



# AT series

M30 cylindrical inductive sensors



M30 cylindrical inductives

## 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                  |   |   |   |   |   |   |
|              | 6  | Short body                     |   |   |   |   |   |   |
| output state | A  | NO output state                |   |   |   |   |   |   |
|              | C  | NC output state                |   |   |   |   |   |   |
|              | B  | 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

| diameter | installation | distance      | plug | distance (mm) | PNP/NO+NC |
|----------|--------------|---------------|------|---------------|-----------|
| M30      | shielded     | standard      | M12  | 10            | AT1/BP-1H |
|          | unshielded   |               |      | 15            | AT1/BP-2H |
|          | shielded     | long distance |      |               | AT1/BP-3H |
|          | unshielded   |               |      | 20            | AT1/BP-4H |

## available models

### 3 wires standard housing

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

## available models

### DC 2 wires models

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

## available models

### short housing

| diameter | plug  | distance      | installation | distance (mm) | NPN/NO    | PNP/NO    | NPN/NO+NC | PNP/NO+NC |
|----------|-------|---------------|--------------|---------------|-----------|-----------|-----------|-----------|
| M30      | cable | standard      | shielded     | 10            | AT6/AN-1A | AT6/AP-1A | AT6/BN-1A | AT6/BP-1A |
|          |       |               | unshielded   | 15            | AT6/AN-2A | AT6/AP-2A | AT6/BN-2A | AT6/BP-2A |
|          |       | long distance | shielded     | 15            | AT6/AN-3A | AT6/AP-3A | AT6/BN-3A | AT6/BP-3A |
|          |       |               | unshielded   | 20            | AT6/AN-4A | AT6/AP-4A | AT6/BN-4A | AT6/BP-4A |
|          | M12   | standard      | shielded     | 10            | AT6/AN-1H | AT6/AP-1H | AT6/BN-1H | AT6/BP-1H |
|          |       |               | unshielded   | 15            | AT6/AN-2H | AT6/AP-2H | AT6/BN-2H | AT6/BP-2H |
|          |       | long distance | shielded     | 15            | AT6/AN-3H | AT6/AP-3H | AT6/BN-3H | AT6/BP-3H |
|          |       |               | unshielded   | 20            | AT6/AN-4H | AT6/AP-4H | AT6/BN-4H | AT6/BP-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 M12                                                                              |                                                                                   |                                                                                     |                                                                                     |
| tightening torque           | 50 Nm                                                                                                 |                                                                                   |                                                                                     |                                                                                     |

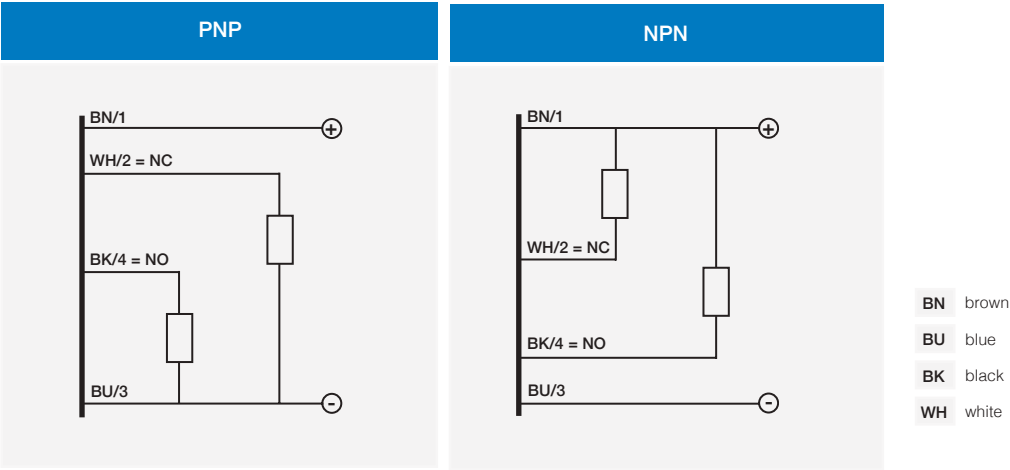
<sup>(1)</sup> Protection guaranteed only with plug cable well mounted.

