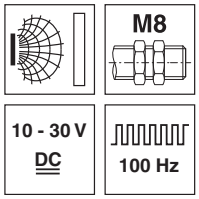
## IS 208 factor 1

**Inductive switches**

en_01-2015/01 50128376



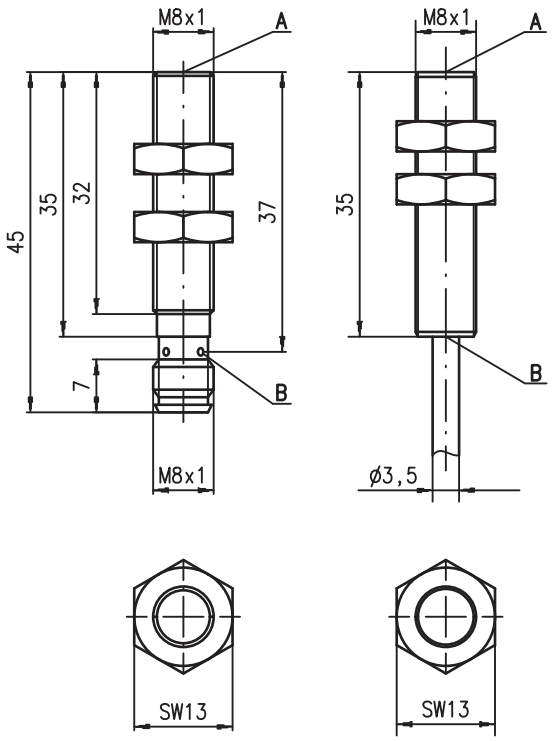



**2 mm**

**Embedded**

- Switching distance independent of object property (factor 1 sensor)
- Slim and short cylindrical metal housing M8
- V2A / AISI 303 stainless steel housing
- Built-in short circuit protection, inductive protection and polarity reversal protection
- LED for switching state visible from 360°

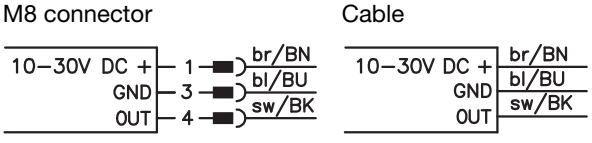
## Dimensioned drawing

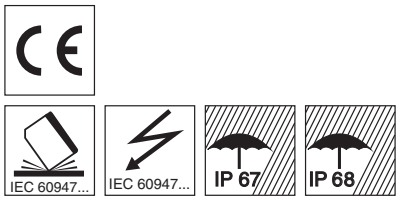



**Tightening torque of the fastening nuts < 10Nm !**

**A** Active surface
**B** Yellow indicator diode

## Electrical connection




## Accessories:

**(available separately)**

- M8 connectors (D M8…)
- Ready-made cables (K-D …)
- Mounting clamp (MC 008…)

