25 mm	≥ 6.5 mm	≥ 6 mm
AE*/**-4*	≥ 4 mm	≥ 6.5 mm	> 17 mm	≥ 12 mm

(1) ≥ 0 mm for non magnetic materials



dimensions (mm)

M8 cylindrical

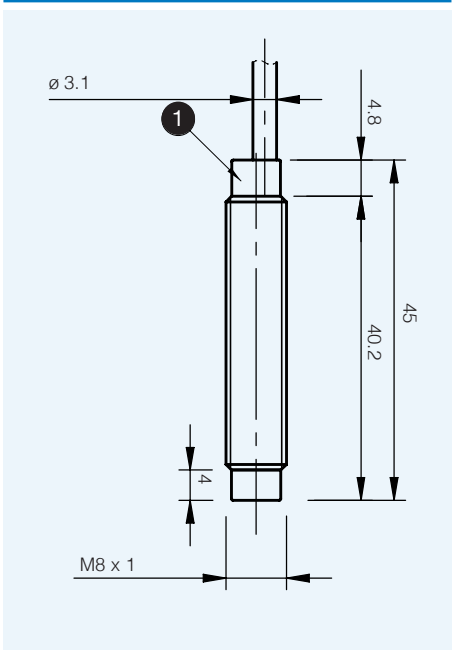


1 LED

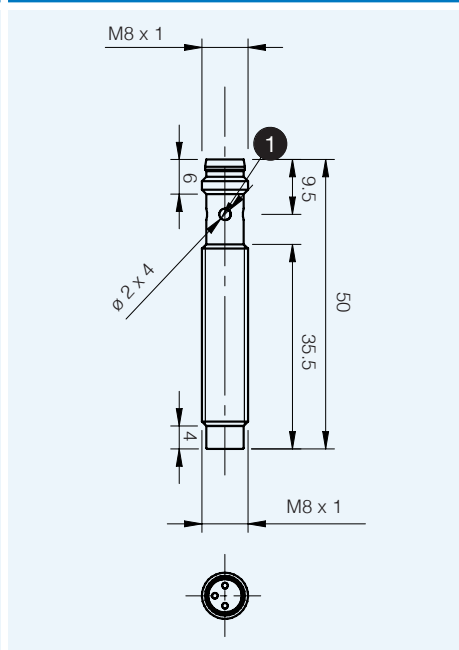


M8 cylindrical

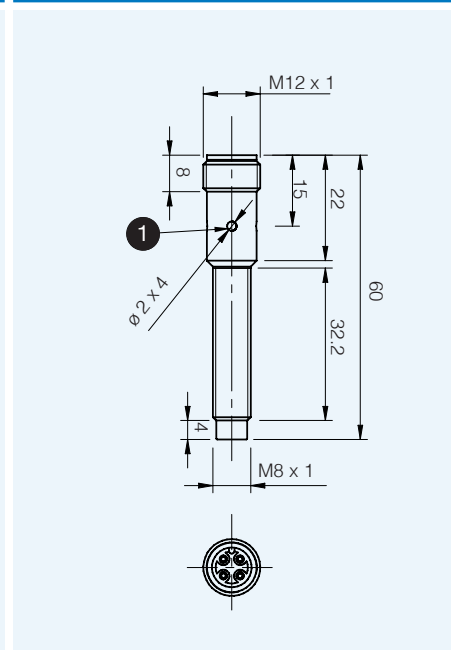
AE1/\*\*-2A  
AE1/\*\*-4A



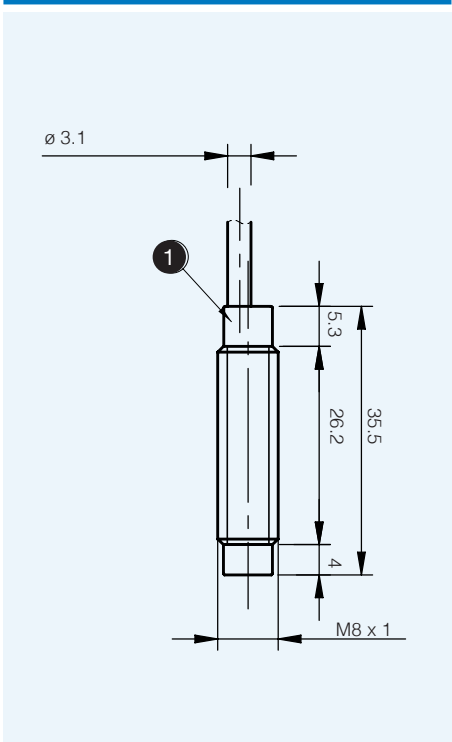
AE1/\*\*-2F  
AE1/\*\*-4F



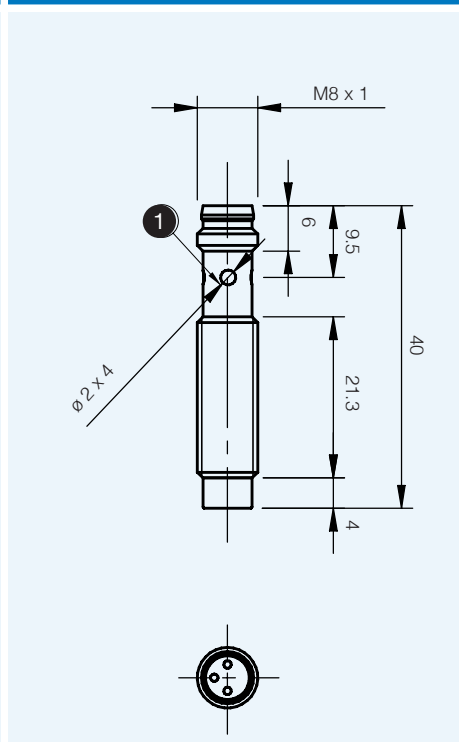
AE1/\*\*-2H  
AE1/\*\*-4H



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

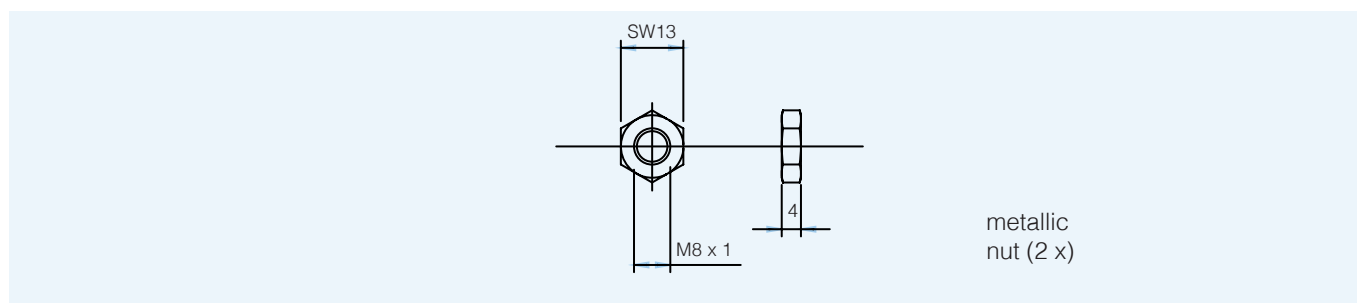


AE6/\*\*-2F  
AE6/\*\*-4F



### dimensions (mm)

accessories included



metallic  
nut (2 x)

AE



notes

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20 horizontal light blue lines for writing notes.

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AM





# 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

M12 cylindrical

diameter	installation	distance	connection	distance (mm)	NPN/NO	PNP/NO	NPN/CN	PNP/CN
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	standard	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	long distance	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
			cable		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/CN	PNP/CN
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
			cable		AM6/AN-2A	AM6/AP-2A	AM6/CN-2A	AM6/CP-2A
	unshielded	standard	cable 90°	4	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
			cable		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
	shielded	long distance	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
			cable		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/NO	PNP/NO
M12	shielded	standard	cable	2	AM1/A0-1A	
			M12		AM1/A0-1H	
	unshielded	standard	cable	4	AM1/A0-2A	
			M12		AM1/A0-2H	
	shielded	long distance	cable	8	AM1/A0-3A	
			M12		AM1/A0-3H	
	unshielded	long distance	cable	8	AM1/A0-4A	
			M12		AM1/A0-4H	



	AM*/**-1*	AM*/**-2*	AM*/**-3*	AM*/**-4*
nominal sensing distance S <sub>n</sub>	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 T <sub>a</sub> = 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 S <sub>r</sub>	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 <sup>(1)</sup> ( 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			

