



PA series

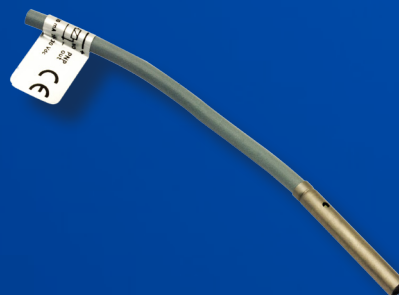
Ø 3 mm cylindrical miniaturized



Ø 3 mm cylindrical miniaturized

features

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



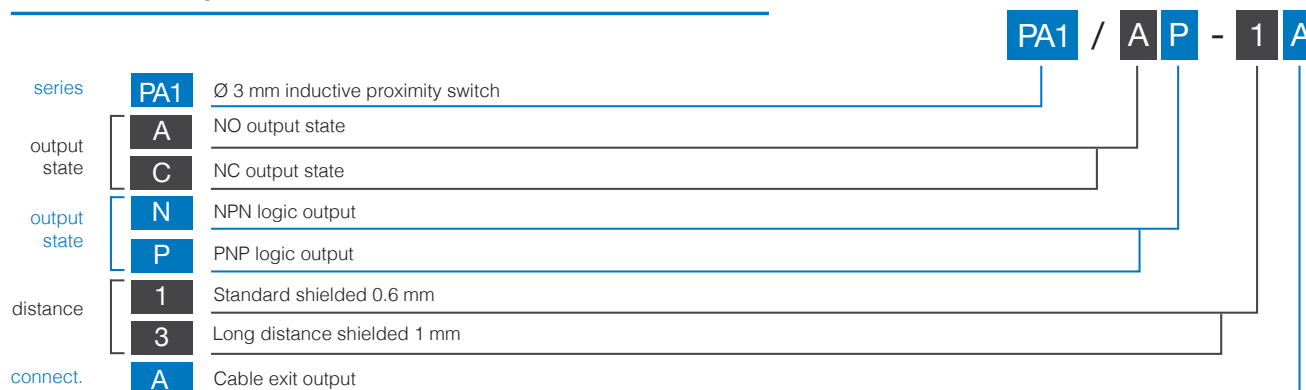
web contents



- Application notes
- Photos
- Catalogue / Manuals



code description





available models

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



technical specification

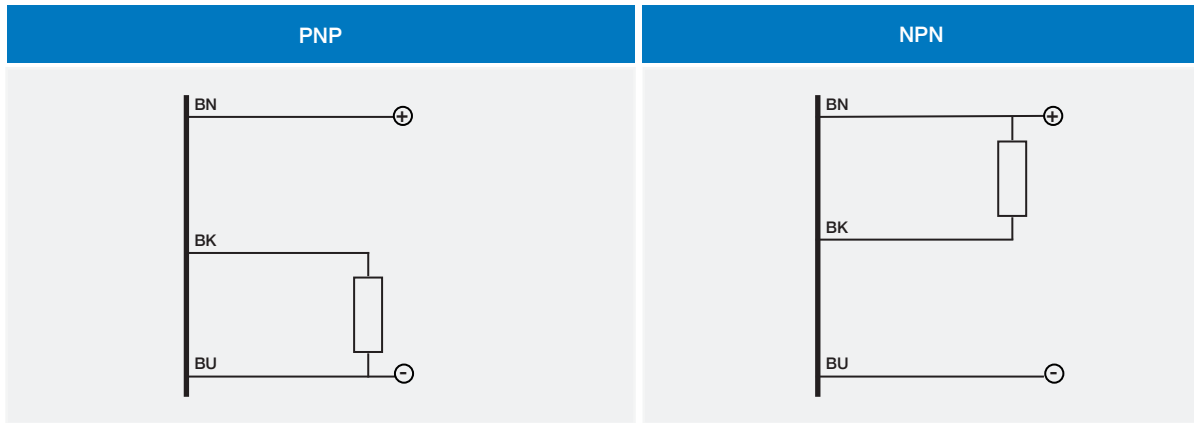
Ø 3 mm cylindrical
miniaturized

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

correction factors

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

electrical diagrams of connections

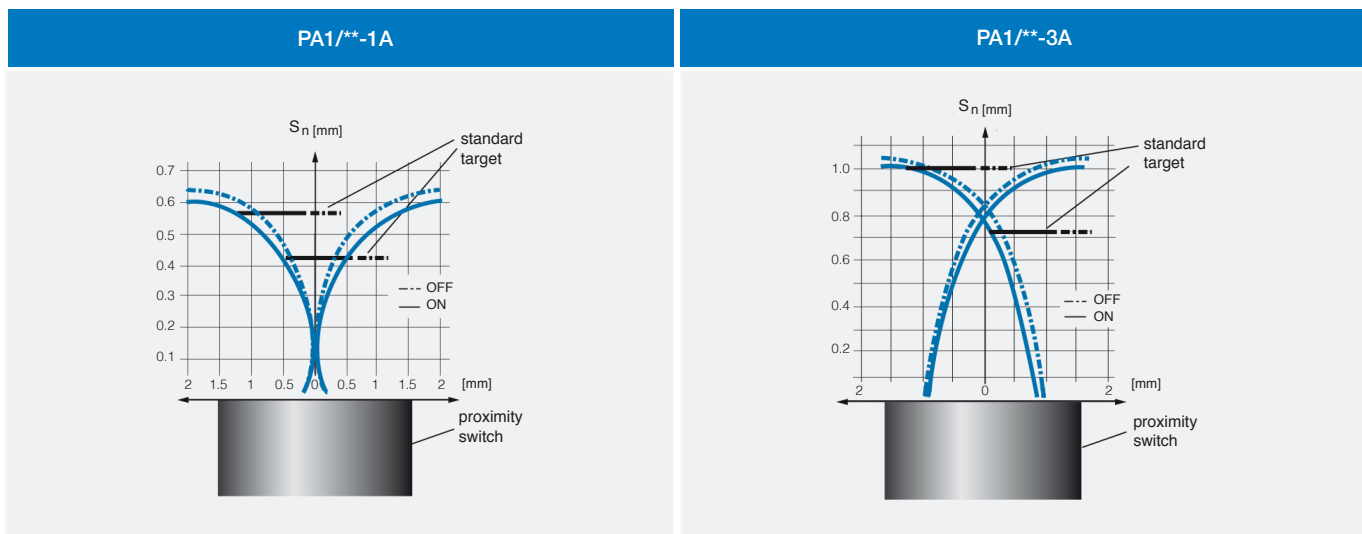


BN brown
 BU blue
 BK black
 WH white

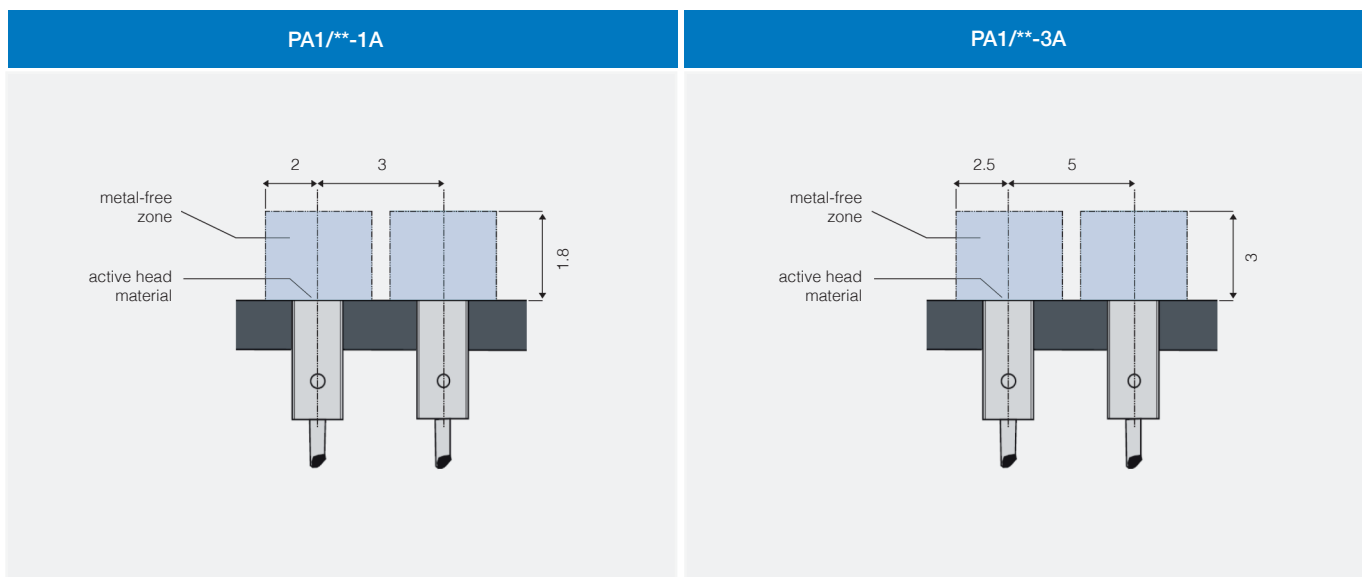


Ø 3 mm cylindrical
 miniaturized

response diagram



installation



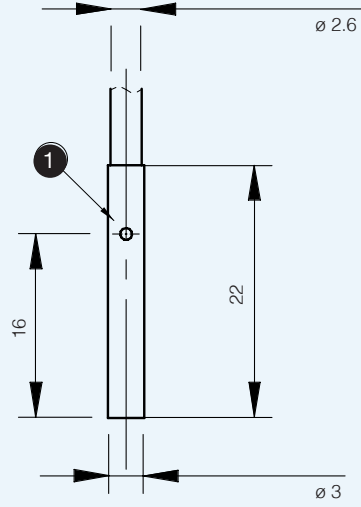
PA



dimensions (mm)

PA1/**-*A

Ø 3 mm cylindrical
miniaturized



1 LED



PB series

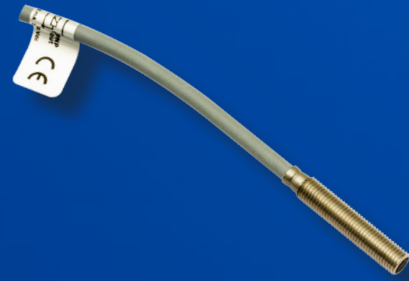
M4 cylindrical
miniaturized



M4 cylindrical
miniaturized

features

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



web contents

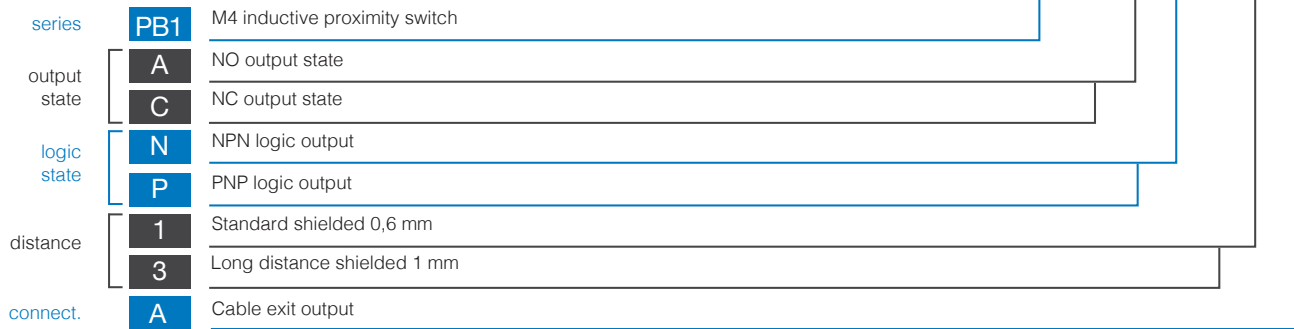


- Application notes
- Photos
- Catalogue / Manuals



code description

PB1 / A P - 1 A





available models

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



technical specification

M4 cylindrical
miniaturized

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

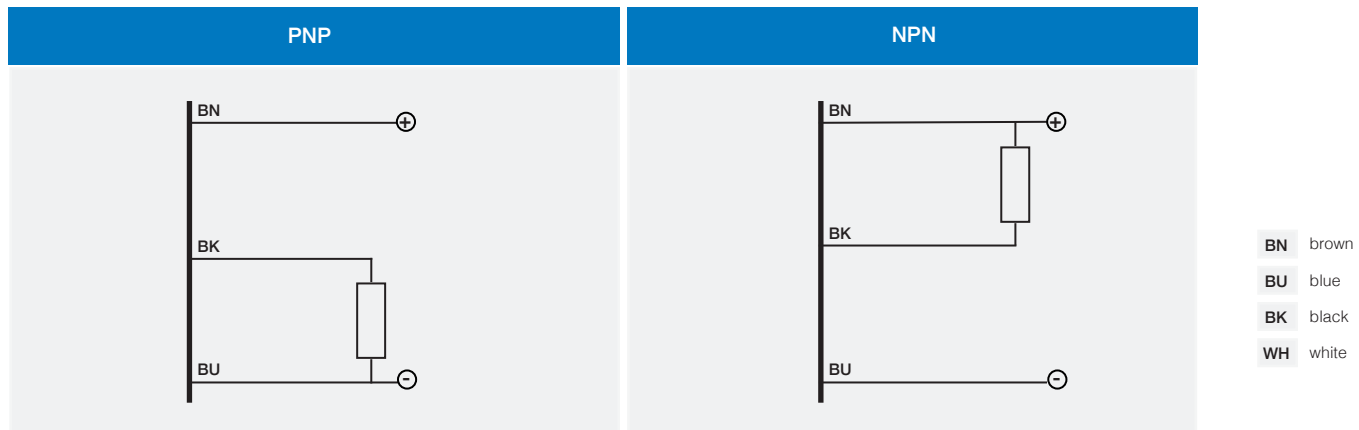
correction factors

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

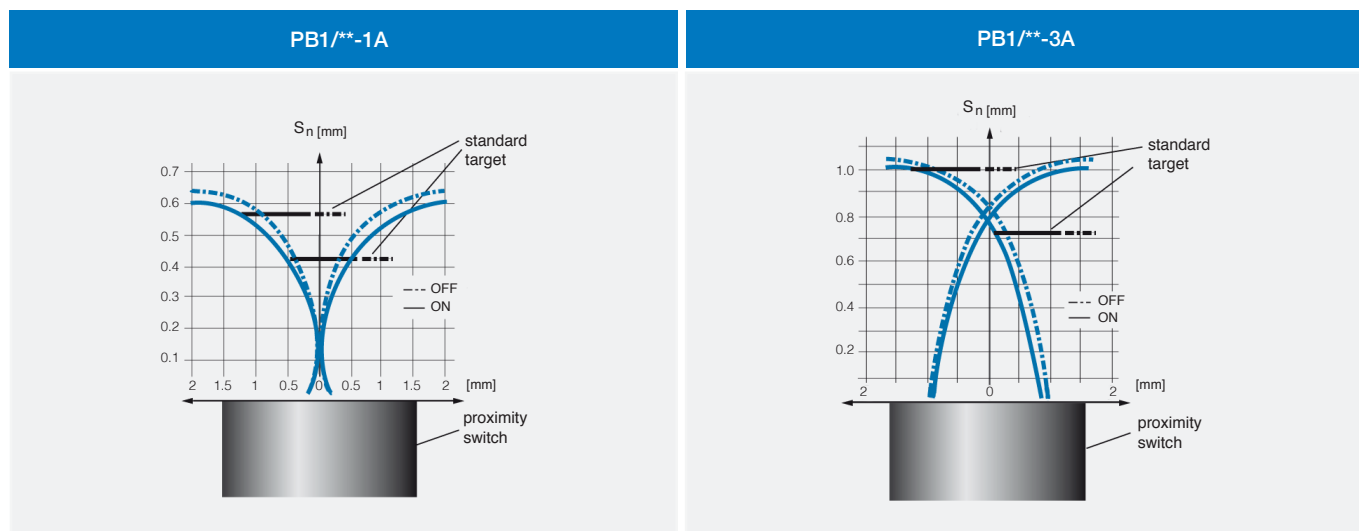
electrical diagrams of connections



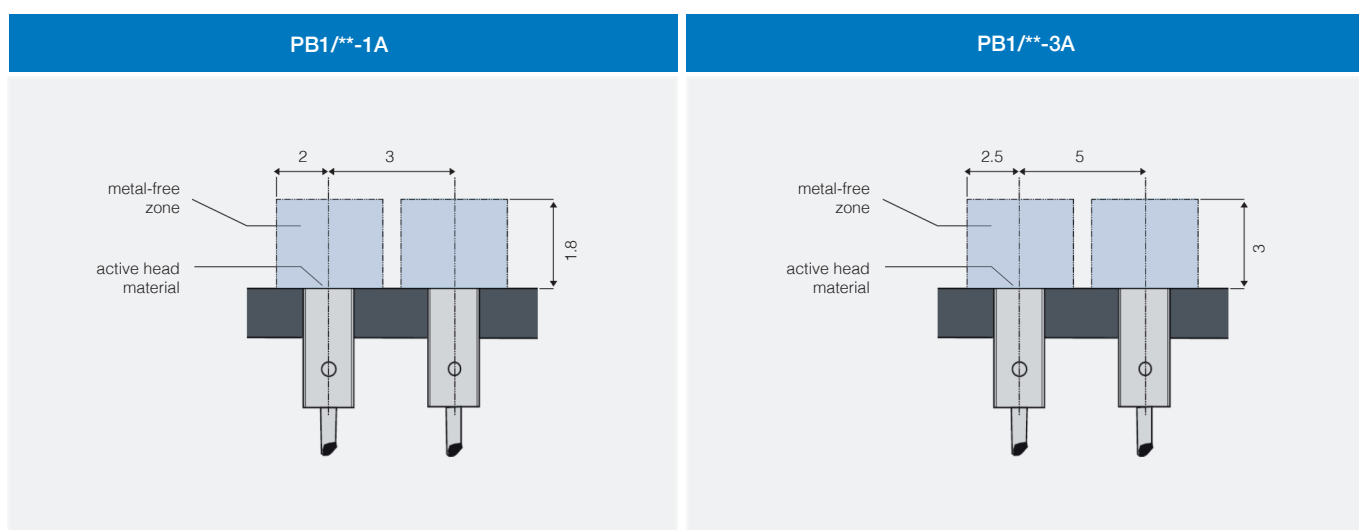
M4 cylindrical
miniaturized



response diagram



installation

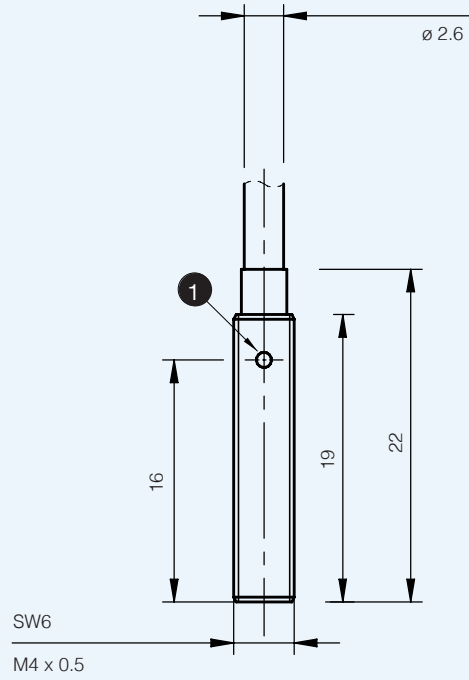




M4 cylindrical
miniaturized

dimensions(mm)

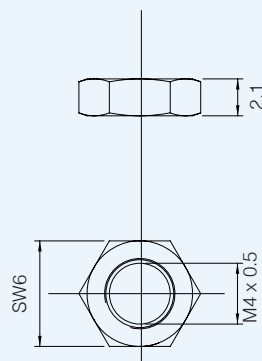
PB1/**_*A



1 LED

dimensions (mm)

accessories included models





AC1 series

Ø 4 mm cylindrical
miniaturized inductive sensors



Ø 4 mm cylindrical
miniaturized

features

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



web contents



- Application notes
- Photos
- Catalogue / Manuals



code description^(*)