## correction factors

| code      | steel FE 360 | copper | alluminium | brass | stainless steel |
|-----------|--------------|--------|------------|-------|-----------------|
| AT1/**-1* | 1            | 0.35   | 0.45       | 0.50  | 0.75            |
| AT1/**-2* |              | 0.45   | 0.50       | 0.55  | 0.80            |
| AT1/**-3* |              | 0.35   | 0.45       | 0.50  | 0.70            |
| AT1/**-4* |              | 0.45   | 0.50       | 0.55  | 0.75            |
| AT6/**-1* |              | 0.41   | 0.47       | 0.52  | 0.84            |
| AT6/**-2* |              | 0.44   | 0.49       | 0.53  | 0.80            |
| AT6/**-3* |              | 0.41   | 0.47       | 0.52  | 0.80            |
| AT6/**-4* |              | 0.46   | 0.50       | 0.54  | 0.78            |

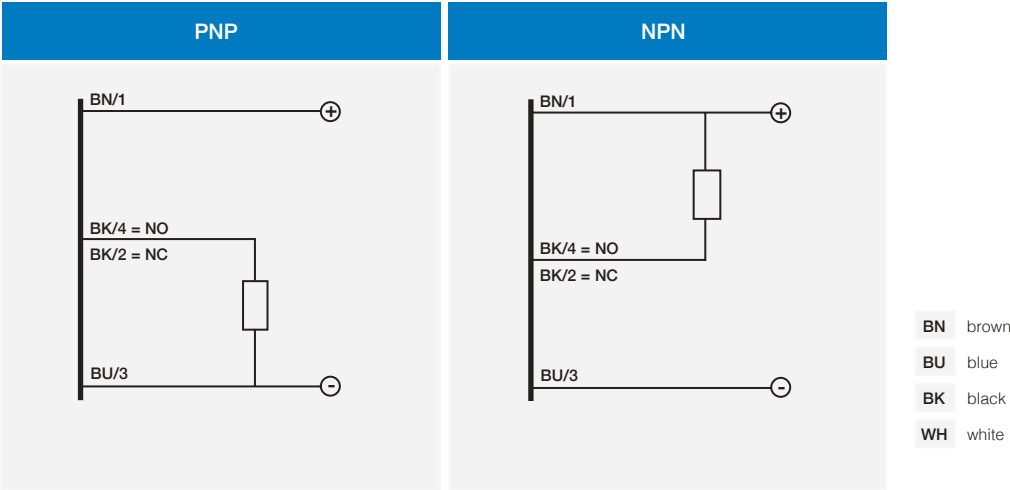
# electrical diagrams of connections

4 wires versions



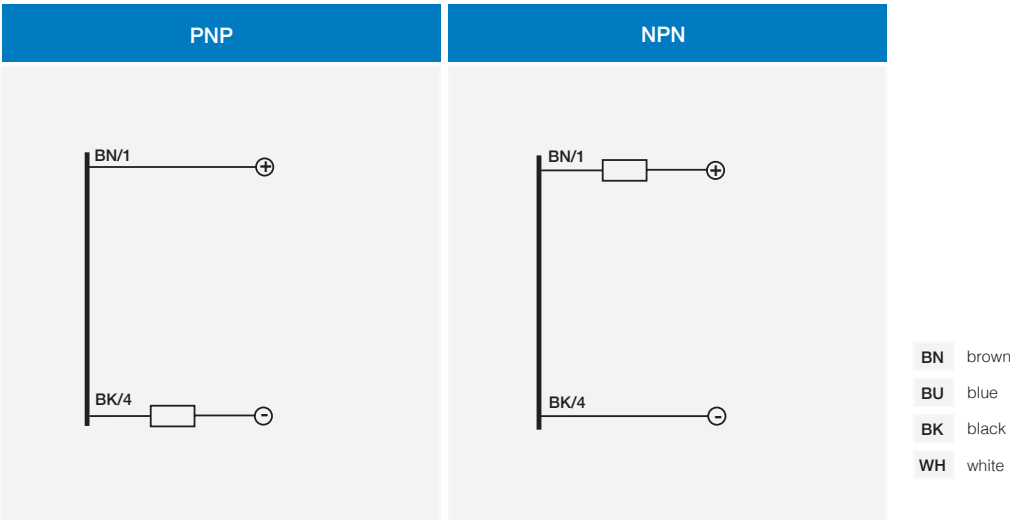
# electrical diagrams of connections

3 wires versions



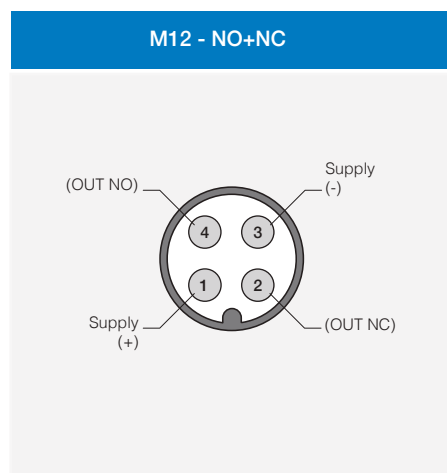
# electrical diagrams of connections

2 wires versions



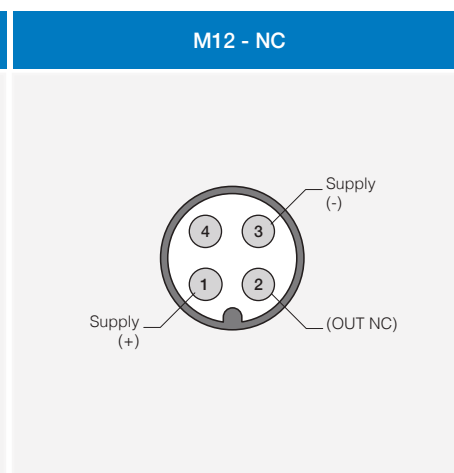
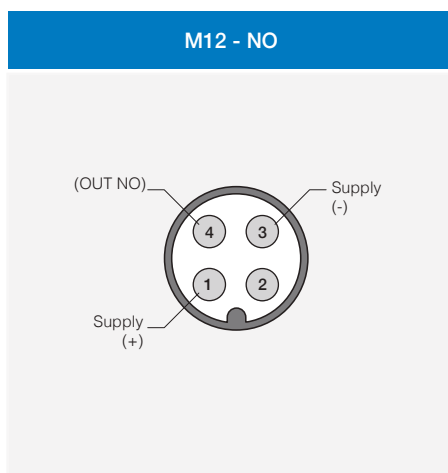
## plug