<sup>(1)</sup>Protection guaranteed only with plug cable wall mounted



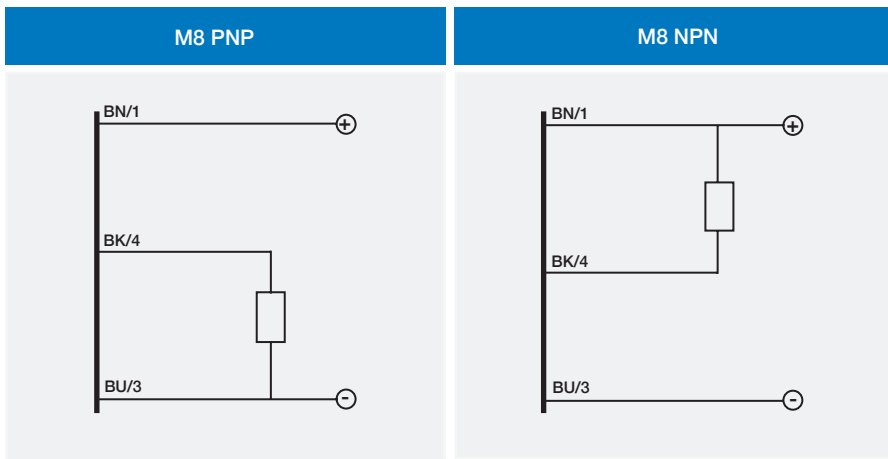
## correction factors

M12 cylindrical

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

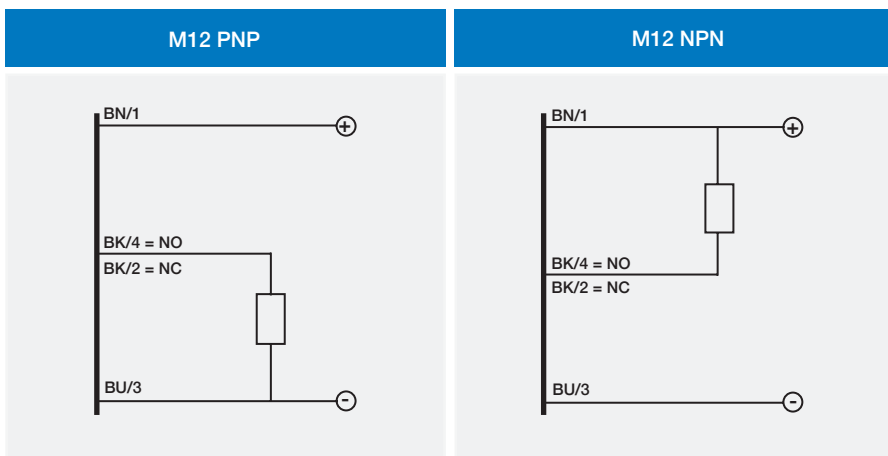
3 wires versions



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

## electrical diagrams of connections

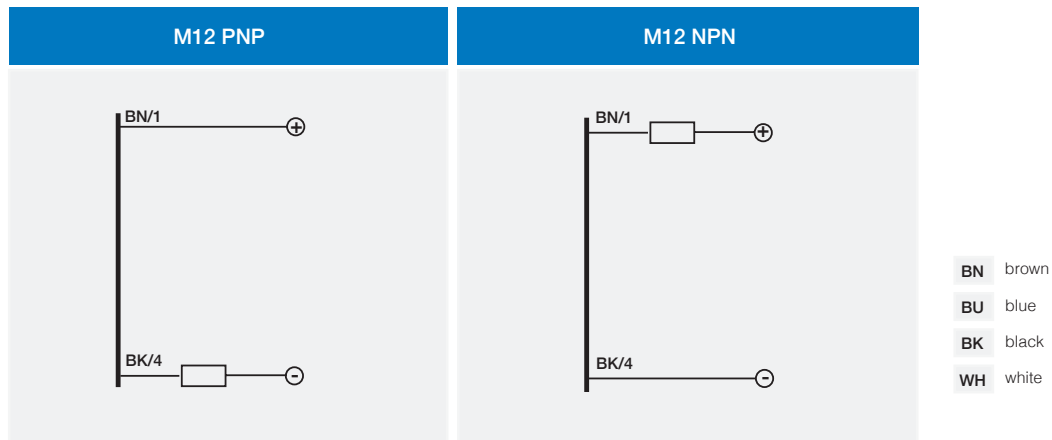
3 wires versions



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

## electrical diagrams of connections

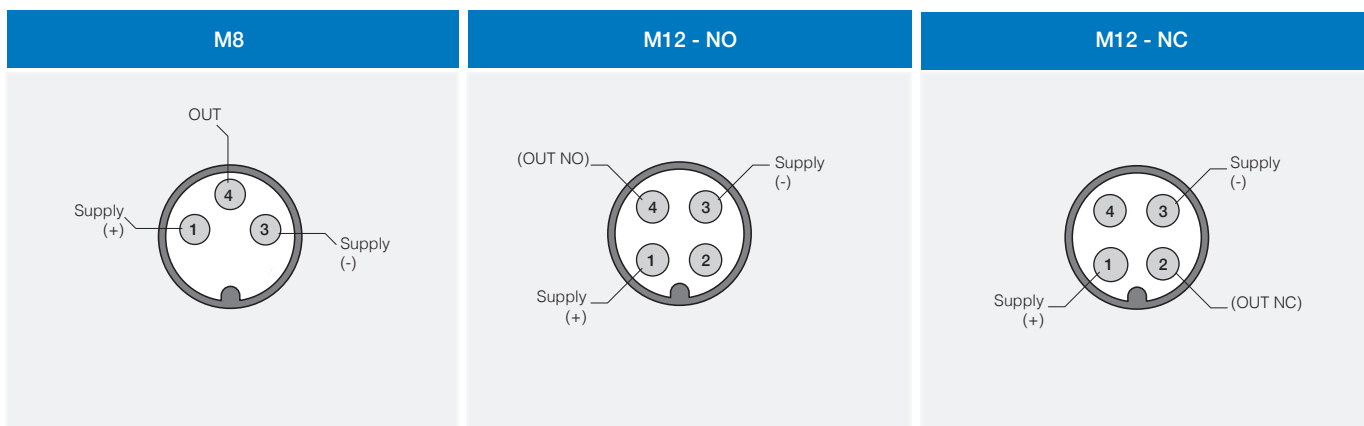
2 wires versions



M12 cylindrical

## plug

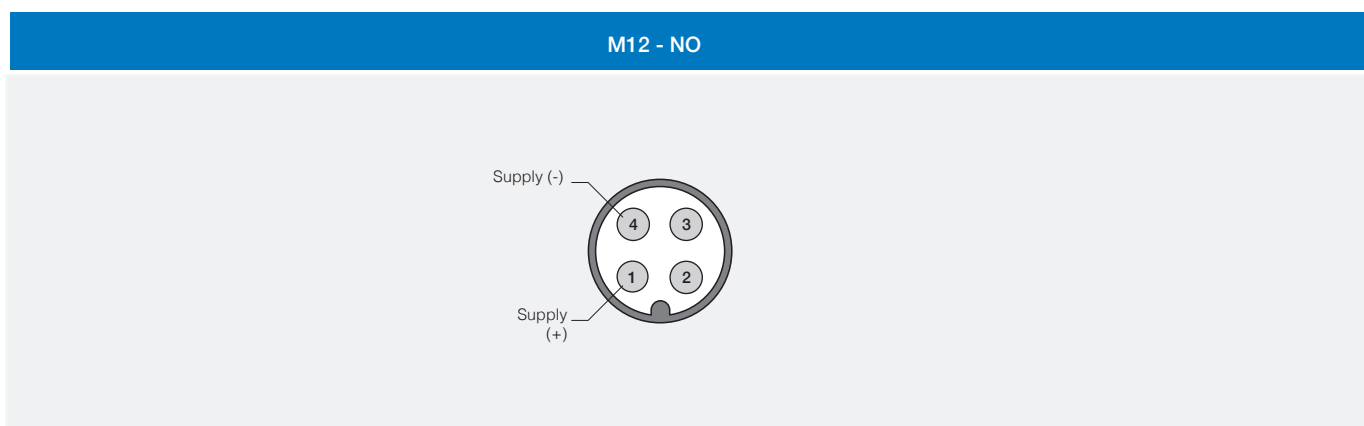
3 wires versions



Connectors CD series

## plug

2 wires versions



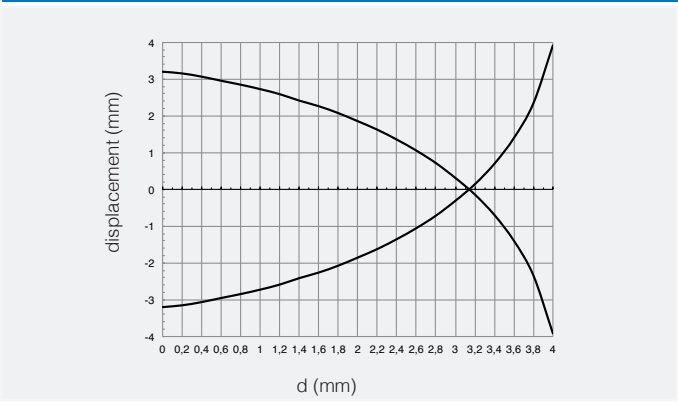
Connectors CD series



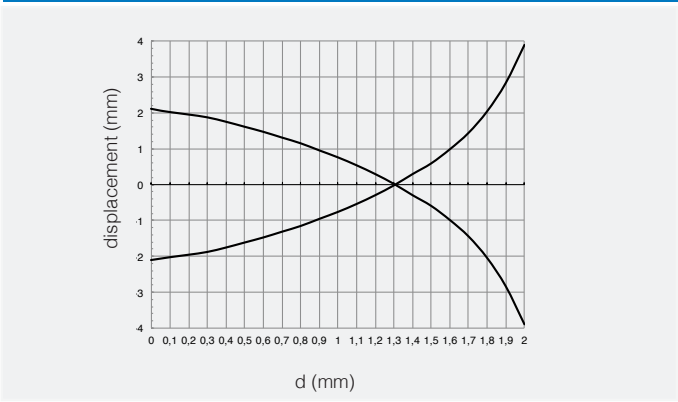
# response diagram

M12 cylindrical

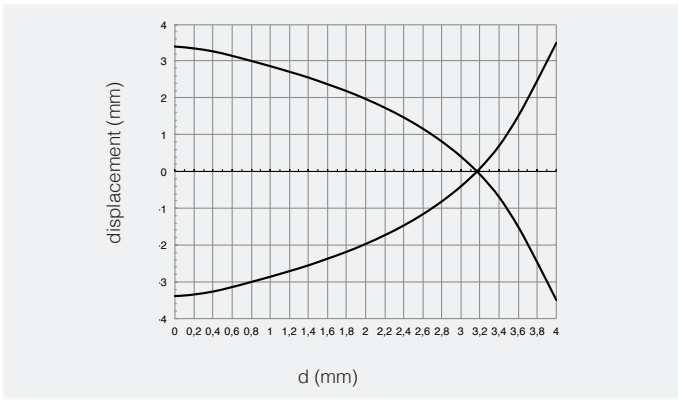
AM\*/\*\*-2\* parallel displacement



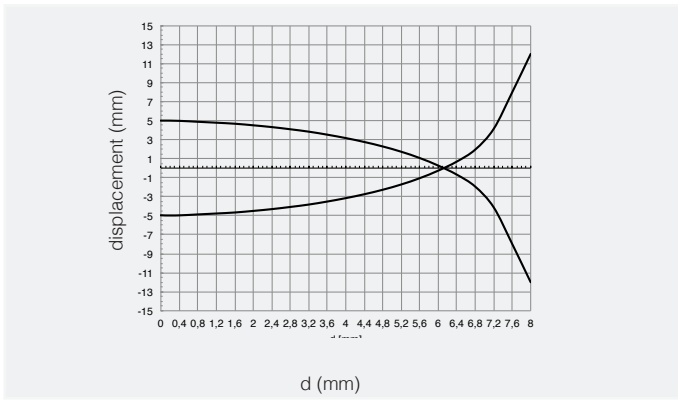
AM6/\*\*-1\* parallel displacement



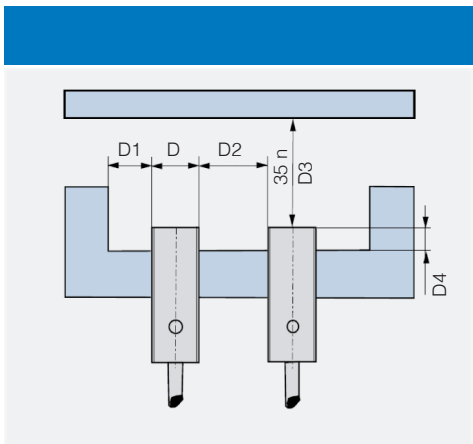
AM\*/\*\*-3\* parallel displacement



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 <sup>(1)</sup>	> 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

<sup>(1)</sup> ≥ 2 mm for non magnetic material

dimensions (mm)



M12 cylindrical

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

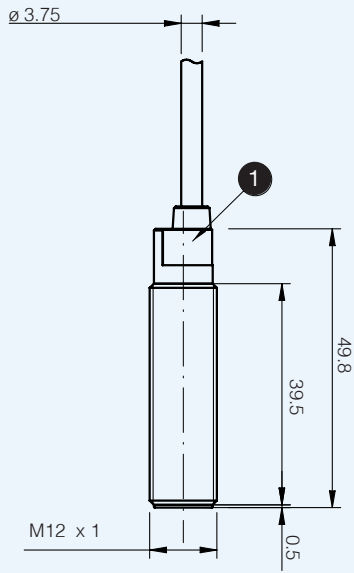
1 LED



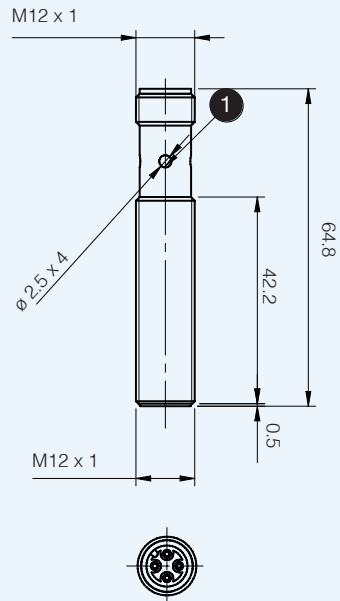
M12 cylindrical

# dimensions (mm)

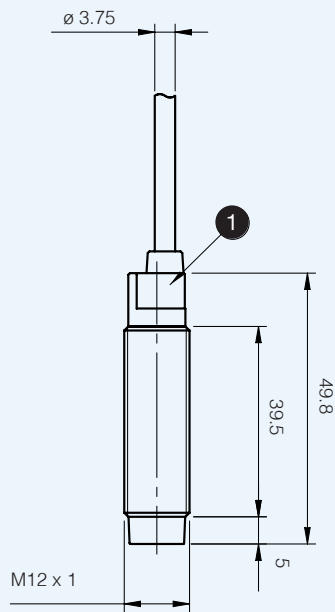
AM1/\*\*-1A  
AM1/\*\*-3A



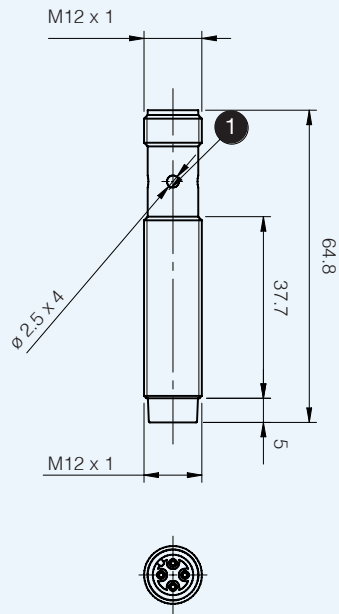
AM1/\*\*-1H  
AM1/\*\*-3H



AM1/\*\*-2A  
AM1/\*\*-4A



AM1/\*\*-2H  
AM1/\*\*-4H



1 LED

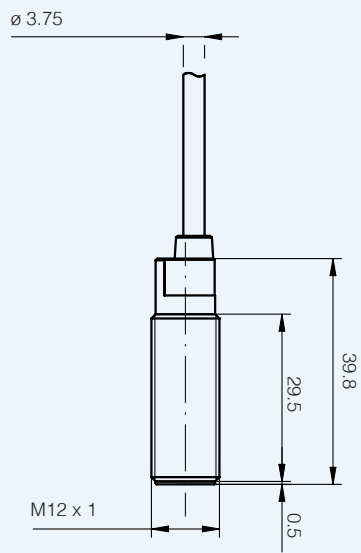


dimensioni (mm)

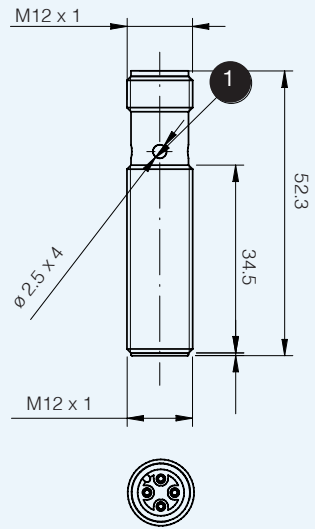


M12 cylindrical

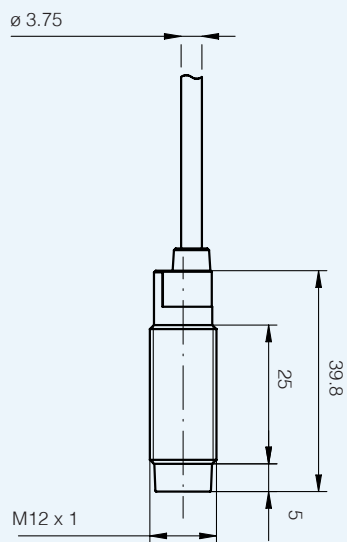
AM6/\*\*-1A  
AM6/\*\*-3A



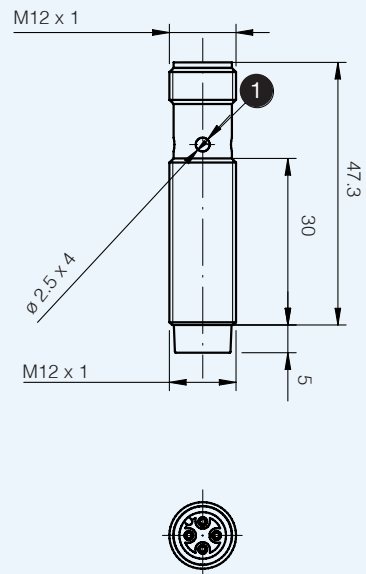
AM6/\*\*-1H  
AM6/\*\*-3H



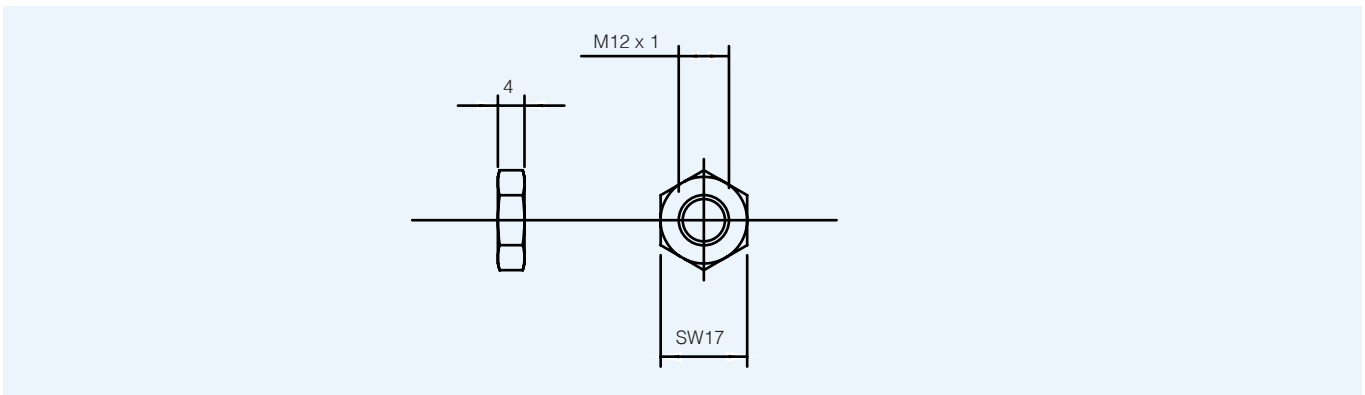
AM6/\*\*-2A  
AM6/\*\*-4A



AM6/\*\*-2H  
AM6/\*\*-4H



1 LED



AM



notes

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20 horizontal light blue lines for writing notes.



# 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

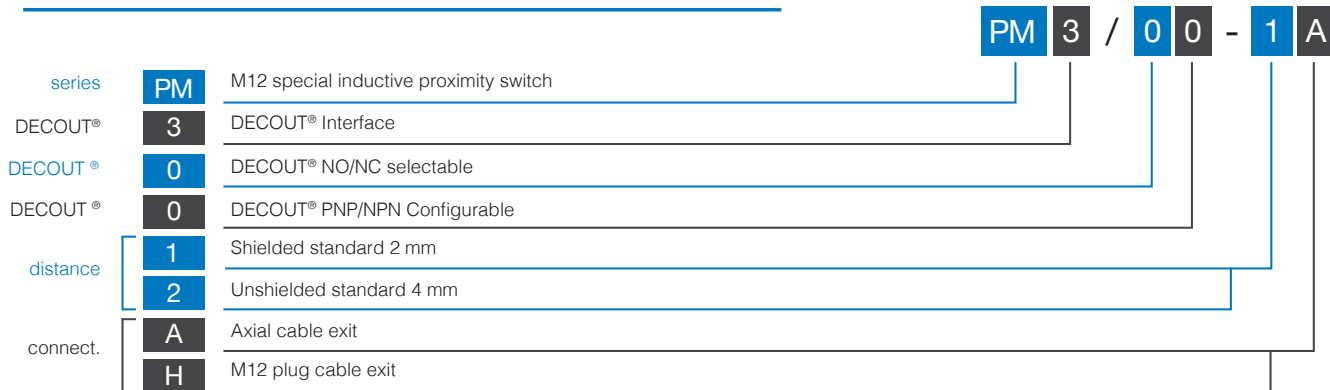


## web contents

- 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



## technical specification

M12 DECOUT®  
cylindrical

	PM3/00-1*	PM3/00-2*
		
nominal sensing distance S <sub>n</sub>	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 T <sub>a</sub> = 23°C ± 5°C)	
operating voltage	10...30 V <sub>cc</sub>	
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 S <sub>r</sub>	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 <sup>(1)</sup> ( 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	

<sup>(1)</sup>Protection guaranteed only with plug cable well mounted

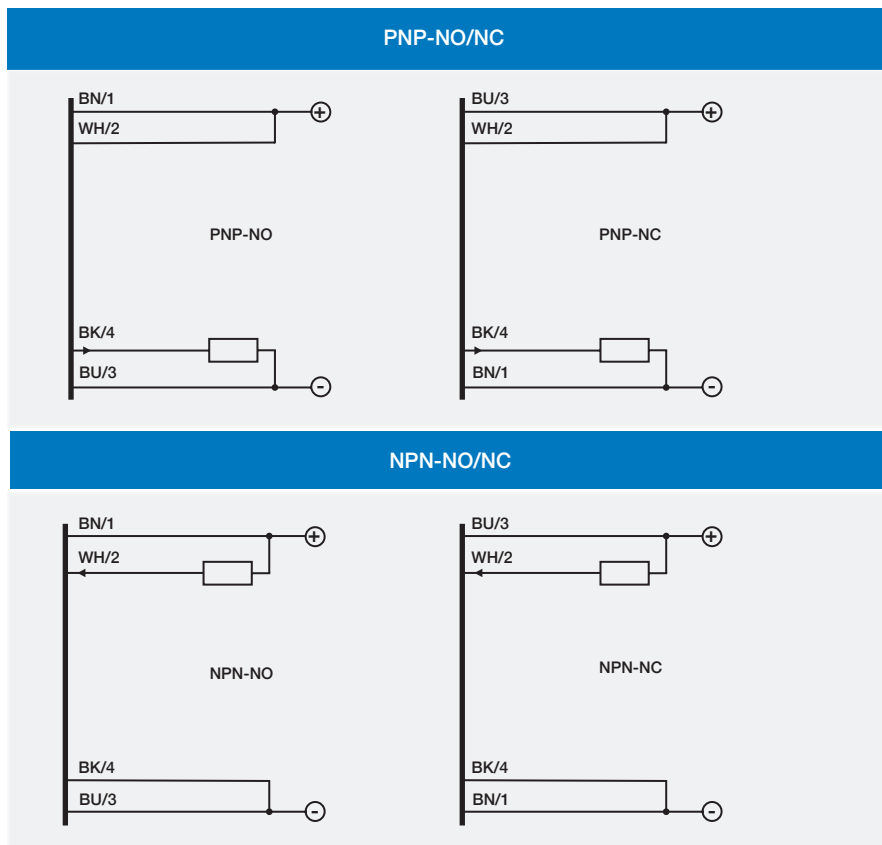
## correction factors

code	steel FE 360	copper	aluminium	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