AC 1 / A P - 1 F 8F



Models with plug or cable exit in PUR → certification

Models with cable exit in PVC → certification or

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

available models

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

AC



technical specification

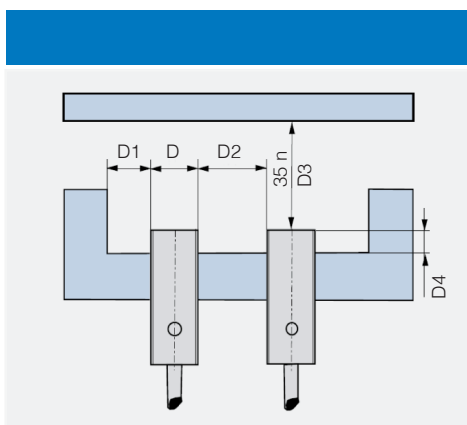
Ø 4 mm cylindrical
miniaturized

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

correction factors

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

installation



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

⁽¹⁾ ≥ 3 mm without ferro-magnetic material

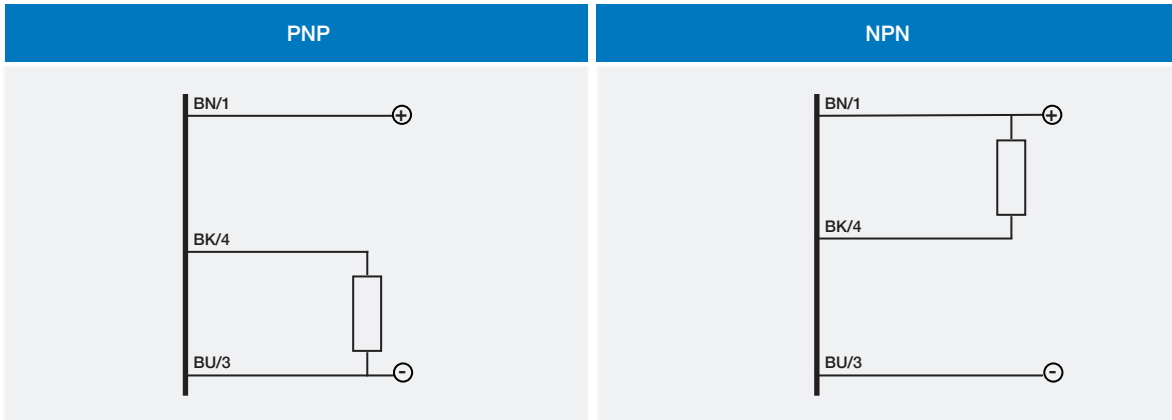
⁽²⁾ ≥ 4 mm without ferro-magnetic material

AC

electrical diagrams of connections

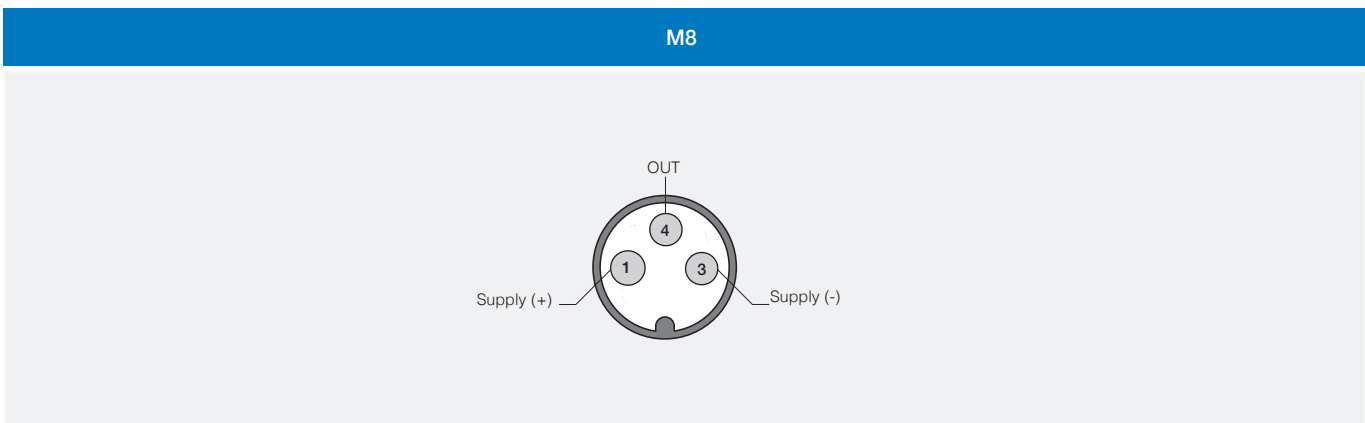


Ø 4 mm cylindrical
miniaturized

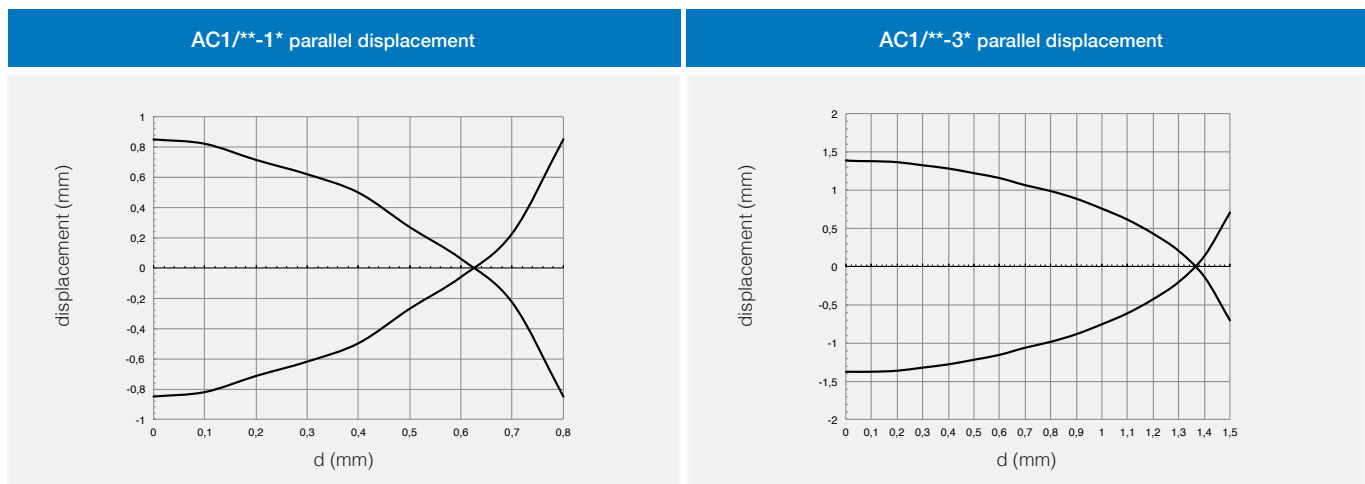


- BN** brown
- BU** blue
- BK** black
- WH** white

plug



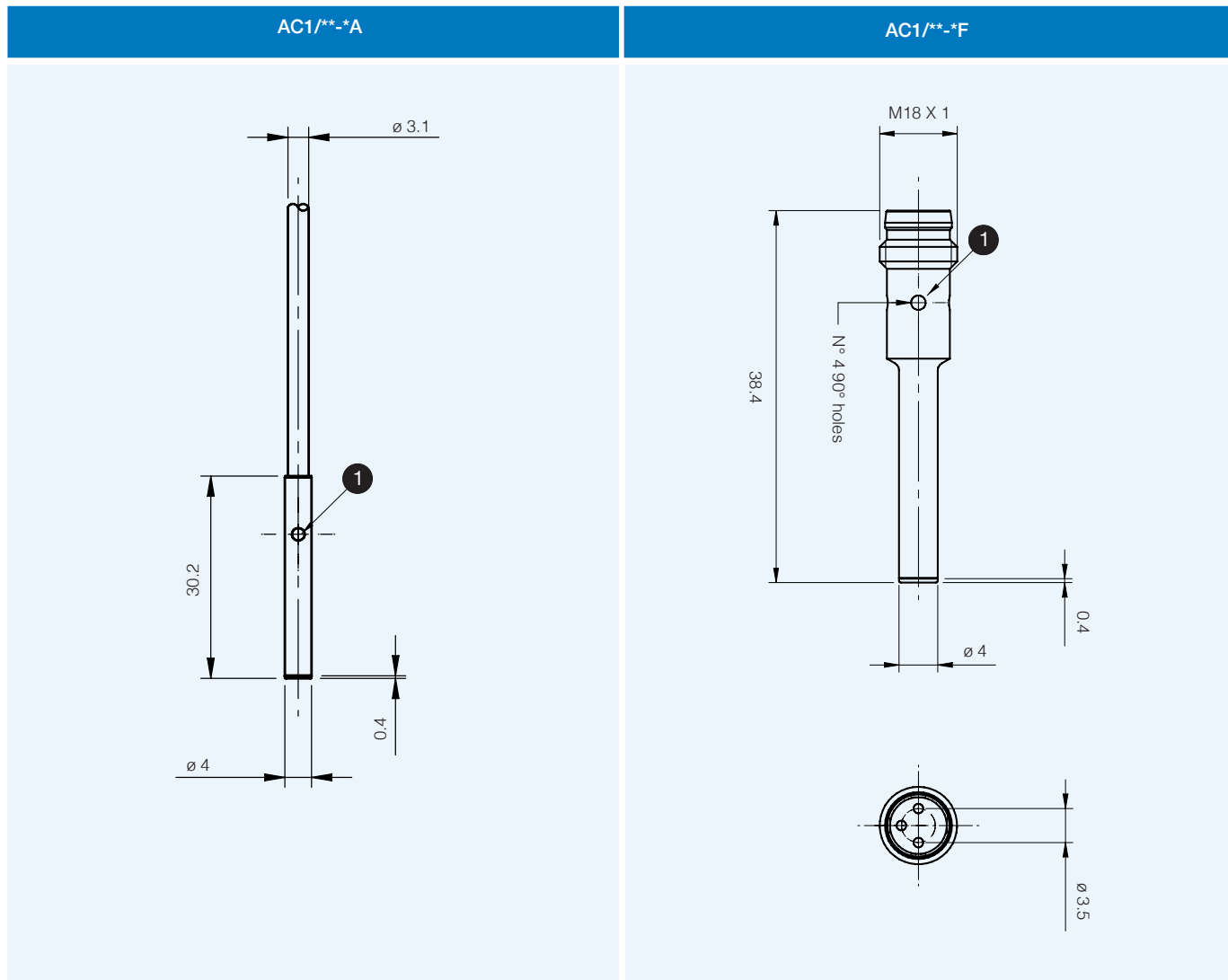
response diagrams





Ø 4 mm cylindrical
miniaturized

dimensions (mm)



1 LED



PC1 series

Ø 4 mm cylindrical
miniaturized inductive sensors



Ø 4 mm cylindrical
miniaturized

features

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



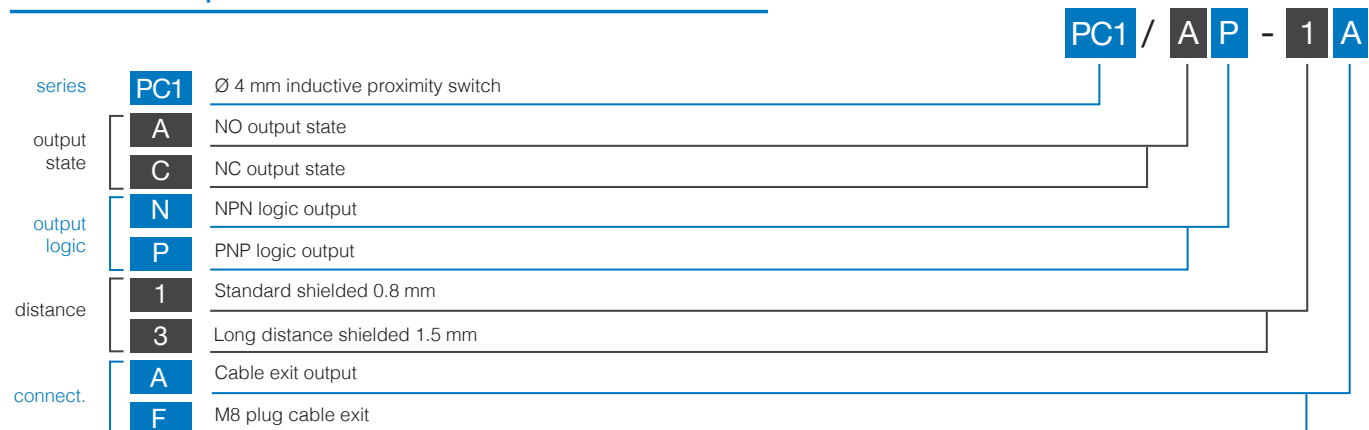
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code description



