SMART
**SENSOR**
BUSINESS

Leuze electronic

the sensor people

# Part no.: 50109666
# IS 212MM/2NO-2E0
# Inductive switch

Figure can vary

## Contents




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# Part no.: 50109666 – IS 212MM/2NO-2E0 – Inductive switch

## Technical data

| | |
|---|---|
| ***Basic data*** | |
| Series | 212 |
| Typ. operating range limit $S_n$ | 2 mm |
| Operating range $S_a$ | 0 ... 1.6 mm |

| | |
|---|---|
| ***Characteristic parameters*** | |
| MTTF | 910 years |

| | |
|---|---|
| ***Electrical data*** | |
| Protective circuit | Short circuit protected<br>Polarity reversal protection<br>Inductive protection |
| ***Performance data*** | |
| Supply voltage | 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, NPN |
| Switching principle | NO (normally open) |

| | |
|---|---|
| ***Timing*** | |
| Switching frequency | 3,000 Hz |
| Readiness delay | 10 ms |

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

| | |
|---|---|
| ***Mechanical data*** | |

| | |
|---|---|
| Design | Cylindrical |
| Thread size | M12 x 1 mm |
| Dimension (Ø x L) | 12 mm x 52 mm |
| Type of installation | Embedded |
| Housing material | Metal, Chromed brass |
| Sensing face material | Plastic, Polybutylene (PBT) |
| Net weight | 95 g |
| Housing color | Red, RAL 3000<br>Silver |
| Type of fastening | Mounting thread<br>Via optional mounting device |
| Standard measuring plate | 12 x 12 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 |

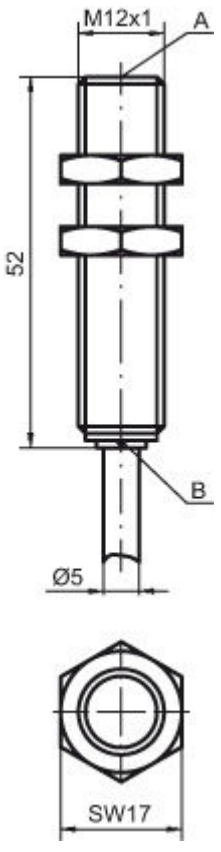
| ***Certifications*** | |
|---|---|
| Degree of protection | IP 67 |
| Protection class | II |
| Certifications | c UL US |
| Test procedure for EMC in accordance with standard | IEC 61000-4-3<br>IEC 61000-4-4<br>IEC 61000-4-2 |
| Standards applied | IEC 60947-5-2 |

| ***Correction factors*** | |
|---|---|
| Aluminum | 0.3 |
| Stainless steel | 0.85 |
| Copper | 0.2 |
| Brass | 0.4 |
| Fe360 steel | 1 |

| ***Classification*** | |
|---|---|
| eCl@ss 8.0 | 27270101 |
| eCl@ss 9.0 | 27270101 |
| ETIM 5.0 | EC002714 |

## Dimensioned drawings

All dimensions in millimeters




A Active surface
B Yellow LED

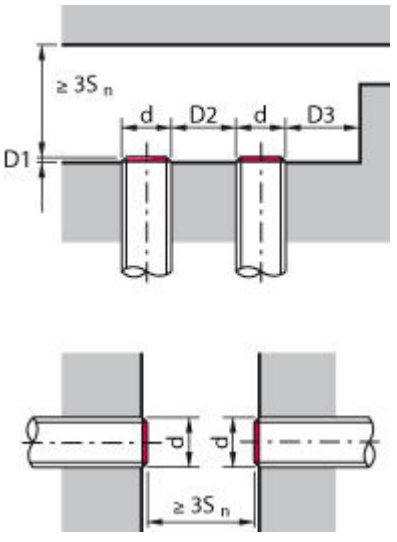
## Electrical connection

| Connection 1 | |
|---|---|
| Type of connection | Cable |
| Function | Voltage supply<br>Signal OUT |
| 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 |

