# AE - AM - AK series

Cylindrical inductive sensors
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

- **Application notes**
- **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/D2-5H |

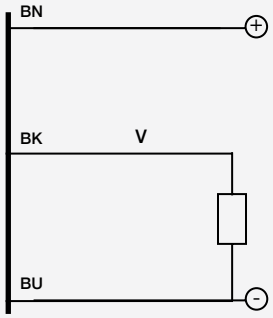
# technical specification

according to IEC EN 60947-5-2

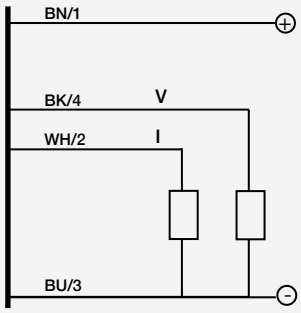
| | AE1/D1-7A | AM1/D2-5A | AM1/D2-5H | AK6/D2-5A | AK6/D2-5H |
|---|---|---|---|---|---|
| |  |  | |  | |
| sensing range Sd | 0...4 mm | 0...6 mm | | 0...10 mm | |
| standard target | 12 x 12 x 1 mm | 18 x 18 x 1 mm | | 30 x 30 x 1 mm | |
| repeatibility | 0.3 mm (UB = 20...30 Vdc TA= 23°C ± 5°C | | | | |
| repeatibility (TA=cost.) | ± 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<br>S = 0 MM | 0 V - 0 + 0.4 V (23°C) | | | | |
| S = 1/2 Sd | + 5,2 V ± 0.4 V (23°C) | | | | |
| S = Sd | + 10 V ± 0.4 V (23°C) | | | | |
| load current at: A1 | ≤ 10 mA | | | | |
| output current A2<br>S = 0 mm | - | 4 mA ± 0.8 mA (23°C) | | | |
| S = Sd | | 20 mA ± 0.8 mA (23°C) | | | |
| max load at: A2 | - | 500 Ω (UB = 15 V) / 1K 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<br>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) | | | | |

## electrical diagrams of connections

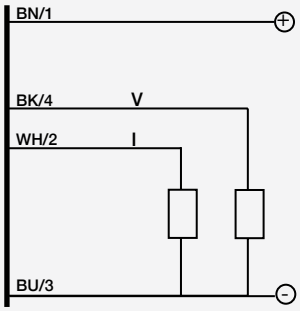
### M8




### M12



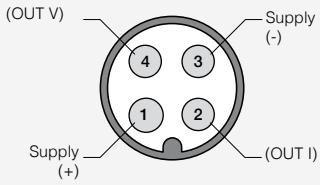

### M18



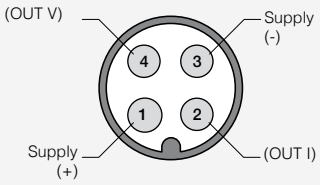

| | |
|---|---|
| **BN** | brown |
| **BU** | blue |
| **BK** | black |
| **WH** | white |