available models

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



technical specification

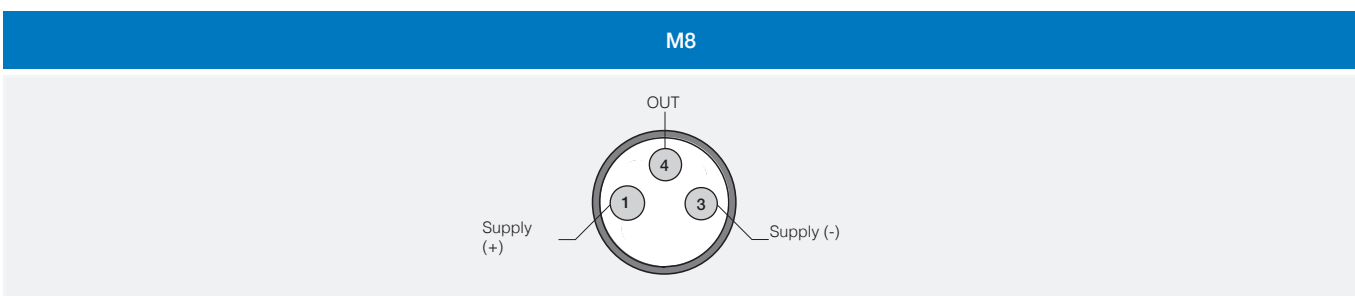
Ø 4 mm cylindrical miniaturized

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

correction factors

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

plug

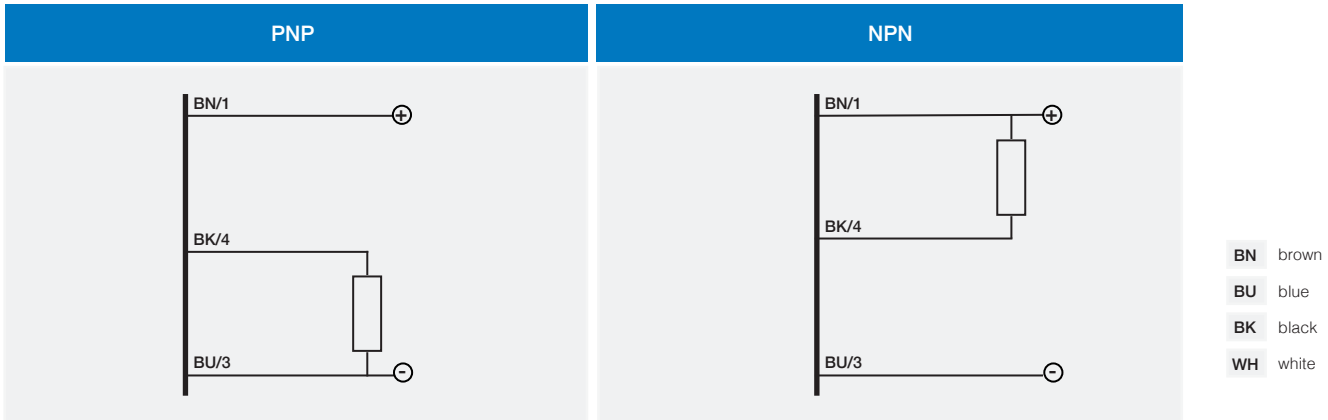


PC1

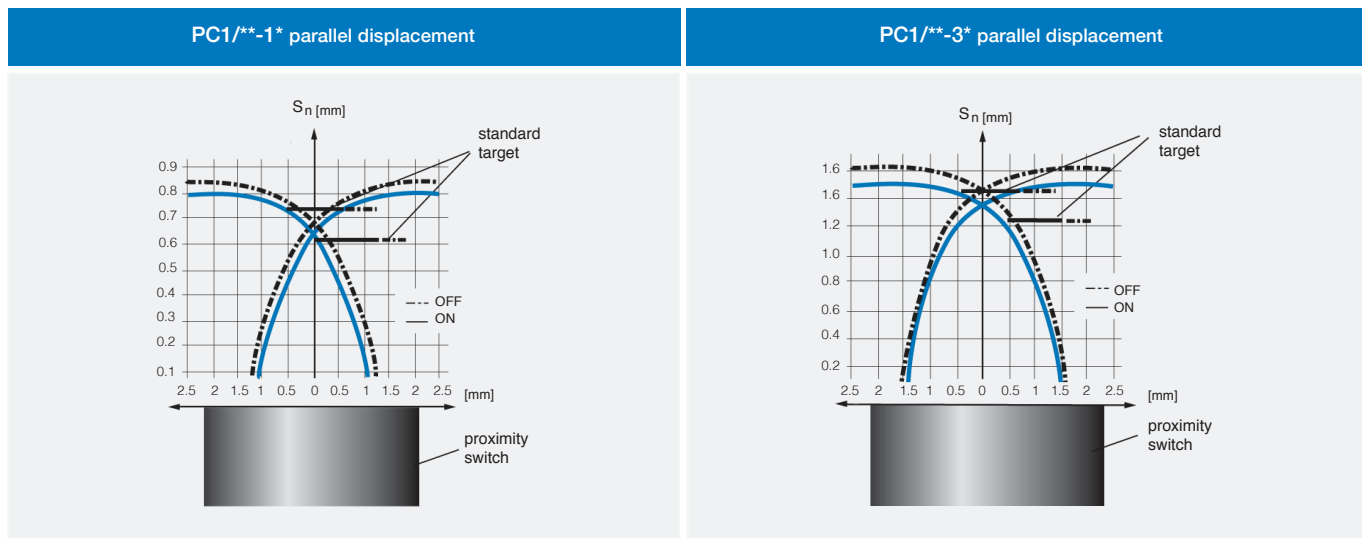
electrical diagrams of connections



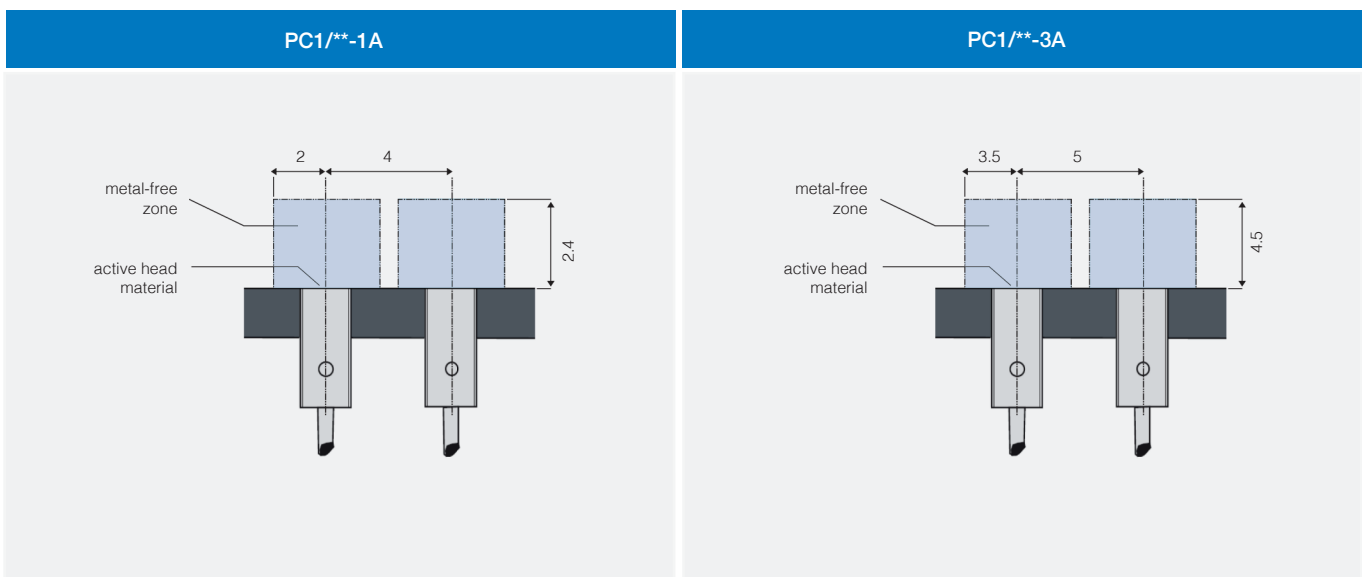
Ø 4 mm cylindrical
miniaturized



response diagram



installation

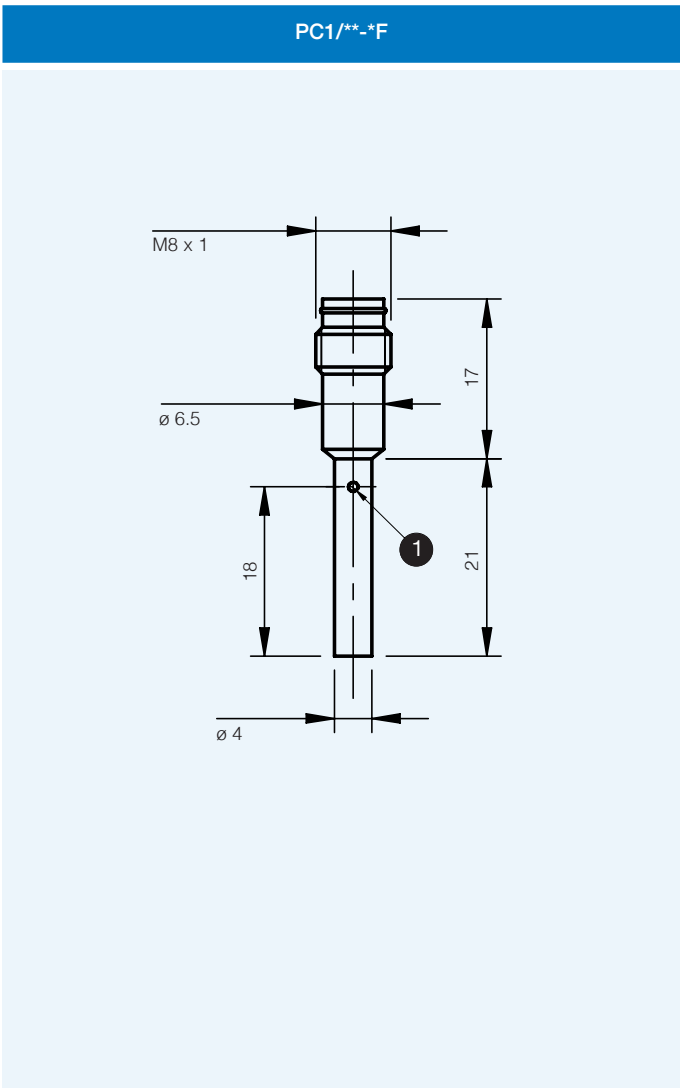
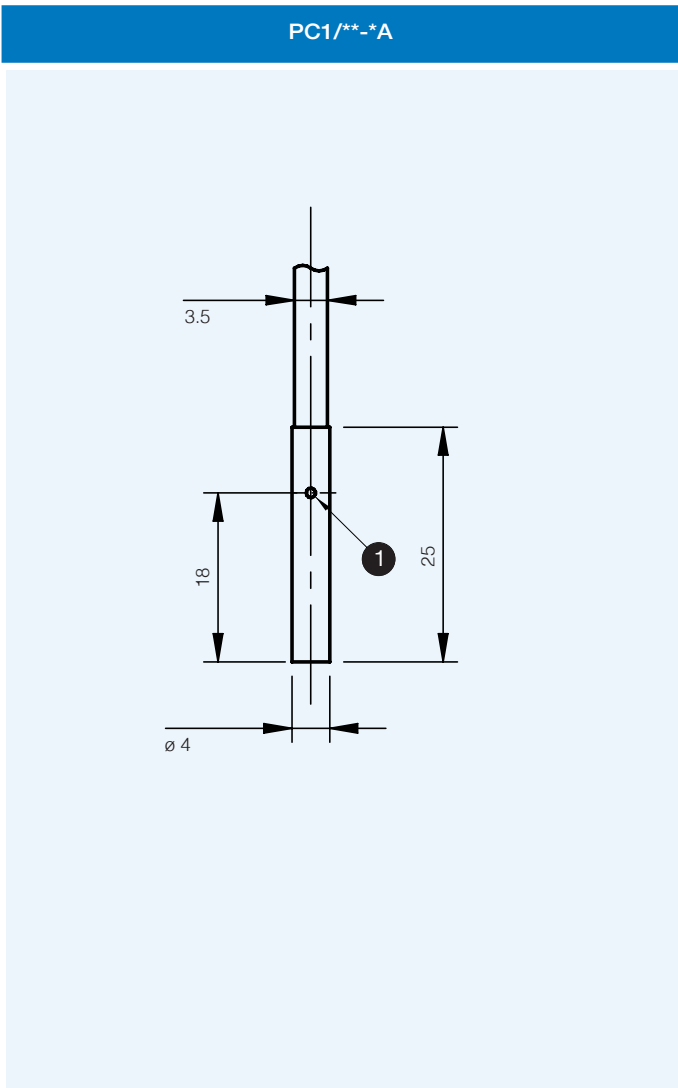


PC1



dimensioni (mm)

Ø 4 mm cylindrical
miniaturized



1 LED



AD series

M4 cylindrical
miniaturized inductive sensors



M4 cylindrical
miniaturized

features

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



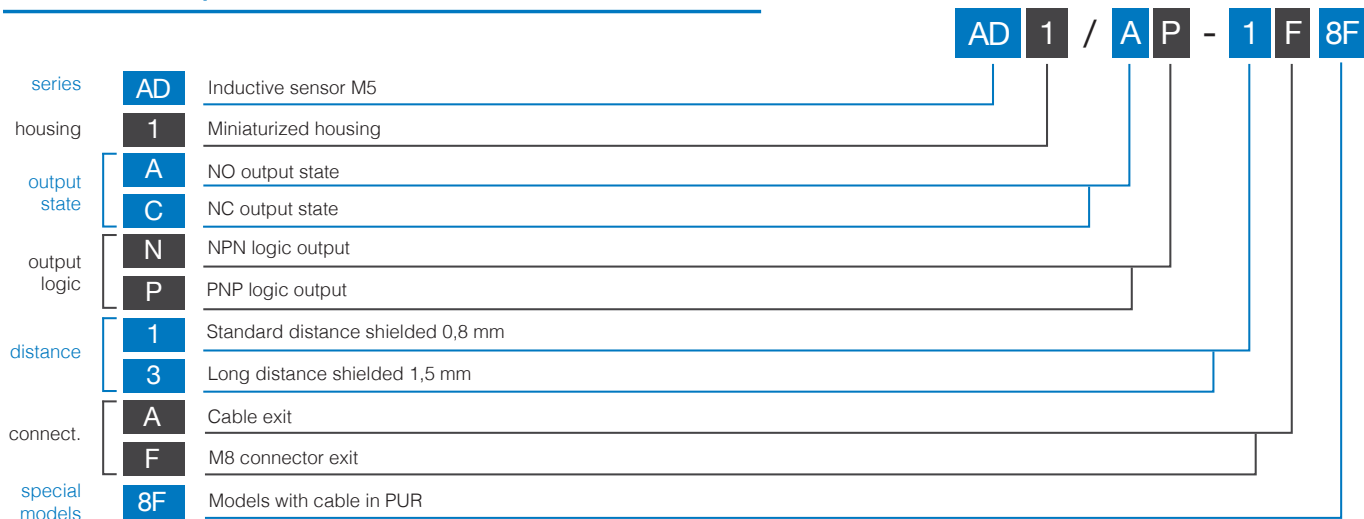
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code description (*)



Models with plug or cable exit in PUR → certification

Models with cable exit in PVC → certification or

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

available models

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

AD



technical specification

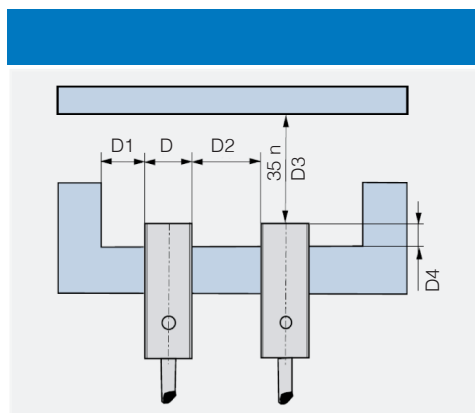
M4 cylindrical miniaturized

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

correction factors

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

installation



| model | D4 | D1 | D2 | D3 |
|-----------|--------------------------|--------------------|---------------------|----------------------|
| AD1/**-1* | $\geq 2\text{ mm}^{(1)}$ | $\geq 5\text{ mm}$ | $\geq 5\text{ mm}$ | $\geq 2.4\text{ mm}$ |
| AD1/**-3* | | | $\geq 10\text{ mm}$ | $\geq 4.5\text{ mm}$ |

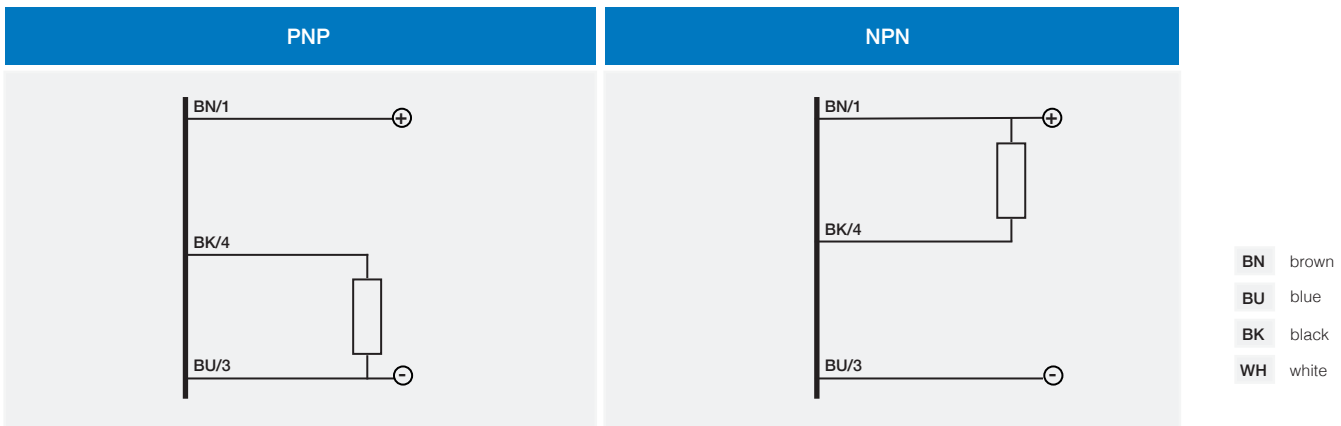
⁽¹⁾ $\geq 3\text{ mm}$ without ferro-magnetic material

AD

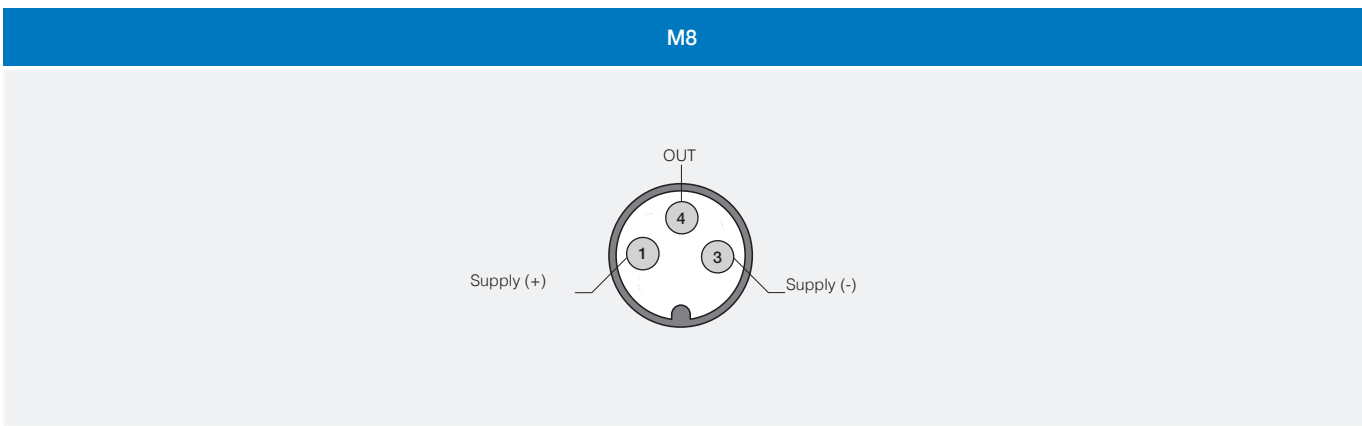
electrical diagrams of connections



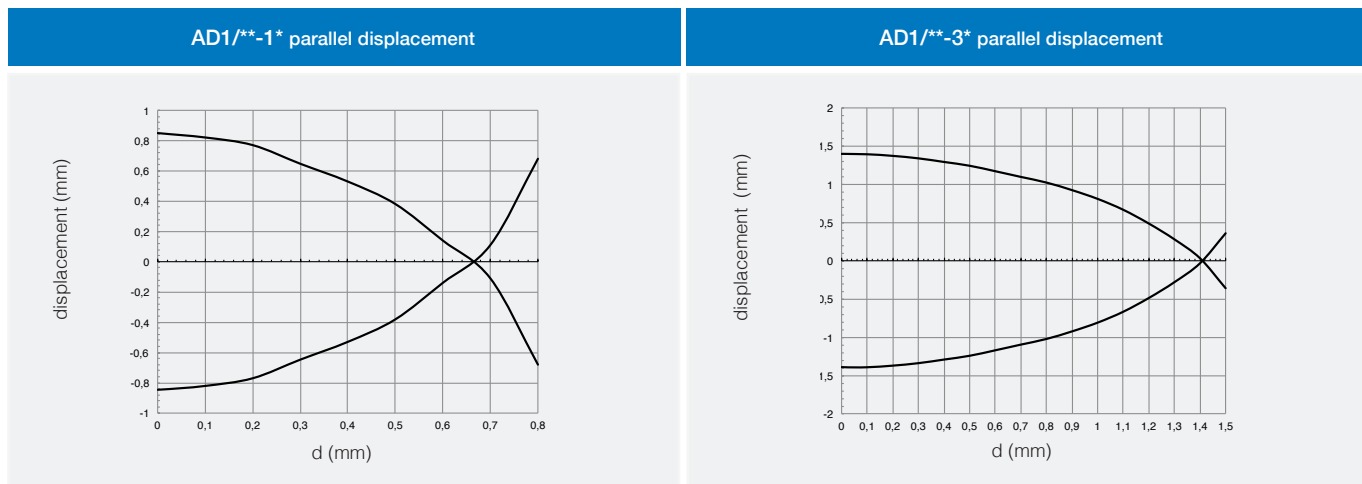
M4 cylindrical
miniaturized



plug



response diagram

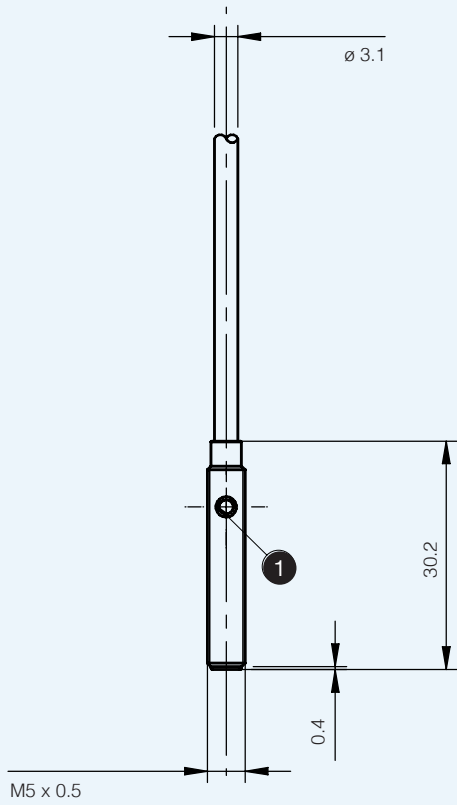




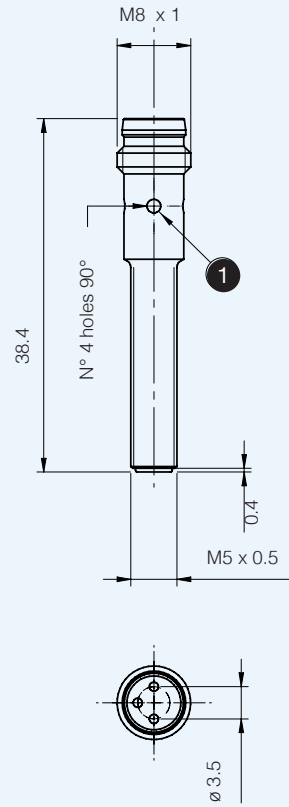
M4 cylindrical
miniaturized

dimensions (mm)

AD1/**-*A



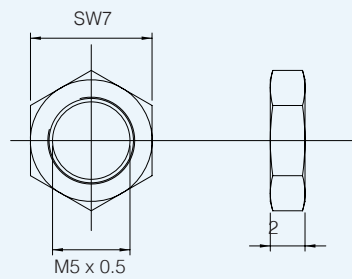
AD1/**-*F



1 LED

dimensions (mm)

accessories included models





PD1 series

M5 cylindrical miniaturized inductive sensors



M5 cylindrical miniaturized

features

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



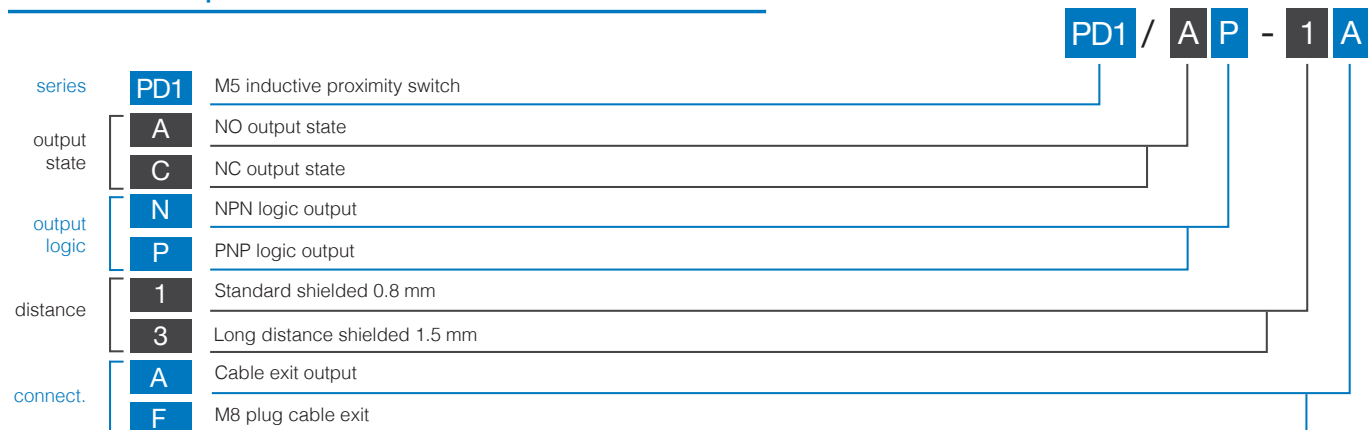
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code description