4 wires versions



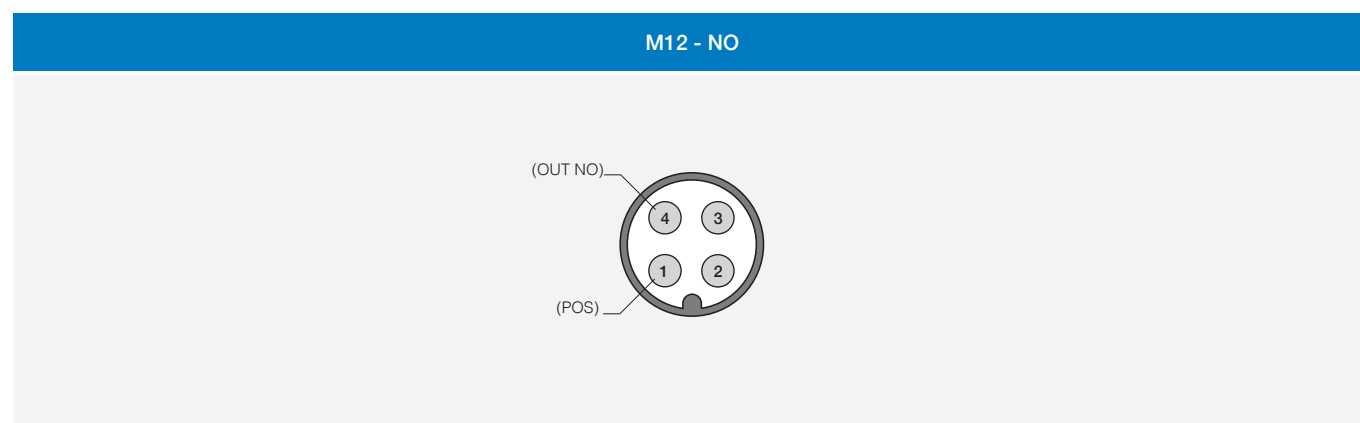
## plug

3 wires versions

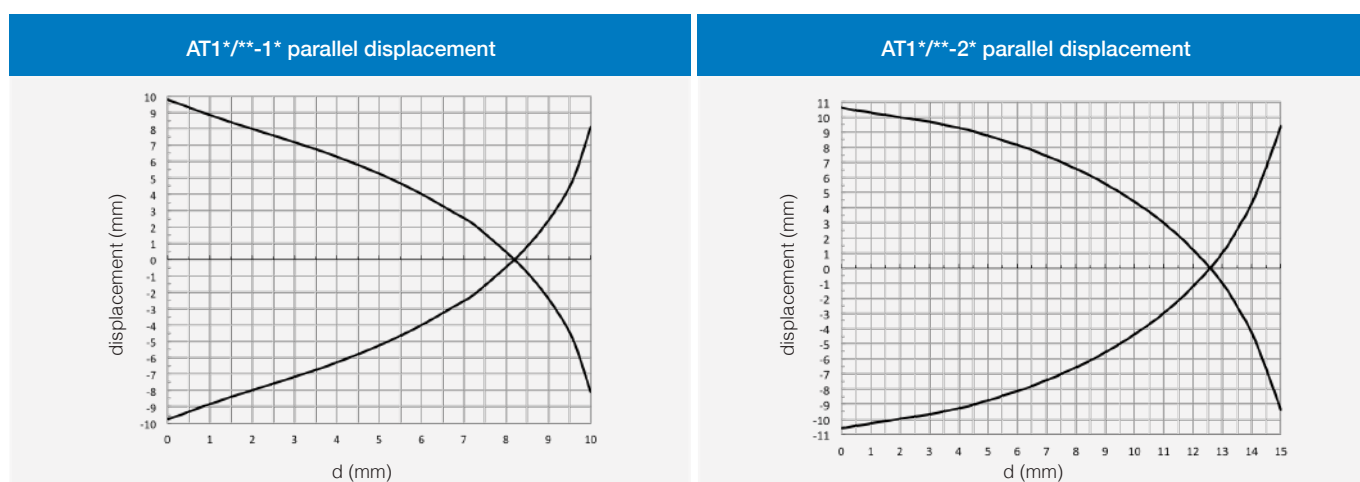


## plug

2 wires versions



## response diagram

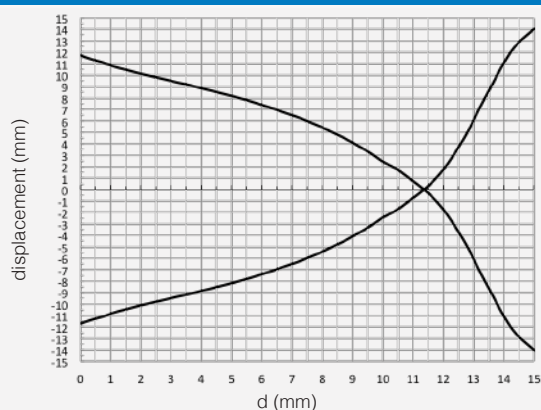


M30 cylindrical inductives

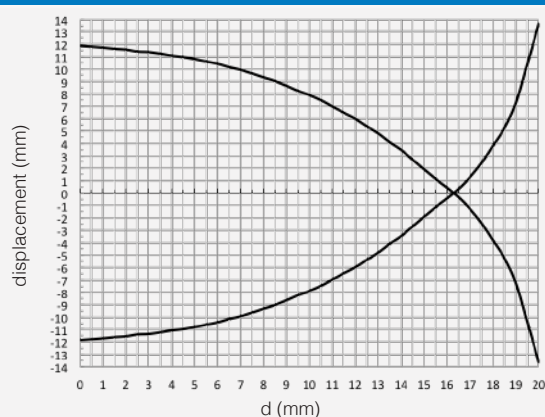
AT

## response diagram

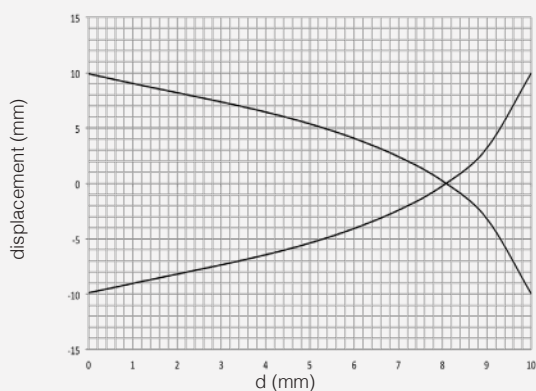
AT1/\*\*-3\* parallel displacement



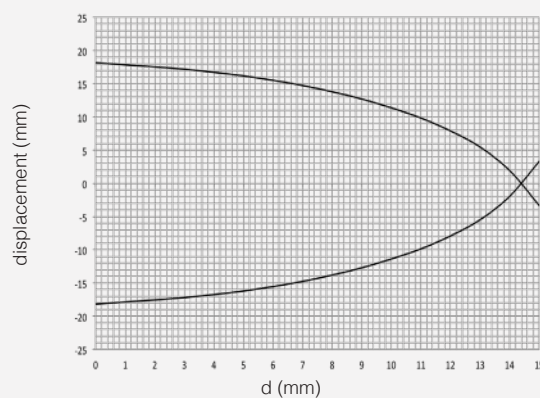
AT1/\*\*-4\* parallel displacement



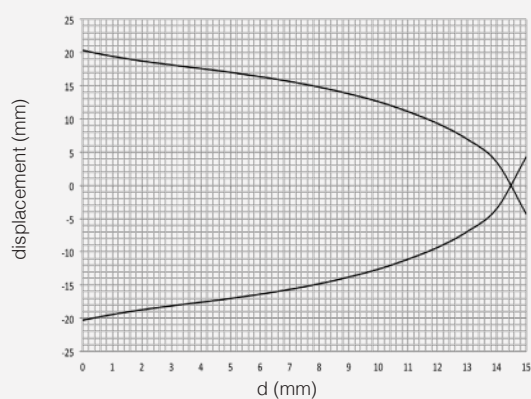
AT6/\*\*-1\* parallel displacement



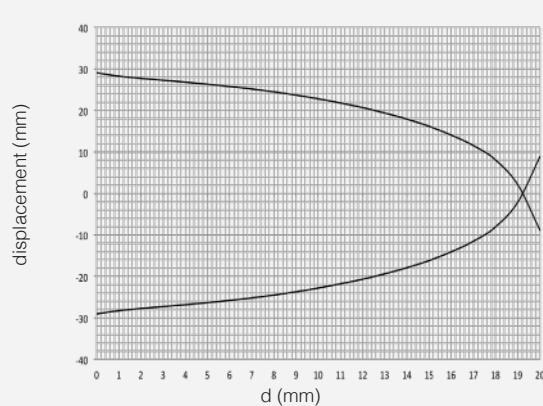
AT6/\*\*-2\* parallel displacement



