

## Technical data sheet

### Inductive switch

Part no.: 50112914

IS 212MM/4NC-4NO-S12

#### Contents

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- Dimensioned drawings
- Electrical connection
- Diagrams
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For illustration purposes only



Technical data

Basic data

|                                           |              |
|-------------------------------------------|--------------|
| Series                                    | 212          |
| Typ. operating range limit S <sub>n</sub> | 4 mm         |
| Operating range S <sub>a</sub>            | 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 <sub>B</sub>                     | 10 ... 30 V, DC                                                                            |
| Residual ripple                                   | 0 ... 20 %, From U <sub>B</sub>                                                            |
| Open-circuit current                              | 0 ... 10 mA                                                                                |
| Temperature drift, max. (in % of S <sub>r</sub> ) | 10 %, Over the entire operating temperature range                                          |
| Repeatability, max. (in % of S <sub>r</sub> )     | 5 %, For U <sub>B</sub> = 20 ... 30 VDC, ambient temperature T <sub>a</sub> = 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 |
| Residual current, max.  | 0.1 mA |
| Voltage drop            | ≤ 2 V  |

Switching output 1

|                     |                      |
|---------------------|----------------------|
| Switching element   | Transistor, PNP      |
| Switching principle | NC (normally closed) |

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                 |
| Thread size              | M12 x 1 mm                  |
| Dimension (Ø x L)        | 12 mm x 60 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               |
|                          | Silver                      |
| Type of fastening        | Mounting thread             |
| 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 61000-4-2 |
|                                                    | IEC 61000-4-3 |
|                                                    | IEC 61000-4-4 |
| Standards applied                                  | IEC 60947-5-2 |

Correction factors

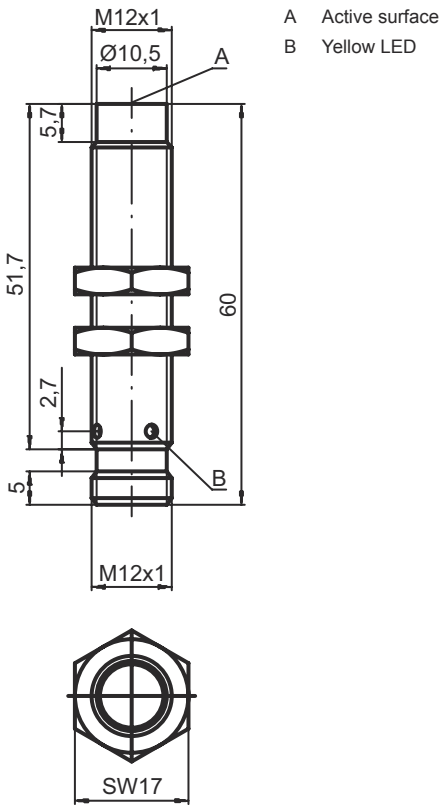
|                 |     |
|-----------------|-----|
| Aluminum        | 0.5 |
| Stainless steel | 0.9 |
| Copper          | 0.5 |
| Brass           | 0.6 |
| Fe360 steel     | 1   |

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 |
| ETIM 5.0              | EC002714 |
| ETIM 6.0              | EC002714 |
| ETIM 7.0              | EC002714 |
| ETIM 8.0              | EC002714 |
| ETIM 9.0              | EC002714 |

