



**Part no.: 50109641**  
**IS 208MM/4NO-1E5-S12**  
**Inductive switch**



Figure can vary

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## Technical data

| <b>Basic data</b>                        |                                                                                                |
|------------------------------------------|------------------------------------------------------------------------------------------------|
| Series                                   | 208                                                                                            |
| Typ. operating range limit $S_n$         | 1.5 mm                                                                                         |
| Operating range $S_a$                    | 0 ... 1.2 mm                                                                                   |
| <b>Characteristic parameters</b>         |                                                                                                |
| MTTF                                     | 900 years                                                                                      |
| <b>Electrical data</b>                   |                                                                                                |
| <b>Performance data</b>                  |                                                                                                |
| 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 $U_B = 20 \dots 30$ V DC, ambient temperature $T_a = 23 \text{ °C} \pm 5 \text{ °C}$ |
| Switching hysteresis                     | 20 %                                                                                           |
| <b>Outputs</b>                           |                                                                                                |
| Number of digital switching outputs      | 1 Piece(s)                                                                                     |
| <b>Switching outputs</b>                 |                                                                                                |
| Voltage type                             | DC                                                                                             |
| Switching current, max.                  | 200 mA                                                                                         |
| Residual current, max.                   | 0.1 mA                                                                                         |
| Voltage drop                             | $\leq 2$ V                                                                                     |
| <b>Switching output 1</b>                |                                                                                                |
| Switching element                        | Transistor , PNP                                                                               |
| Switching principle                      | NO (normally open)                                                                             |
| <b>Timing</b>                            |                                                                                                |
| Switching frequency                      | 5,000 Hz                                                                                       |
| Readiness delay                          | 32 ms                                                                                          |
| <b>Connection</b>                        |                                                                                                |
| Number of connections                    | 1 Piece(s)                                                                                     |
| <b>Connection 1</b>                      |                                                                                                |
| Type of connection                       | Connector                                                                                      |
| Function                                 | Signal OUT<br>Voltage supply                                                                   |
| Thread size                              | M12                                                                                            |
| Type                                     | Male                                                                                           |
| Material                                 | Stainless steel                                                                                |
| No. of pins                              | 4 -pin                                                                                         |
| Encoding                                 | A-coded                                                                                        |
| <b>Mechanical data</b>                   |                                                                                                |
| Design                                   | Cylindrical                                                                                    |
| Thread size                              | M8 x 1 mm                                                                                      |
| Dimension ( $\varnothing$ x L)           | 8 mm x 45 mm                                                                                   |

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|                          |                                                 |
|--------------------------|-------------------------------------------------|
| Type of installation     | Embedded                                        |
| Housing material         | Stainless steel , V2A                           |
| Sensing face material    | Plastic , Polyamide (PA 66)                     |
| Net weight               | 24 g                                            |
| Housing color            | Red, RAL 3000<br>Silver                         |
| Type of fastening        | Mounting thread<br>Via optional mounting device |
| Standard measuring plate | 8 x 8 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                                   | III                                             |
| Certifications                                     | c UL US                                         |
| Test procedure for EMC in accordance with standard | IEC 61000-4-2<br>IEC 61000-4-3<br>IEC 61000-4-4 |
| Standards applied                                  | IEC 60947-5-2                                   |

**Correction factors**

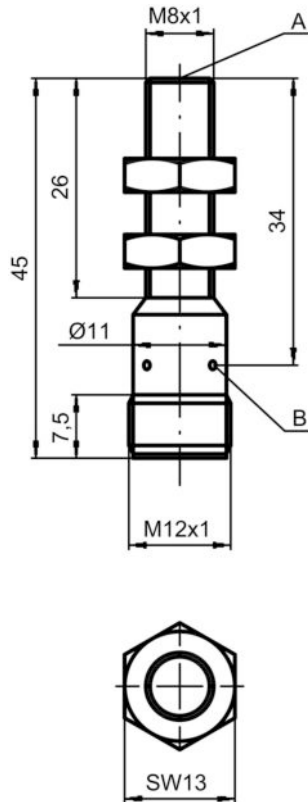
|                 |      |
|-----------------|------|
| Aluminum        | 0.25 |
| Stainless steel | 0.7  |
| Copper          | 0.2  |
| Brass           | 0.35 |
| Fe360 steel     | 1    |

