



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.



M18 cylindrical

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		AK1/A0-3H
	unshielded		cable	12	AK1/A0-4A
			M12		AK1/A0-4H

AK

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



M18 cylindrical

AK

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			

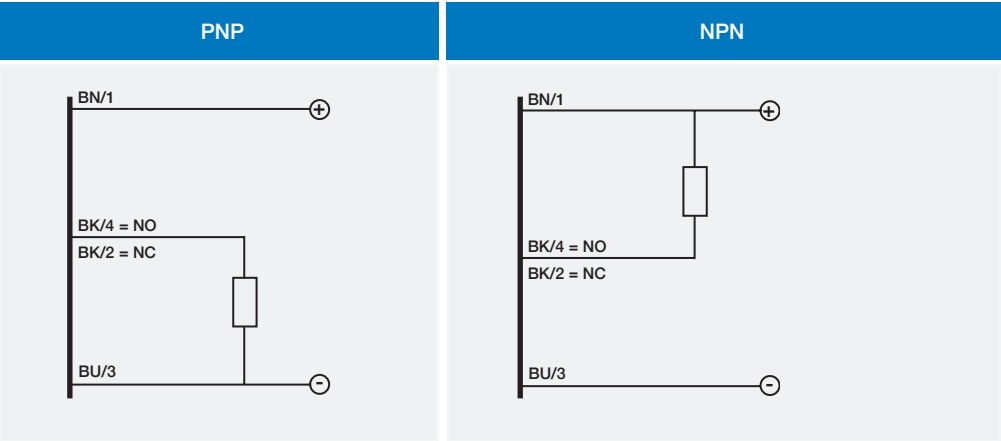
⁽¹⁾ Protection guaranteed only with plug cable well mounted