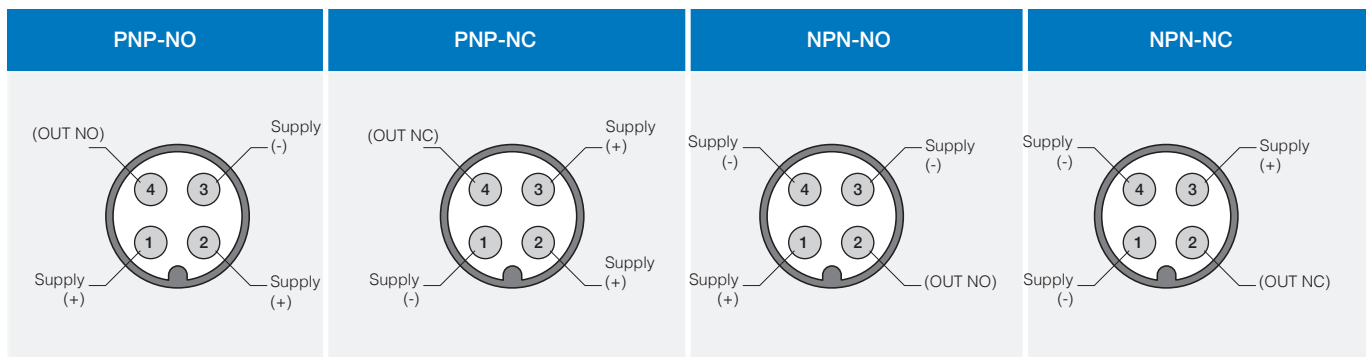
## electrical diagrams of connections

PM3 DECOU<sup>®</sup> versions

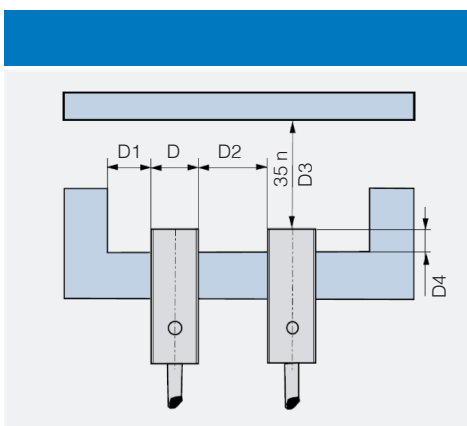


## plug

PM3 DECOU<sup>®</sup> versions



## installation



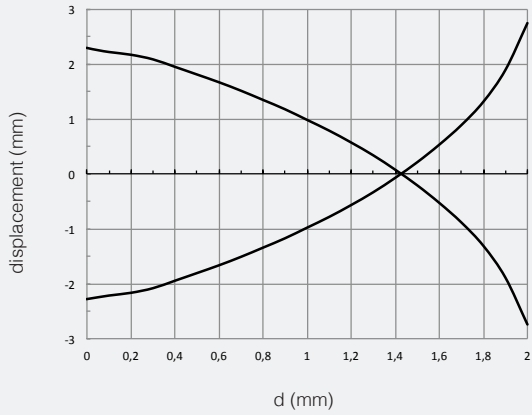
code	D4	D1	D2	D3
PM3/00-1*	≥ 0 mm	≥ 6 mm	≥ 12 mm	≥ 6 mm
PM3/00-2*	≥ 1.2 mm	≥ 12 mm	≥ 24 mm	≥ 12 mm



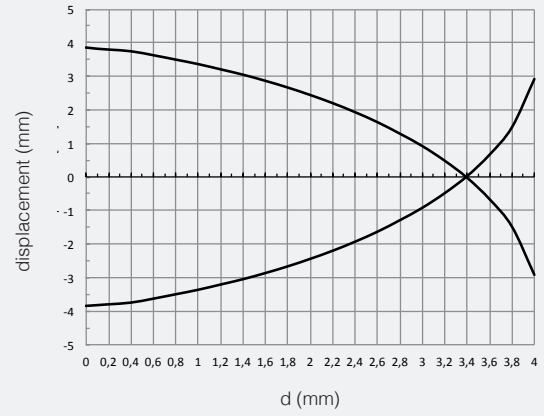
# response diagram

M12 DECOUT®  
cylindrical

PM3/\*\*-1\*

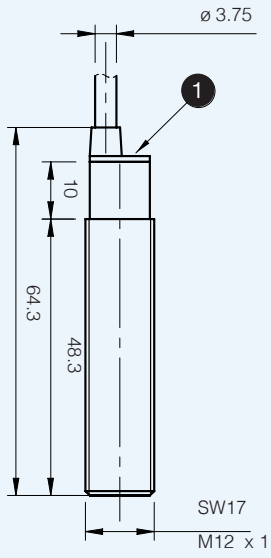


PM3/\*\*-2\*

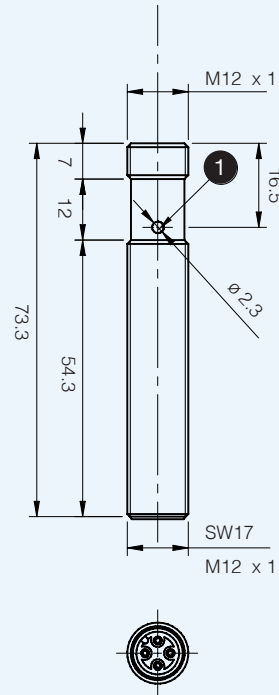


# dimensions (mm)

PM3/00-1A

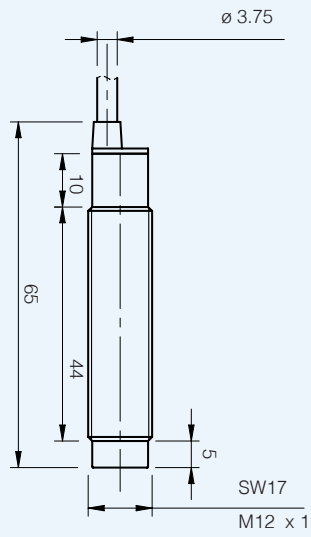


PM3/00-\*H

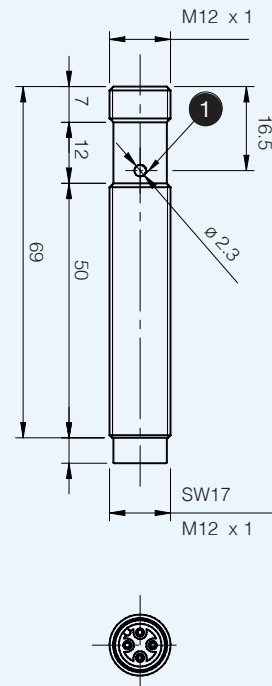


1 LED

PM3/00-2A



PM3/00-2H

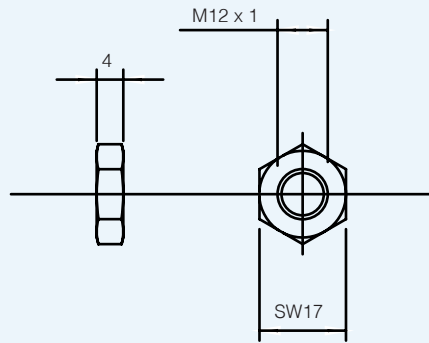


  
 M12 DECOCUT®  
 cylindrical

1 LED

### dimensions (mm)

accessories included



metallic  
nut (2 x)



## notes

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20 horizontal light blue lines for writing notes.





# 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<sup>(\*)</sup>

	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						

<sup>(\*)</sup> ATEX models available, contact our Sales Dept. for further information.



## available models

standard housing

M18 cylindrical

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	8	cable	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	12	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
					M12	AK1/AN-4A	AK1/AP-4A	AK1/CN-4A	AK1/CP-4A
			unshielded		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		12	AK6/AN-3A	AK6/AP-3A	AK6/BN-3A	AK6/BP-3A	
	unshielded				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	12		AK6/AN-3H	AK6/AP-3H	AK6/BN-3H	AK6/BP-3H	
	unshielded				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	8	cable	AK1/A0-2A
					M12	AK1/A0-2H
	shielded	long distance	cable	12	AK1/A0-3A	
					M12	AK1/A0-3H
			unshielded	M12	AK1/A0-4A	
					AK1/A0-4H	





## correction factors



M18 cylindrical

code	steel FE 360	copper	aluminium	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 <sup>(1)</sup> ( 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			





AK

<sup>(1)</sup> Protection guaranteed only with plug cable well mounted



## technical specification

M18 cylindrical

	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			

<sup>(1)</sup>Protection guaranteed only with plug cable well mounted

## correction factors

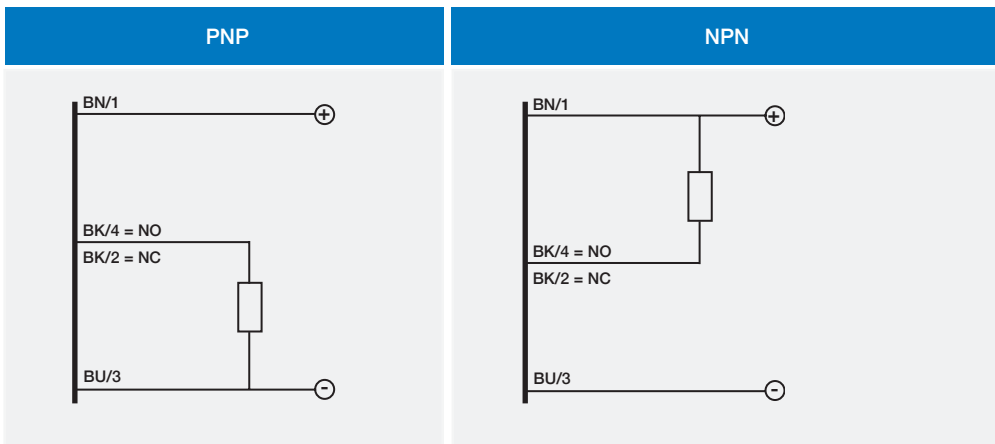
code	steel FE 360	copper	aluminium	brass	stainless steel
AK6/00-1*	1	0.36	0.43	0.49	0.80
AK6/00-2*	1	0.43	0.38	0.75	0.31
AK6/00-3*	1	0.39	0.45	0.51	0.77
AK6/00-4*	1	0.47	0.42	0.74	0.36



M18 cylindrical

## electrical diagrams of connections

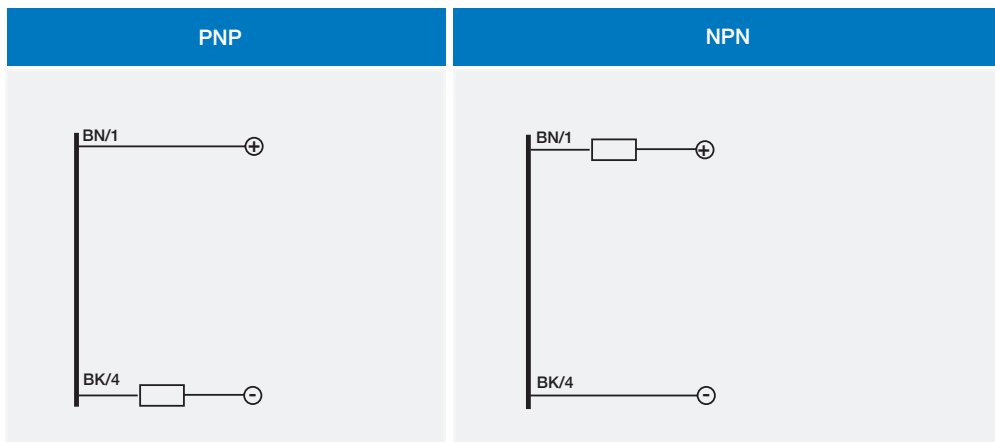
3 wires versions



BN brown  
 BU blue  
 BK black  
 WH white

## electrical diagrams of connections

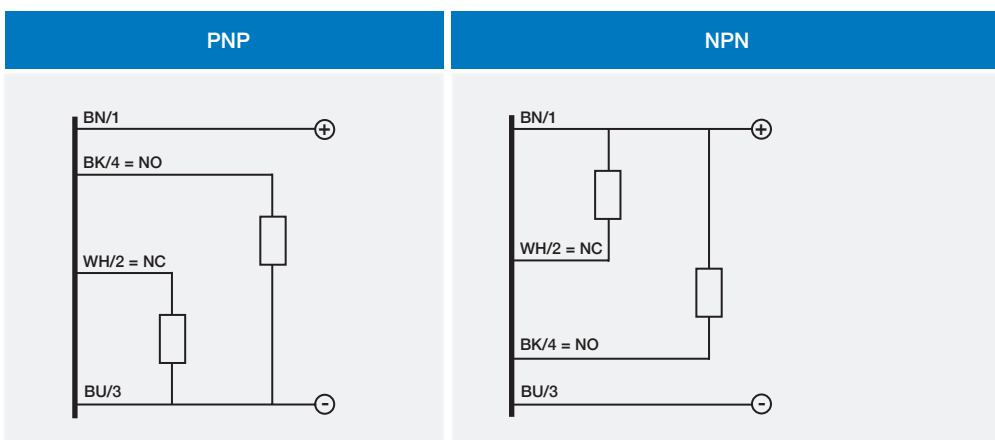
2 wires versions



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

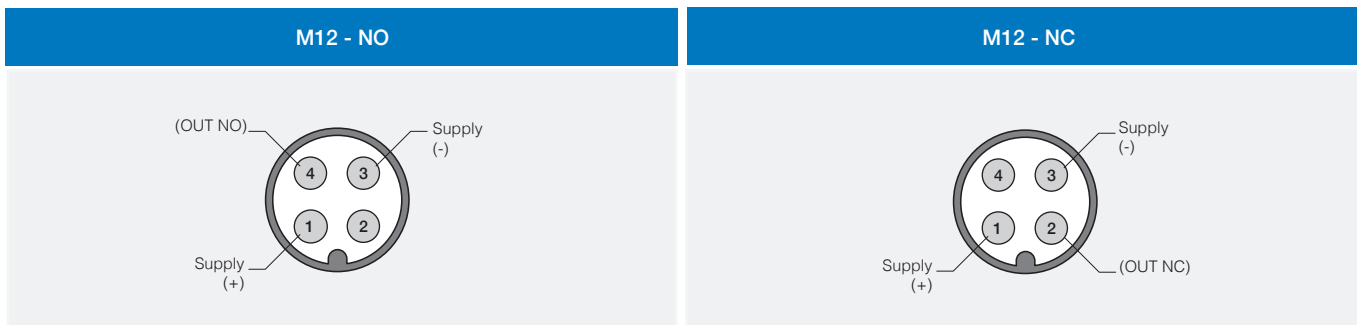
AK



## plug

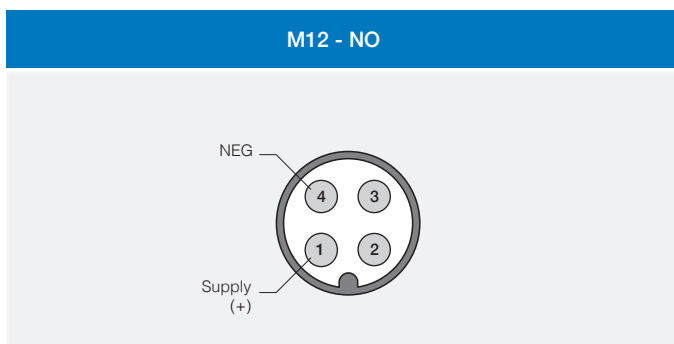
3 wires versions

M18 cylindrical



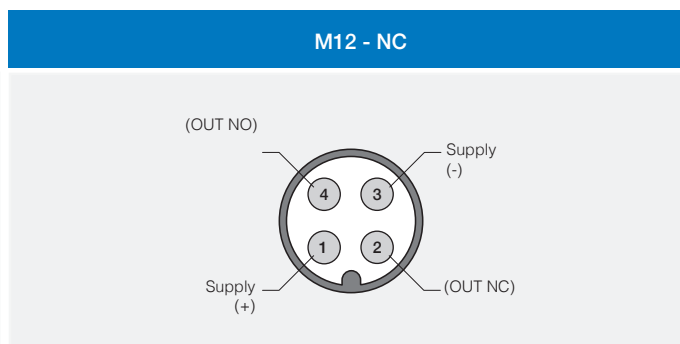
## plug

2 wires versions



## plug

versioni complementary outputs versions



## installation

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

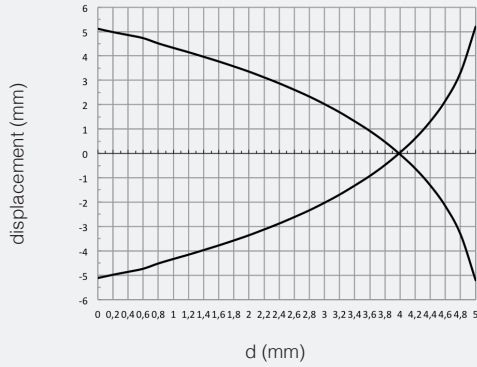
<sup>(1)</sup> ≥ 5.4 mm for not magnetic materials