**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

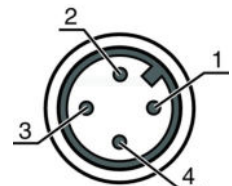


A Active surface  
B Yellow LED

## Electrical connection

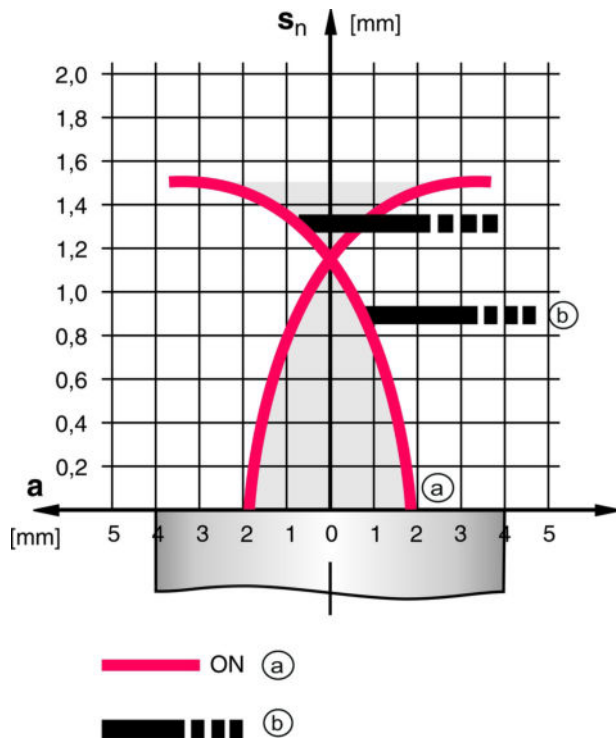
| Connection 1       |                              |
|--------------------|------------------------------|
| Type of connection | Connector                    |
| Function           | Signal OUT<br>Voltage supply |
| Thread size        | M12                          |
| Type               | Male                         |
| Material           | Stainless steel              |
| No. of pins        | 4 -pin                       |
| Encoding           | A-coded                      |

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



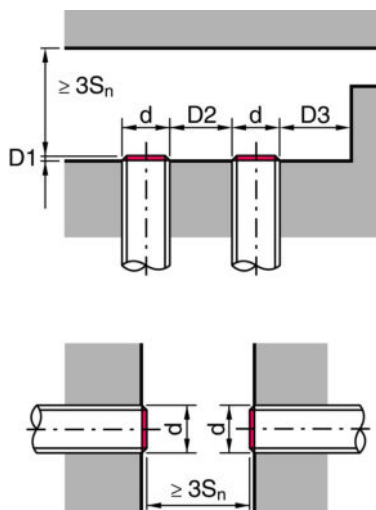
## Diagrams

### Embedded installation



|            |     |
|------------|-----|
| $S_n$ [mm] | 1.5 |
| $D1$ [mm]  | 0   |
| $D2$ [mm]  | 2   |
| $D3$ [mm]  | 1.5 |

### Types with $S_n = 1.5$ 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 | <b>Operating principle / construction:</b><br>IS: inductive switch, standard design<br>ISS: inductive switch, short construction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| YYY | <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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| ZZ  | <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)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| AAA | <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)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| BB  | <b>Special equipment:</b><br>n/a: no special equipment<br>5F: food version<br>5: housing material V2A (1.4305, AISI 303)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| CCC | <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 |
| DDD | <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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

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### Note

A list with all available device types can be found on the Leuze electronic 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>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>Connection 2: Open end<br>Shielded: No<br>Cable length: 5,000 mm<br>Sheathing material: PUR |

### Mounting technology - Other

|                                                                                     | Part no. | Designation | Article | Description                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------|----------|-------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50132727 | AC D08M-CS  | Clamp   | Contains: 2x M12 mounting nut<br>Diameter, inner: 8 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 |
|  | 50111497 | MC 008K     | Clamp   | Diameter, inner: 8 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                                                                                             |

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**Note**

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