Dimensioned drawings

All dimensions in millimeters



Electrical connection

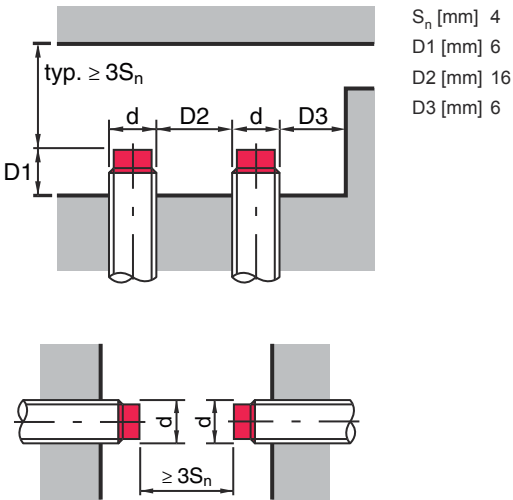
Connection 1

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

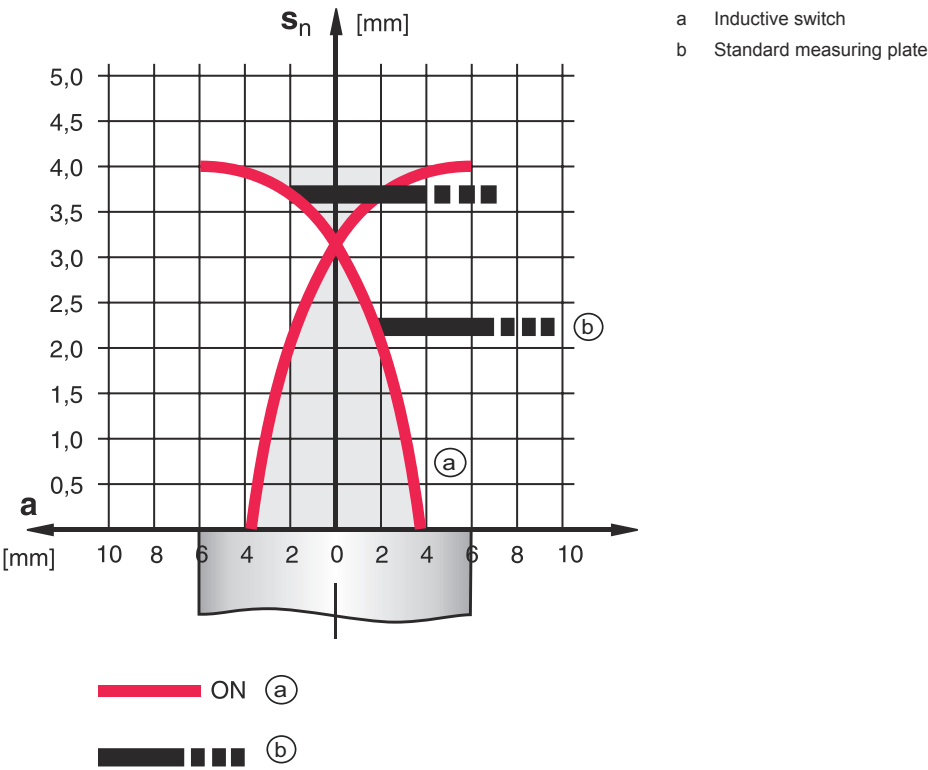
| Pin | Pin assignment |
|-----|----------------|
| 1   | V+             |
| 2   | OUT 1          |
| 3   | GND            |
| 4   | n.c.           |

Diagrams

Non-embedded installation



Types with  $S_n = 4.0$  mm



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> | <b>Operating principle / construction</b><br>IS: inductive switch, standard design<br>ISS: inductive switch, short construction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>YYY</b> | <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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>ZZ</b>  | <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)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>AAA</b> | <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)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>BB</b>  | <b>Special equipment</b><br>n/a: no special equipment<br>5F: Food version<br>5: housing material V2A (1.4305, AISI 303)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>CCC</b> | <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 |
| <b>DDD</b> | <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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

### Note



A list with all available device types can be found on the Leuze website at [www.leuze.com](http://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

Connection technology - Connection cables

|                                                                                    | Part no. | Designation        | Article          | Description                                                                                                                                                                       |
|------------------------------------------------------------------------------------|----------|--------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 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 |
|                                                                                    | 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 |

Accessories

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                                                                             |                                                                                                                                  |
|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
|  | <p>A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page.</p> |