

## Technical data sheet

### Inductive switch

Part no.: 50109669

IS 212MM/4NO-4N0-S12

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For illustration purposes only



## Technical data

### Basic data

|                                   |              |
|-----------------------------------|--------------|
| Series                            | 212          |
| type. operating range limit $S_n$ | 4 mm         |
| Operating range $S_a$             | 0 ... 3.2 mm |

### Characteristic parameters

|      |           |
|------|-----------|
| MTTF | 910 years |
|------|-----------|

### Electrical data

|                    |                              |
|--------------------|------------------------------|
| Protective circuit | Inductive protection         |
|                    | Polarity reversal protection |
|                    | 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 $U_B = 20 \dots 30$ VDC, ambient temperature $T_a = 23^\circ\text{C} \pm 5^\circ\text{C}$ |
| Switching hysteresis                     | 10 %   |

### Outputs

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

### Switching outputs

|                         |            |
|-------------------------|------------|
| Voltage type            | DC         |
| Switching current, max. | 200 mA     |
| Residual current, max.  | 0.1 mA     |
| Voltage drop            | $\leq 2$ V |

### Switching output 1

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

### Time behavior

|                     |          |
|---------------------|----------|
| Switching frequency | 2,000 Hz |
| Readiness delay     | 80 ms    |

### Connection

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

### Connection 1

|                    |                |
|--------------------|----------------|
| Function           | Signal OUT     |
|                    | Voltage supply |
| Type of connection | Connector      |
| Thread size        | M12            |
| Type               | Male           |
| Material           | Metal          |
| No. of pins        | 4 -pin         |
| Encoding           | A-coded        |

### Mechanical data

|                                      |                                 |
|--------------------------------------|---------------------------------|
| Design                               | Cylindrical                     |
| Dimension ( $\varnothing \times L$ ) | 12 mm x 60 mm                   |
| Thread size                          | M12 x 1 mm                      |
| Type of installation                 | Non-embedded                    |
| Housing material                     | Metal                           |
| Metal housing                        | Nickel-plated brass             |
| Sensing face material                | Plastic, Polybutylene (PBT)     |
| Net weight                           | 26.7 g                          |
| Housing color                        | Red, RAL 3000<br>Silver         |
| Type of fastening                    | Mounting thread                 |
| Standard measuring plate             | 12 x 12 mm <sup>2</sup> , 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            |
| Approvals  | c UL US       |
| Test procedure for EMC in accordance with standard | IEC 61000-4-2 |
|  | IEC 61000-4-3 |
|  | IEC 61000-4-4 |
| Standards applied                                  | IEC 60947-5-2 |

### Correction factors

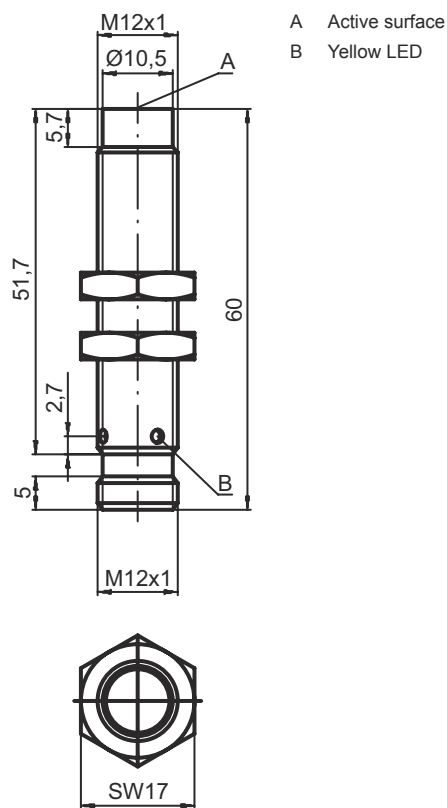
|                 |     |
|-----------------|-----|
| Aluminum        | 0.5 |
| Stainless steel | 0.9 |
| Copper          | 0.5 |
| Brass           | 0.6 |
| Fe360 steel     | 1   |

### Classification

|                       |          |
|-----------------------|----------|
| Customs tariff number | 85365019 |
| ECLASS 5.1.4          | 27270101 |
| ECLASS 8.0            | 27270101 |
| ECLASS 9.0            | 27270101 |
| ECLASS 10.0           | 27270101 |
| ECLASS 11.0           | 27270101 |
| ECLASS 12.0           | 27274001 |
| ECLASS 13.0           | 27274001 |
| ECLASS 14.0           | 27274001 |
| ECLASS 15.0           | 27274001 |
| ETIM 5.0              | EC002714 |
| ETIM 6.0              | EC002714 |
| ETIM 7.0              | EC002714 |
| ETIM 8.0              | EC002714 |
| ETIM 9.0              | EC002714 |
| ETIM 10.0             | EC002714 |

# Dimensioned drawings

All dimensions in millimeters



## Electrical connection

### Connection 1

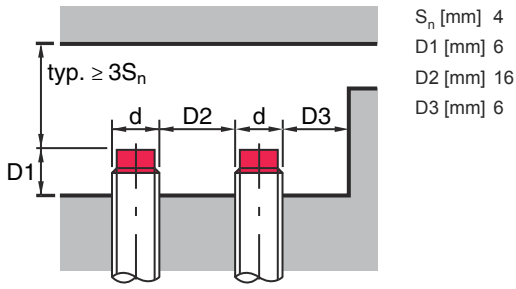
|                    |                |
|--------------------|----------------|
| Function           | Signal OUT     |
|                    | Voltage supply |
| Type of connection | Connector      |
| Thread size        | M12            |
| Type               | Male           |
| Material           | Metal          |
| No. of pins        | 4 -pin         |
| Encoding           | A-coded        |