## plug

### M12

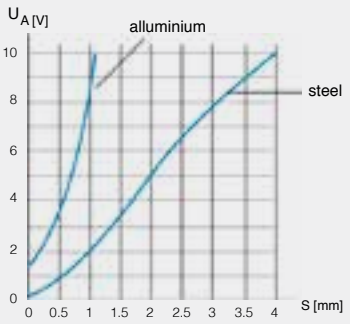



### M18

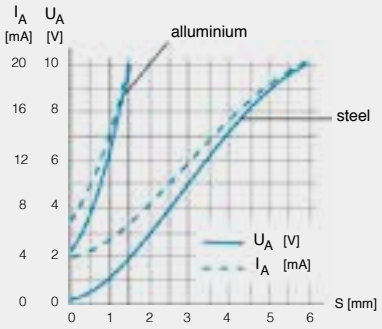


## response diagram

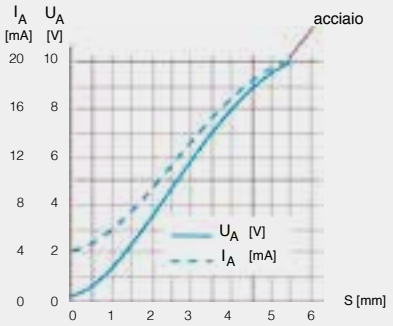
### M8




### M12

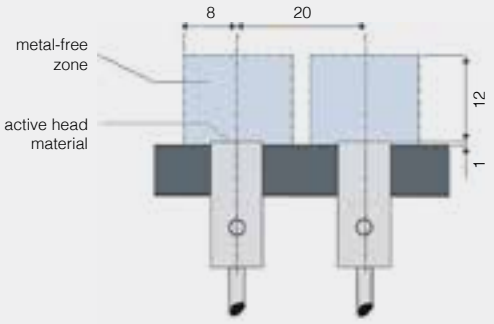



### M18

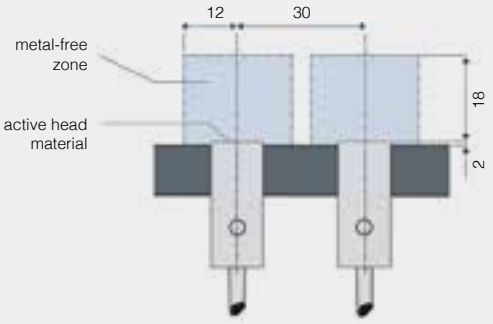



## installation

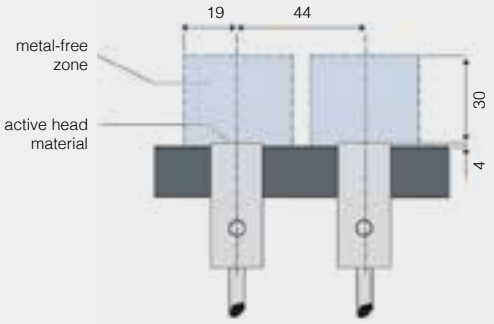
### M8




### M12

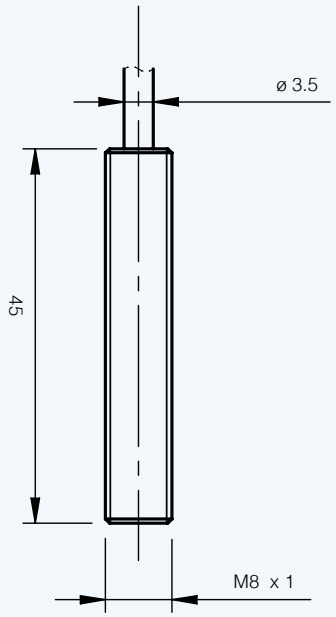



### M18



## dimensions (mm)

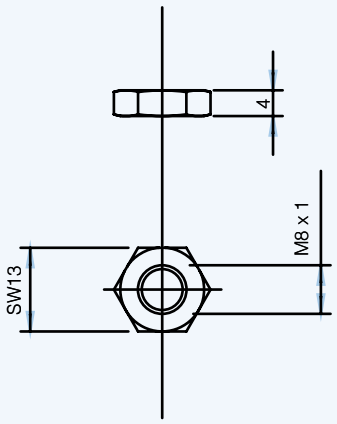
**AE1/D1-5A**




## dimensions (mm)

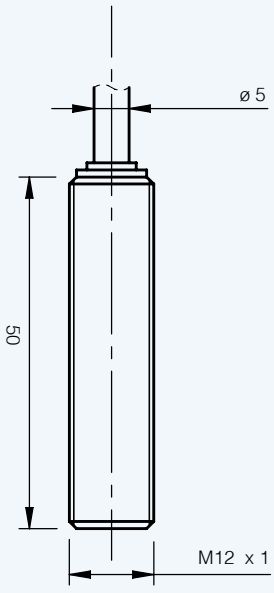
accessories included in all M8 models

metallic
nut (2 x)

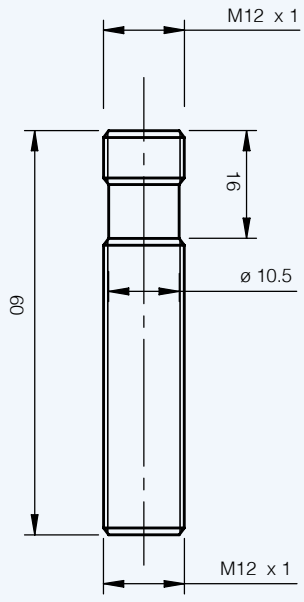



## dimensions (mm)

**AM1/D2-5A**

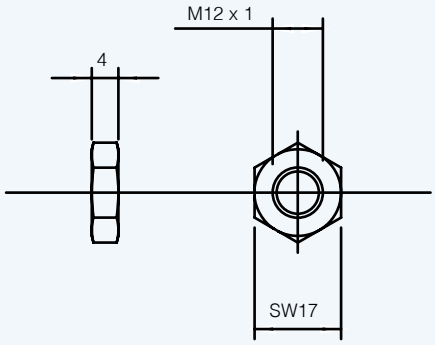



**AM1/D2-5H**



## dimensions (mm)

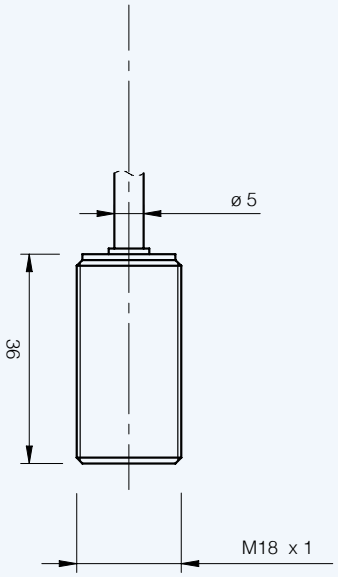
accessories included in all M12 models

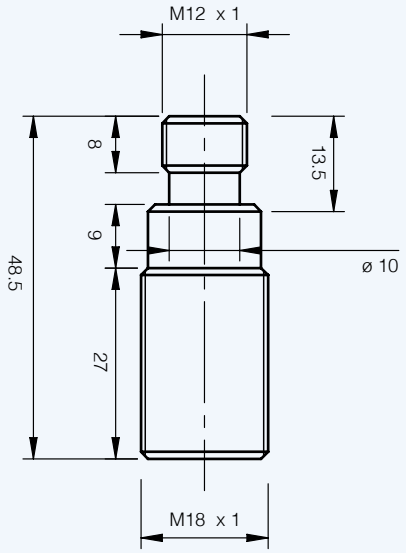



metallic
nut (2 x)

## dimensions

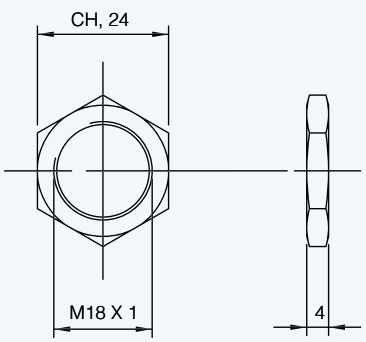
| AK6/D2-5A | AK6/D2-5H |
|---|---|




## dimensions (mm)

accessories included in all M18 models




metallic
nut (2 x)