# SMART SENSOR BUSINESS

## Leuze electronic
the *sensor* people

**Part no.: 50109706**
# IS 218MM/4NO-12E
## Inductive switch

Figure can vary

# Contents

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- Electrical connection
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## Technical data

| Basic data | |
| --- | --- |
| Series | 218 |
| Typ. operating range limit $S_n$ | 12 mm |
| Operating range $S_a$ | 0 ... 9.7 mm |

| Characteristic parameters | |
| --- | --- |
| MTTF | 480 years |

| Electrical data | |
| --- | --- |
| Protective circuit | Inductive protection<br>Polarity reversal protection<br>Short circuit protected |

| | Performance data | |
| --- | --- | --- |
| | Supply voltage $U_B$ | 10 ... 30 V, DC |
| | Residual ripple | 0 ... 20 %, From $U_B$ |
| | Open-circuit current | 0 ... 10 mA |
| | Temperature drift, max. (in % of $S_r$) | 10 %, Over the entire operating temperature range |
| | Repeatability, max. (in % of $S_r$) | 5 %, For $U_B$ = 20 … 30 V DC, ambient temperature $T_a$ = 23 °C ± 5 °C |
| | Switching hysteresis | 10 % |

| | Outputs | |
| --- | --- | --- |
| | Number of digital switching outputs | 1 Piece(s) |

| | | Switching outputs | |
| --- | --- | --- | --- |
| | | Voltage type | DC |
| | | Switching current, max. | 200 mA |
| | | Switching voltage | Low: ≤2V |
| | | Residual current, max. | 0.1 mA |
| | | Voltage drop | 2 V |

| | | | Switching output 1 | |
| --- | --- | --- | --- | --- |
| | | | Switching element | Transistor, PNP |
| | | | Switching principle | NO (normally open) |

| Timing | |
| --- | --- |
| Switching frequency | 600 Hz |
| Readiness delay | 40 ms |

| Connection | |
| --- | --- |
| Number of connections | 1 Piece(s) |

| | Connection 1 | |
| --- | --- | --- |
| | Type of connection | Cable |
| | Function | Signal OUT<br>Voltage supply |
| | Cable length | 2,000 mm |
| | Sheathing material | PVC |
| | Cable color | Gray |
| | Number of conductors | 3 -wire |
| | Wire cross section | 0.34 mm² |

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# Part no.: 50109706 – IS 218MM/4NO-12E – Inductive switch

| Mechanical data | |
|---|---|
| Design | Cylindrical |
| Thread size | M18 x 1 mm |
| Dimension (Ø x L) | 18 mm x 52 mm |
| Type of installation | Embedded |
| Housing material | Metal, Chromed brass |
| Sensing face material | Plastic, Polybutylene (PBT) |
| Net weight | 130 g |
| Housing color | Red, RAL 3000<br>Silver |
| Type of fastening | Mounting thread |
| Standard measuring plate | 36 x 36 mm², Fe360 |

| Operation and display | |
|---|---|
| Type of display | LED |
| Number of LEDs | 1 Piece(s) |

| Environmental data | |
|---|---|
| Ambient temperature, operation | -25 ... 70 °C |
| Ambient temperature, storage | -25 ... 70 °C |

| Certifications | |
|---|---|
| Degree of protection | IP 67 |
| Protection class | II |
| Certifications | c UL US |
| Test procedure for EMC in accordance with standard | IEC 61000-4-3<br>IEC 61000-4-4<br>IEC 61000-4-2 |
| Standards applied | IEC 60947-5-2 |

| Correction factors | |
|---|---|
| Aluminum | 0.3 |
| Stainless steel | 0.67 |
| Copper | 0.26 |
| Brass | 0.4 |
| Fe360 steel | 1 |

| Classification | |
|---|---|
| Customs tariff number | 85365019 |
| eCl@ss 8.0 | 27270101 |
| eCl@ss 9.0 | 27270101 |
| ETIM 5.0 | EC002714 |
| ETIM 6.0 | EC002714 |

## Dimensioned drawings

All dimensions in millimeters

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Part no.: 50109706 – IS 218MM/4NO-12E – Inductive switch
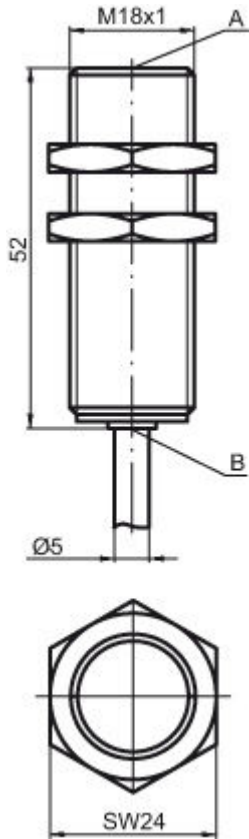