# response diagram

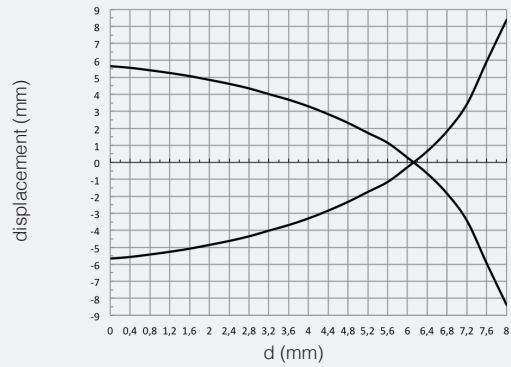


M18 cylindrical

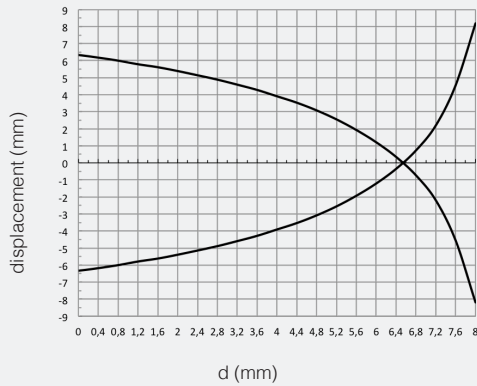
AK1/\*\*-1\* parallel displacement



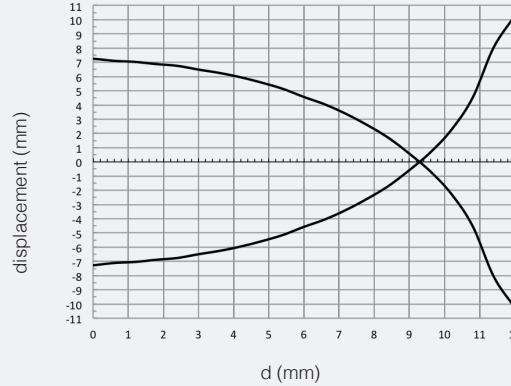
AK1/\*\*-2\* parallel displacement



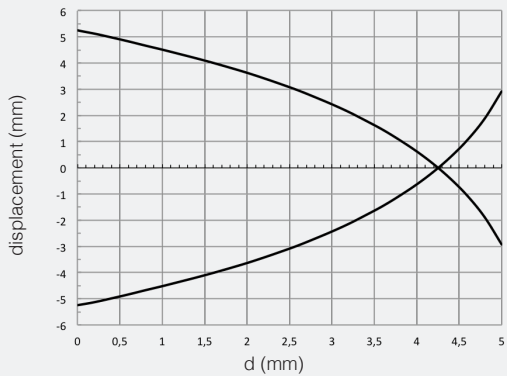
AK1/\*\*-3\* parallel displacement



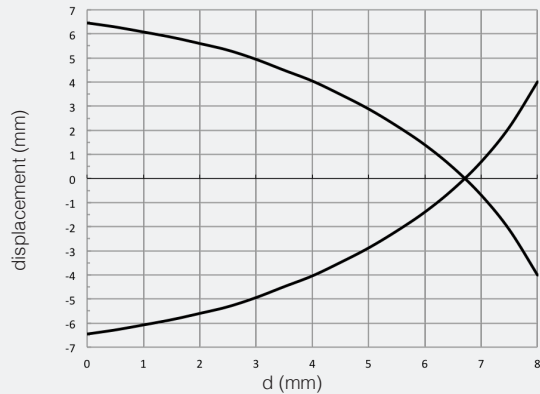
AK1/\*\*-4\* parallel displacement



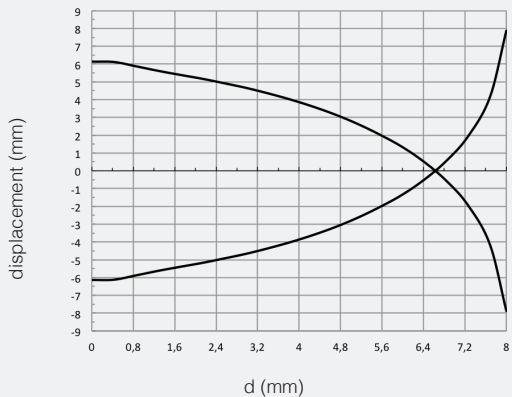
AK6/\*\*-1\* parallel displacement



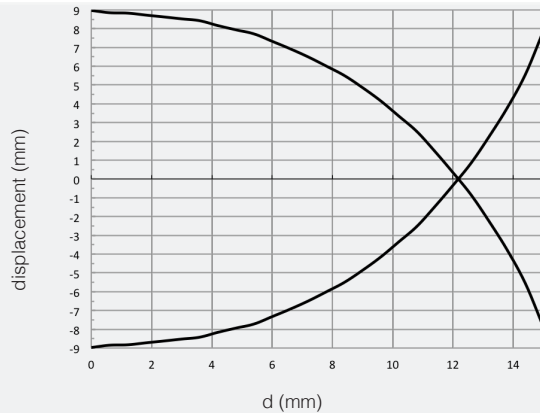
AK6/\*\*-2\* parallel displacement



AK6/\*\*-3\* parallel displacement



AK6/\*\*-4\* parallel displacement



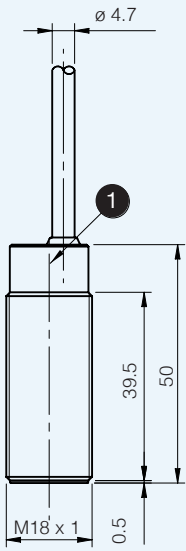
AK



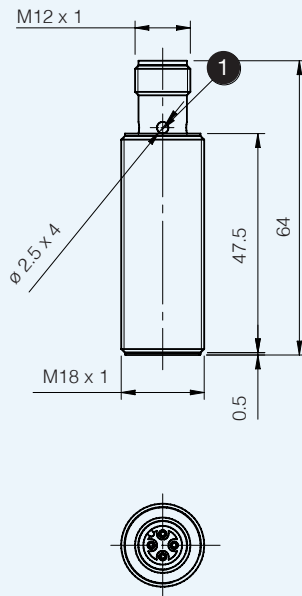
M18 cylindrical

# dimensions (mm)

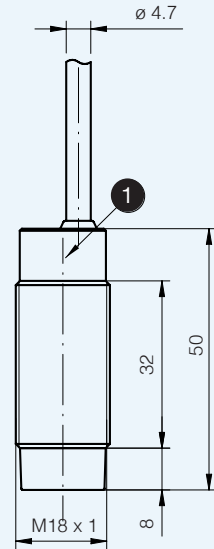
AK1/\*\*-1A  
AK1/\*\*-3A



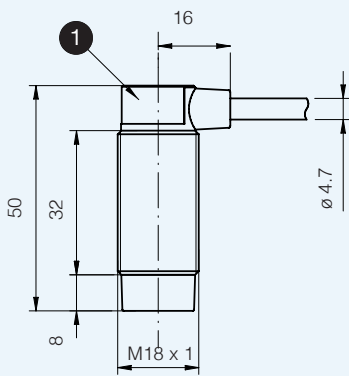
AK1/\*\*-1H  
AK1/\*\*-3H



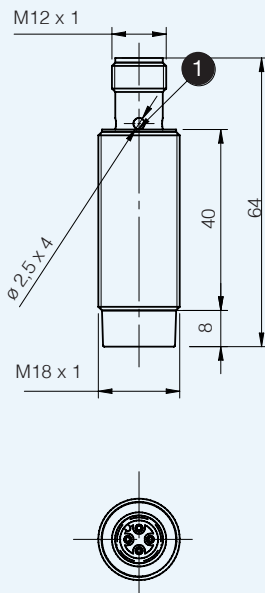
AK1/\*\*-2A  
AK1/\*\*-4A



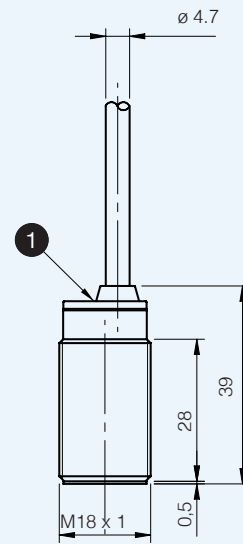
AK1/\*\*-2C  
AK1/\*\*-4C



AK1/\*\*-2H  
AK1/\*\*-4H



AK6/\*\*-1A  
AK6/\*\*-3A

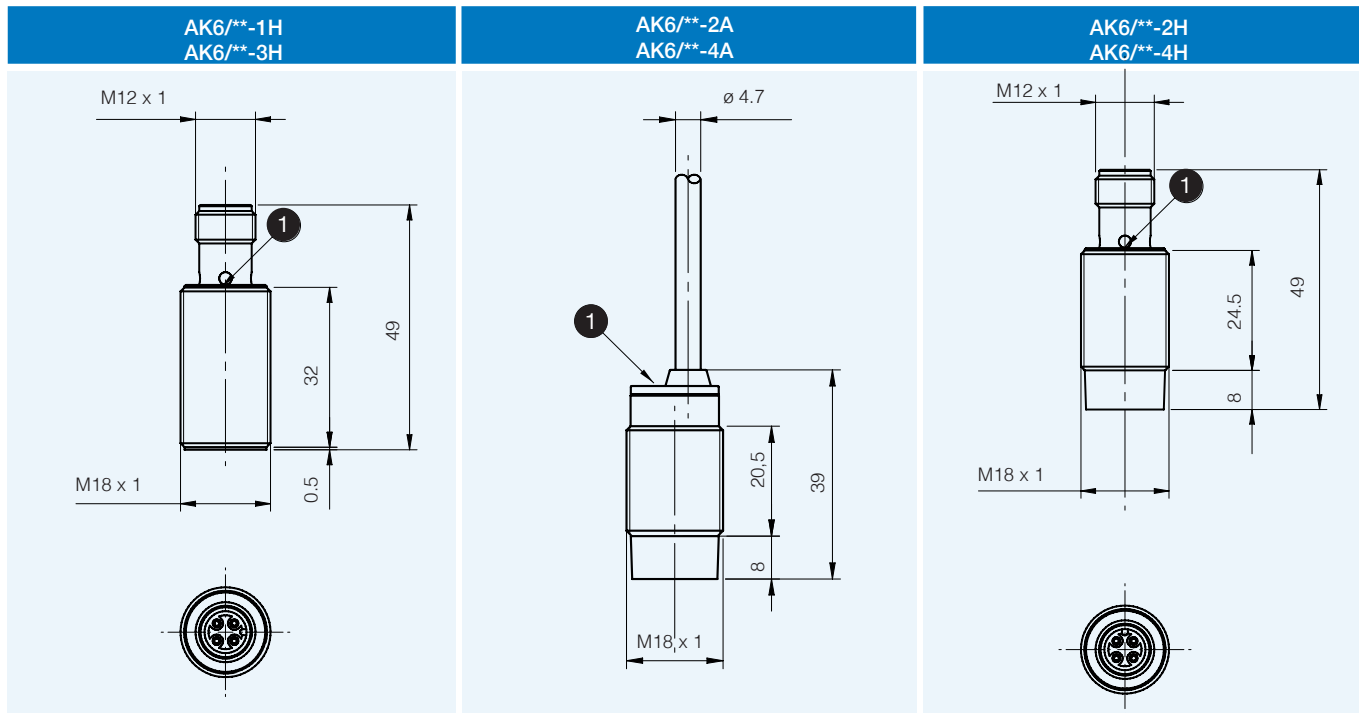


1 LED





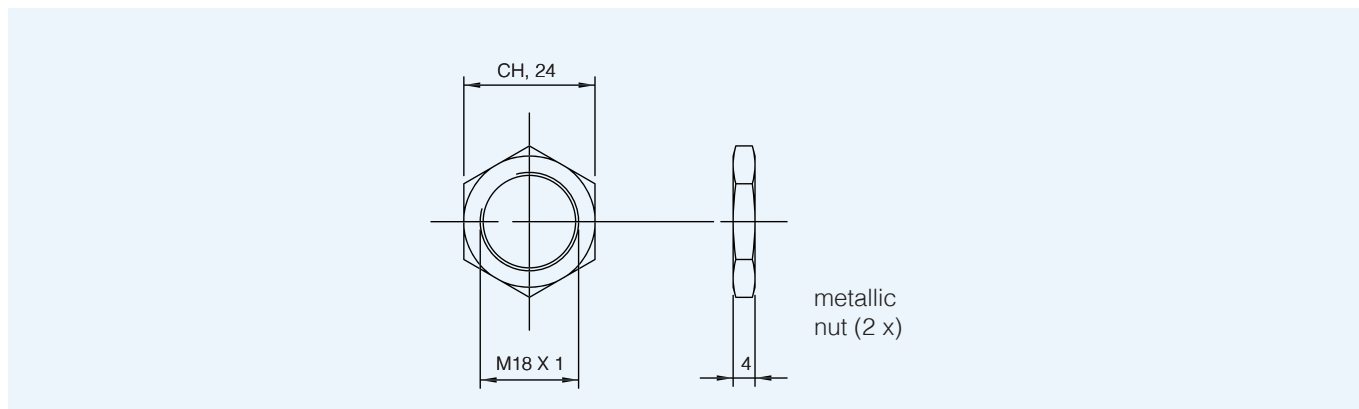
M18 cylindrical



1 LED

### dimensions (mm)

accessories included



AK



notes

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20 horizontal light blue lines for writing notes.



# PK3 series

## M18 DECOU<sup>®</sup>

### cylindrical inductive sensors



M18 DECOU<sup>®</sup>  
cylindrical

### features

- Wide range of models: standard, long distance, DECOU 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)



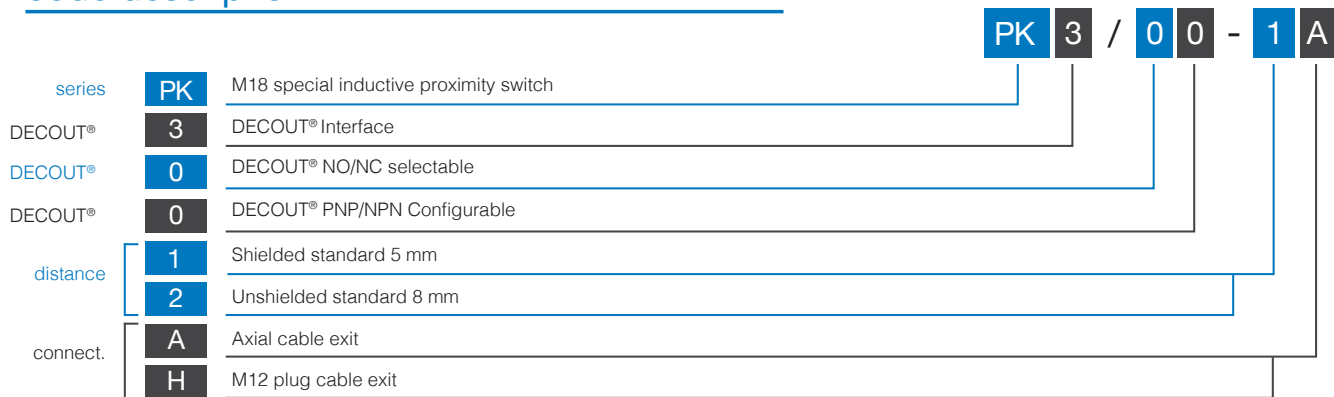
### web contents



- Application notes
- Photos
- Catalogue / Manuals



### code description <sup>(\*)</sup>



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

### available models

DECOU<sup>®</sup> 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	aluminium	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



# technical specification

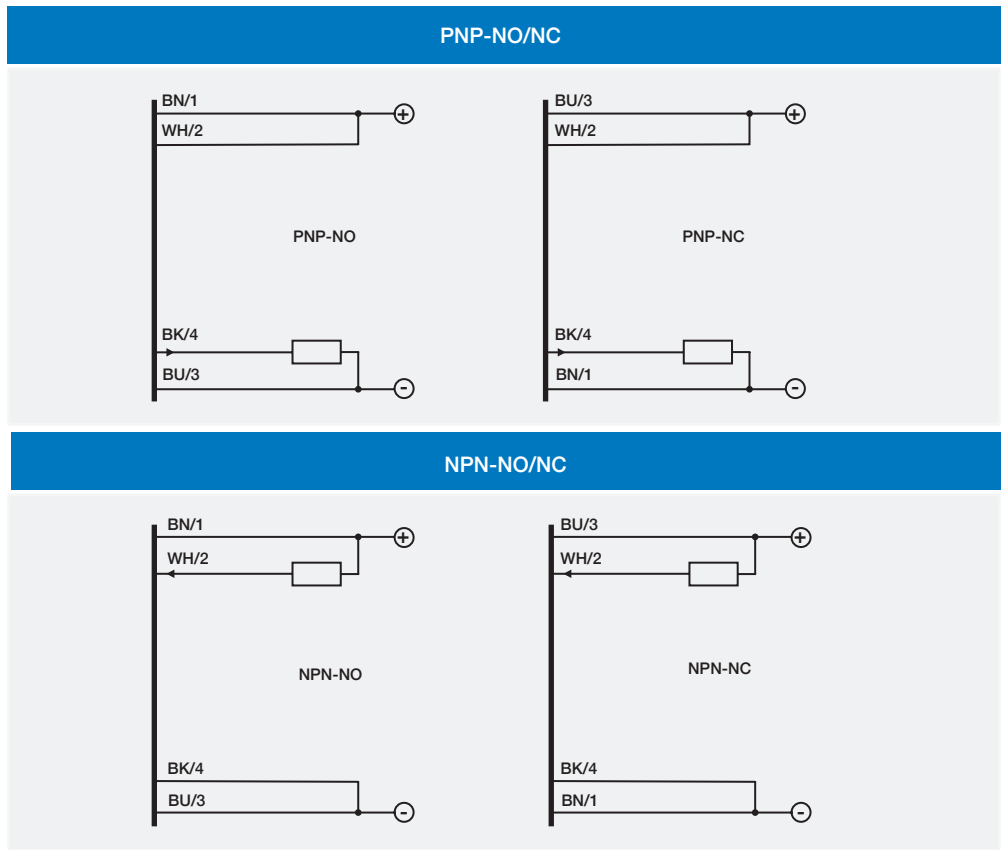
M18 DECOUT®  
cylindrical

	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 <sup>(1)</sup> ( 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	