available models

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



technical specification

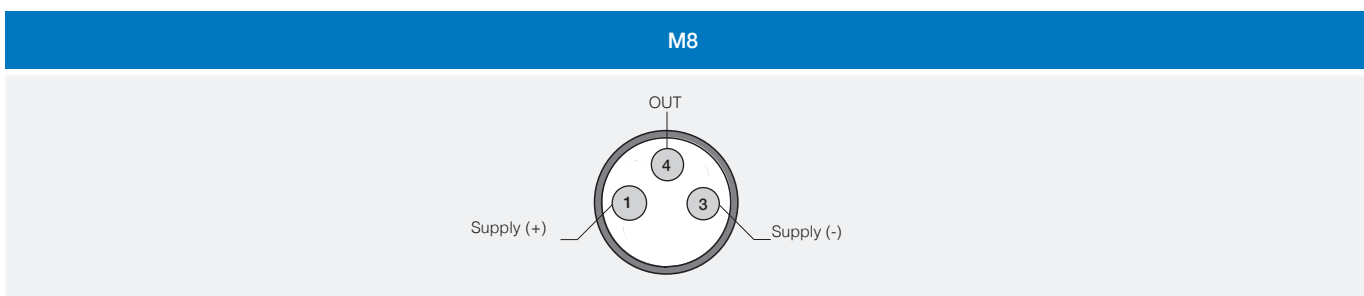
M5 cylindrical
miniaturized

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

correction factors

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

plug

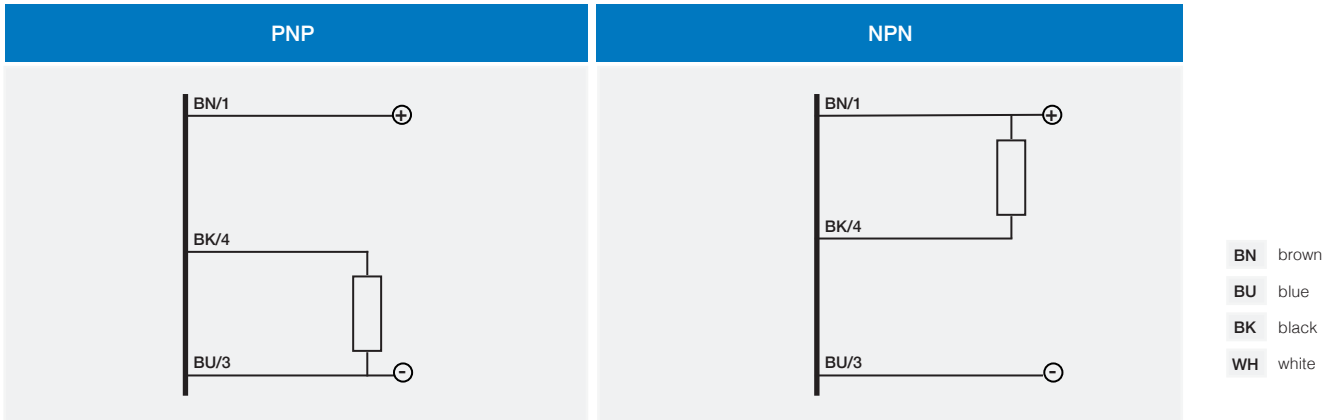


PD1

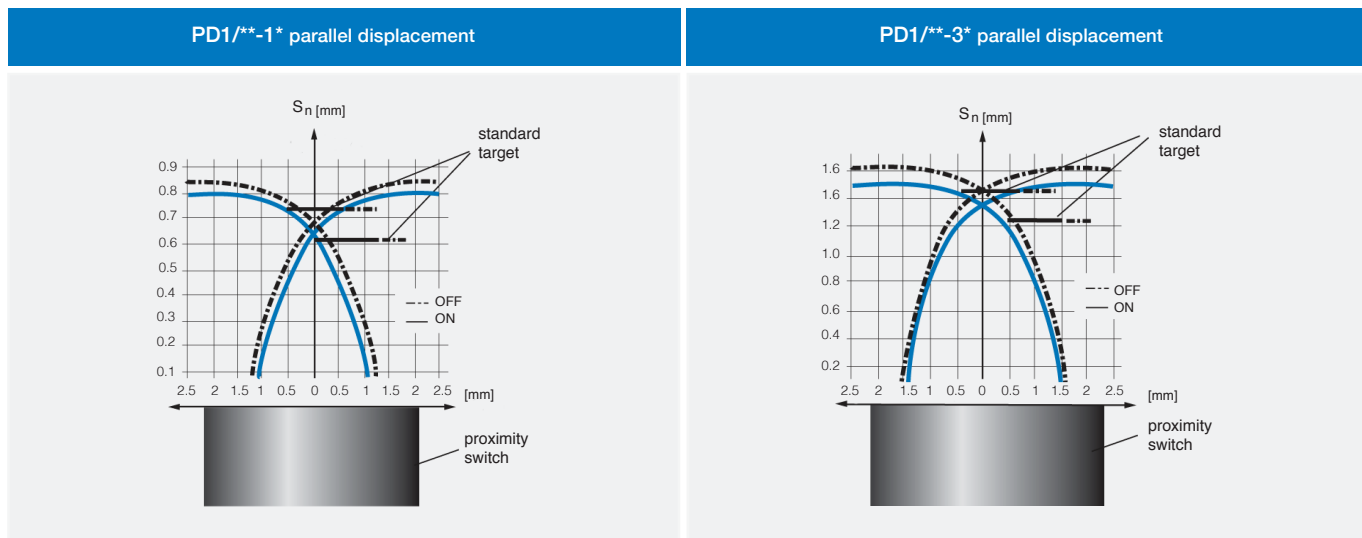
electrical diagrams of connections



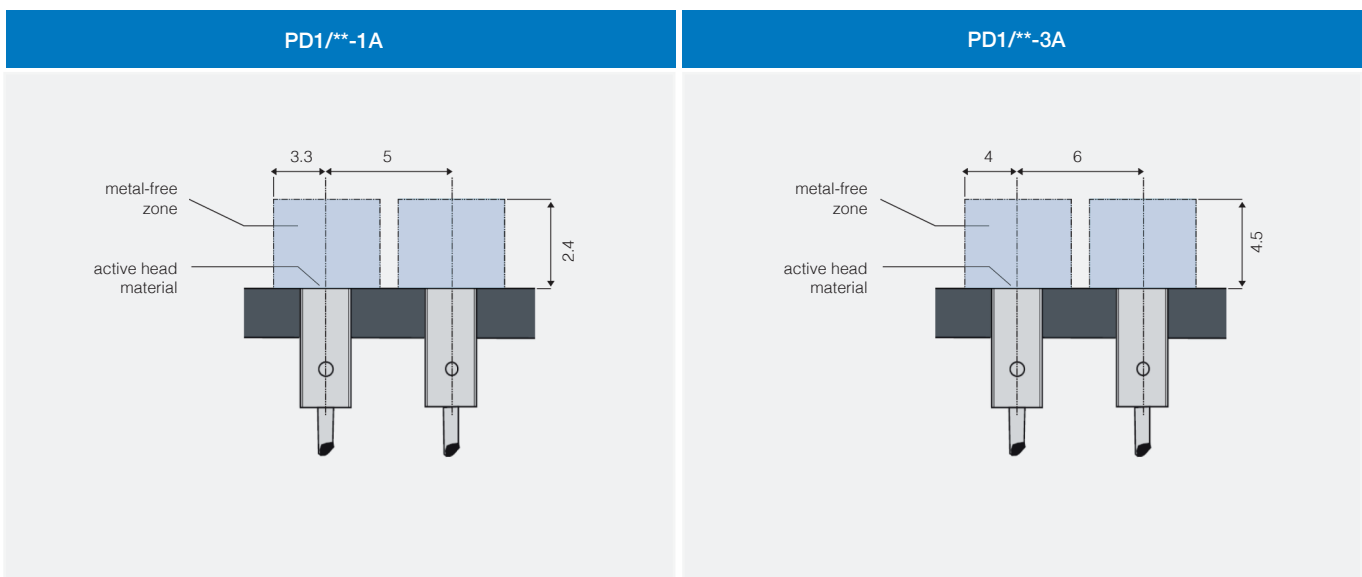
M5 cylindrical
miniaturized



response diagram



installation

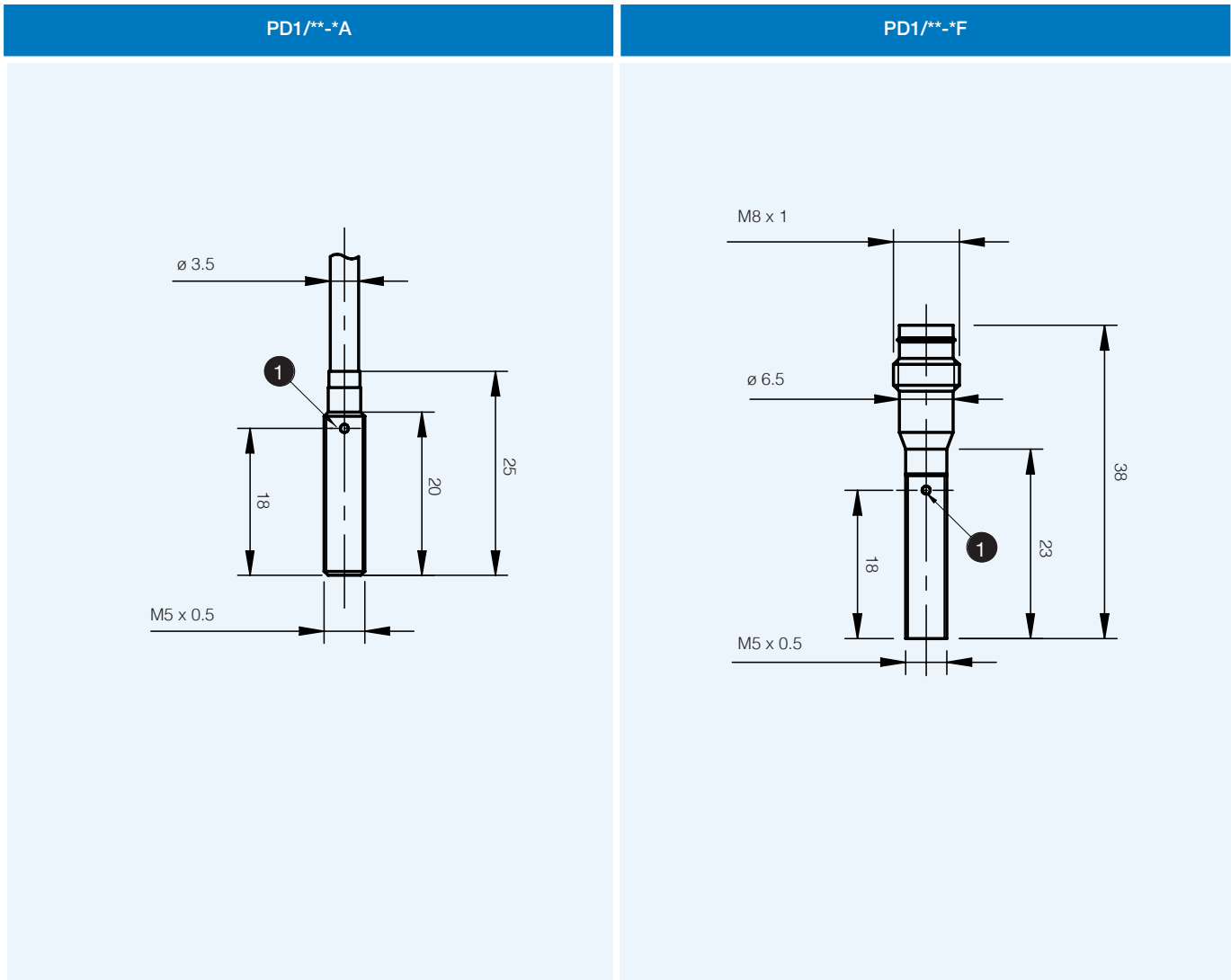


PD1



M5 cylindrical
miniaturized

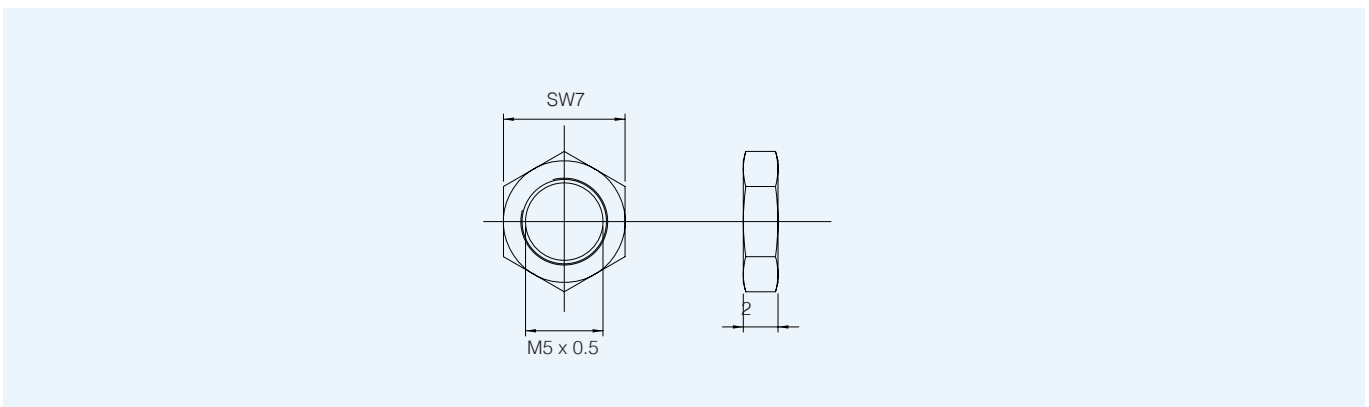
dimensions (mm)



1 LED

dimensions (mm)

accessories included models





AHS series

Ø 6.5 mm cylindrical
miniaturized inductive sensors



Ø 6.5 mm cylindrical
miniaturized

features

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



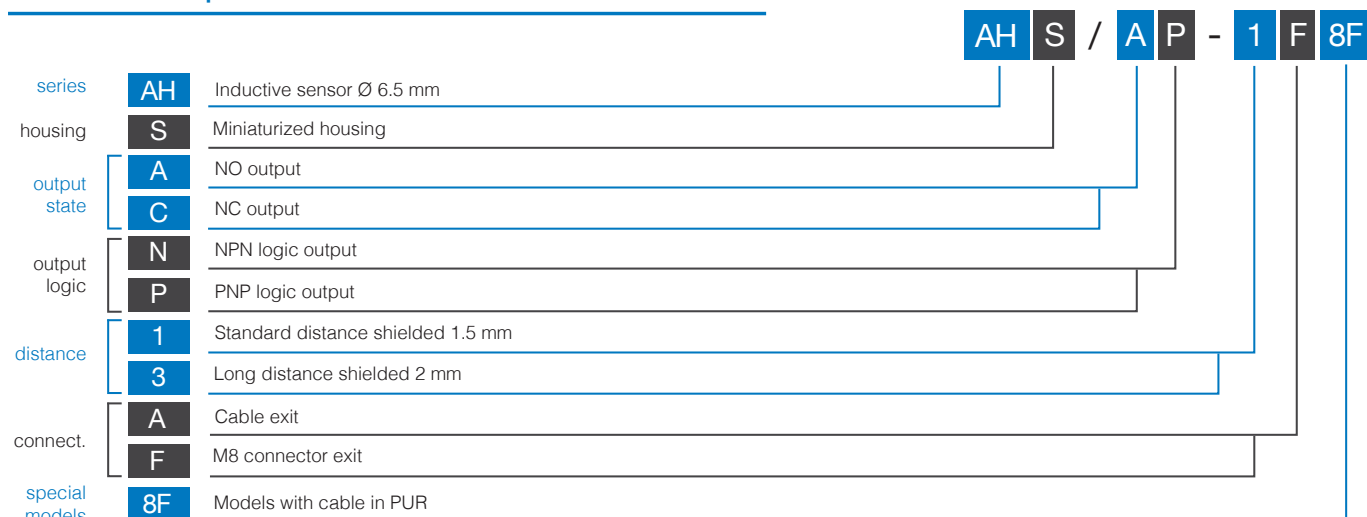
web contents



- Application notes
- Photos
- Catalogue / Manuals



code description (*)



Models with plug or cable exit in PUR → certification
 Models with cable exit in PVC → certification or

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

available models



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

AHS



technical specification

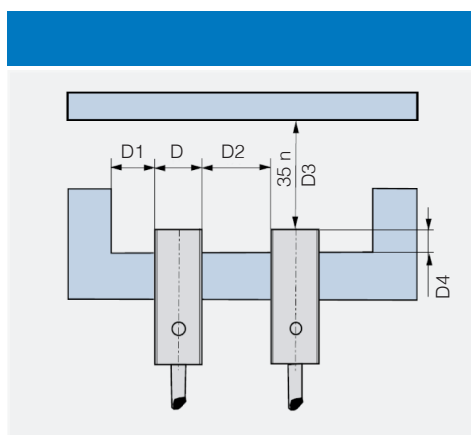
Ø 6.5 mm cylindrical miniaturized

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

correction factors

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

installation



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

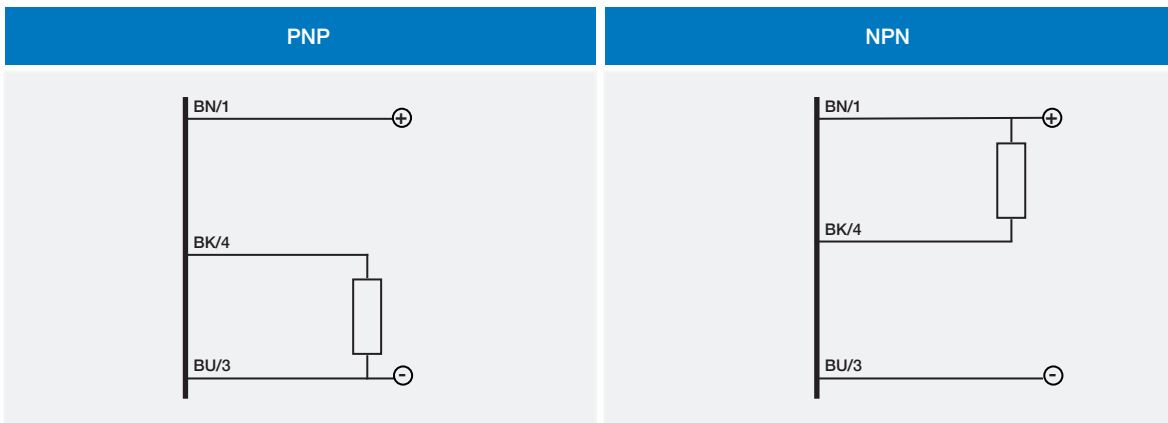
⁽¹⁾ ≥ 3 mm without ferro-magnetic material
⁽²⁾ ≥ 4 mm without ferro-magnetic material