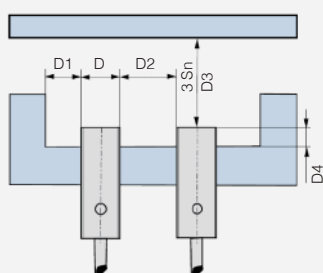
AT6/\*\*-3\* parallel displacement



AT6/\*\*-4\* parallel displacement



## installation

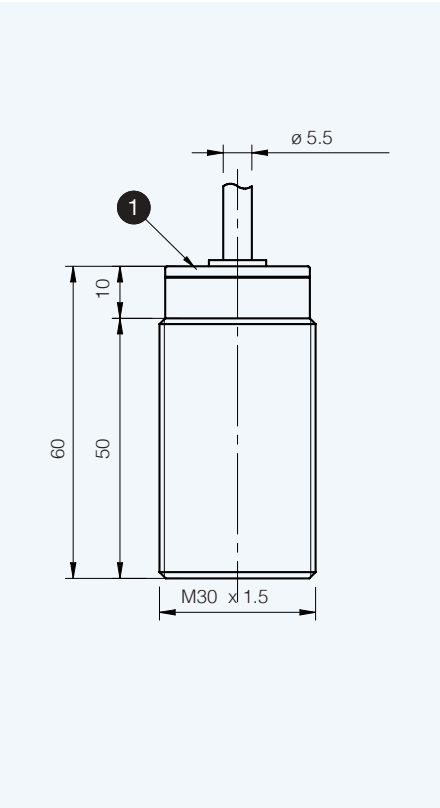


<sup>(1)</sup>  $\geq 9$  mm for non magnetic materials  
<sup>(2)</sup>  $\geq 12$  mm for non magnetic materials  
<sup>(3)</sup>  $\geq 0$  mm for non magnetic materials

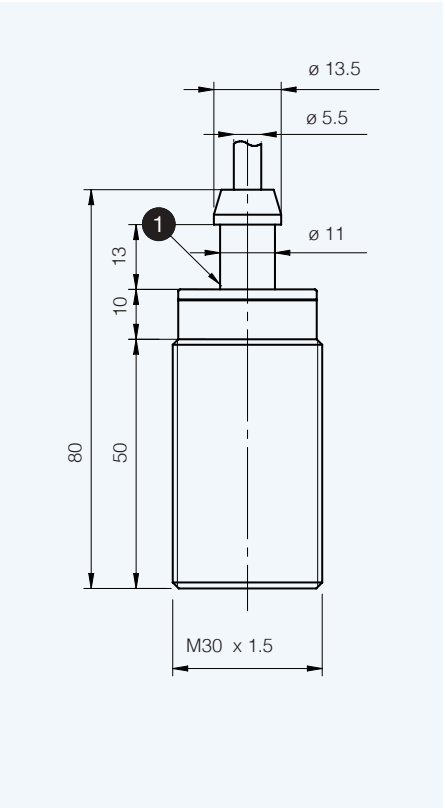
| code      | D4                          | D1           | D2           | D3           |
|-----------|-----------------------------|--------------|--------------|--------------|
| AT1/**-1* | $\geq 0$ mm                 | $\geq 10$ mm | $\geq 30$ mm | $\geq 30$ mm |
| AT1/**-2* | $\geq 18$ mm <sup>(1)</sup> | $\geq 15$ mm | $\geq 45$ mm | $\geq 45$ mm |
| AT1/**-3  | $\geq 3$ mm                 | $\geq 15$ mm | $\geq 40$ mm | $\geq 45$ mm |
| AT1/**-4* | $\geq 20$ mm <sup>(1)</sup> | $\geq 20$ mm | $\geq 60$ mm | $\geq 60$ mm |
| AT6/**-1* | $\geq 0$ mm                 | $\geq 0$ mm  | $\geq 5$ mm  | $\geq 30$ mm |
| AT6/**-2* | $\geq 14$ mm <sup>(2)</sup> | $\geq 15$ mm | $\geq 10$ mm | $\geq 45$ mm |
| AT6/**-3* | $\geq 3$ mm <sup>(3)</sup>  | $\geq 3$ mm  | $\geq 15$ mm | $\geq 45$ mm |
| AT6/**-4* | $\geq 17$ mm <sup>(2)</sup> | $\geq 15$ mm | $\geq 15$ mm | $\geq 60$ mm |