<sup>(1)</sup> Protection guaranteed only with plug cable well mounted

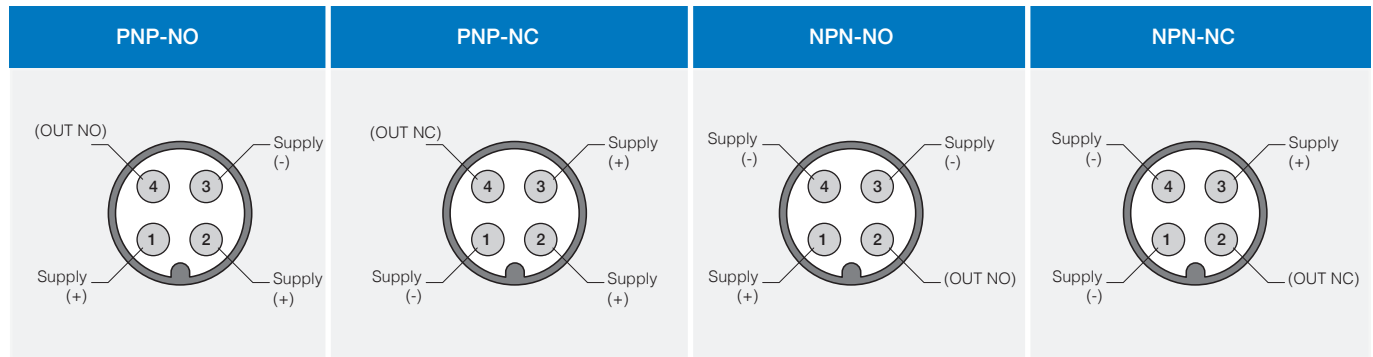
# electrical diagrams of connections

PK3 DECOUT versions

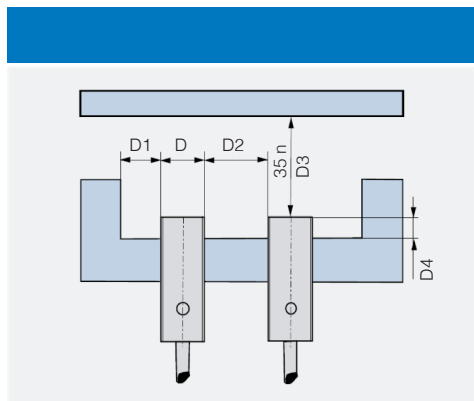


# plug

PK3 DECOUT® versions



# installation



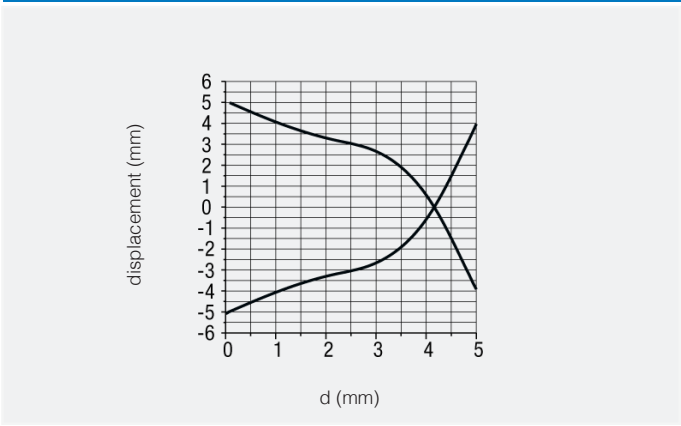
code	D4	D1	D2	D3
PK3/00-1*	≥ 3.6 mm	≥ 9 mm	≥ 18 mm	≥ 15 mm
PK3/00-2*	≥ 16 mm	≥ 18 mm	≥ 36 mm	≥ 24 mm



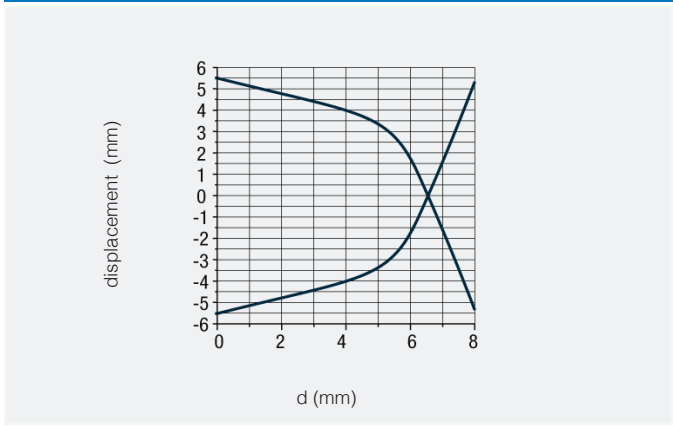
# response diagram

M18 DECOUT®  
cylindrical

PK3/00-1\*

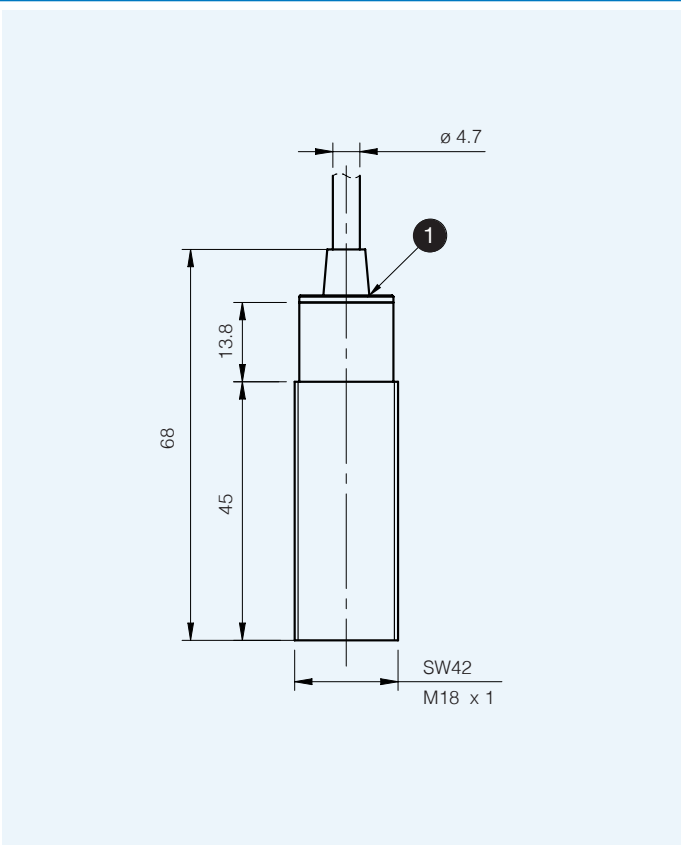


PK3/00-2\*

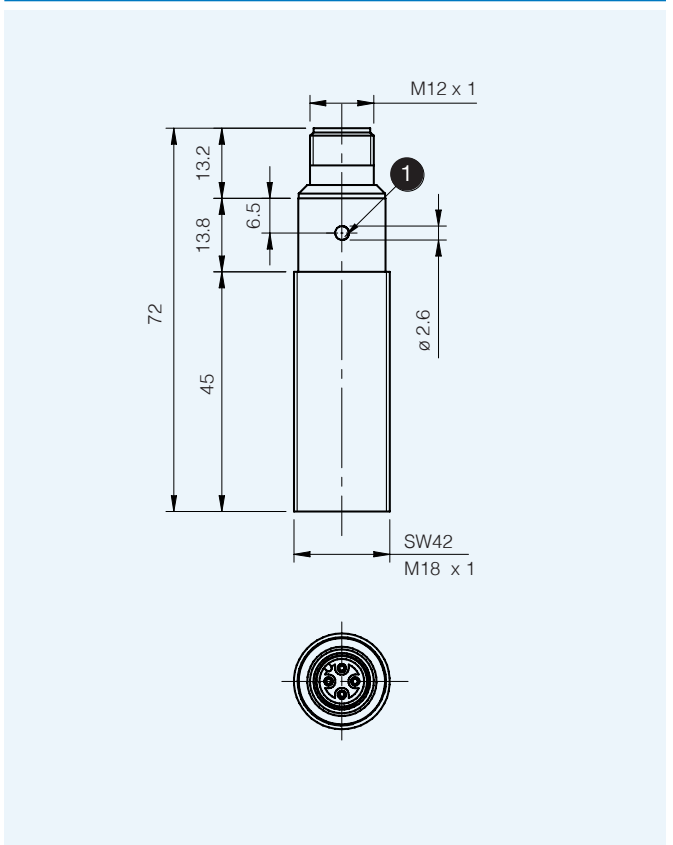


# dimensions (mm)

PK3/00-1A



PK3/00-1H



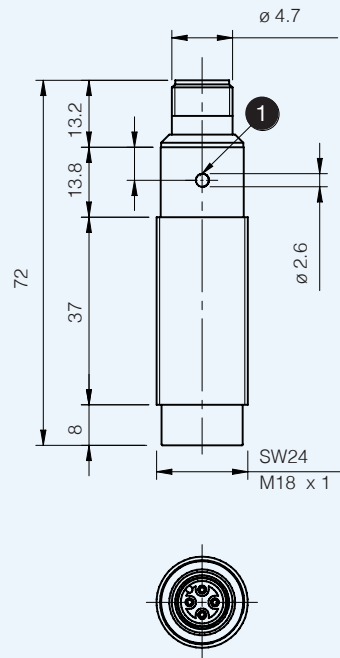
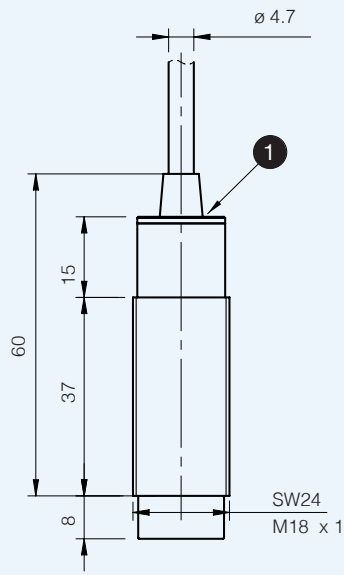
1 LED

PK3/00-2A

PK3/00-2H



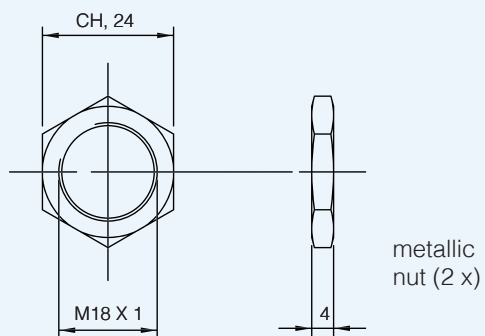
M18 DECOUT®  
cylindrical



1 LED

## dimensions (mm)

accessories included





## notes

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20 horizontal light blue lines for writing notes.





# 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



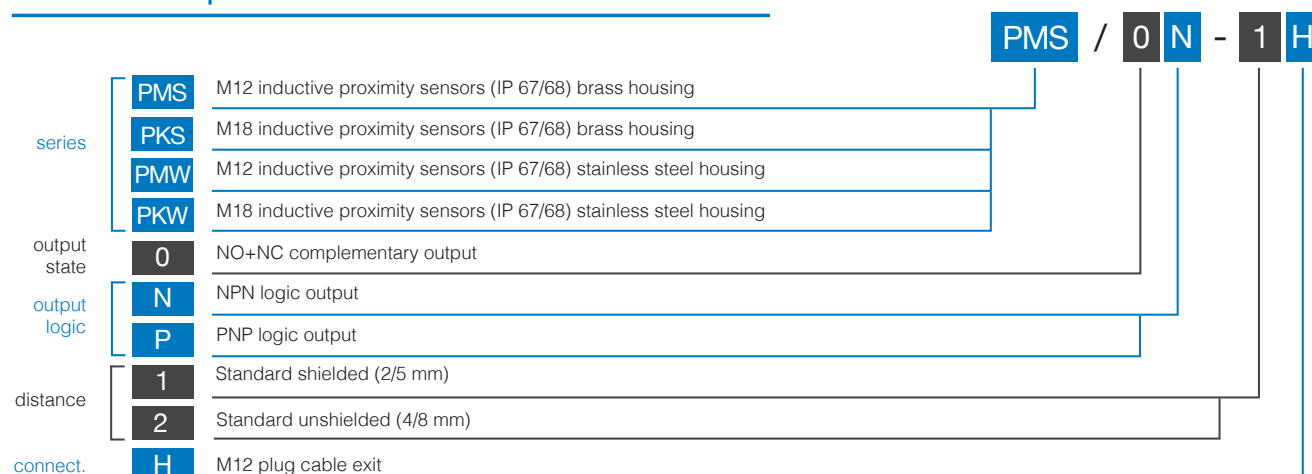
## web contents



- Application notes
- Photos
- Catalogue / Manuals



## code description (\*)



(\*) 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





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

## 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 <sup>(1)</sup>	
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	

<sup>(1)</sup> 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 <sup>(1)</sup>	
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	

<sup>(1)</sup> Only in fully locked position without splugs.

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

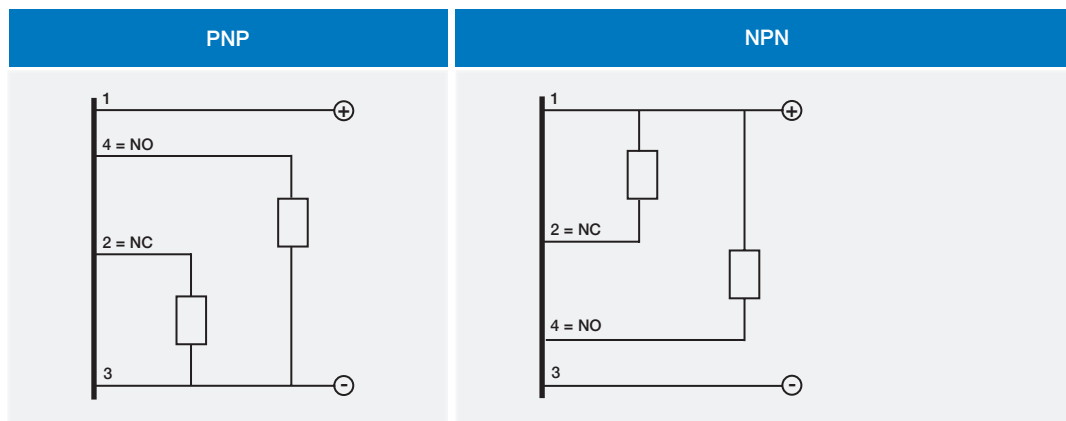
## correction factors

code	steelFE 360	copper	aluminium	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

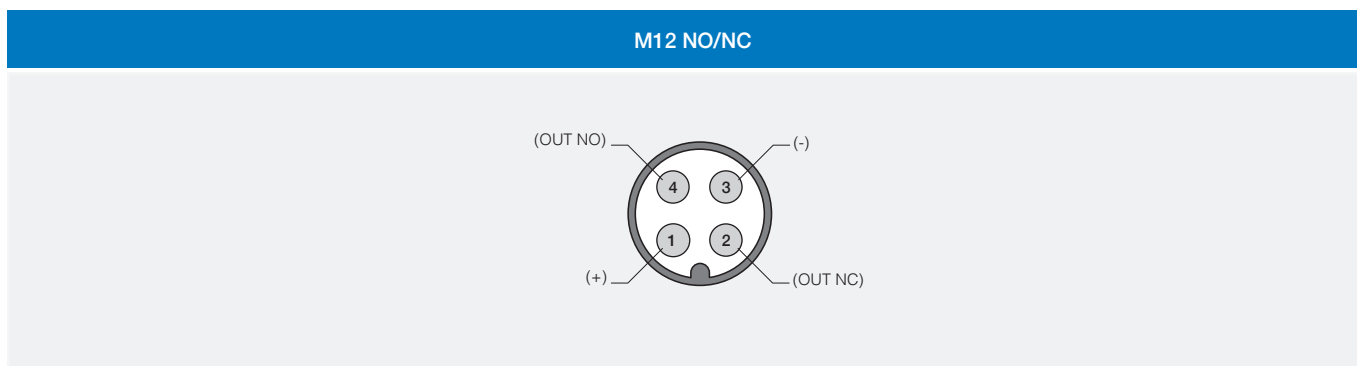
M12 & M18 IP67/68 cylindrical for harsh environments - DC



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

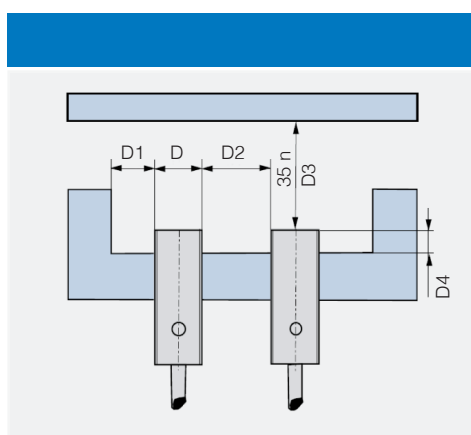
The max. admissible capacity C = 1µF for max. output voltage and current.