AHS

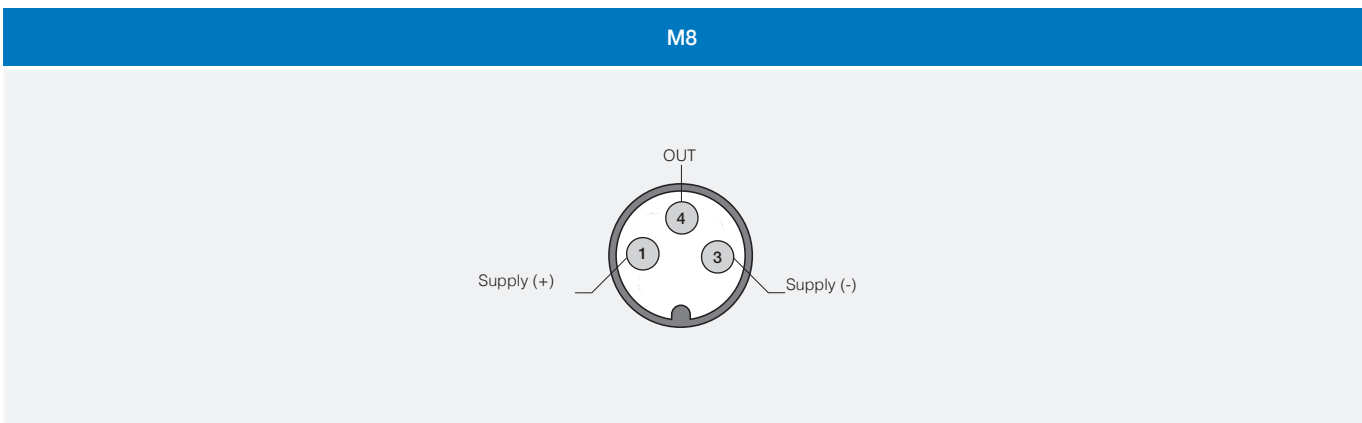
electrical diagrams of connections



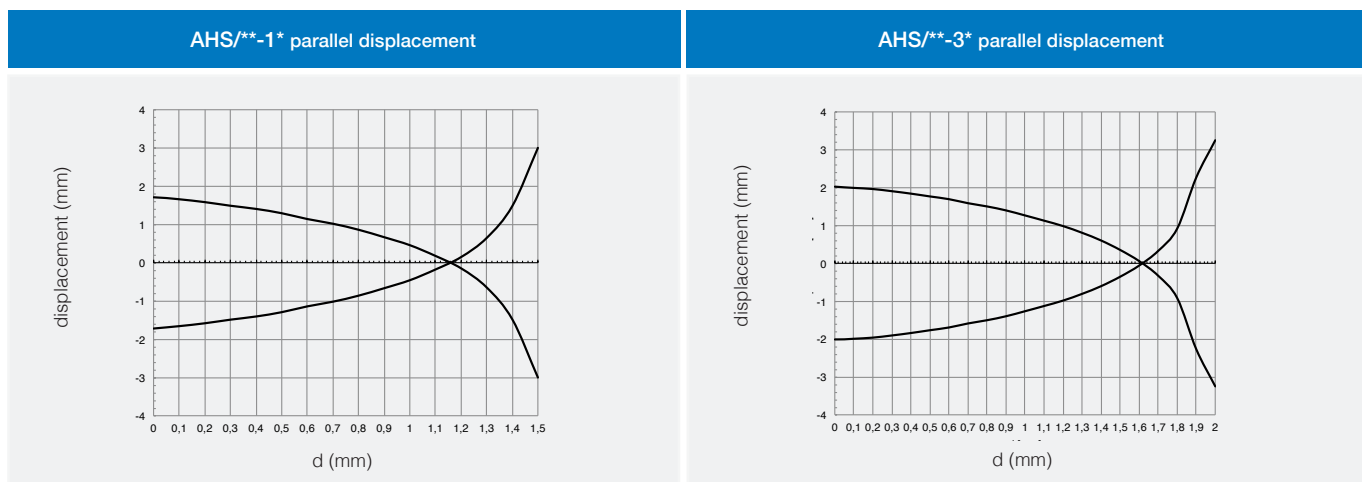
Ø 6.5 mm cylindrical
miniaturized



plug



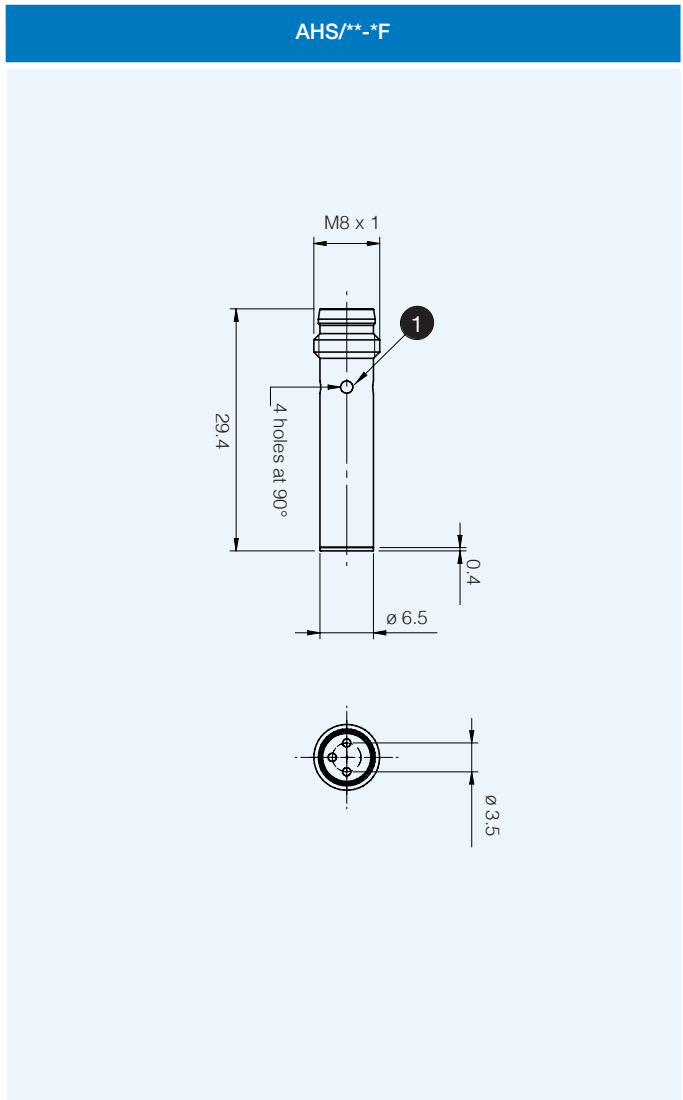
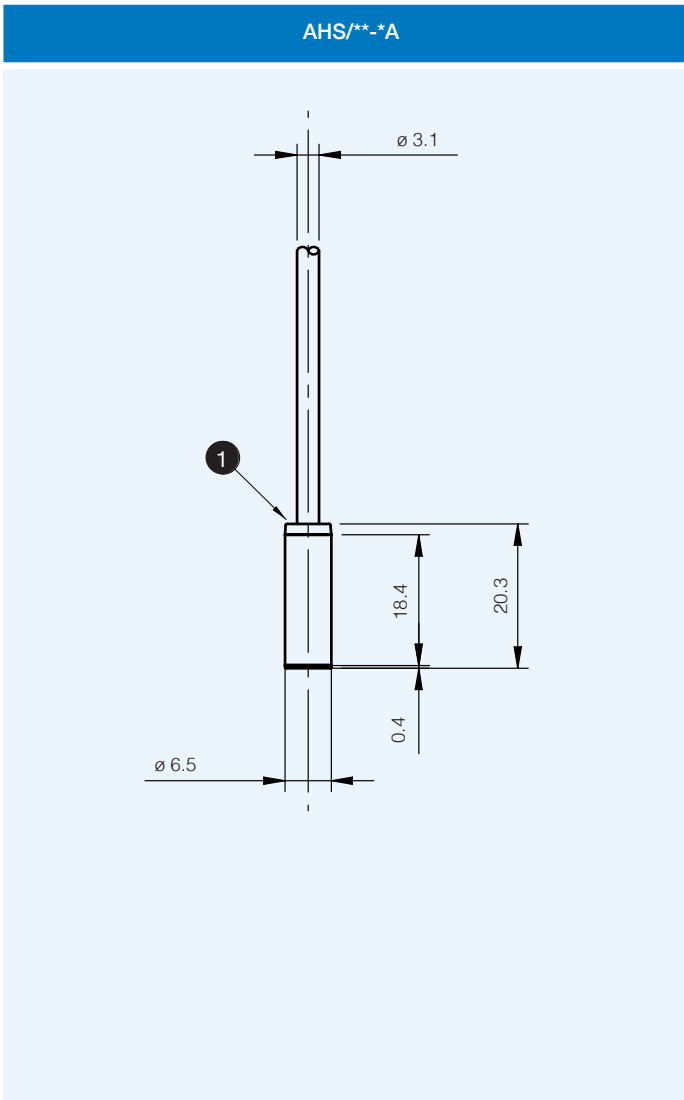
response diagram





dimensions (mm)

Ø 6.5 mm cylindrical
miniaturized



1 LED



PH6 series

Ø 6.5 mm cylindrical
miniaturized inductive sensors



Ø 6.5 mm cylindrical
miniaturized

features

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



web contents



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- Photos
- Catalogue / Manuals



code description (*)



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


available models

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



technical specification

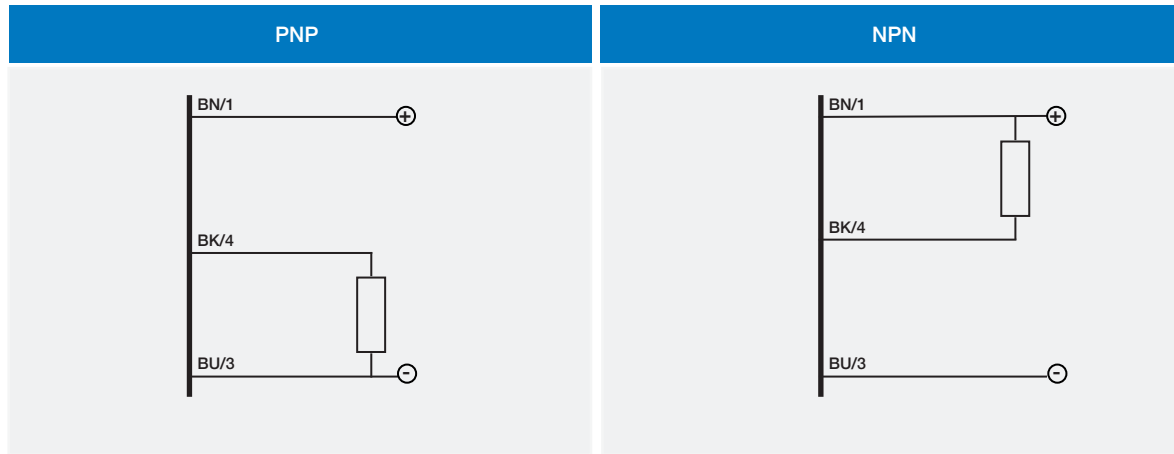
Ø 6.5 mm cylindrical miniaturized

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

correction factors

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

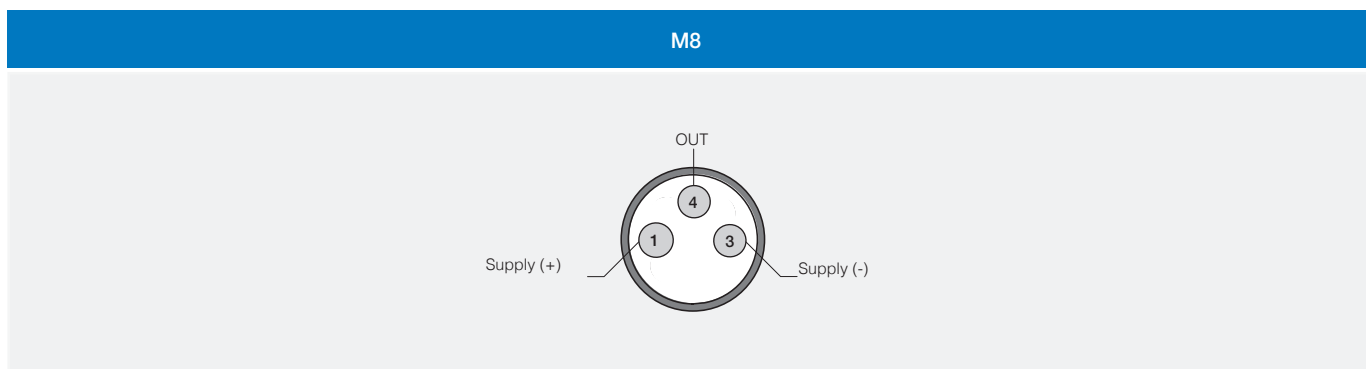
electrical diagrams of connections



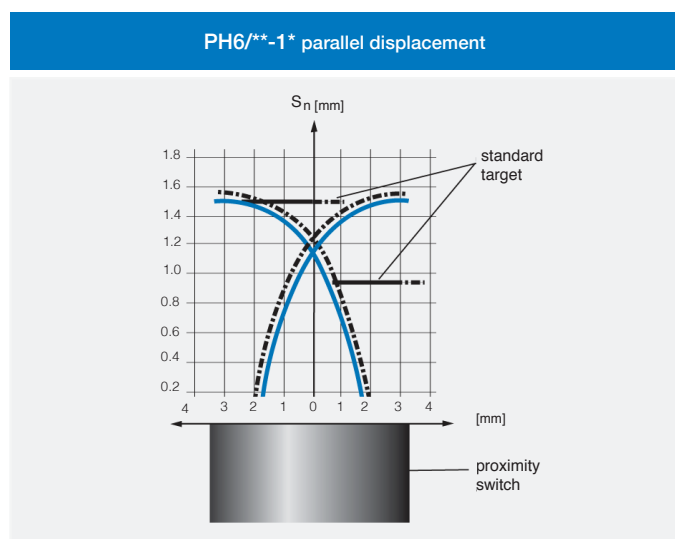
- BN brown
- BU blue
- BK black
- WH white

Ø 6.5 mm cylindrical
miniaturized

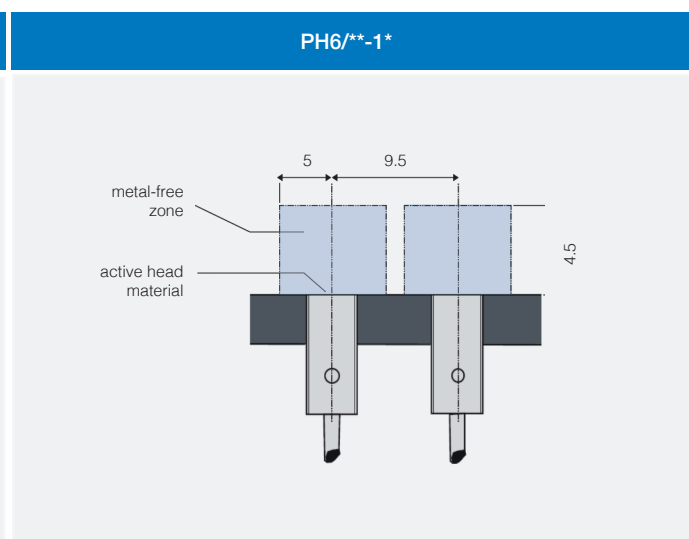
plug



response diagram



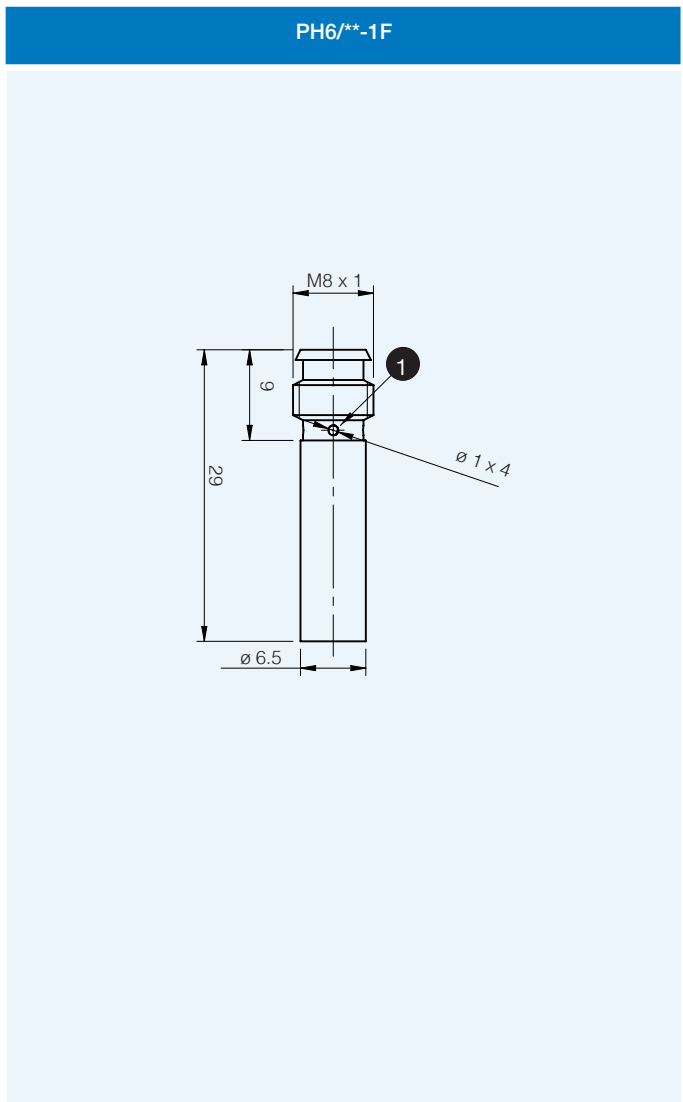
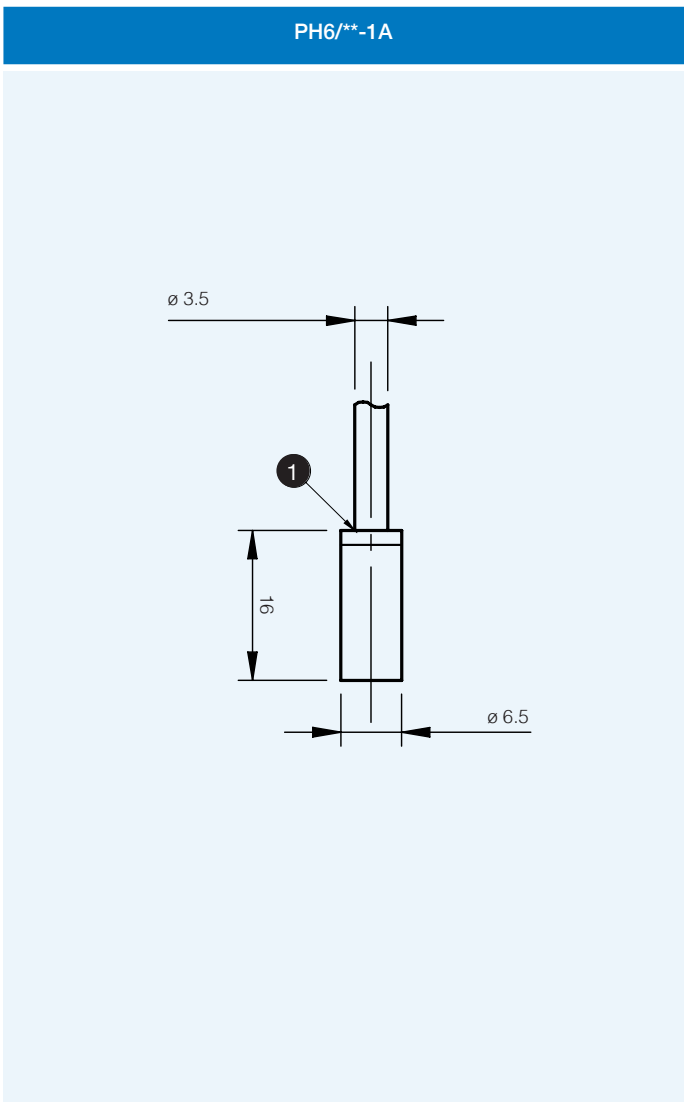
installation





dimensions (mm)

Ø 6.5 mm cylindrical
miniaturized

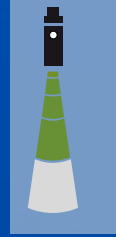


1 LED



AES series

M8 cylindrical
miniaturized inductive sensors



M8 cylindrical
miniaturized

features

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



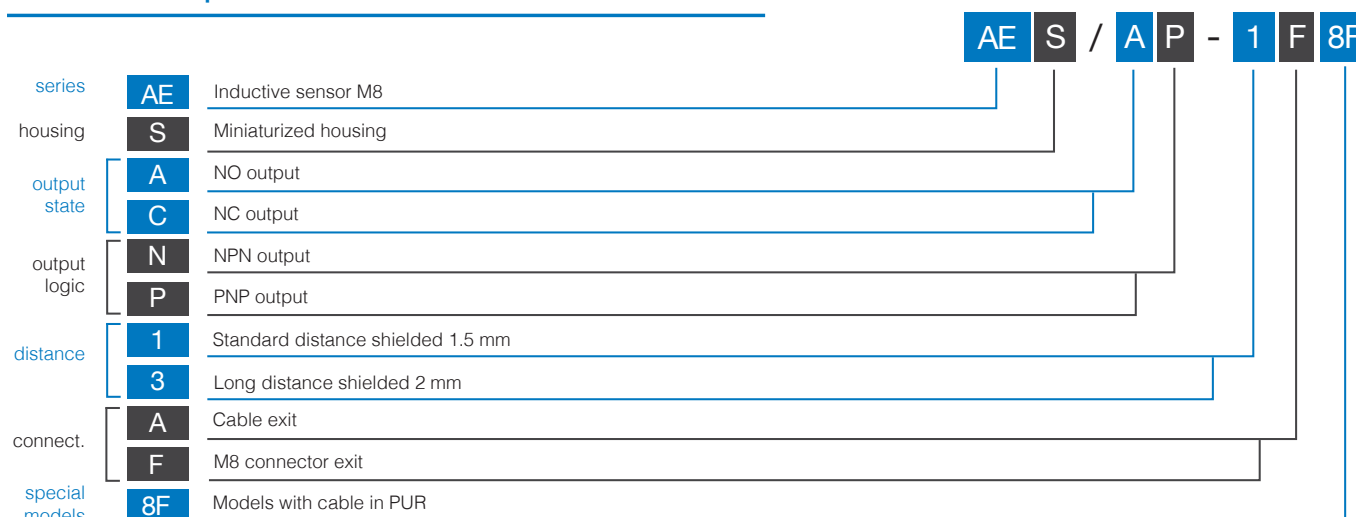
web contents



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- Catalogue / Manuals



code description (*)



Models with plug or cable exit in PUR → certification

Models with cable exit in PVC → certification or

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

available models

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



AES



technical specification

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

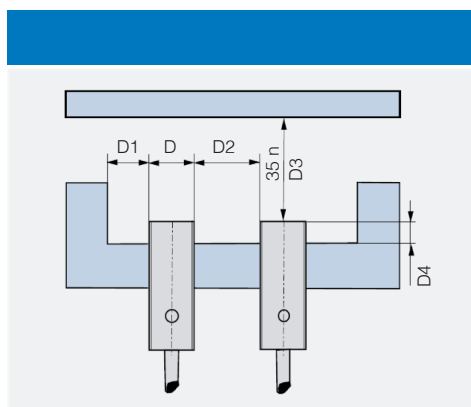
M8 cylindrical
miniaturized

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

correction factors

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

installation



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

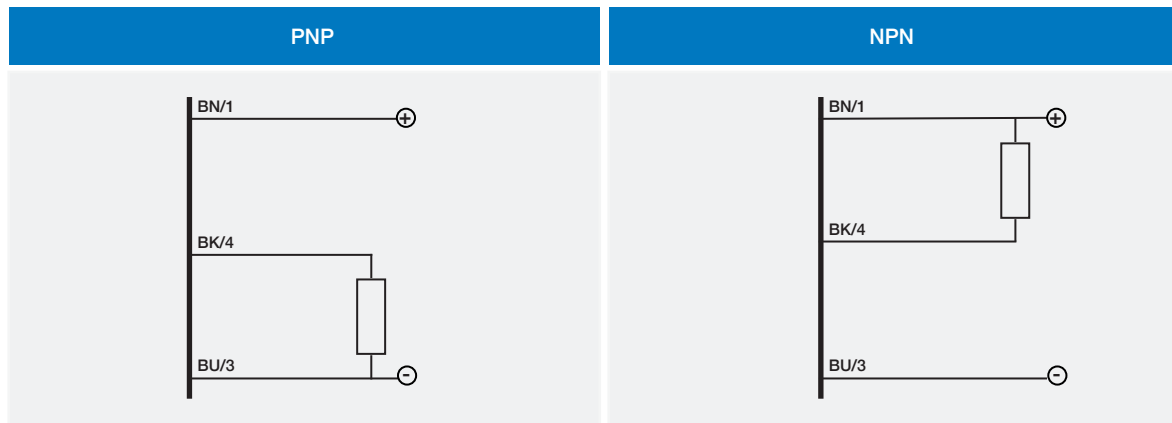
⁽¹⁾ ≥ 3 mm without ferro-magnetic material
⁽²⁾ ≥ 4 mm without ferro-magnetic material