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

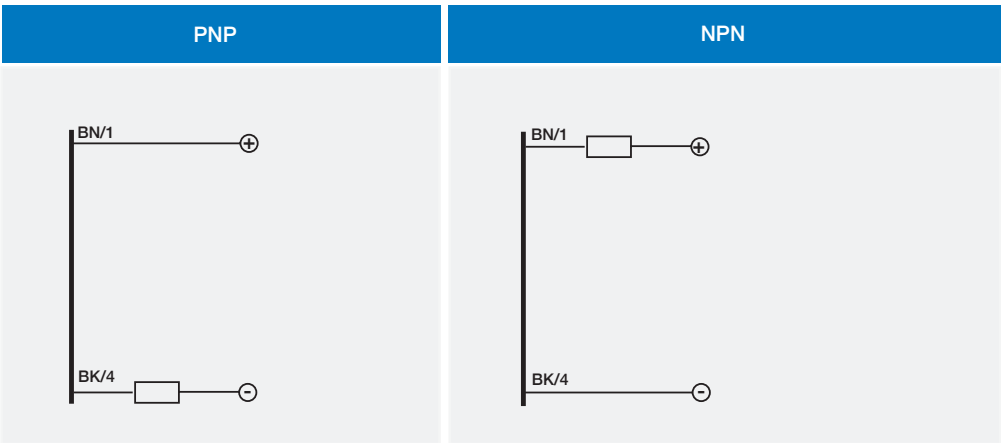
3 wires versions



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

electrical diagrams of connections

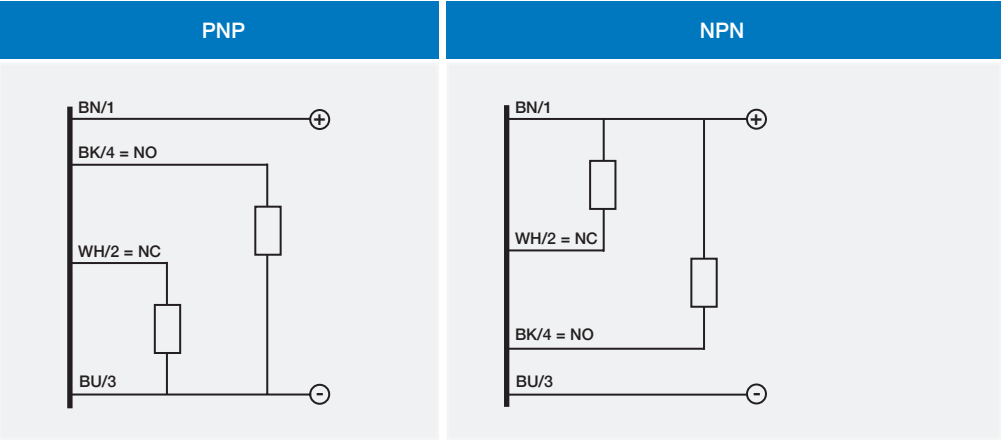
2 wires versions



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

electrical diagrams of connections

complementary outputs versions



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



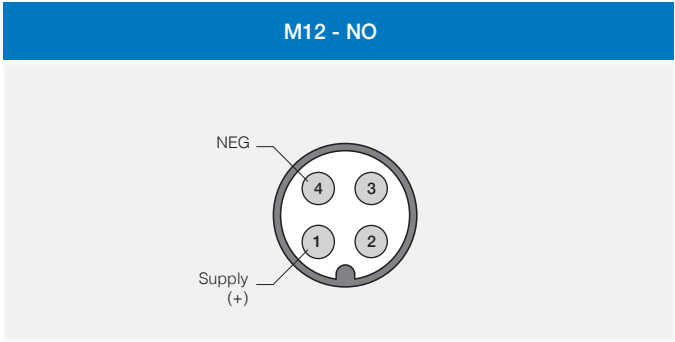
plug

3 wires versions



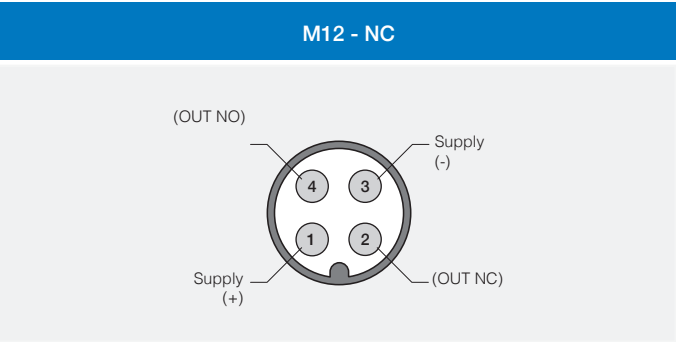
plug

2 wires versions



plug

versioni complementary outputs versions



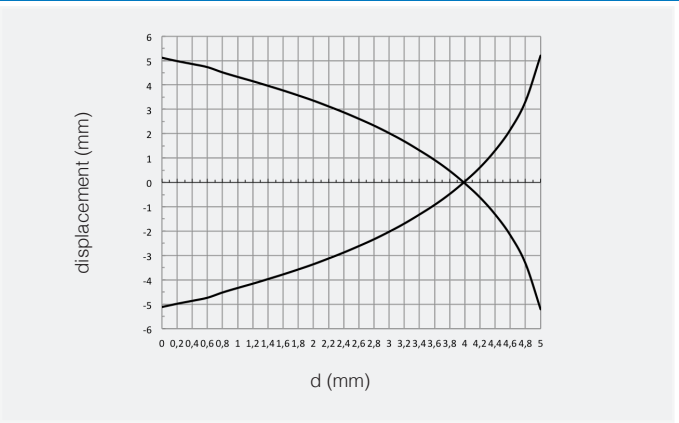
installation

	code	D4	D1	D2	D3
	AK/**-1*	≥ 0 mm	≥ 9 mm	≥ 18 mm	≥ 15 mm
	AK/**-2* -	≥ 8 mm ⁽¹⁾	≥ 18 mm	≥ 36 mm	≥ 24 mm
	AK1/**-3*	≥ 1.8 mm	≥ 9 mm	≥ 18 mm	
	AK1/**-4*	≥ 12 mm	≥ 18 mm	≥ 36 mm	≥ 36 mm
	AK6/**-1*	≥ 1 mm ⁽²⁾	≥ 9 mm	≥ 18 mm	≥ 15 mm
	AK6/**-2*	≥ 11 mm ⁽³⁾	≥ 18 mm	≥ 36 mm	≥ 24 mm
	AK6/**-3*	≥ 3 mm ⁽²⁾	≥ 9 mm	≥ 18 mm	
	AK6/**-4*	≥ 13 mm ⁽⁵⁾	≥ 18 mm	≥ 36 mm	≥ 36 mm