## 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 <sup>(1)</sup>	≥ 6 mm	≥ 12 mm	≥ 6 mm
PMW/**-2*	≥ 6 mm <sup>(2)</sup>	≥ 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

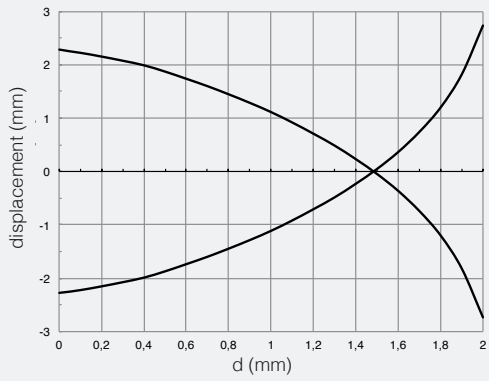
<sup>(1)</sup> ≥ 2.4 for non magnetic material  
<sup>(2)</sup> ≥ 0 mm for non magnetic material

# response diagram

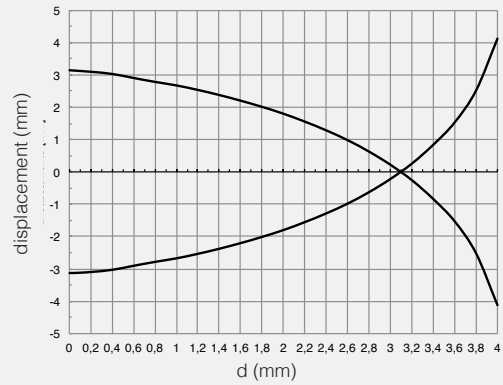


M12 & M18 IP67/68 cylindrical  
for harsh environments - DC

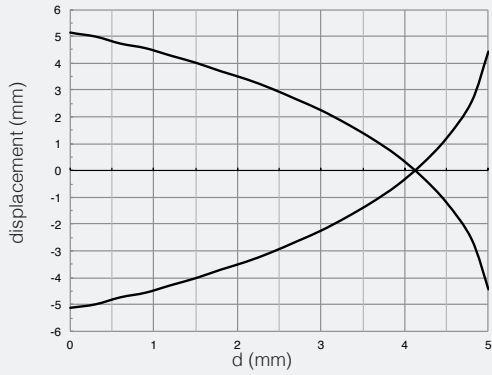
PMS\*/\*\*-1\* parallel displacement



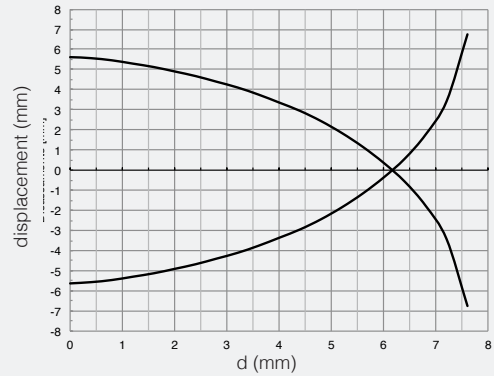
PMS\*/\*\*-2\* parallel displacement



PK\*/\*\*-1\* parallel displacement

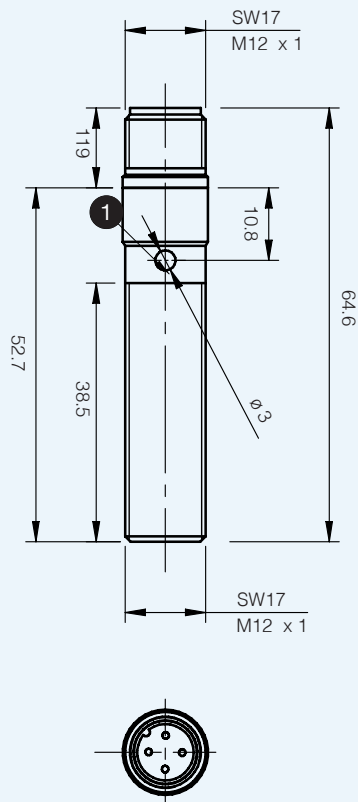


PK\*/\*\*-2\* parallel displacement

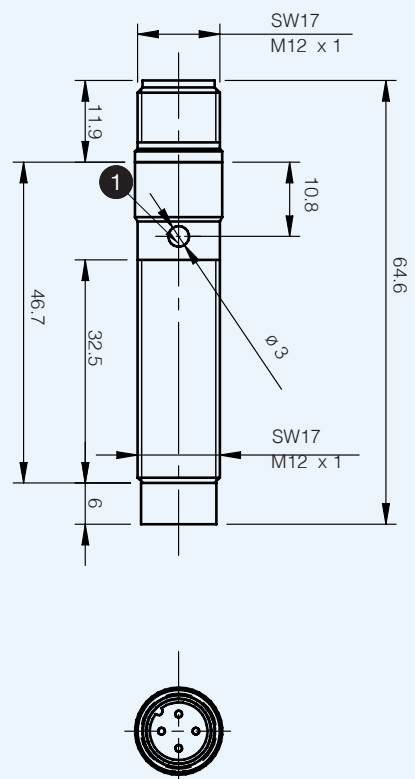


# dimensions (mm)

PM\*/\*\*-1H



PM\*/\*\*-2H

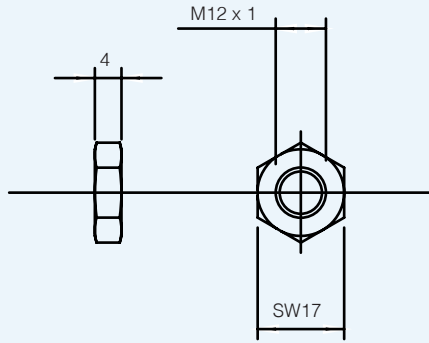


1 LED

PMS - PKS  
PMW - PKW

## dimensions (mm)

accessories included

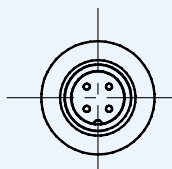
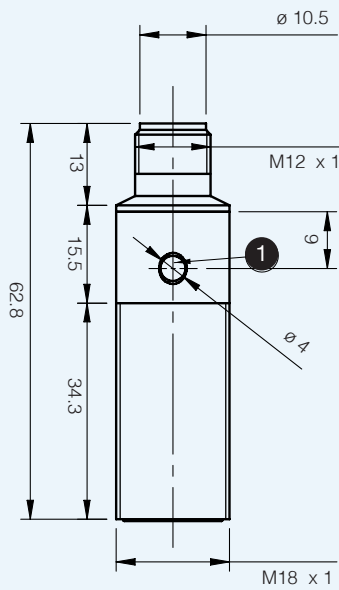


metallic  
nut (2 x)

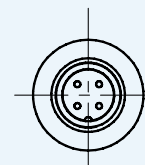
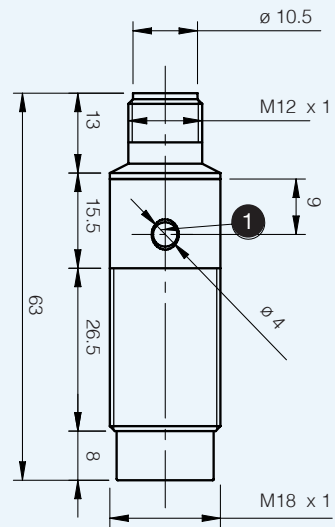
M12 & M18 IP67/68 cylindrical  
for harsh environments - DC

## dimensions (mm)

PK\*/\*\*-1H



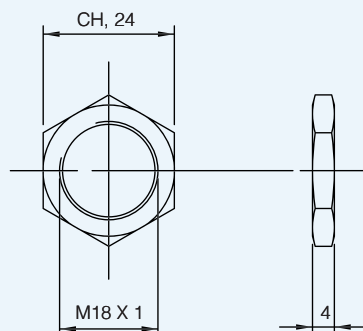
PK\*/\*\*-2H



1 LED

## dimensions (mm)

accessories included in all M18 models



metallic  
nut (2 x)

PMS - PKS  
PMW - PKW



# 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	<b>ET</b>	Extended working temperature range inductive sensors
dimens.	<b>M</b>	M12 diameter
	<b>K</b>	M18 diameter
housing	<b>1</b>	Standard housing
output state	<b>B</b>	NO + NC complementary output
	<b>P</b>	PNP logic
output logic	<b>N</b>	NPN logic
	<b>1</b>	Shielded standard (2/5 mm)
distance	<b>2</b>	Unshielded standard (4/8 mm)
	<b>H</b>	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

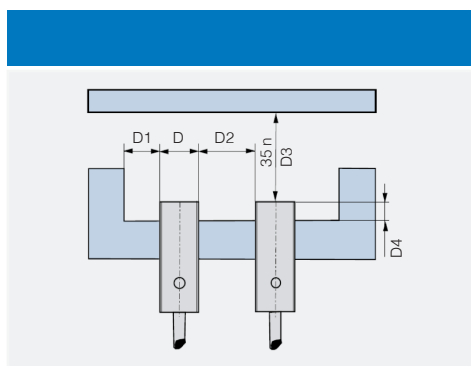
Cylindrical with extended temperature range

	ETM1/B*-1H	ETM1/B*-2H	ETK1/B*-1H	ETK1/B*-2H
nominal sensing distance $S_n$	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; T <sub>a</sub> = 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 @ I <sub>o</sub>			≤ 1.5 V @ I <sub>o</sub>
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 S <sub>r</sub>	≤ 10% S <sub>r</sub>			
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 <sup>(1)</sup>	≥ 6 mm	≥ 12 mm	≥ 6 mm
ETM1/**-2H	≥ 6 mm <sup>(2)</sup>	≥ 12 mm	≥ 24 mm	≥ 12 mm
ETK1/**-1H	≥ 0 mm <sup>(3)</sup>	≥ 9 mm	≥ 18 mm	≥ 15 mm
ETK1/**-2H	≥ 8 mm <sup>(4)</sup>	≥ 18 mm	≥ 36 mm	≥ 24 mm