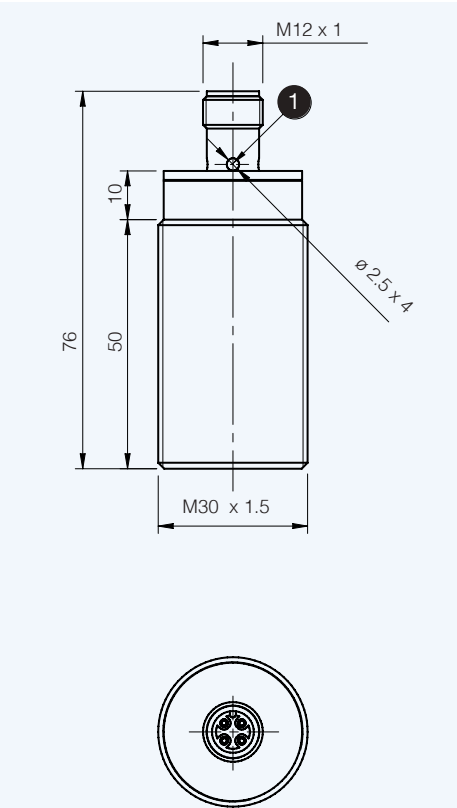
AT1/\*\*-1A  
AT1/\*\*-3A



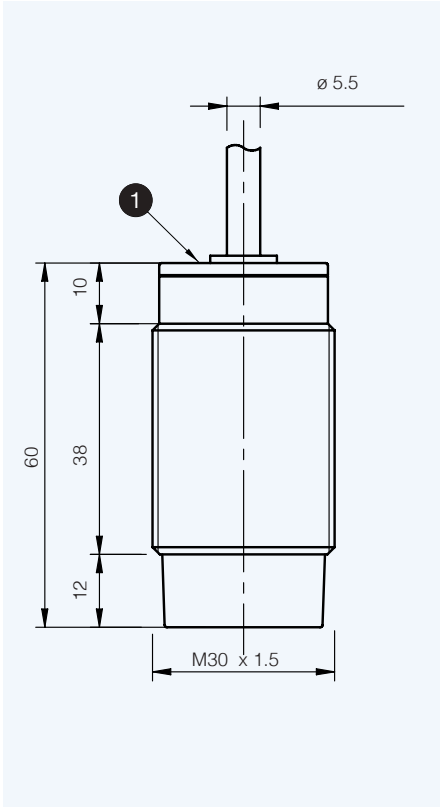
AT1/\*\*-1B  
AT1/\*\*-3B



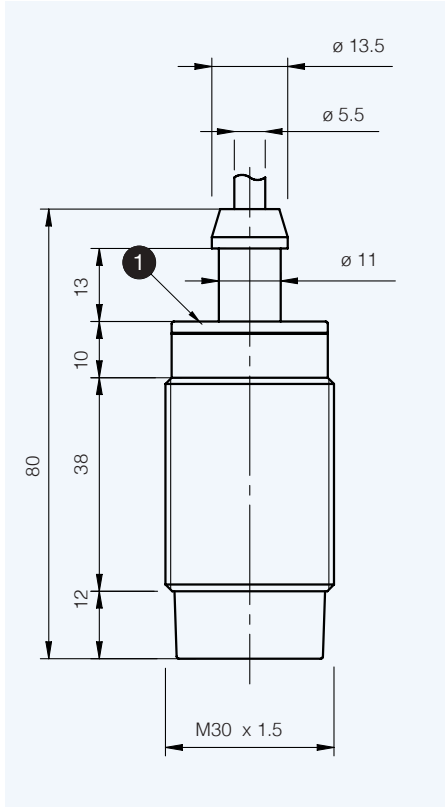
AT1/\*\*-1H  
AT1/\*\*-3H



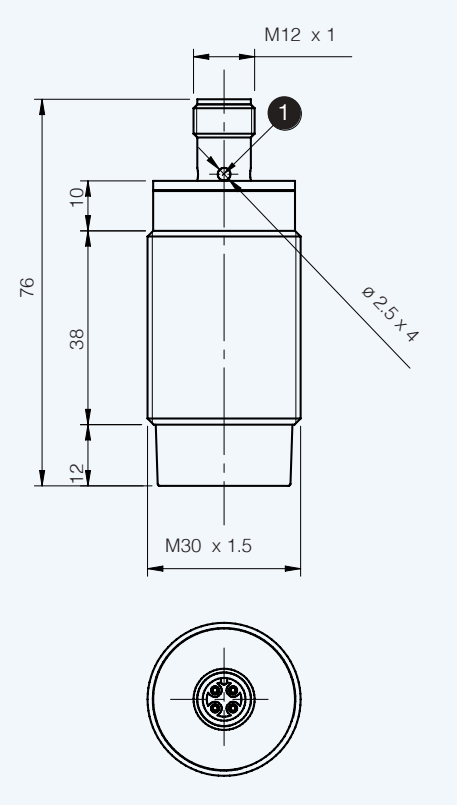
AT1/\*\*-2A  
AT1/\*\*-4A



AT1/\*\*-2B  
AT1/\*\*-4B



AT1/\*\*-2H  
AT1/\*\*-4H

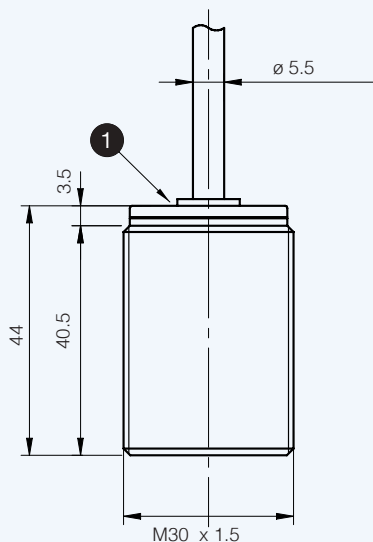