### Pin Pin assignment

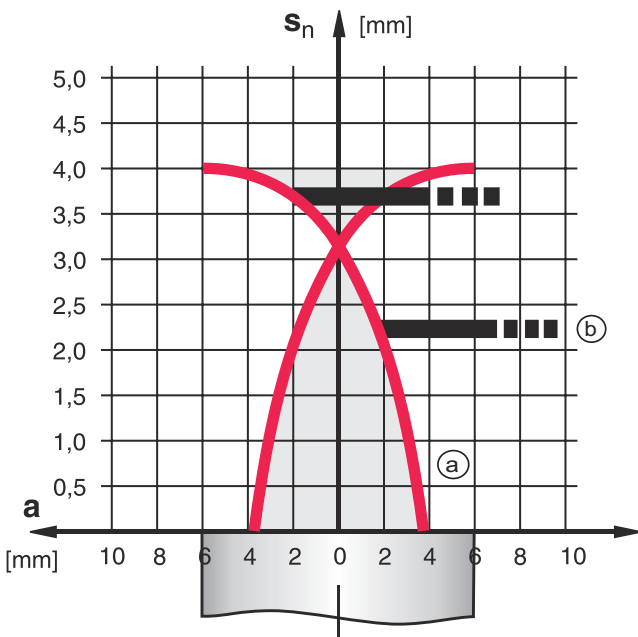
|   |       |
|---|-------|
| 1 | V+    |
| 2 | n.c.  |
| 3 | GND   |
| 4 | OUT 1 |

# Diagrams

## Non-embedded installation



## Types with $S_n = 4.0$ mm



- a Inductive switch
- b Standard measuring plate

— ON (a)

▬▬▬ (b)

## Operation and display

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

# Part number code

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

|            |   |
|------------|---|
| <b>ISX</b> | <p><b>Operating principle / construction</b><br/>                 IS: inductive switch, standard design<br/>                 ISS: inductive switch, short construction</p>  |
| <b>YYY</b> | <p><b>Series</b><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 mm<sup>2</sup> cross section<br/>                 288: series with 8 x 8 mm<sup>2</sup> cross section</p>   |
| <b>ZZ</b>  | <p><b>Housing / thread</b><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)<br/>                 .2: New version</p>   |
| <b>AAA</b> | <p><b>Output current / supply</b><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)<br/>                 22: 2 NPN transistor switching outputs, antivalent (NO + NC)<br/>                 L: IO-Link interface<br/>                 X: pin not used</p>  |
| <b>BB</b>  | <p><b>Special equipment</b><br/>                 n/a: no special equipment<br/>                 5F: Food version<br/>                 5: housing material V2A (1.4305, AISI 303)</p>  |
| <b>CCC</b> | <p><b>Measurement range / type of installation</b><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/>                 15E: typ. range limit 15.0 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/>                 14N: typ. range limit 14.0 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/>                 22N: typ. range limit 22.0 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</p> |

## Part number code

|             |   |
|-------------|---|
| <b>DDD</b>  | <p><b>Electrical connection</b><br/>                 n/a: cable, standard length 2000 mm<br/>                 S12: M12 connector, 4-pin, axial<br/>                 200-S12: cable, length 200 mm with M12 connector, 4-pin, axial<br/>                 200-S8.3: cable, length 200 mm with M8 connector, 3-pin, axial<br/>                 S8.3: M8 connector, 3-pin, axial<br/>                 005-S8.3: cable, length 500 mm with M8 connector, 3-pin, axial<br/>                 050: cable, standard length 5000 mm, 3-wire</p> |
| <b>Note</b> |   |
|             | <p>A list with all available device types can be found on the Leuze website at <a href="http://www.leuze.com">www.leuze.com</a>.</p>  |

## Notes

|                              |   |
|------------------------------|---|
| <b>Observe intended use!</b> |   |
|                              | <ul style="list-style-type: none"> <li>⌘ This product is not a safety sensor and is not intended as personnel protection.</li> <li>⌘ The product may only be put into operation by competent persons.</li> <li>⌘ Only use the product in accordance with its intended use.</li> </ul> |



|                             |   |
|-----------------------------|---|
| <b>For UL applications:</b> |   |
|                             | <ul style="list-style-type: none"> <li>⌘ For UL applications, use is only permitted in Class 2 circuits in accordance with the NEC (National Electric Code).</li> </ul> |

## Accessories


### Connection technology - Connection cables

|  | <b>Part no.</b> | <b>Designation</b> | <b>Article</b>   | <b>Description</b>  |
|--|-----------------|--------------------|------------------|---|
|  | 50130654        | KD U-M12-4A-P1-020 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 2.000 mm<br>Sheathing material: PUR |
|  | 50130657        | KD U-M12-4A-P1-050 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 5.000 mm<br>Sheathing material: PUR |

## Accessories

|   | Part no. | Designation        | Article          | Description   |
|---|----------|--------------------|------------------|---|
|  | 50130648 | KD U-M12-4A-V1-020 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 2.000 mm<br>Sheathing material: PVC |
|  | 50130652 | KD U-M12-4A-V1-050 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 5.000 mm<br>Sheathing material: PVC |

## Mounting technology - Other

|   | Part no. | Designation | Article | Description   |
|---|----------|-------------|---------|---|
|  | 50111499 | MC 012K     | Clamp   | Diameter, inner: 12 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 |

### Note



A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page.