<sup>(1)</sup> ≥ 1,2 mm without ferro-magnetic material

<sup>(2)</sup> ≥ 0 mm without ferro-magnetic material

<sup>(3)</sup> ≥ 3 mm without ferro-magnetic material

<sup>(4)</sup> ≥ 12 mm without ferro-magnetic material

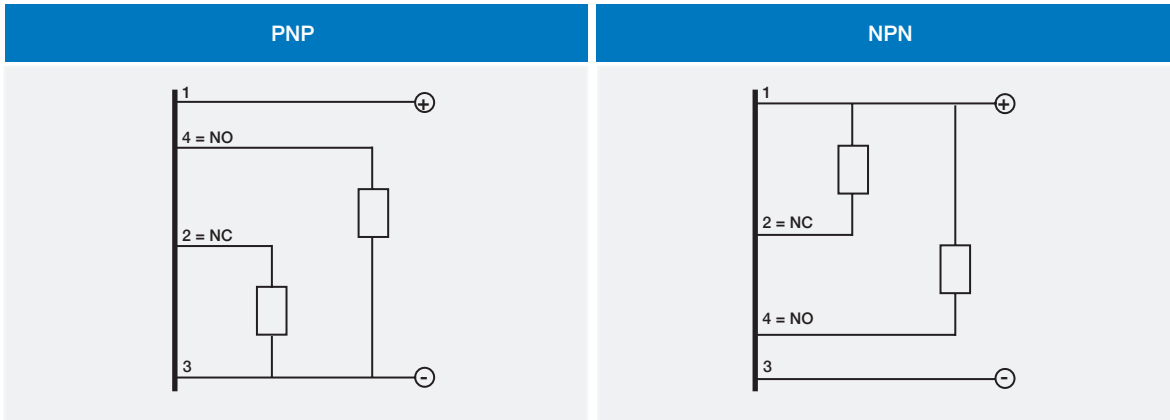
ET



## electrical diagrams of connections

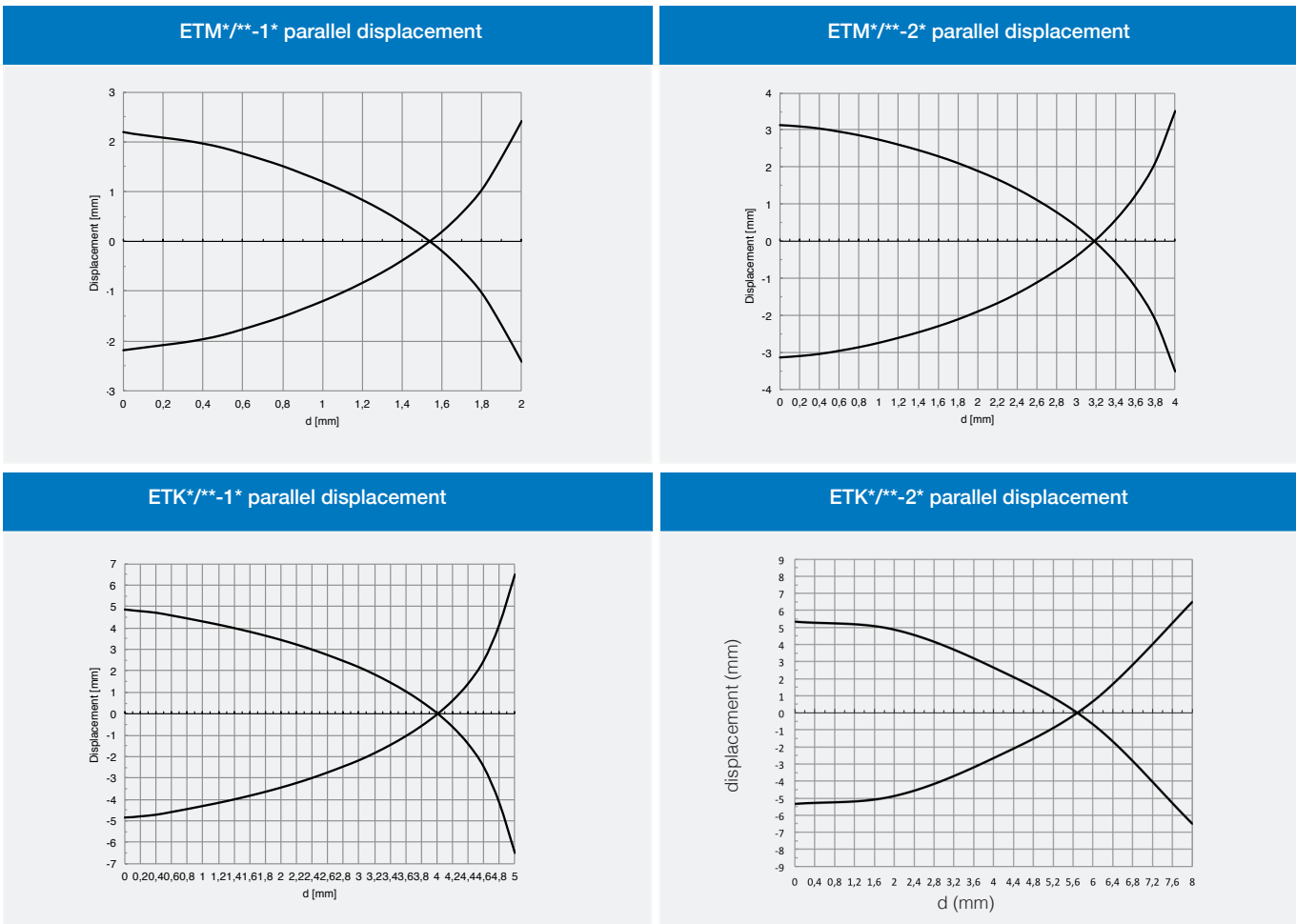


Cylindrical with extended temperature range



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

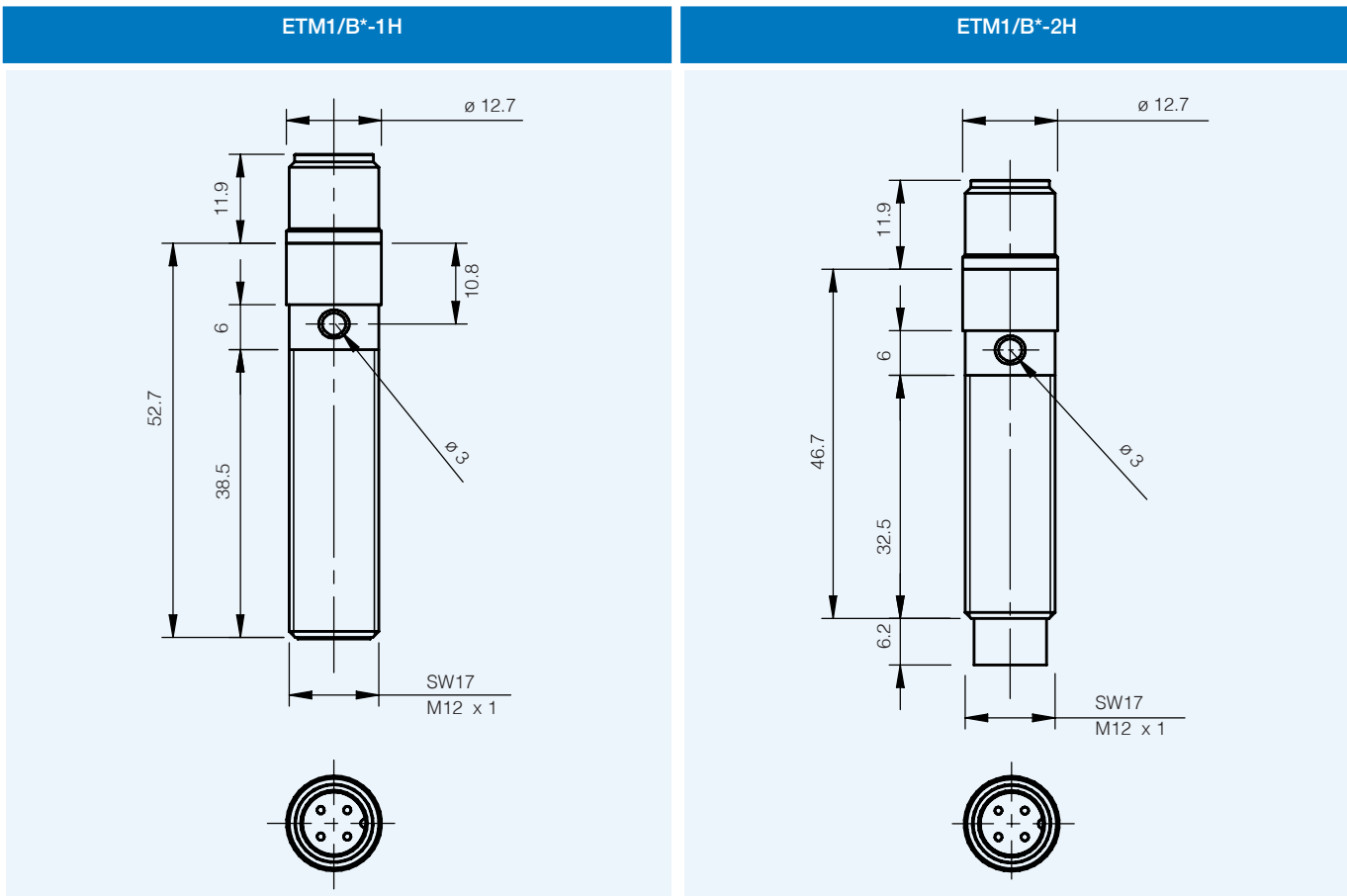
## response diagram





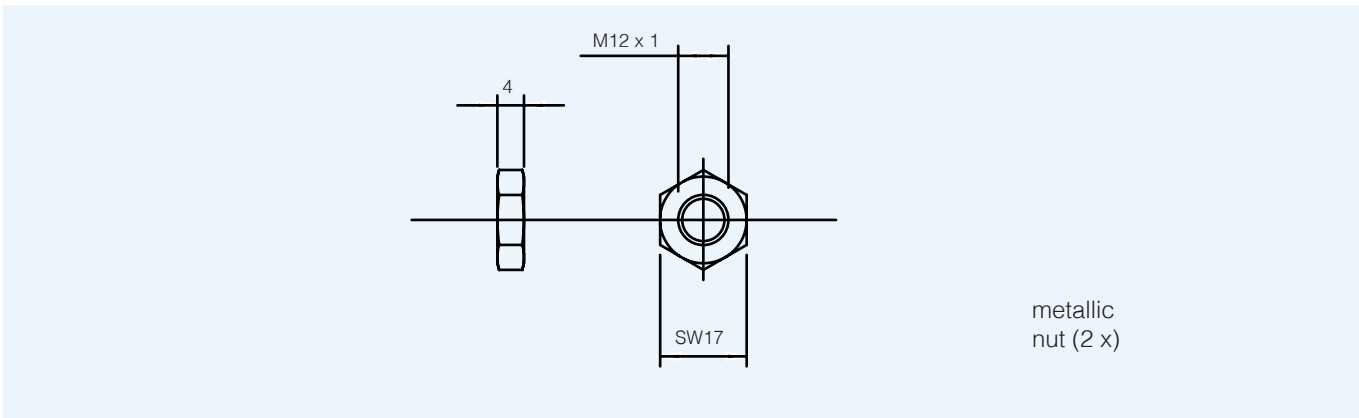
Cylindrical with extended temperature range

## dimensions (mm)



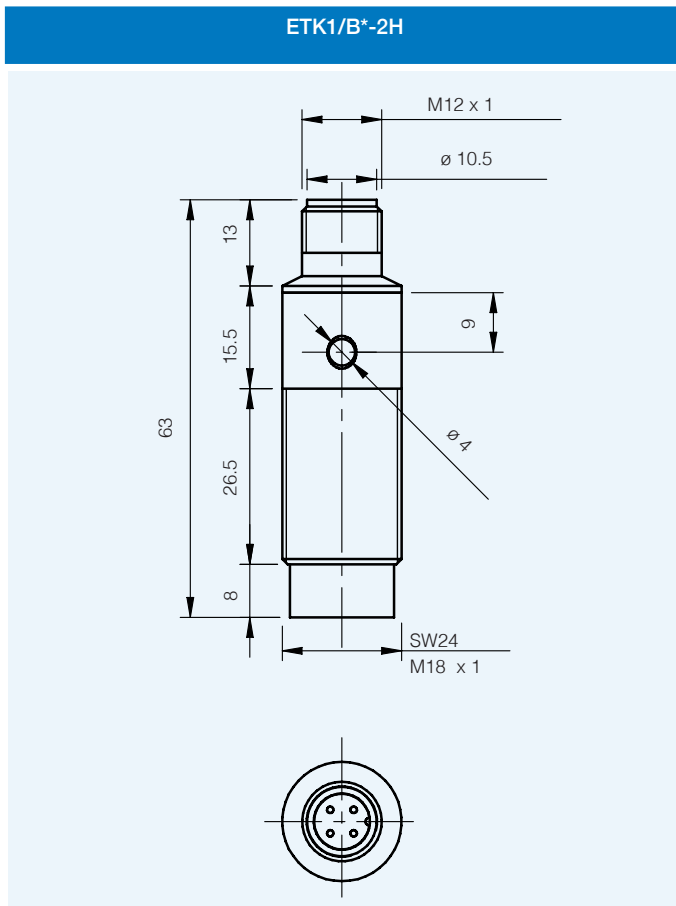
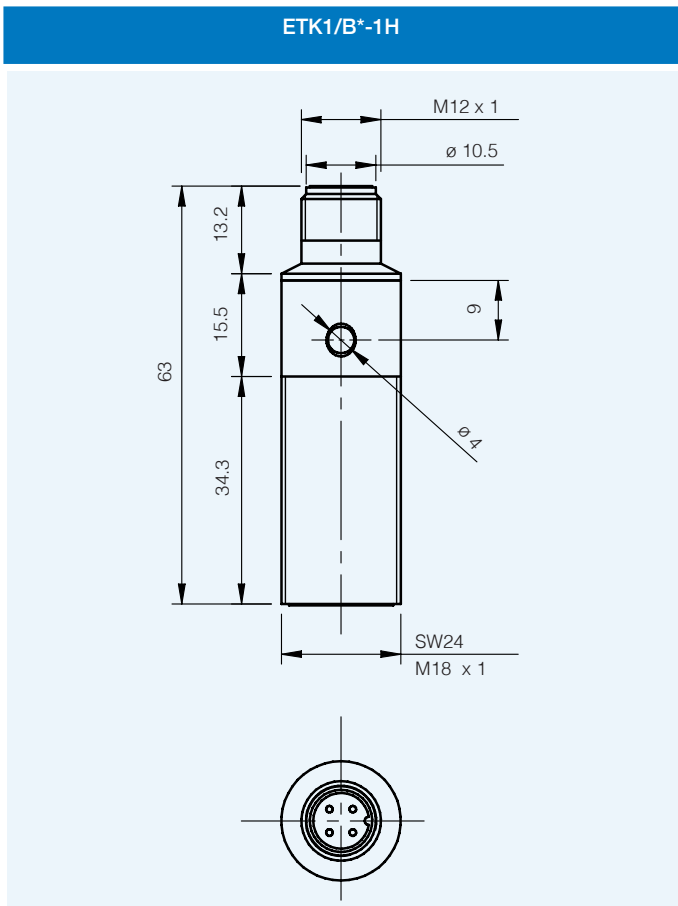
## dimensions (mm)

accessories included in all M12 models



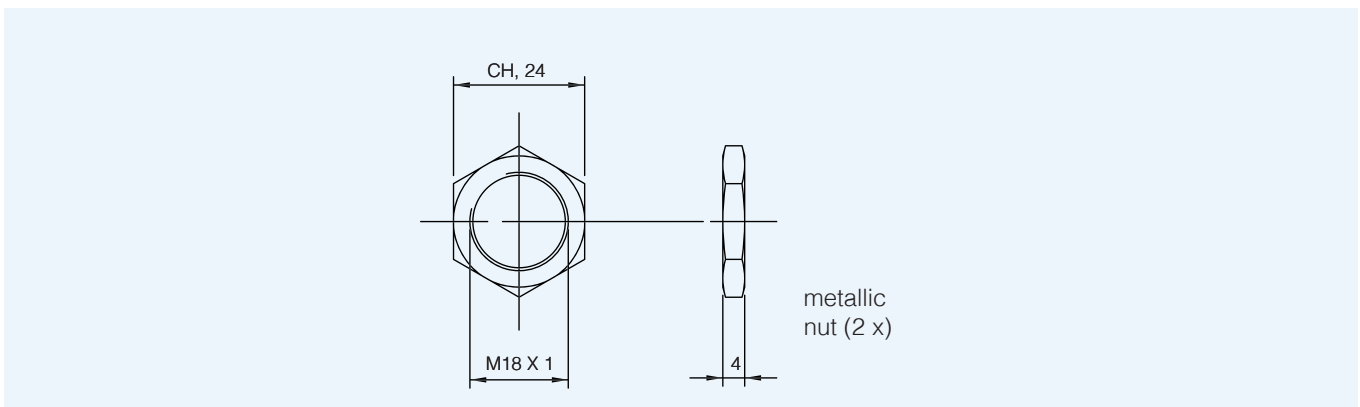


Cylindrical with extended temperature range



## dimensions (mm)

accessories included in all M18 models





## notes

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20 horizontal light blue lines for writing notes.



# 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
- Catalogue / Manuals



## 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.



## available models

### 4 wires standard housing

M30 cylindrical

diameter	installation	distance	plug	distance (mm)	PNP/NO+NC
M30	shielded	standard	M12	10	AT1/OP-1H
	unshielded			15	AT1/OP-2H
	shielded	long distance			20
	unshielded			AT1/OP-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	20	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	AT1/AN-4A	AT1/CN-4A	AT1/AP-4A
	unshielded		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	20	AT1/A0-3A
					AT1/A0-3H
	unshielded		M12	AT1/A0-4A	
				AT1/A0-4H	



	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 <sub>B</sub> 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 <sup>(1)</sup> ( 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			

<sup>(1)</sup> Protection guaranteed only with plug cable well mounted.

## correction factors

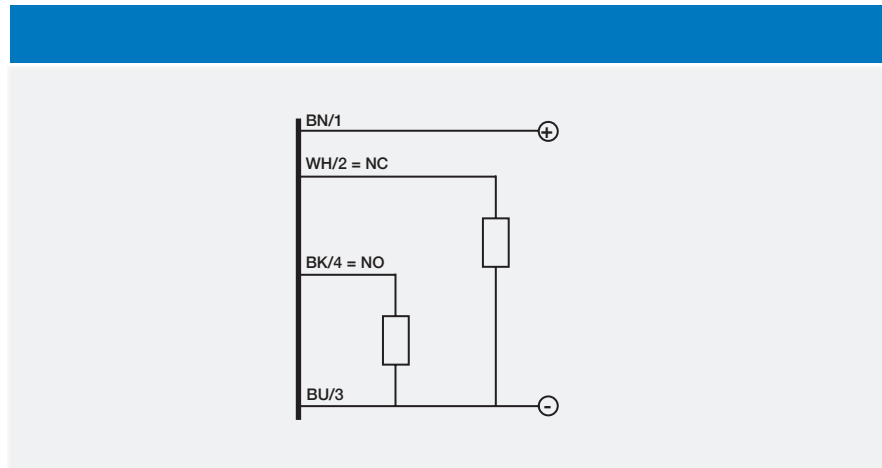
code	steel FE 360	copper	aluminium	brass	stainless steel
AT*/**-1*	1	0.35	0.45	0.50	0.75
AT*/**-2*		0.45	0.50	0.55	0.80
AT*/**-3*		0.35	0.45	0.50	0.70
AT*/**-4*		0.45	0.50	0.55	0.75



## electrical diagrams of connections

4 wires versions

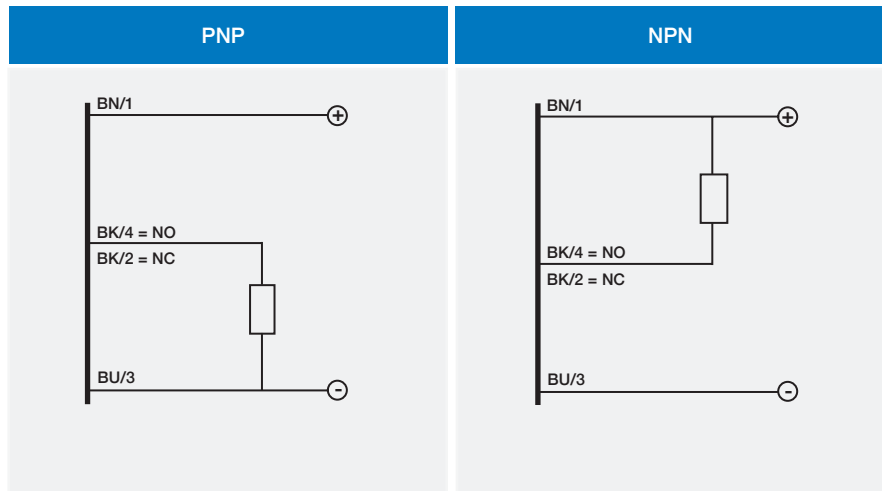
M30 cylindrical



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

## electrical diagrams of connections

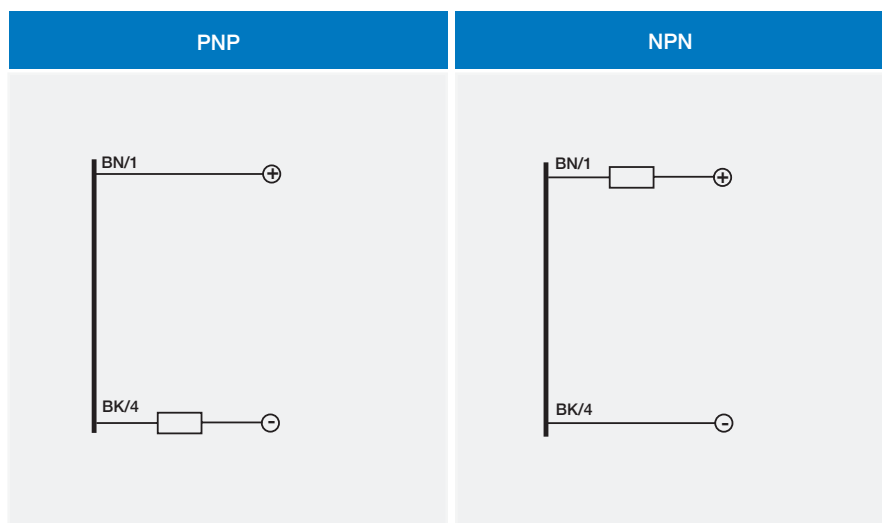
3 wires versions



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

## electrical diagrams of connections

2 wires versions



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

AT

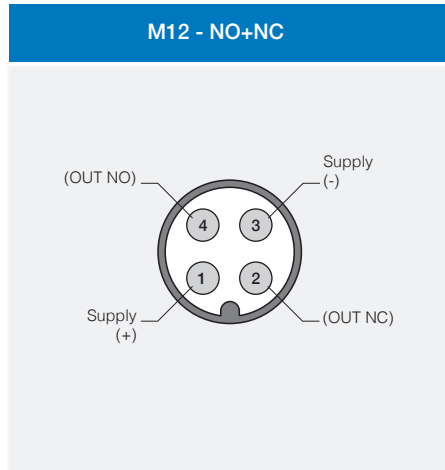




M30 cylindrical

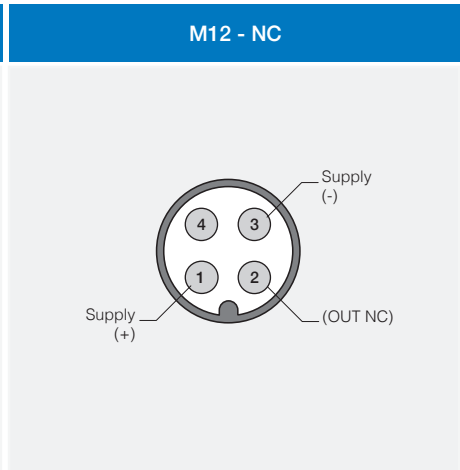
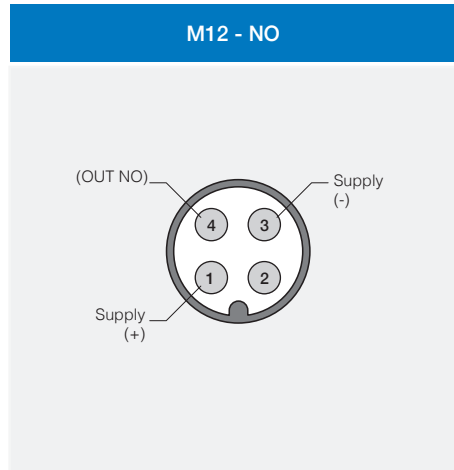
### plug