1 LED

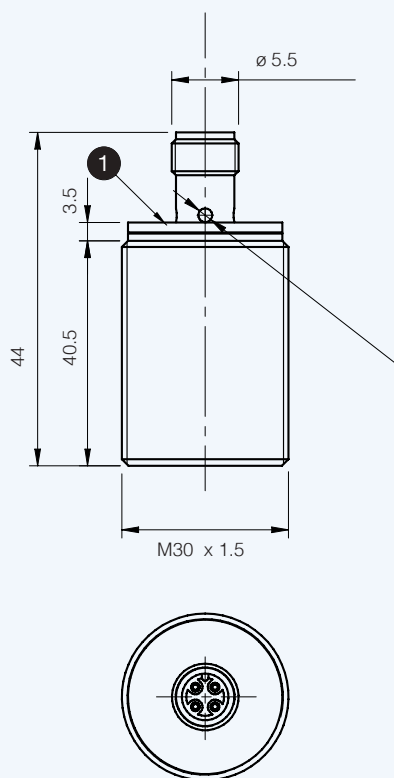


## dimensions (mm)

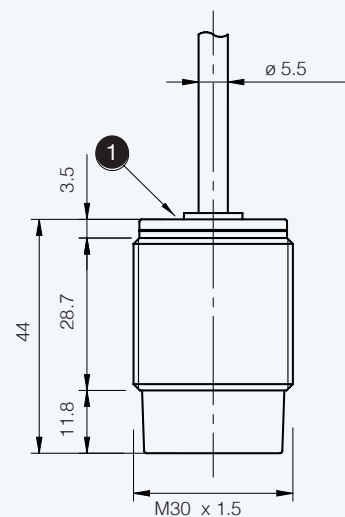
AT6/\*\*-1A  
AT6/\*\*-3A



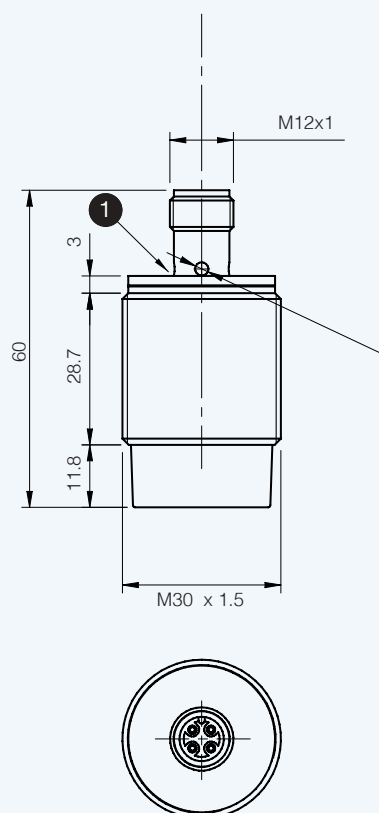
AT6/\*\*-1H  
AT6/\*\*-3H



AT6/\*\*-2A  
AT6/\*\*-4A



AT6/\*\*-2H  
AT6/\*\*-4H



## dimensions (mm)

accessories included in all models

metallic  
nut (2 x)