AES

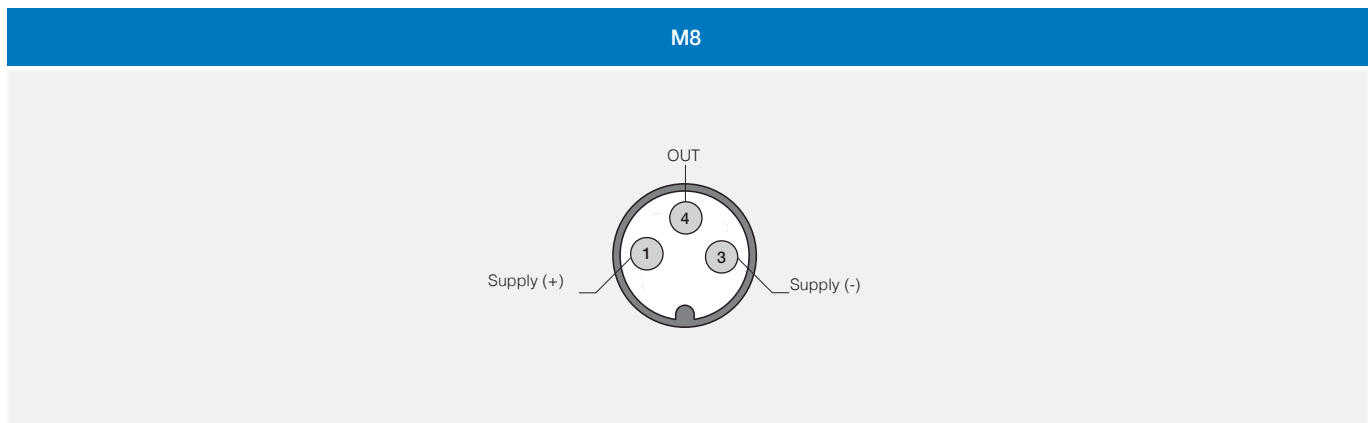
electrical diagrams of connections



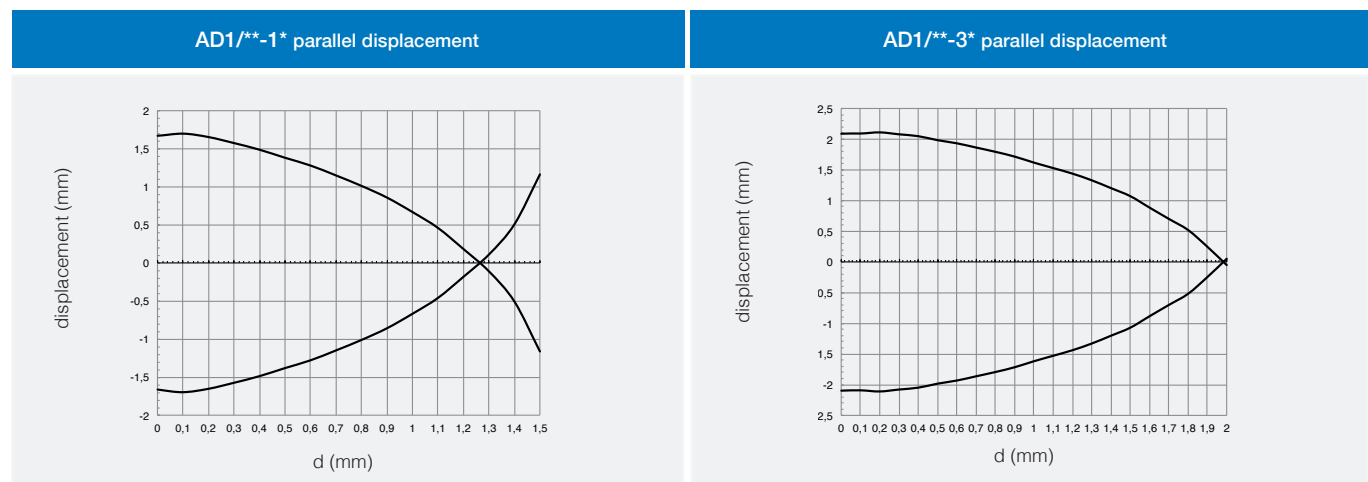
M8 cylindrical
miniaturized



plug



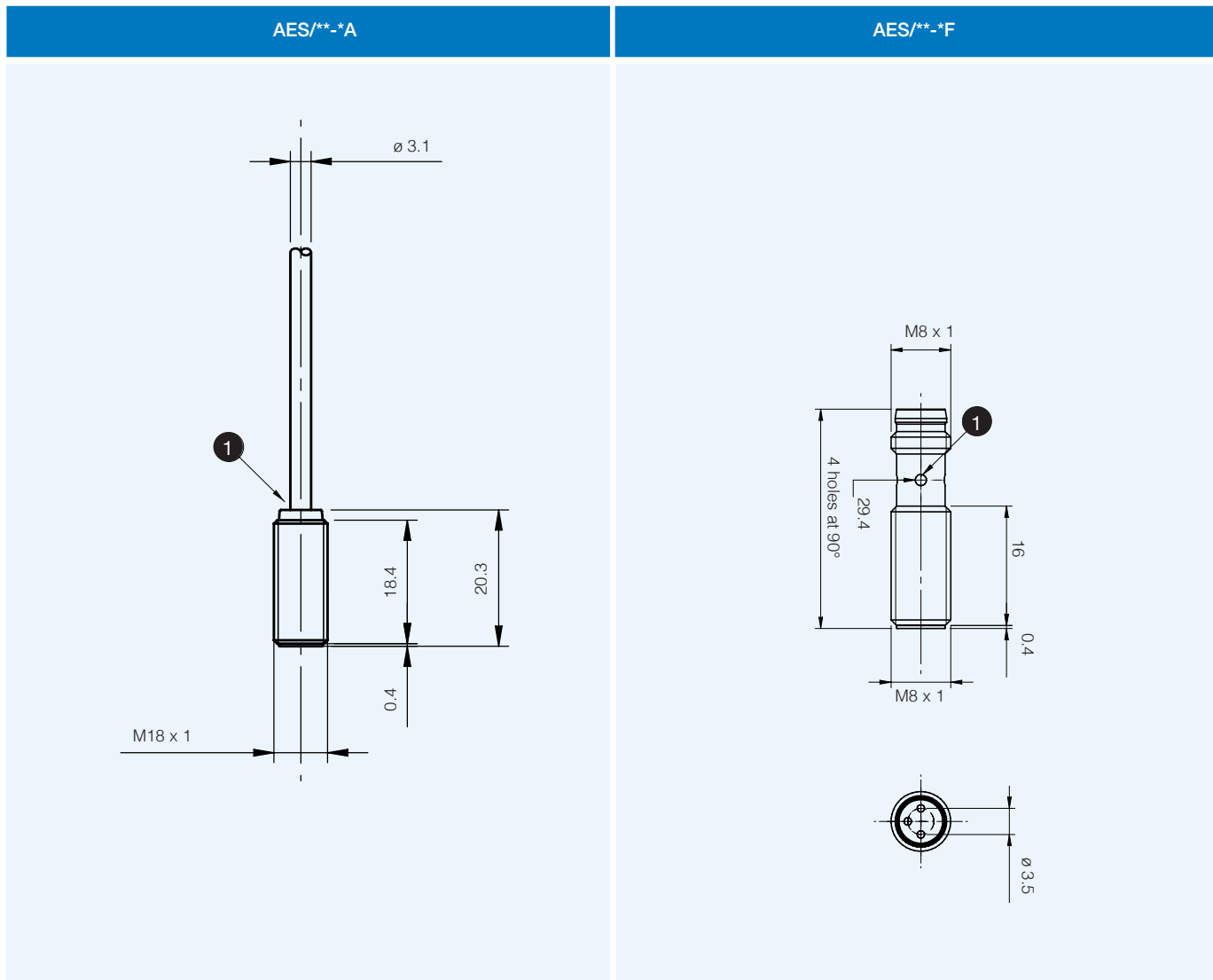
response diagram





M8 cylindrical
miniaturized

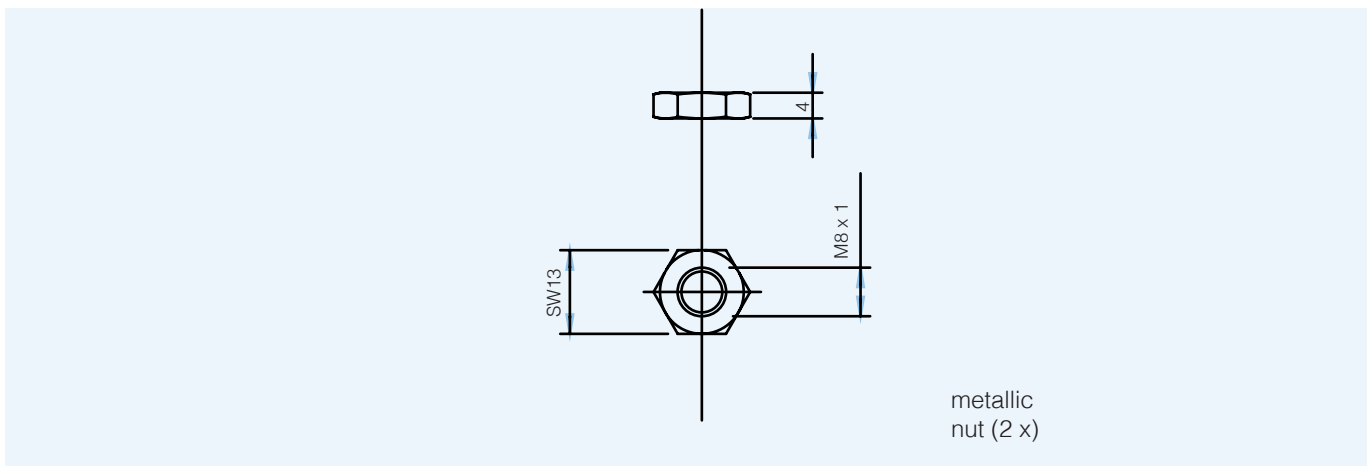
dimensions (mm)



1 LED

dimensions (mm)

accessories included models



AES



PE6 series

M8 cylindrical
miniaturized inductive sensors



M8 cylindrical
miniaturized

features

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



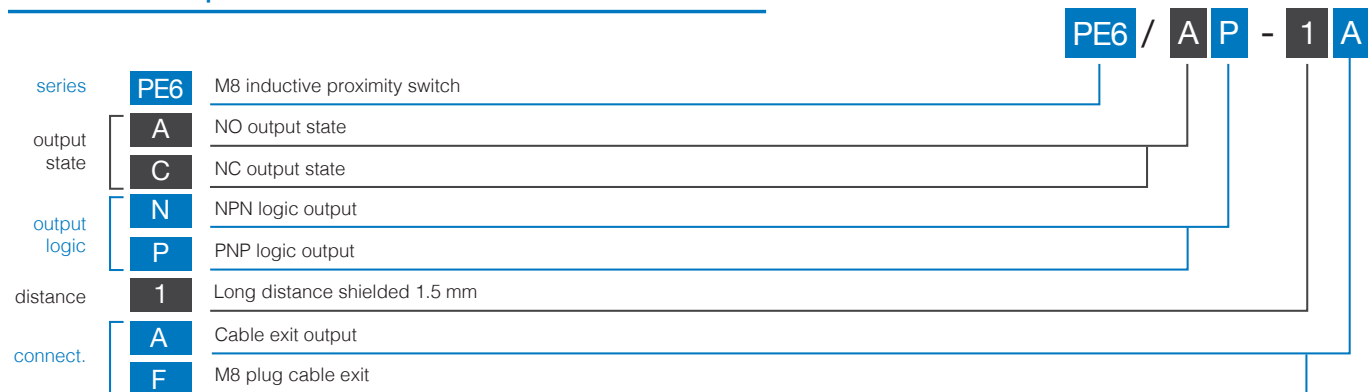
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code description



available models

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



technical specification

M8 cylindrical
miniaturized

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

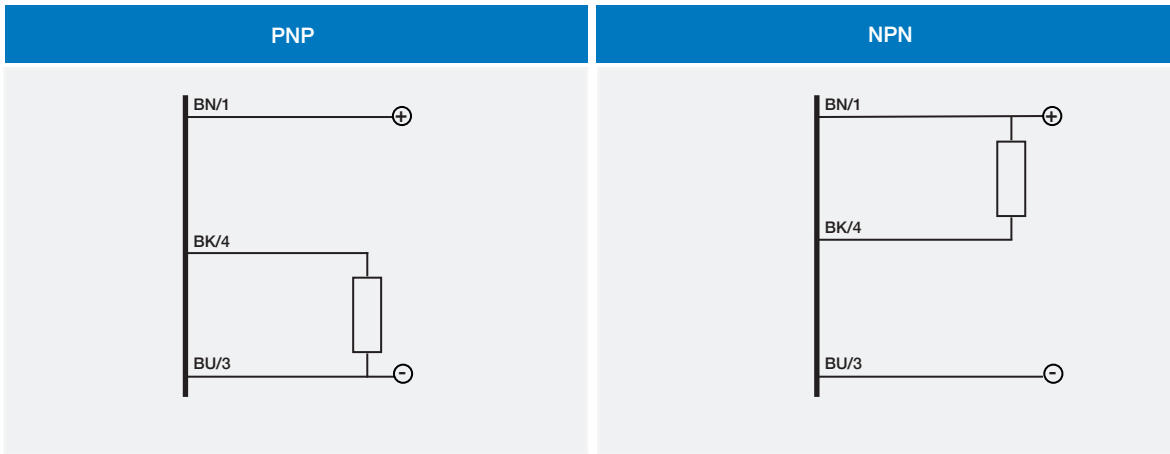
correction factors

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

electrical diagrams of connections

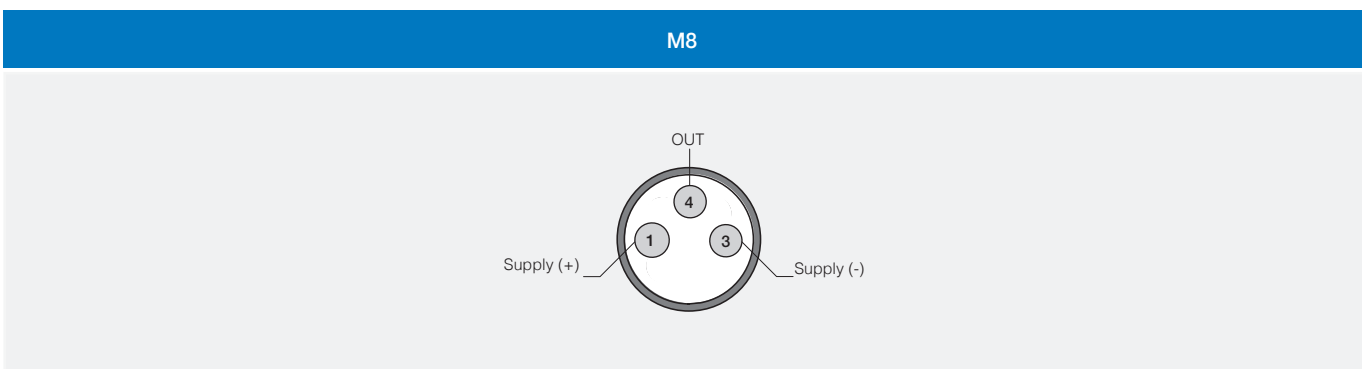


M8 cylindrical
miniaturized

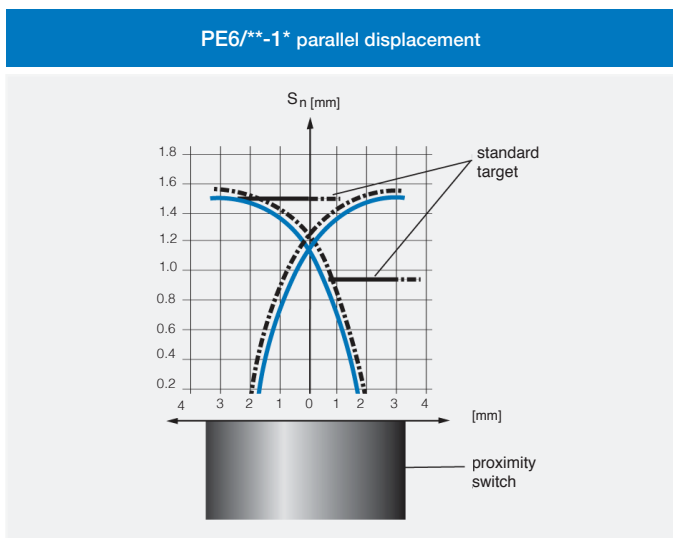


- BN** brown
- BU** blue
- BK** black
- WH** white

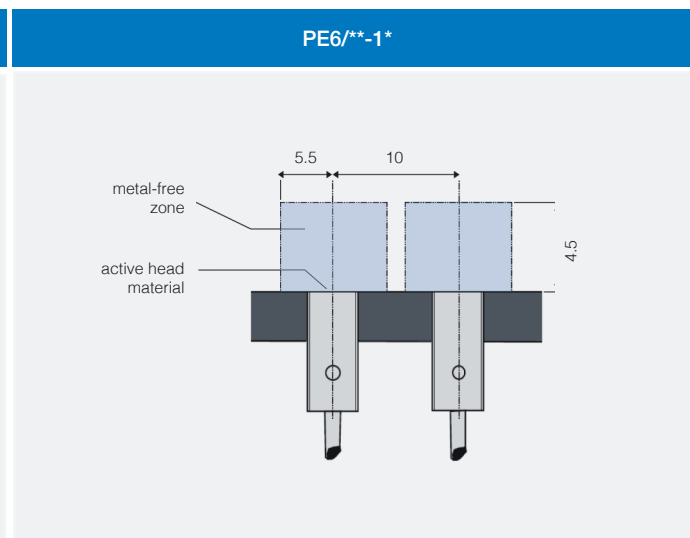
plug



response diagram



installation





M8 cylindrical
miniaturized

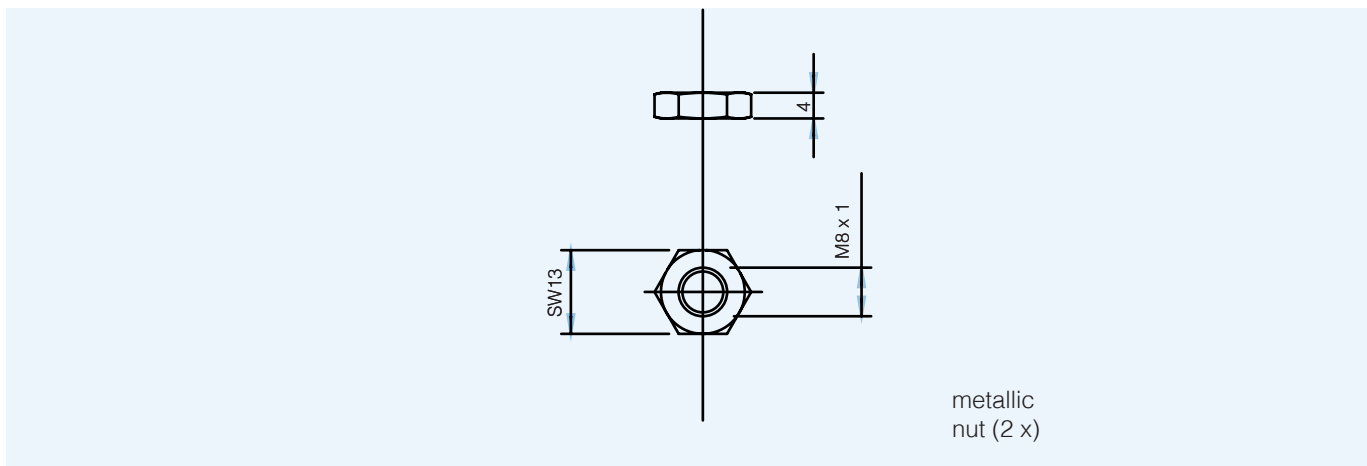
dimensions (mm)

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

1 LED

dimensions (mm)

accessories included models



PE6



IL5 series

5 x 5 mm cubic
miniaturized inductive sensors



5 x 5 mm cubic
miniaturized

features

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



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code description (*)

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

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

(**) Models without UL certification.

