

## Technical data sheet

### Inductive switch

Part no.: 50109658

IS 208MM/4NO-4N0

#### Contents

- Technical data
- Dimensioned drawings
- Electrical connection
- Diagrams
- Operation and display
- Part number code
- Notes
- Accessories



Figure can vary



## Technical data

### Basic data

|                                  |              |
|----------------------------------|--------------|
| Series                           | 208          |
| Typ. operating range limit $S_n$ | 4 mm         |
| Operating range $S_a$            | 0 ... 3.2 mm |

### Characteristic parameters

|      |           |
|------|-----------|
| MTTF | 900 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                     | 20 %                                                                                               |

### 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) |

### Timing

|                     |          |
|---------------------|----------|
| Switching frequency | 3,500 Hz |
| Readiness delay     | 80 ms    |

### Connection

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

### Connection 1

|                      |                      |
|----------------------|----------------------|
| Function             | Signal OUT           |
|                      | Voltage supply       |
| Type of connection   | Cable                |
| Cable length         | 2,000 mm             |
| Sheathing material   | PVC                  |
| Cable color          | Gray                 |
| Number of conductors | 3 -wire              |
| Wire cross section   | 0.14 mm <sup>2</sup> |

### Mechanical data

|                                |                                 |
|--------------------------------|---------------------------------|
| Design                         | Cylindrical                     |
| Thread size                    | M8 x 1 mm                       |
| Dimension ( $\varnothing$ x L) | 8 mm x 35 mm                    |
| Type of installation           | Non-embedded                    |
| Housing material               | Stainless steel, V2A            |
| Sensing face material          | Plastic, Polybutylene (PBT)     |
| Net weight                     | 70 g                            |
| Housing color                  | Red, RAL 3000                   |
|                                | Silver                          |
| Type of fastening              | Mounting thread                 |
|                                | Via optional mounting device    |
| 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                                   | III           |
| 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

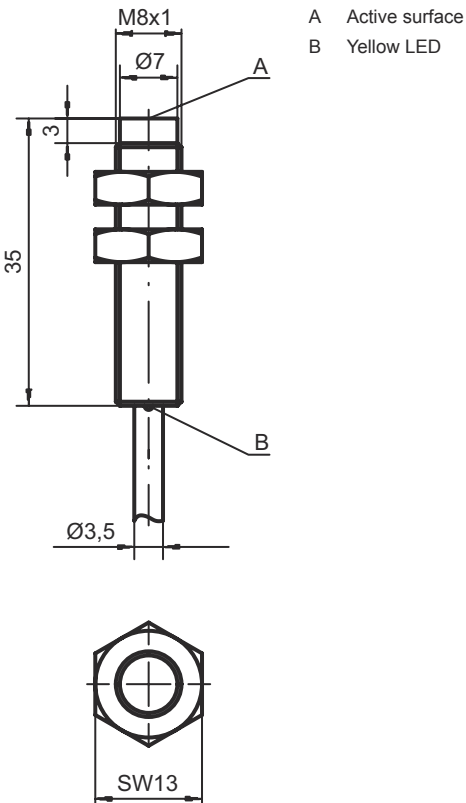
|                 |      |
|-----------------|------|
| Aluminum        | 0.45 |
| Stainless steel | 0.75 |
| Copper          | 0.4  |
| Brass           | 0.5  |
| Fe360 steel     | 1    |

### 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



Electrical connection

Connection 1

|                      |                |
|----------------------|----------------|
| Function             | Signal OUT     |
|                      | Voltage supply |
| Type of connection   | Cable          |
| Cable length         | 2,000 mm       |
| Sheathing material   | PVC            |
| Cable color          | Gray           |
| Number of conductors | 3 -wire        |
| Wire cross section   | 0.14 mm²       |

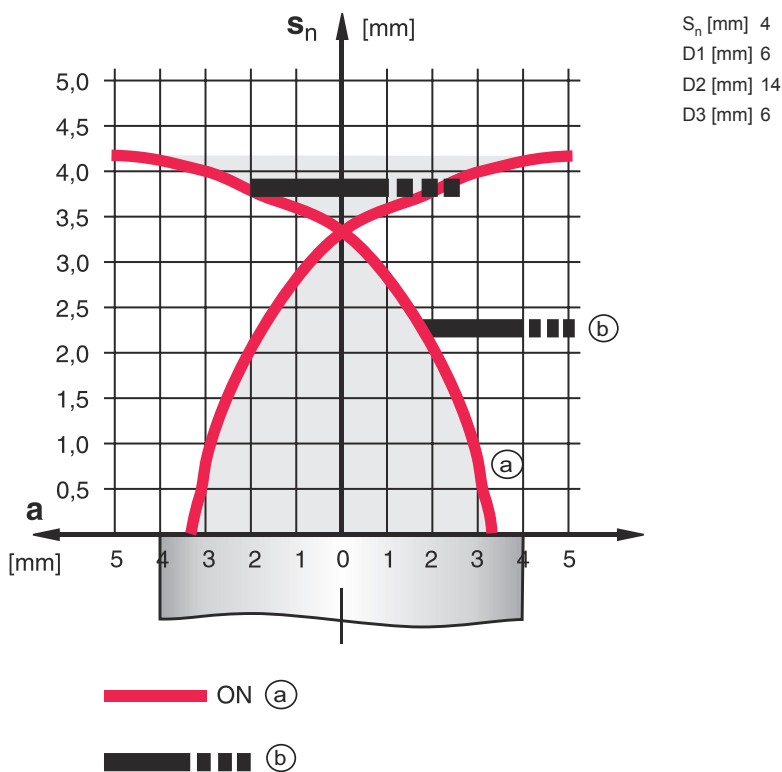
Conductor color

Conductor assignment

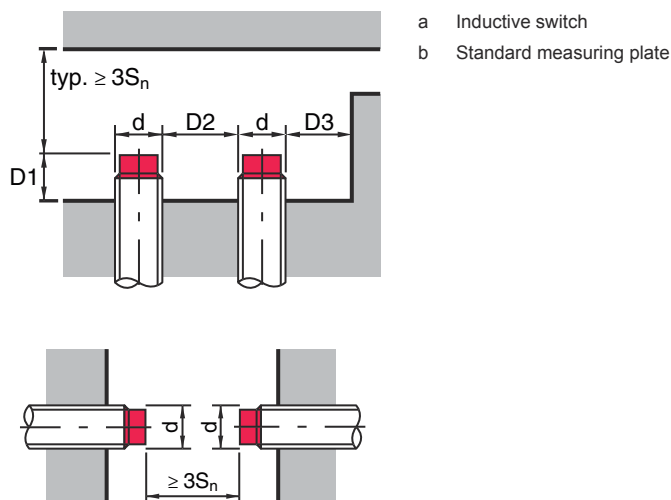
|       |       |
|-------|-------|
| Brown | V+    |
| Blue  | GND   |
| Black | OUT 1 |

## 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

### Mounting technology - Other

|                                                                                     | Part no. | Designation | Article | Description                                                                                                                                                                                                                                                                   |
|-------------------------------------------------------------------------------------|----------|-------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | 50132727 | AC D08M-CS  | Clamp   | 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                                                            |

### Note



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