A Active surface
B Yellow LED

## Electrical connection

| **Connection 1** | |
|---|---|
| Type of connection | Cable |
| Function | Signal OUT<br>Voltage supply |
| Cable length | 2,000 mm |
| Sheathing material | PVC |
| Cable color | Gray |
| Number of conductors | 3 -wire |
| Wire cross section | 0.34 mm² |

| **Conductor color** | **Conductor assignment** |
|---|---|
| Brown | V+ |
| Blue | GND |
| Black | OUT 1 |

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## Diagrams

### Embedded installation
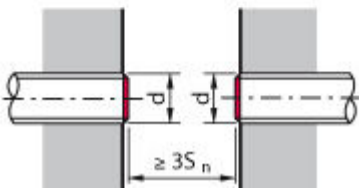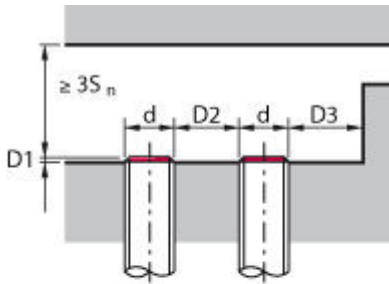


| | |
|---|---|
| S$_n$ [mm] | 12 |
| D1 [mm] | 4 |
| D2 [mm] | 26 |
| D3 [mm] | 9 |

### Types with S$_n$ = 12.0 mm
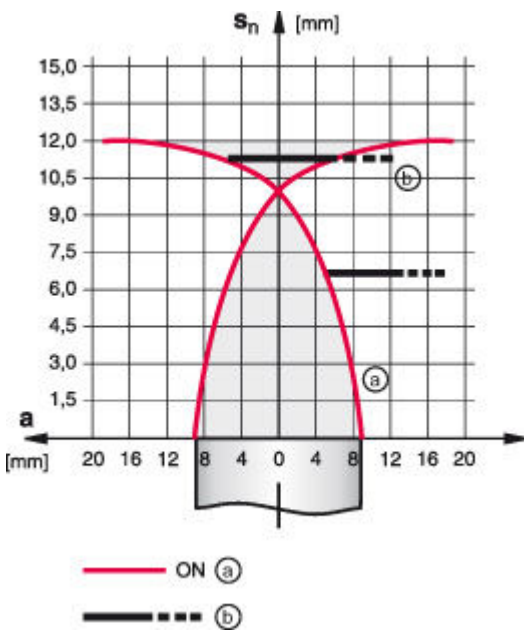


a    Inductive switch
b    Standard measuring plate

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## Operation and display

### LEDs

| LED | Display | Meaning |
|-----|---------|---------|
| 1 | Yellow, continuous light | Switching output/switching state |