available model



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

IL5

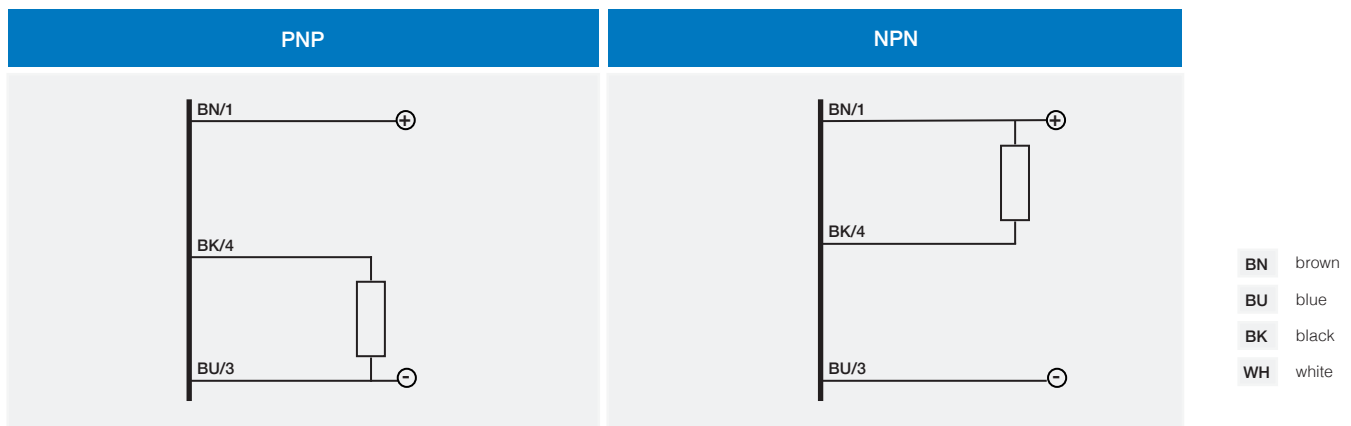


technical specifications

5 x 5 mm cubic miniaturized

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

electrical diagrams of the connections

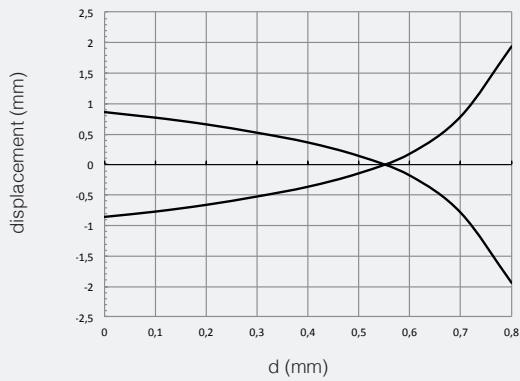


response diagram

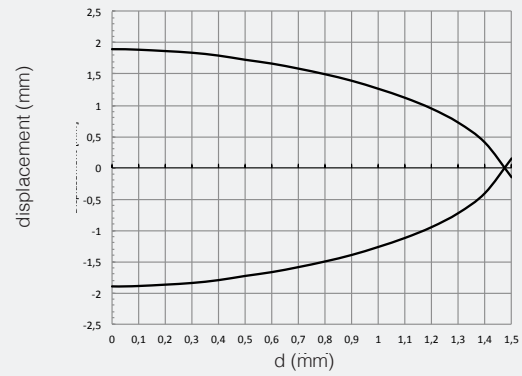


5 x 5 mm cubic
miniaturized

IL5/**-1* parallel displacement

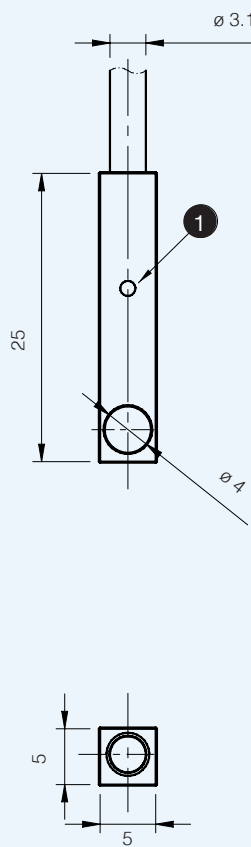


IL5/**-3* parallel displacement



dimensions (mm)

IL5/**-A



1 LED



notes

20 horizontal light blue lines for taking notes.



PP1 series

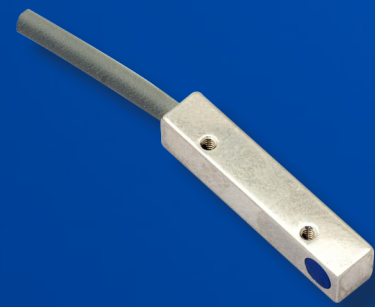
5 x 5 mm cubic
miniaturized inductive sensors



5 x 5 mm cubic
miniaturized

features

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



web contents



- Application notes
- Photos
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code description

PP1 / A P - 1 A

| | | |
|--------------|------------|-------------------------------------|
| series | PP1 | 5 x 5 mm inductive proximity switch |
| output state | A | NO output state |
| | C | NC output state |
| output logic | N | NPN logic output |
| | P | PNP logic output |
| distance | 1 | Standard shielded 0.8 mm |
| | 3 | Long distance shielded 1.5 mm |
| connect. | A | Cable exit output |

available models

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



5 x 5 mm cubic
miniaturized

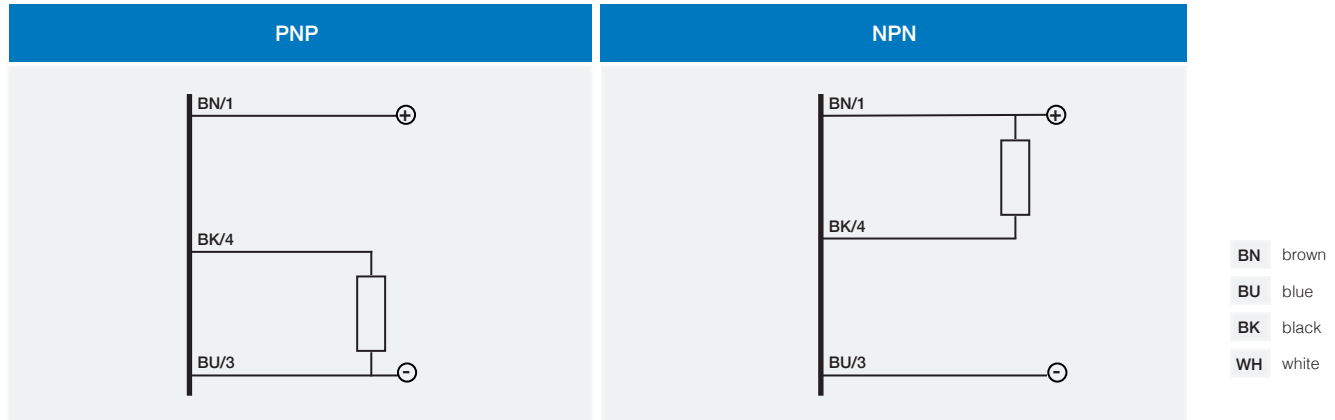
technical specification

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

correction factors

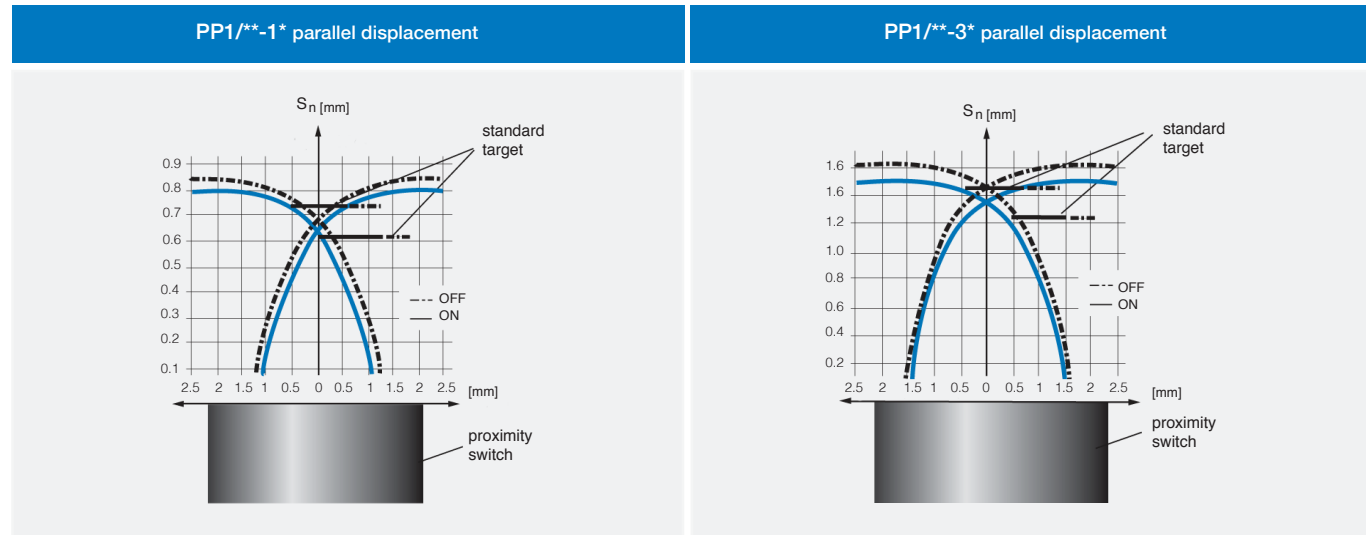
| steel FE 360 | | copper | | alluminium | | brass | | stainless steel | |
|--------------|-----------|-----------|-----------|------------|-----------|-----------|-----------|-----------------|-----------|
| PP1/**-1A | PP1/**-3A | PP1/**-1A | PP1/**-3A | PP1/**-1A | PP1/**-3A | PP1/**-1A | PP1/**-3A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

electrical diagrams of connections

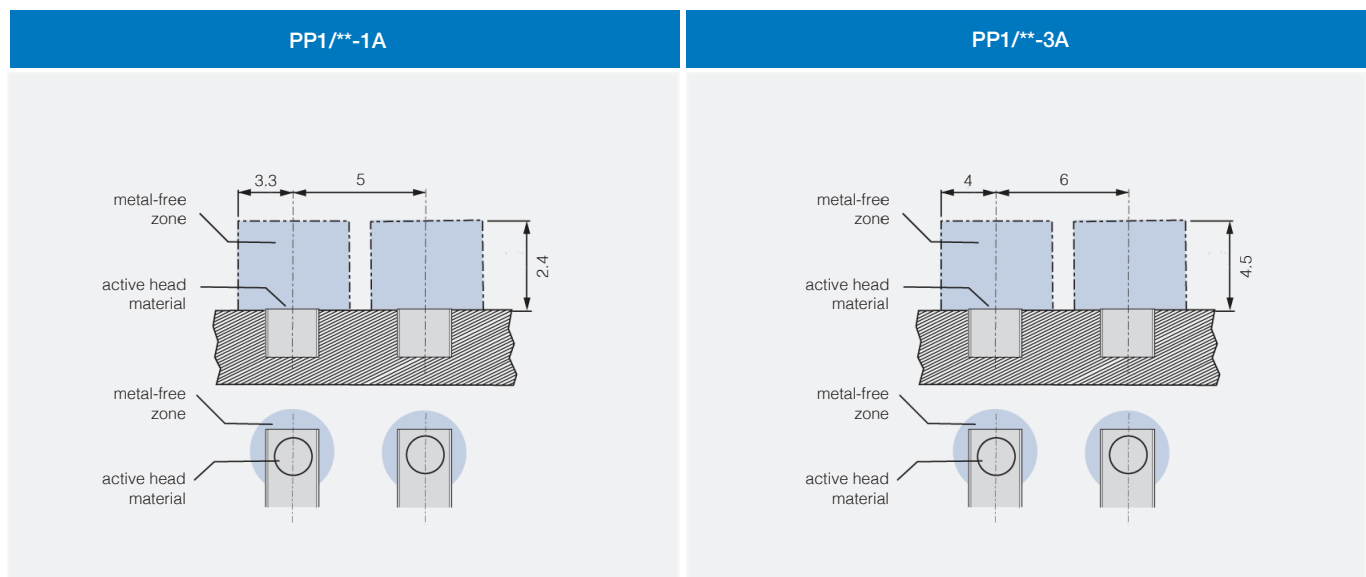


5 x 5 mm cubic miniaturized

response diagram



installation



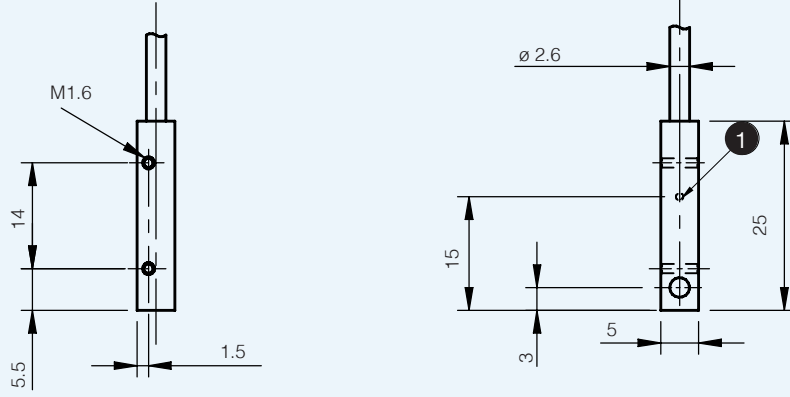
pp1



dimensions (mm)

PP1/**-*A

5 x 5 mm cubic
miniaturized

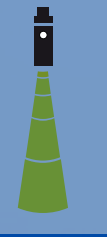


1 LED



IL8 / IL9 series

8 x 8 mm cubic
miniaturized inductive sensors



8 x 8 mm cubic
miniaturized

features

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



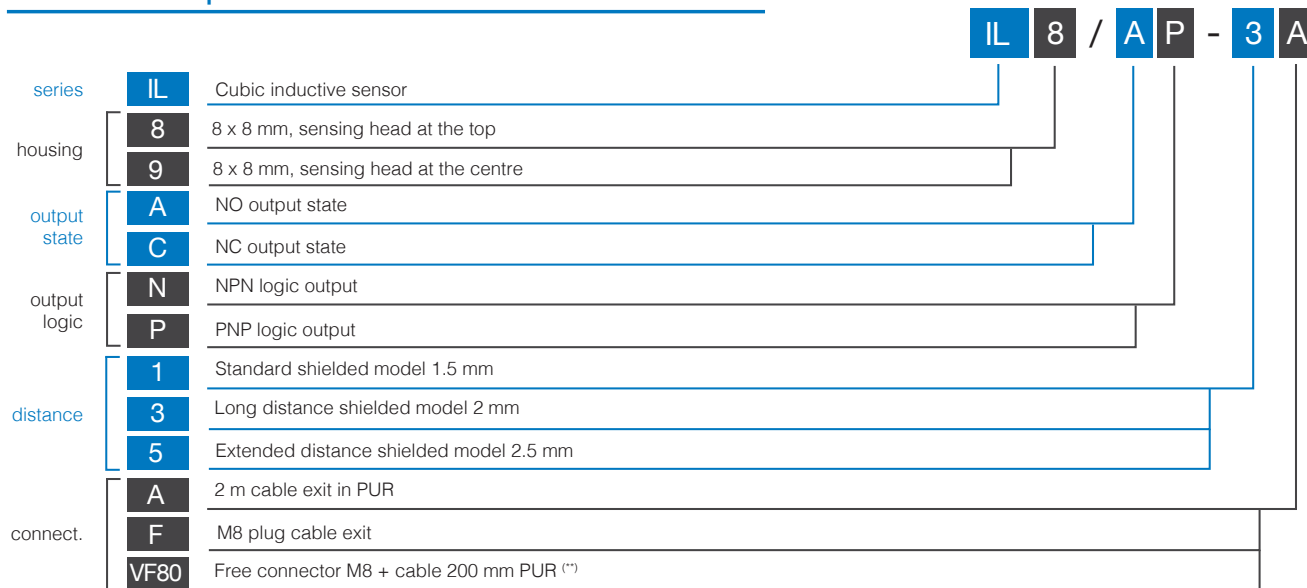
web contents



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- Photos
- Catalogue / Manuals



code description (*)



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

(**) Models without UL certification.

IL8 available model

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

IL8 / IL9






8 x 8 mm cubic
miniaturized

IL9 available models

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

technical specifications

according to IEC EN 60947-5-2

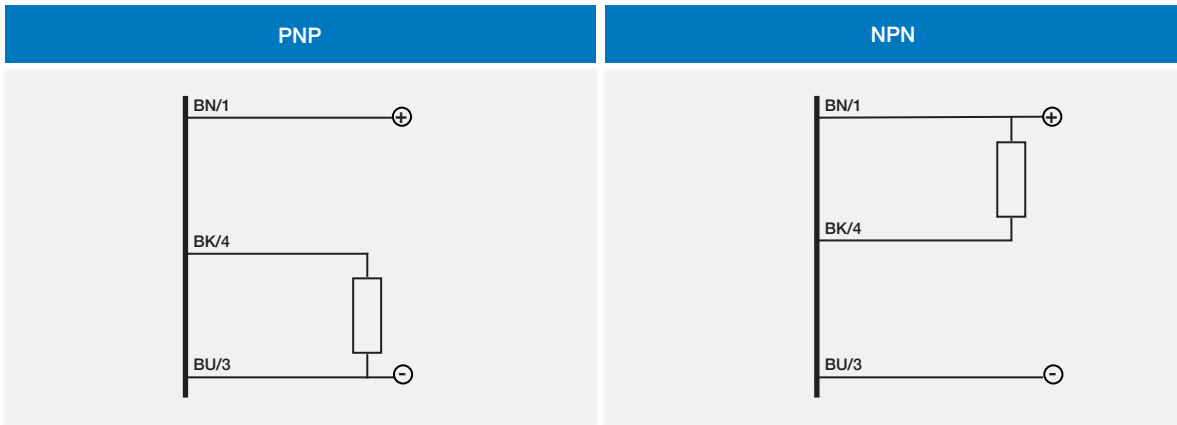
| | IL8/**-1* IL9/**-1* | IL8/**-3* IL9/**-3* | IL8/**-5* IL9/**-5* |
|-----------------------------|--|---|--|
| |  |  |  |
| nominal sensing distance | 1.5 mm | 2 mm | 2.5 mm |
| operating distance | 0...1.21 mm | 0...1.62 mm | 0...2.02 mm |
| hysteresis | 1...20% | | |
| standard target | 8x8 mm FE360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

correction factors

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

671 / 871

electrical diagrams of the connections

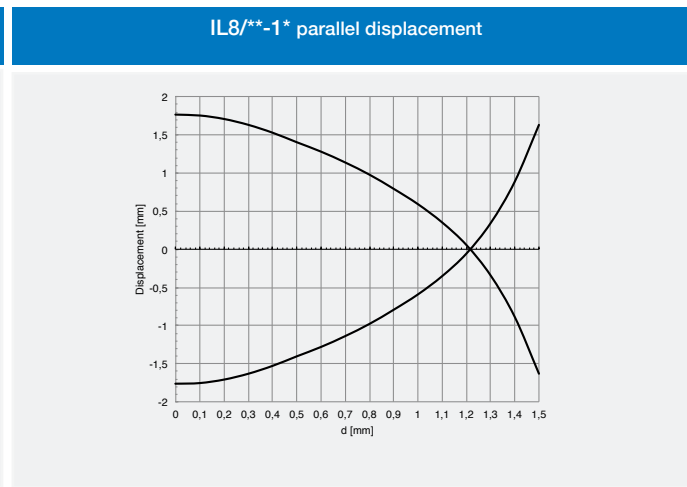
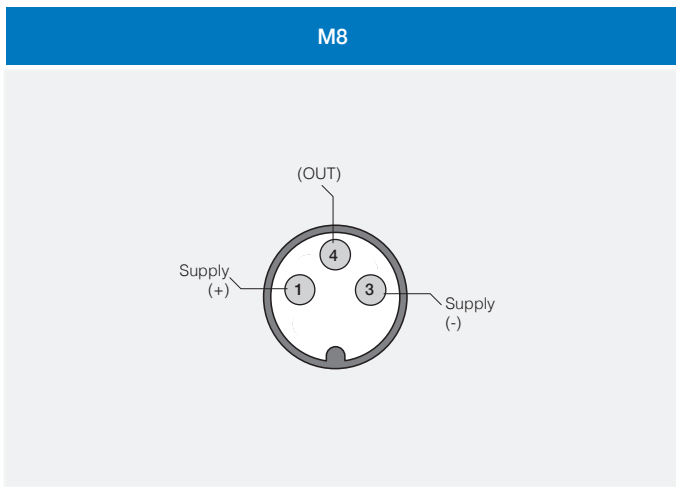