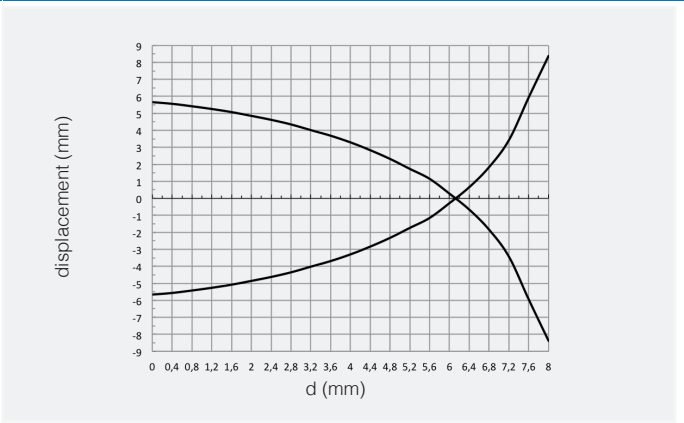
⁽¹⁾ ≥ 5.4 mm for not magnetic materials



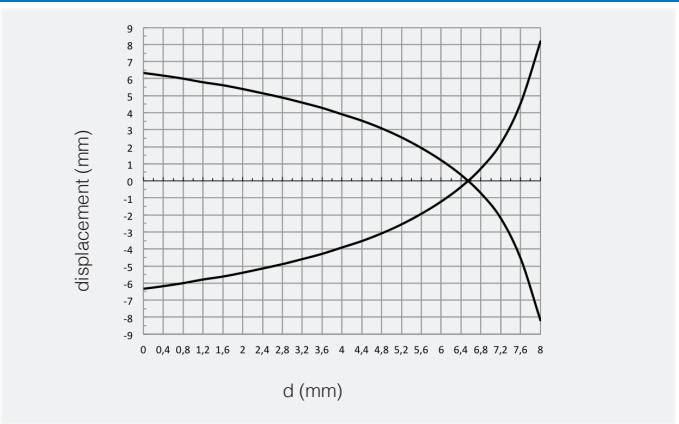
AK1/**-1* parallel displacement



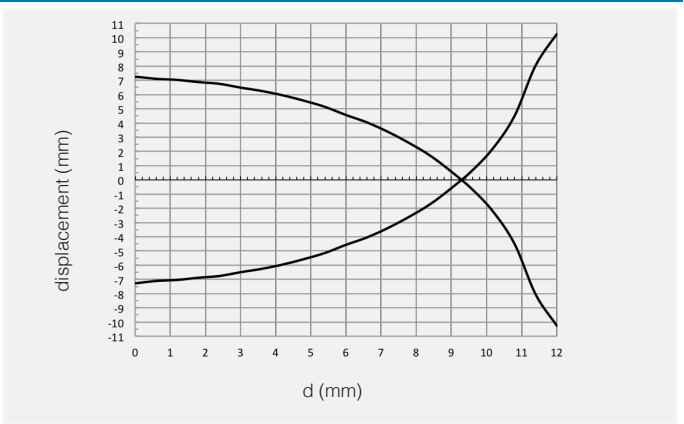
AK1/**-2* parallel displacement



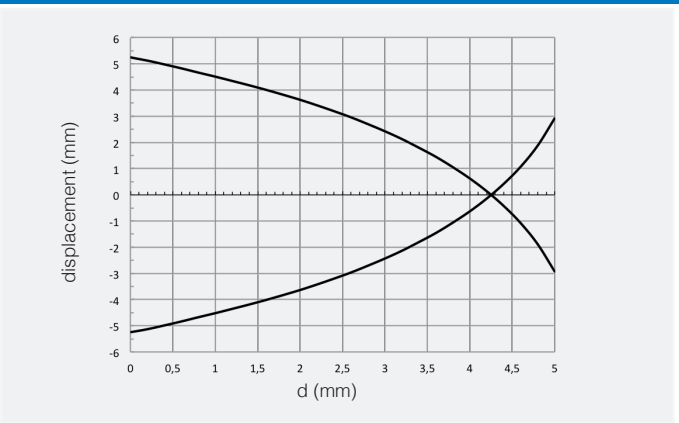
AK1/**-3* parallel displacement



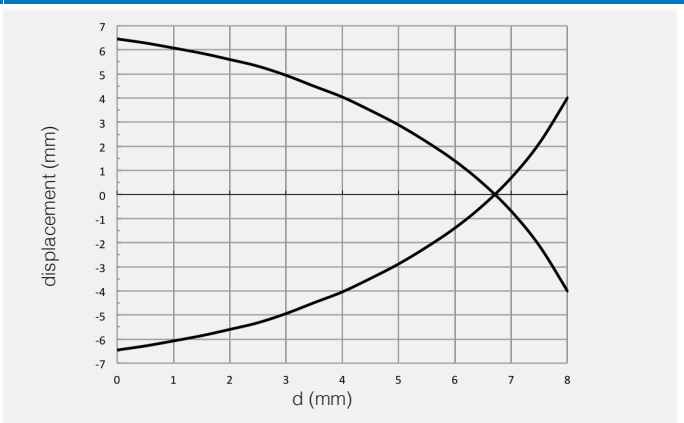
AK1/**-4* parallel displacement



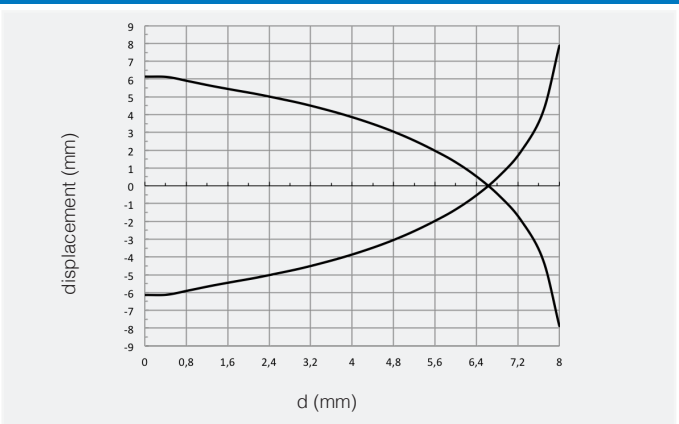