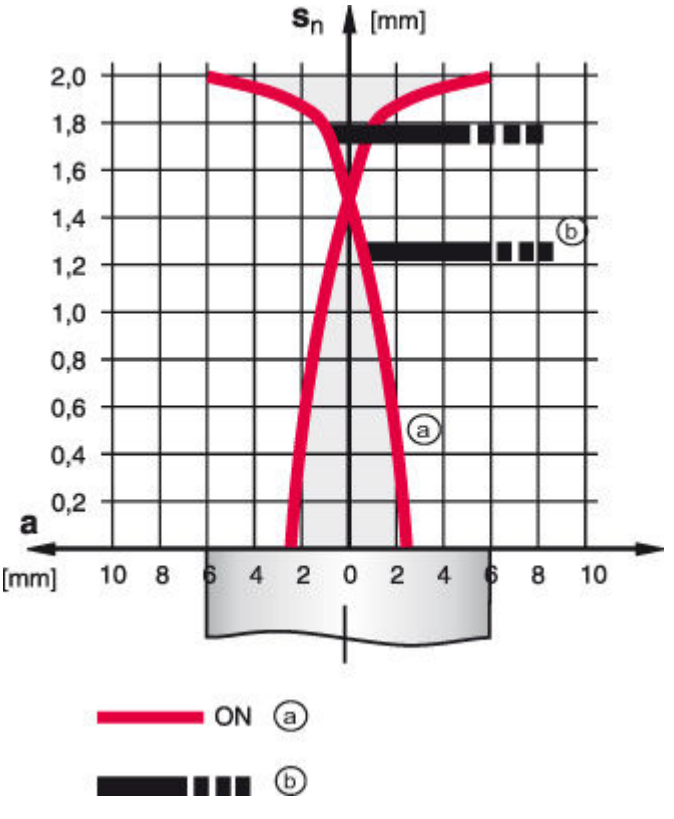
## Diagrams

Embedded installation




| | |
|---|---|
| $S_n$ [mm] | 2 |
| D1 [mm] | 0 |
| D2 [mm] | 6 |
| D3 [mm] | 2 |

Types with $S_n$ = 2.0 mm




a Inductive switch
b Standard measuring plate

## 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 |
| 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 |
| 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. scanning range limit 1.0 mm / embedded installation<br>1E5: typ. scanning range limit 1.5 mm / embedded installation<br>2E0: typ. scanning range limit 2.0 mm / embedded installation<br>3E0: typ. scanning range limit 3.0 mm / embedded installation<br>4E0: typ. scanning range limit 4.0 mm / embedded installation<br>5E0: typ. scanning range limit 5.0 mm / embedded installation<br>6E0: typ. scanning range limit 6.0 mm / embedded installation<br>8E0: typ. scanning range limit 8.0 mm / embedded installation<br>10E: typ. scanning range limit 10.0 mm / embedded installation<br>12E: typ. scanning range limit 12.0 mm / embedded installation<br>20E: typ. scanning range limit 20.0 mm / embedded installation<br>22E: typ. scanning range limit 22.0 mm / embedded installation<br>2N5: typ. scanning range limit 2.5 mm / non-embedded installation<br>4N0: typ. scanning range limit 4.0 mm / non-embedded installation<br>8N0: typ. scanning range limit 8.0 mm / non-embedded installation<br>10N: typ. scanning range limit 10.0 mm / non-embedded installation<br>12N: typ. scanning range limit 12.0 mm / non-embedded installation<br>15N: typ. scanning range limit 15.0 mm / non-embedded installation<br>20N: typ. scanning range limit 20.0 mm / non-embedded installation<br>25N: typ. scanning range limit 25.0 mm / non-embedded installation<br>40N: typ. scanning 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 |

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

## Accessories

### Mounting technology - Mounting brackets

| | Part no. | Designation | Article | Description |
|---|---|---|---|---|
|  | 50113549 | BT D12M.5 | Mounting bracket | Diameter, inner: 12 mm<br>Design of mounting device: Angle, L-shape<br>Mounting bracket, at system: Through-hole mounting<br>Mounting bracket, at device: Screw type<br>Type of mounting device: Rigid<br>Material: Stainless steel |

### Mounting technology - Other

| | Part no. | Designation | Article | Description |
|---|---|---|---|---|
|  | 50132728 | AC D12M-CS | Clamp | Contains: 2x M16 mounting nut<br>Diameter, inner: 12 mm<br>Design of mounting device: Mounting clamp<br>Mounting bracket, 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 |
|  | 50111499 | MC 012K | Clamp | Diameter, inner: 12 mm<br>Design of mounting device: Mounting clamp<br>Mounting bracket, at system: Through-hole mounting<br>Mounting bracket, at device: Clampable<br>Type of mounting device: Rigid<br>Material: Plastic |
|  | 50111500 | MC 012K-LS | Clamp | Diameter, inner: 12 mm<br>Design of mounting device: Mounting clamp<br>Mounting bracket, at system: Through-hole mounting<br>Mounting bracket, at device: Clampable with limit stop<br>Type of mounting device: Rigid<br>Material: Plastic |

## Notes

| Observe intended use! |
|---|
| • This product is not a safety sensor and is not intended as personnel protection.<br>• The product may only be put into operation by competent persons.<br>• 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). |