## Part number code

Part designation: **ISX YYY ZZ/AAA.BB-CCC-DDD-DDD**

| | |
|---|---|
| ISX | **Operating principle / construction:**<br>IS: inductive switch, standard design<br>ISS: inductive switch, short construction |
| YYY | **Series:**<br>203: series with Ø 3 mm<br>204: series with Ø 4 mm<br>205: series with M5 x 0.5 external thread<br>206: series with Ø 6.5 mm<br>208: series with M8 x 1 external thread<br>212: series with M12 x 1 external thread<br>218: series with M18 x 1 external thread<br>230: series with M30 x 1.5 external thread<br>240: series in cubic design<br>244: series in cubic design<br>255: series with 5 x 5 mm² cross section<br>288: series with 8 x 8 mm² cross section |
| ZZ | **Housing / thread:**<br>MM: metal housing (active surface: plastic) / metric thread<br>FM: full-metal housing (active surface: stainless steel AISI 316L) / metric thread<br>MP: metal housing (active surface: plastic) / smooth (without thread) |
| AAA | **Output current / supply:**<br>4NO: PNP transistor, NO contact<br>4NC: PNP transistor, NC contact<br>2NO: NPN transistor, NO contact<br>2NC: NPN transistor, NC contact<br>1NO: relay, NO contact / AC/DC<br>1NC: relay, NC contact / AC/DC<br>44: 2 PNP transistor switching outputs, antivalent (NO + NC) |
| BB | **Special equipment:**<br>n/a: no special equipment<br>5F: food version<br>5: housing material V2A (1.4305, AISI 303) |
| CCC | **Measurement range / type of installation:**<br>1E0: typ. range limit 1.0 mm / embedded installation<br>1E5: typ. range limit 1.5 mm / embedded installation<br>2E0: typ. range limit 2.0 mm / embedded installation<br>3E0: typ. range limit 3.0 mm / embedded installation<br>4E0: typ. range limit 4.0 mm / embedded installation<br>5E0: typ. range limit 5.0 mm / embedded installation<br>6E0: typ. range limit 6.0 mm / embedded installation<br>8E0: typ. range limit 8.0 mm / embedded installation<br>10E: typ. range limit 10.0 mm / embedded installation<br>12E: typ. range limit 12.0 mm / embedded installation<br>20E: typ. range limit 20.0 mm / embedded installation<br>22E: typ. range limit 22.0 mm / embedded installation<br>2N5: typ. range limit 2.5 mm / non-embedded installation<br>4N0: typ. range limit 4.0 mm / non-embedded installation<br>8N0: typ. range limit 8.0 mm / non-embedded installation<br>10N: typ. range limit 10.0 mm / non-embedded installation<br>12N: typ. range limit 12.0 mm / non-embedded installation<br>15N: typ. range limit 15.0 mm / non-embedded installation<br>20N: typ. range limit 20.0 mm / non-embedded installation<br>25N: typ. range limit 25.0 mm / non-embedded installation<br>40N: typ. range limit 40.0 mm / non-embedded installation |
| DDD | **Electrical connection:**<br>n/a: cable, PVC, standard length 2000 mm<br>S12: M12 connector, 4-pin, axial<br>200-S12: cable, PVC, length 200 mm with M12 connector, 4-pin, axial<br>200-S8.3: cable, PVC, length 200 mm with M8 connector, 3-pin, axial<br>S8.3: M8 connector, 3-pin, axial<br>005-S8.3: cable, PVC, length 500 mm with M8 connector, 3-pin, axial |

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## Part no.: 50109706 – IS 218MM/4NO-12E – Inductive switch

| Note |
| --- |
| A list with all available device types can be found on the Leuze electronic website at www.leuze.com. |

## Notes

| Observe intended use! |
| --- |
| • This product is not a safety sensor and is not intended as personnel protection. |
| • The product may only be put into operation by competent persons. |
| • Only use the product in accordance with its intended use. |

| For UL applications: |
| --- |
| • For UL applications, use is only permitted in Class 2 circuits in accordance with the NEC (National Electric Code). |

## Accessories

# Mounting technology - Mounting brackets

| | Part no. | Designation | Article | Description |
| --- | --- | --- | --- | --- |
| | 50113548 | BT D18M.5 | Mounting bracket | Diameter, inner: 18 mm<br>Design of mounting device: Angle, L-shape<br>Fastening, at system: Through-hole mounting<br>Mounting bracket, at device: Screw type<br>Type of mounting device: Rigid<br>Material: Stainless steel |

# Mounting technology - Rod mounts

| | Part no. | Designation | Article | Description |
| --- | --- | --- | --- | --- |
| | 50117490 | BTU D18M-D12 | Mounting system | Design of mounting device: Mounting system<br>Fastening, at system: Through-hole mounting<br>Mounting bracket, at device: Screw type<br>Type of mounting device: Clampable, Adjustable, Turning, 360°<br>Material: Metal |

# Mounting technology - Other

| | Part no. | Designation | Article | Description |
| --- | --- | --- | --- | --- |
| | 50132729 | AC D18M-CS | Clamp | Contains: 2x M24 mounting nut<br>Diameter, inner: 18 mm<br>Design of mounting device: Mounting clamp<br>Fastening, at system: Screw type, Through-hole mounting<br>Mounting bracket, at device: insertable, Clampable with limit stop<br>Type of mounting device: Clampable, With limit stop<br>Material: Metal |

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| | Part no. | Designation | Article | Description |
|---|---|---|---|---|
|  | 50111501 | MC 018K | Clamp | Diameter, inner: 18 mm<br>Design of mounting device: Mounting clamp<br>Fastening, at system: Through-hole mounting<br>Mounting bracket, at device: Clampable<br>Type of mounting device: Rigid<br>Material: Plastic |
|  | 50111502 | MC 018K-LS | Clamp | Diameter, inner: 18 mm<br>Design of mounting device: Mounting clamp<br>Fastening, at system: Through-hole mounting<br>Mounting bracket, at device: Clampable with limit stop<br>Type of mounting device: Rigid<br>Material: Plastic |

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