AK6/**-1* parallel displacement



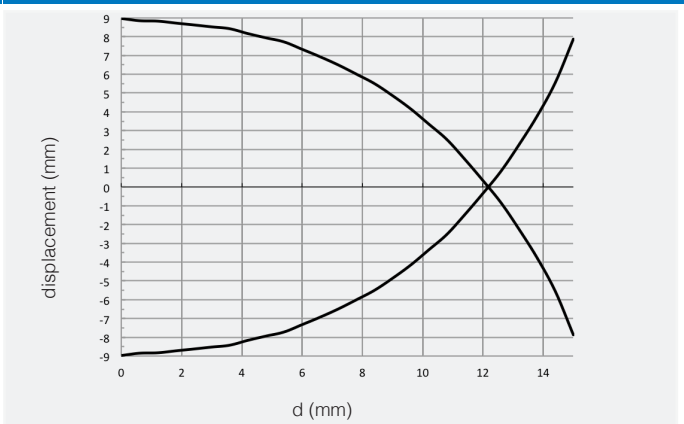
AK6/**-2* parallel displacement



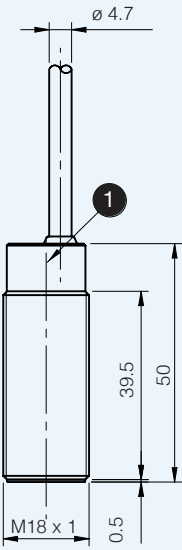
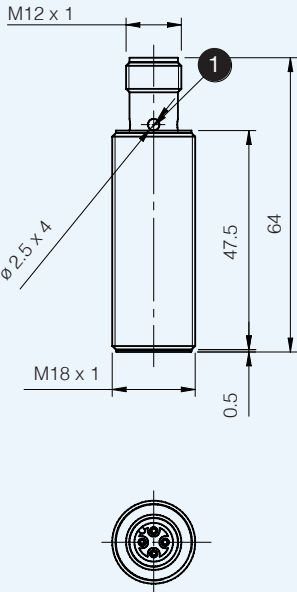
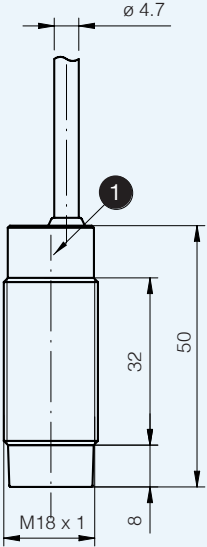
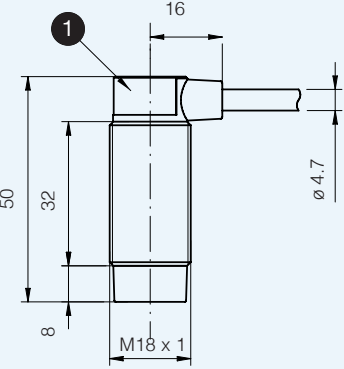
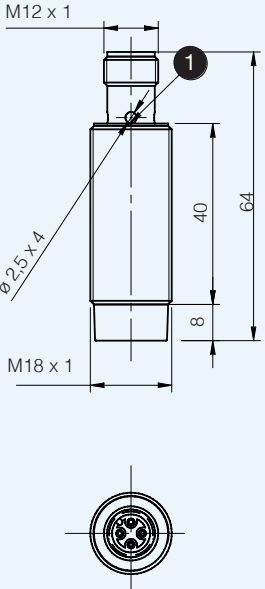
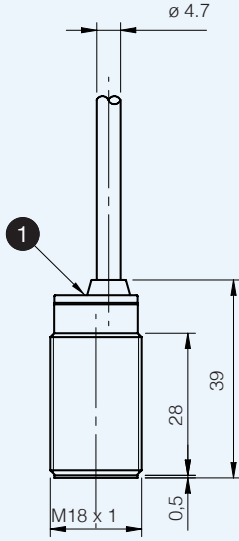
AK6/**-3* parallel displacement