4 wires versions



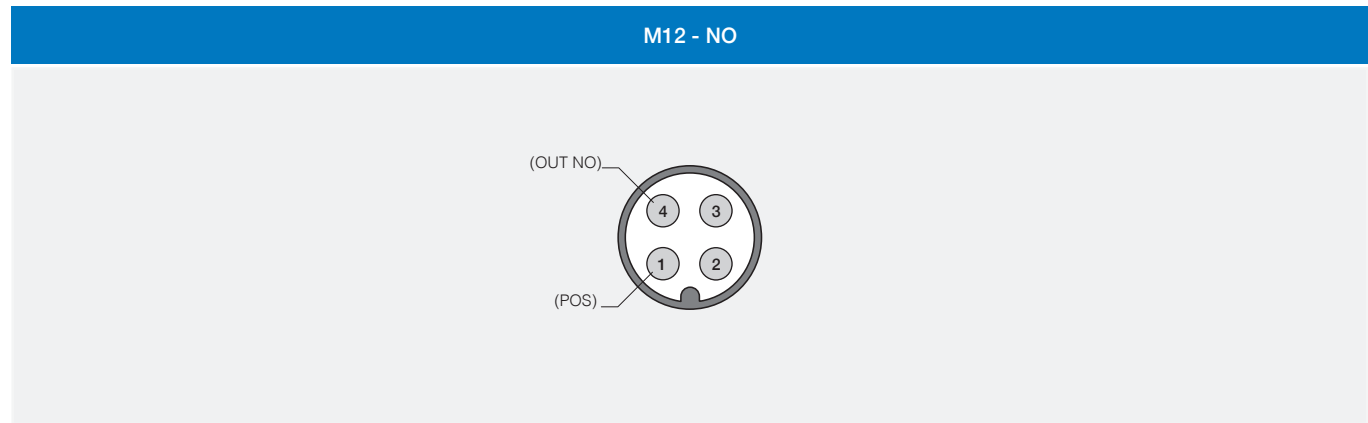
### plug

3 wires versions

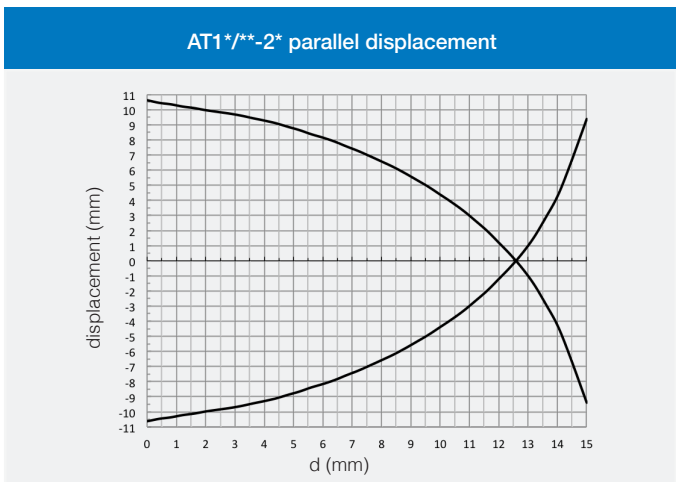
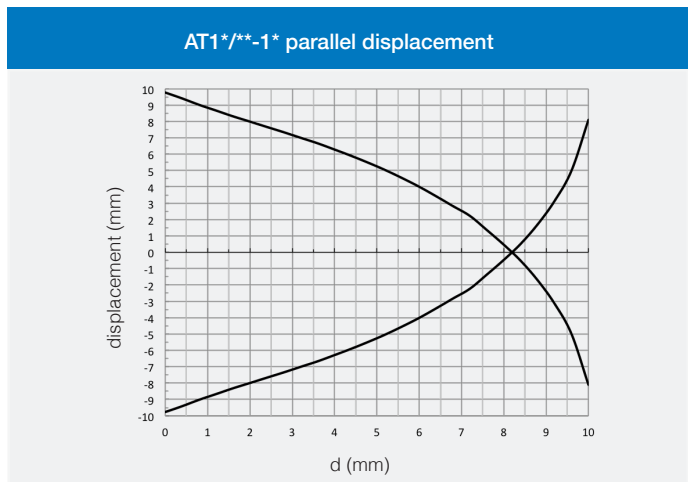


### plug

2 wires versions



### response diagram

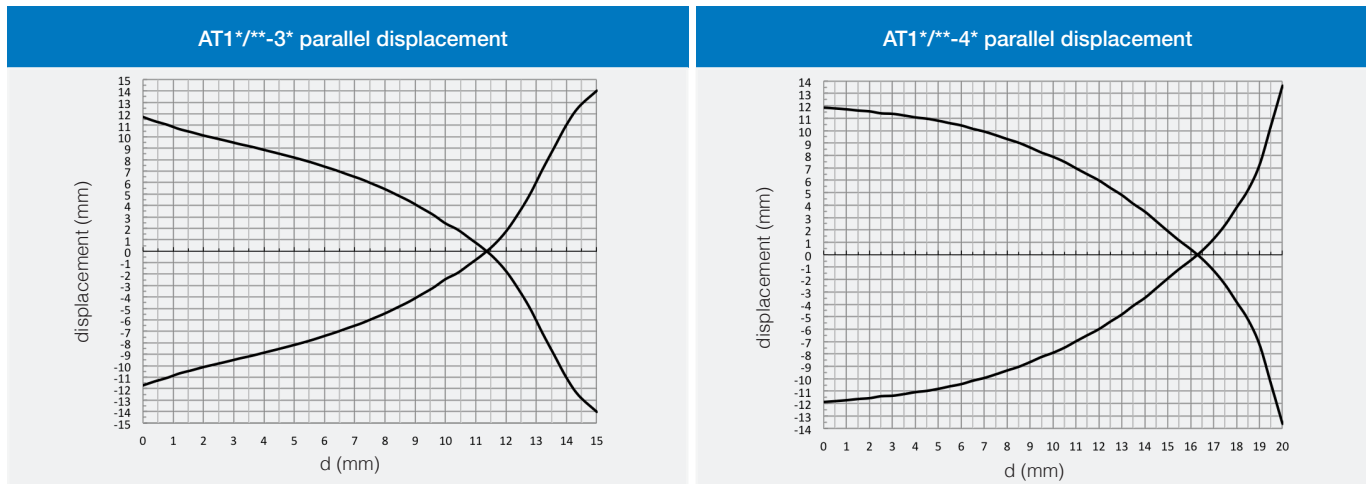


AT

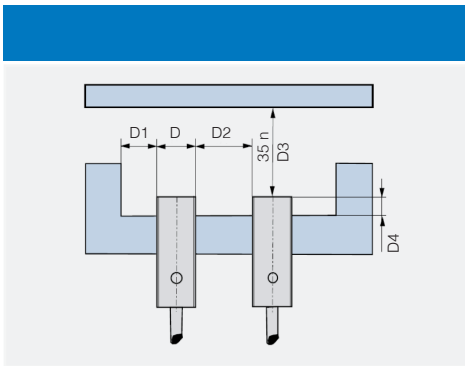


## response diagram

M30 cylindrical



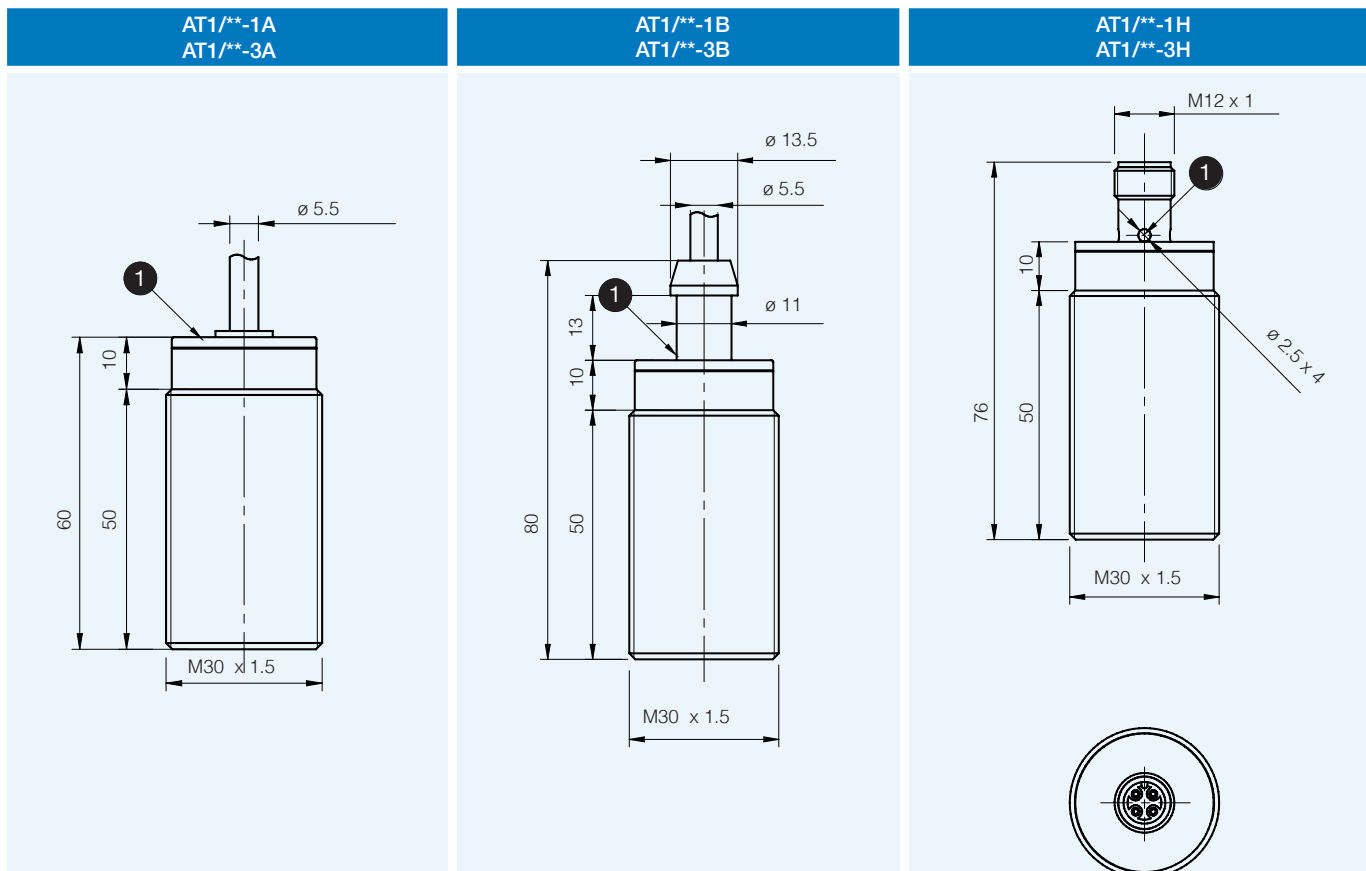
## installation



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

<sup>(1)</sup> ≥ for non magnetic materials

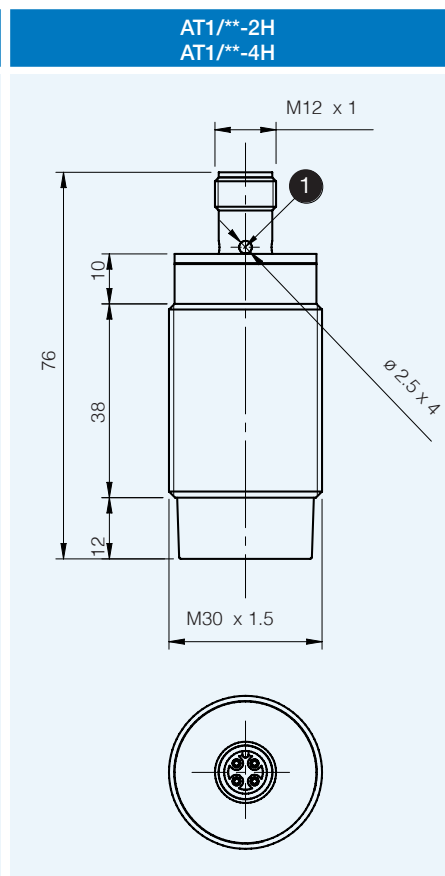
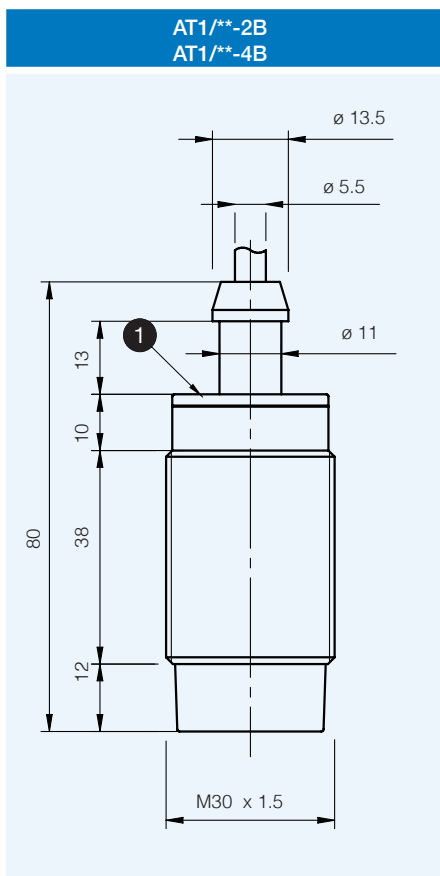
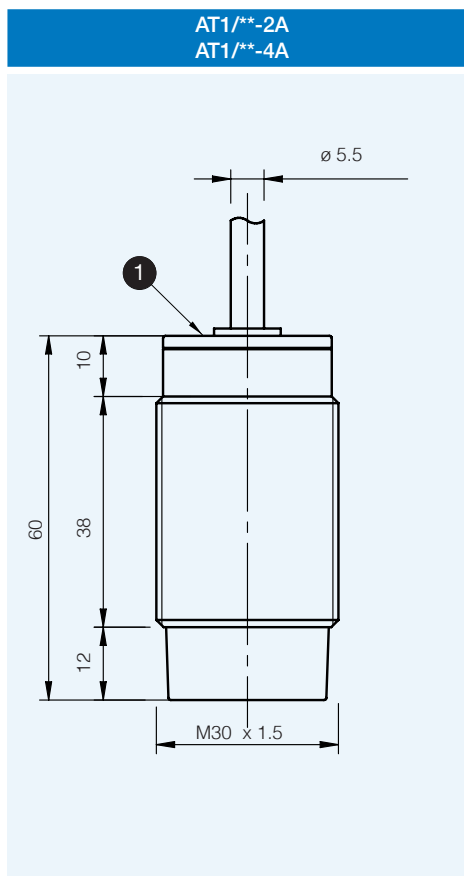
## dimensions (mm)



AT



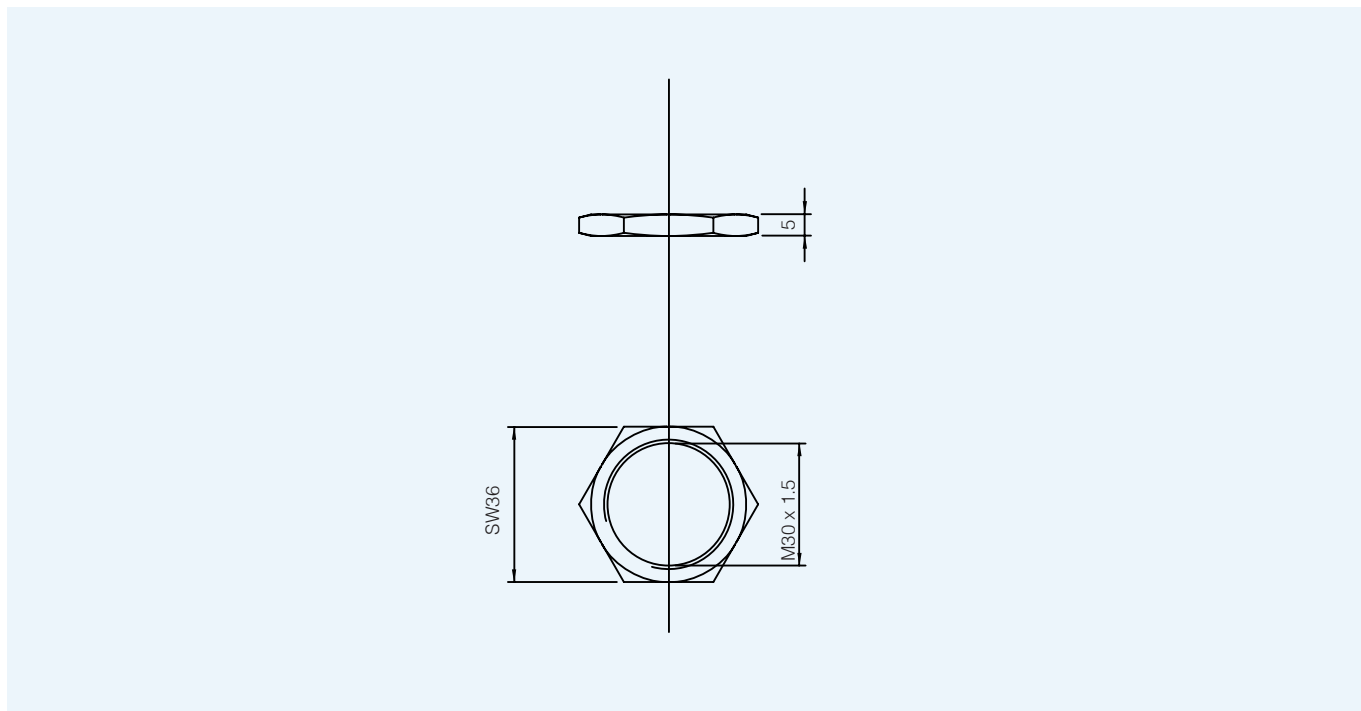
M30 cylindrical



1 LED

## dimensions (mm)

accessories included in all models



AT