- BN** brown
- BU** blue
- BK** black
- WH** white

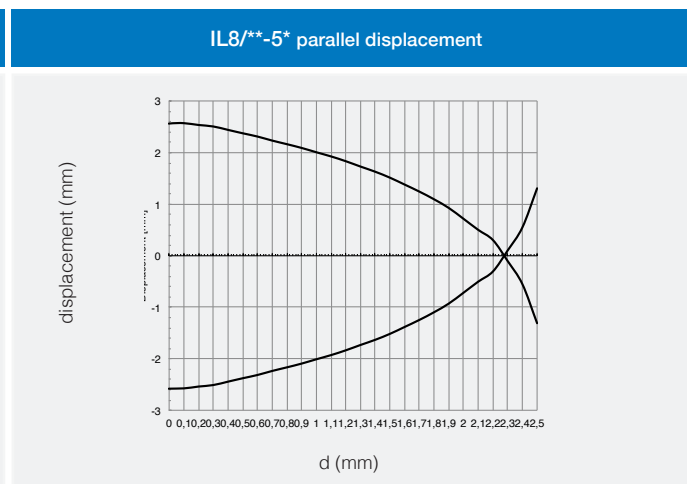
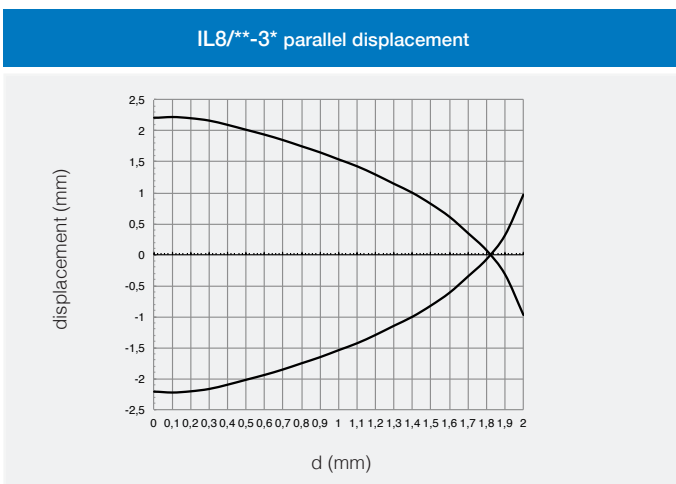
8 x 8 mm cubic
miniaturized

plug

response diagram



response diagram

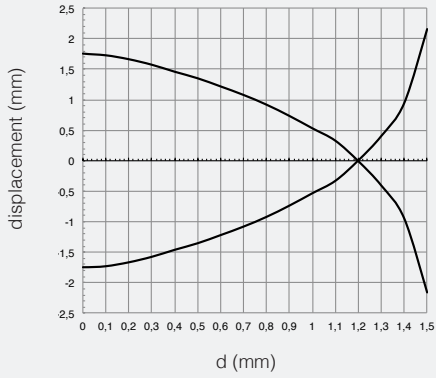




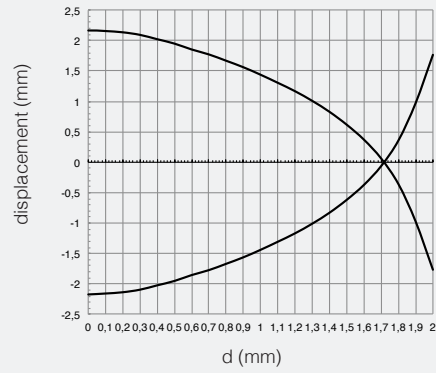
8 x 8 mm cubic
miniaturized

response diagram

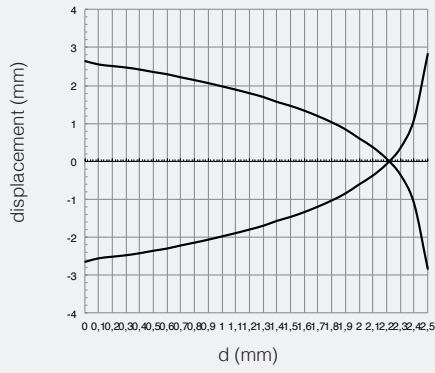
IL9/**-1* parallel displacement



IL9/**-3* parallel displacement

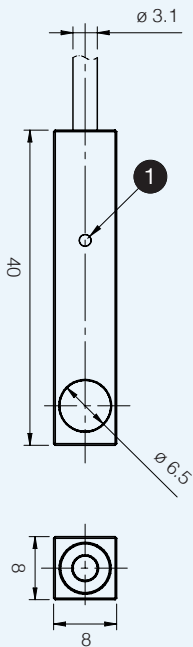


IL9/**-5* parallel displacement

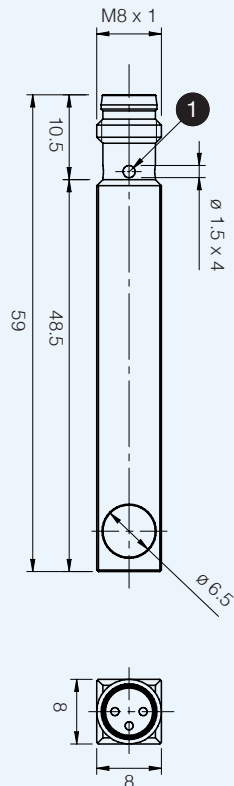


dimensions (mm)

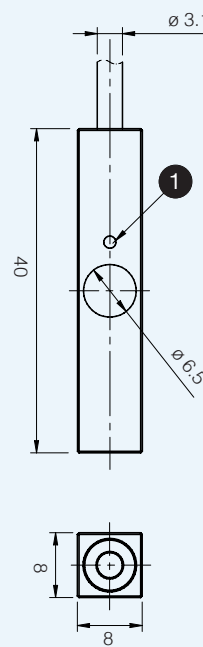
IL8/**-A



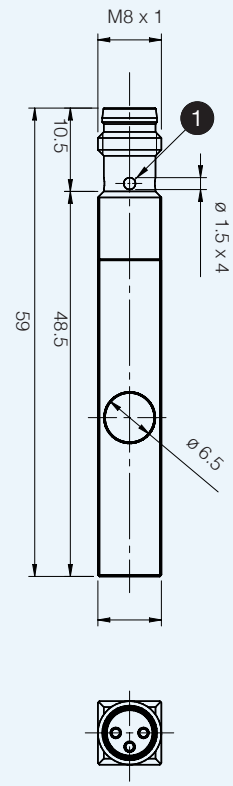
IL8/**-F



IL9/**-A



IL9/**-F



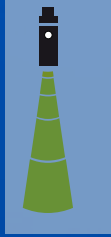
1 LED

IL8/IL9



IL1 series

10 x 28 x 16 mm
cubic miniaturized inductive sensors



10 x 28 x 16 mm
cubic miniaturized

features

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



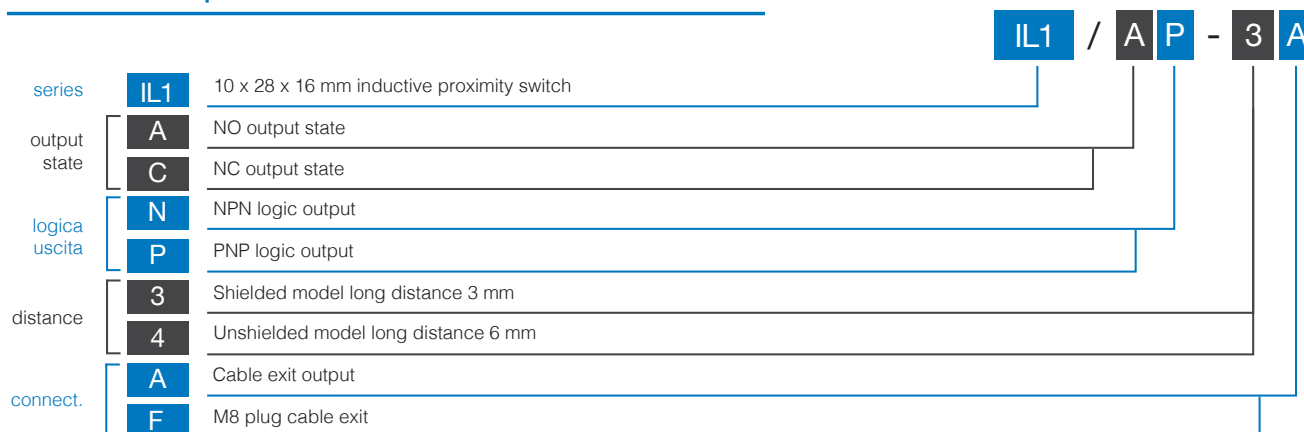
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code description




available models

| dimension (mm) | installation | distance | plug | distance (mm) | NPN/NO | NPN/NC | PNP/NO | PNP/NC |
|----------------|--------------|---------------|-------|---------------|-----------|-----------|-----------|-----------|
| 10 x 28 x 16 | shielded | long distance | cable | 3 | IL1/AN-3A | IL1/CN-3A | IL1/AP-3A | IL1/CP-3A |
| | | | M8 | | IL1/AN-3F | IL1/CN-3F | IL1/AP-3F | IL1/CP-3F |
| | unshielded | | cable | 6 | IL1/AN-4A | IL1/CN-4A | IL1/AP-4A | IL1/CP-4A |
| | | | M8 | | IL1/AN-4F | L1/CN-4F | IL1/AP-4F | IL1/CP-4F |



technical specification

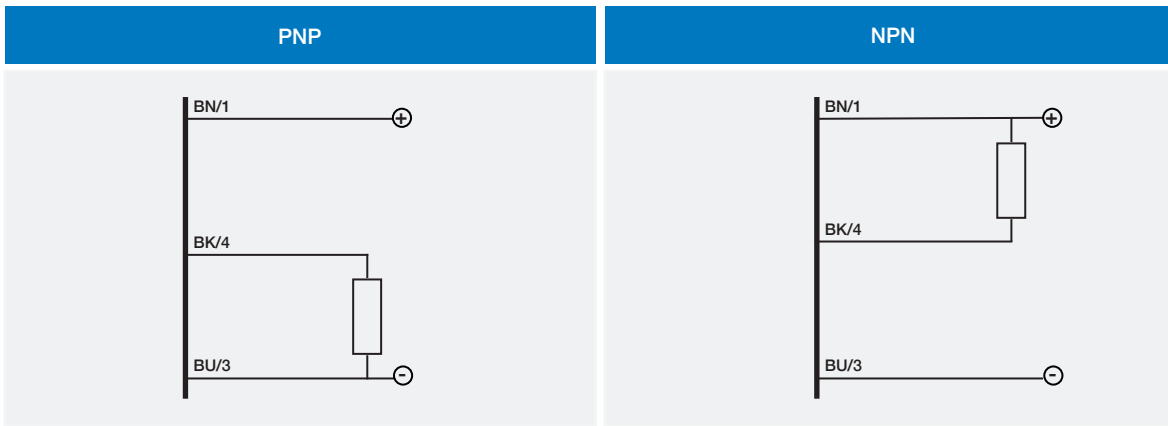
10 x 28 x 16 mm
cubic miniaturized

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

correction factors

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

electrical diagrams of connections

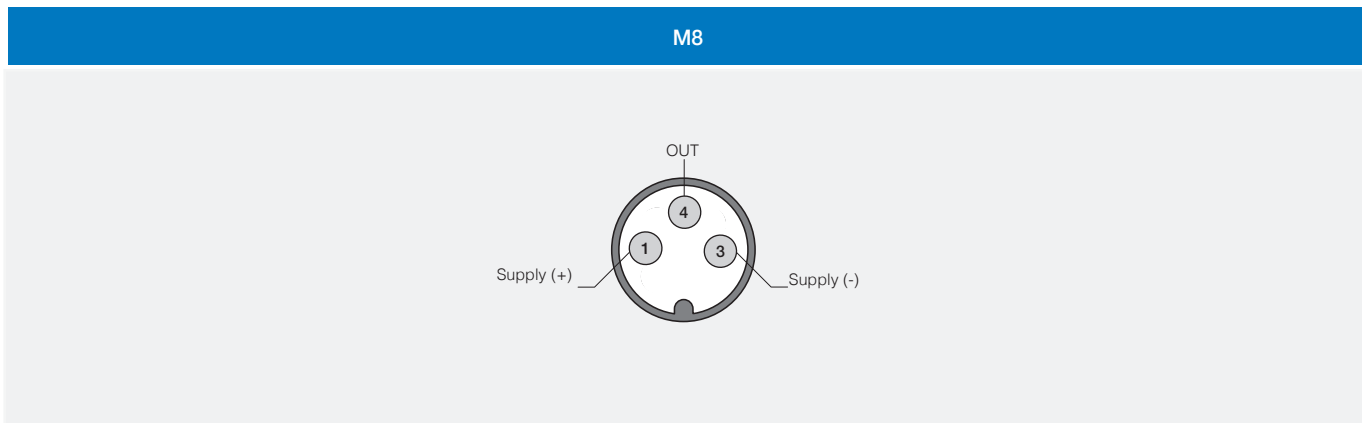


BN brown
BU blue
BK black
WH white

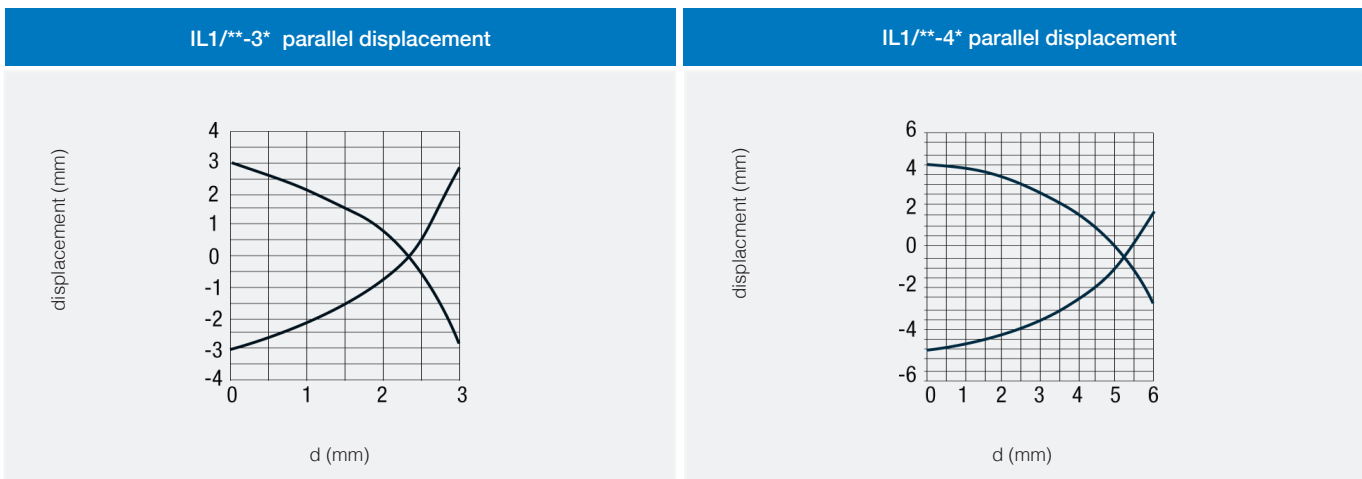


10 x 28 x 16 mm
cubic miniaturized

plug



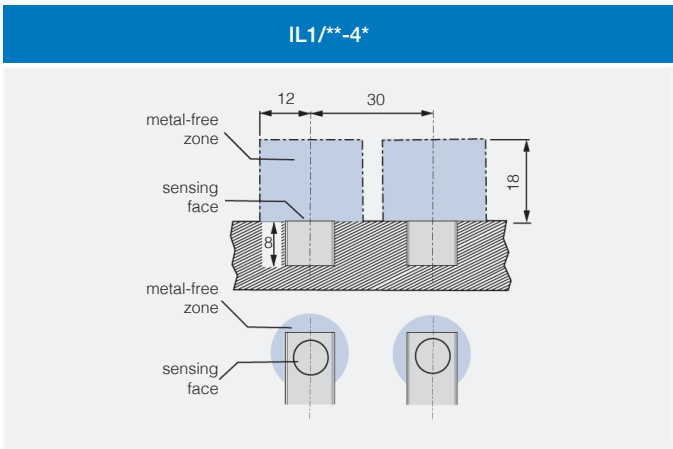
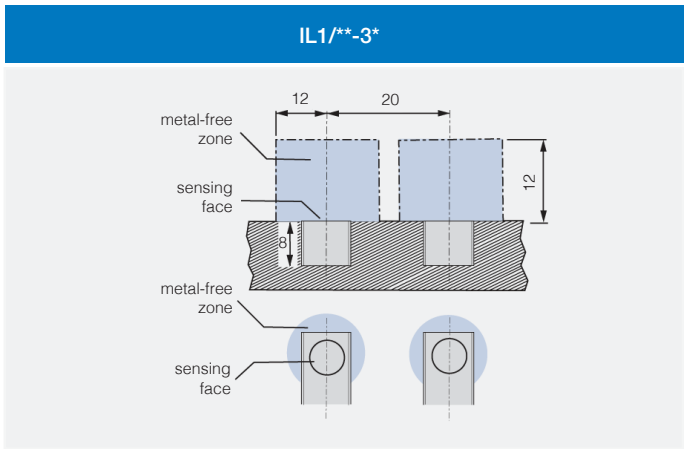
response diagram



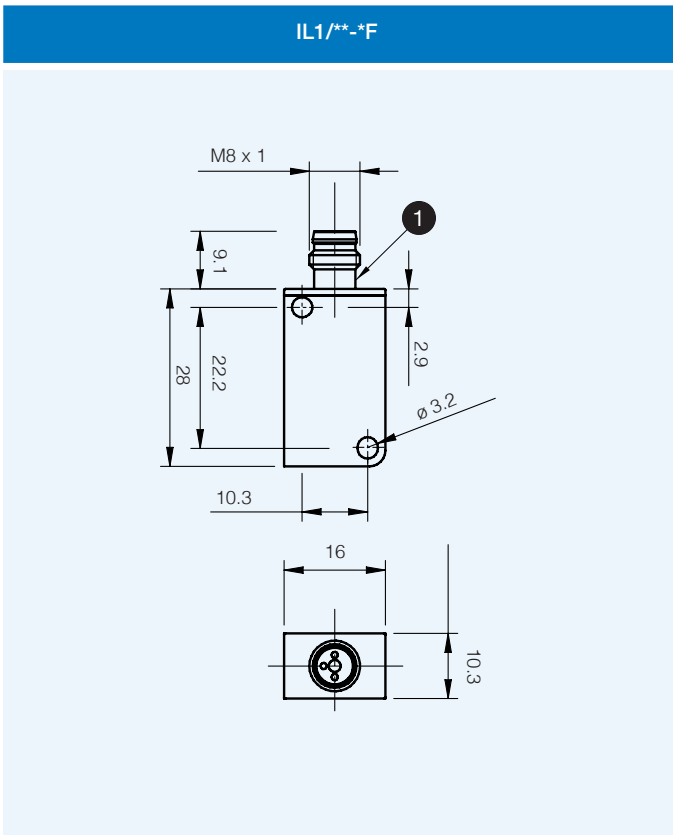
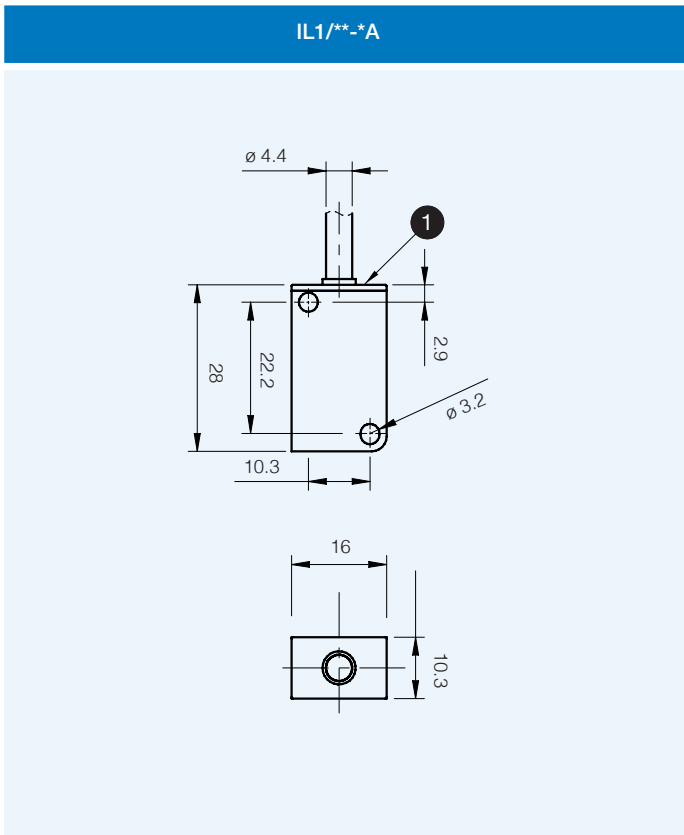


10 x 28 x 16 mm
cubic miniaturized

installation



dimensions (mm)



1 LED