AK6/**-4* parallel displacement



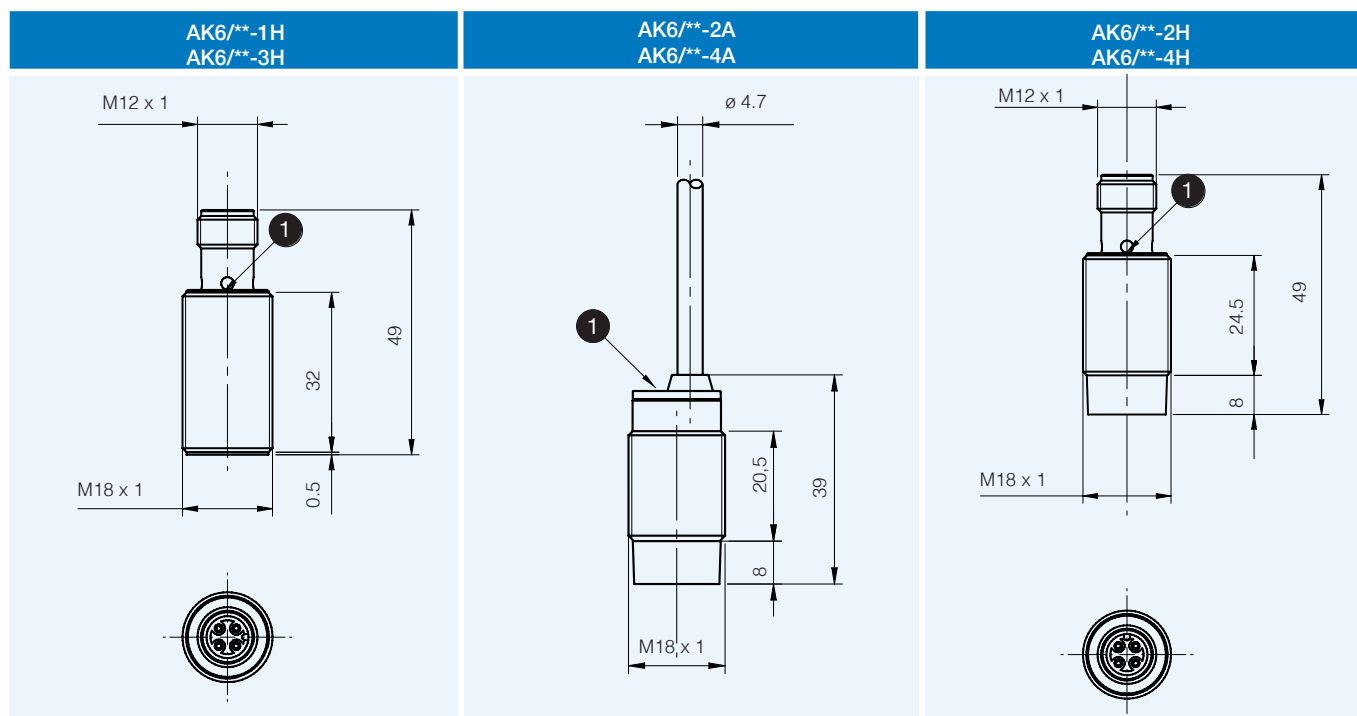
dimensions (mm)

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



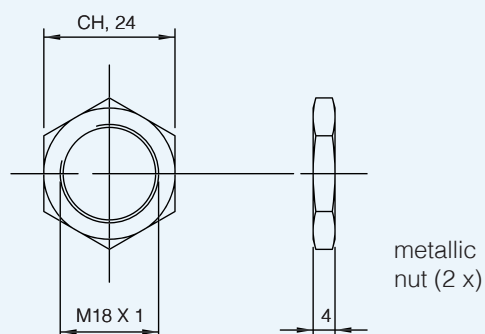
M18 cylindrical



1 LED

dimensions (mm)

accessories included



EU Declaration of Conformity

UE DICHIARAZIONE DI CONFORMITA', UE DECLARACIÓN DE CONFORMIDAD, UE DÉCLARATION DE CONFORMITÉ, EU KONFORMITÄTSEKTLÄRUNG, EU CONFORMITEITSVERKLARING, EU FÖRSÄKRAN OM ÖVERENSSTÄMMELSE

Manufacturer / Produttore / Fabricante / Fabricant / Hersteller / Fabrikant / Tillverkaren

Datasensing S.r.l.

Strada S. Caterina 235, 41122 Modena - Italy

Apparatus / Apparato / Aparato / Appareil / Gerätetyp / Apparaatmodel / Apparatmodell

AK_AN

Proximity Sensor

This declaration of conformity is issued under the sole responsibility of the manufacturer / La presente dichiarazione di conformità è rilasciata sotto la responsabilità esclusiva del fabbricante / La presente declaración de conformidad se expide bajo la exclusiva responsabilidad del fabricante / La présente déclaration de conformité est établie sous la seule responsabilité du fabricant / Die alleinige Verantwortung für die Ausstellung dieser onformitätserklärung trägt der Hersteller / Deze conformiteitsverklaring wordt verstrekt onder volledige verantwoordelijkheid van de fabrikant / Denna försäkran om överensstämmelse utfärdas på tillverkarens eget ansvar.

The object of the declaration described above is in conformity with the relevant Union harmonization legislation: / L'oggetto della dichiarazione di cui sopra è conforme alla pertinente normativa di armonizzazione dell'Unione: / El objeto de la declaración descrita anteriormente es conforme con la legislación de armonización pertinente de la Unión: / L'objet de la déclaration décrit ci-dessus est conforme à la législation d'harmonisation de l'Union applicable: / Der oben beschriebene Gegenstand der Erklärung erfüllt die einschlägigen Harmonisierungsrechtsvorschriften der Union: / Het hierboven beschreven voorwerp is in overeenstemming de desbetreffende harmonisatiewetgeving van de Unie: / Föremålet för försäkran ovan överensstämmer med den relevanta harmoniserade unionslagstiftningen:

2014/30/EU (EMC)

2011/65/EU (RoHS 3)

2014/34/EU (ATEX)

References to the relevant harmonised standards: / Riferimento alle pertinenti norme armonizzate: / Referencias a las normas armonizadas: / Références des normes harmonisées: / Angabe der einschlägigen harmonisierten Normen: / Vermelding van de toegepaste relevante geharmoniseerde normen: / Hänvisningar till de relevanta harmoniserade standarder:

EN60079-0:2018, EN IEC 60079-7:2015/A1:2018, EN60079-31:2014, EN IEC 60947-5-2:2020, EN60947-5-7:2003, EN IEC 63000:2018

to the protection mode/al
modo di protezione



**II 3G Ex ec nC IIC T6 Gc
II 3D Ex tc IIIB T85°C Dc (connector)
II 3G Ex nC IIC T6 Gc
II 3D Ex tc IIIB T85°C Dc (cable)**

Certificate nr.
Nr. Certificato

0802009X

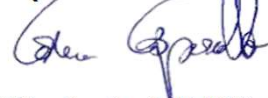
The sign "X" placed after the certificate number indicates that the device or protective system is subject to special conditions for safe use specified in the technical documentation.

Il segno "X" posto dopo il numero di certificato indica che il dispositivo è soggetto a condizioni speciali per l'uso in sicurezza specificate nella documentazione tecnica.

EU 33

**Modena
8/01/2024**

**Cosimo Capuzzello
(Chief Executive Officer)**



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