We reserve the right to make changes • DS_IS208E_F1_en_501283376.fm

# Specifications

| | | |
|---|---|---|
| **General specifications** | | **IS 208…-2E0…** |
| Type of installation | | embedded installation |
| Typ. operating range limit $S_n$ | | 2.0mm |
| Operating range $S_a$ | | 0 … 1.6mm |
| **Electrical data** | | |
| Operating voltage $U_B$ [1] | | 10 … 30VDC |
| Residual ripple σ | | ≤ 20% of $U_B$ |
| Output current $I_L$ | | ≤ 200mA |
| Open-circuit current $I_0$ | | ≤ 10mA |
| Residual current $I_r$ | | ≤ 100µA |
| Switching output/function | …/4NO… | PNP transistor, NO contact |
| | …/4NC… | PNP transistor, NC contact |
| | …/2NO… | NPN transistor, NO contact |
| | …/2NC… | NPN transistor, NC contact |
| Voltage drop $U_d$ | | ≤ 2V |
| Hysteresis H of $S_r$ | | ≤ 20% |
| Temperature drift of $S_r$ | | ≤ 10% [2] |
| Repeatability | | ≤ 5% [3] |
| **Timing** | | |
| Switching frequency f | | 100Hz |
| Delay before start-up | | ≤ 30ms |
| **Indicators** | | |
| Yellow LED (visible from 360°) | | switching state [4] |
| **Mechanical data** | | |
| Housing | | V2A stainless steel (1.4305, AISI 303) |
| Standard measuring plate | | 8 x 8mm², Fe360 |
| Active surface | | V2A stainless steel (1.4305, AISI 303) |
| Weight (M8 plug/cable) | | approx. 15g/approx. 50g |
| Connection type | | M8 connector, 3-pin, or<br>cable: 2m, PUR, 3 x 0.14mm², Ø 3.5mm |
| **Environmental data** | | |
| Ambient temperature | | -25°C … +70°C |
| Degree of protection | | IP 67, IP 68 |
| Protective circuit [5] | | 1, 2, 3 |
| Standards applied | | IEC/EN 60947-5-2 |
| Electromagnetic compatibility | | IEC 60255-5 1kV<br>IEC 61000-4-2 Level 4 air 8kV (ESD)<br>IEC 61000-4-3 Level 3 10V/m (RFI)<br>IEC 61000-4-4 Level 3 2kV (Burst) |

1) Observe the safety regulations and installation instructions regarding power supply and wiring; for UL applications: only for use in "Class 2" circuits acc. to NEC
2) Over the entire operating temperature range
3) For $U_B$ = 20 … 30VDC, ambient temperature $T_a$ = 23°C ± 5°C
4) Continuous LED: $0 \le S \le 0.8S_r$; flashing LED: $0.8S_r \le S \le S_r$
5) 1=polarity reversal protection, 2=short circuit protection, 3=inductive protection for all outputs

# Order guide

The sensors listed here are preferred types; current information at www.leuze.com.

| | Designation | Part no. |
|---|---|---|
| **$S_n$ = 2mm** | IS 208 FM/2N0.5-2E0 | 50128184 |
| | IS 208 FM/4N0.5-2E0 | 50128182 |
| | IS 208 FM/2N0.5-2E0-S8.3 | 50128183 |
| | IS 208 FM/4N0.5-2E0-S8.3 | 50128181 |

Additional types on request

# Tables

**Reduction factors for surface plates made of: for $S_n$ = 2.0mm**

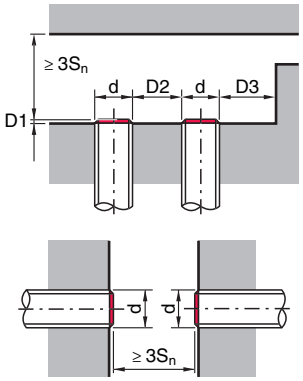
| | |
|---|---|
| Steel Fe360 | 1 |
| Copper | 0.8 |
| Aluminum | 1 |
| Brass | 1.4 |
| Stainless steel | 0.4 |

**Reduction factors for installation in: for $S_n$ = 2.0mm**

| | |
|---|---|
| Steel Fe360 | 0.9 |
| Aluminum | 0.8 |
| Brass | 0.8 |
| Stainless steel | 0.9 |

# Mounting

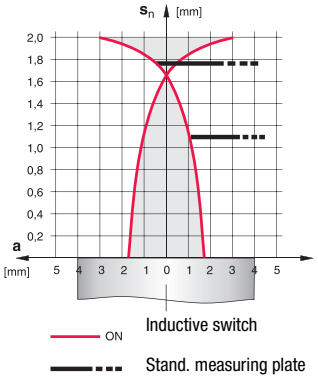
**Embedded installation:**




| Ferromagnetic and non-ferromagnetic materials | | | |
|---|---|---|---|
| $S_n$ [mm] | D1 [mm] | D2 [mm] | D3 [mm] |
| 2.0 | 0 | 12.0 | 1.0 |

# Diagrams

Models with **$S_n$ = 2.0mm**




# Remarks

**Operate in accordance with 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 the intended use.

## Part number code

| I | S | | 2 | 0 | 8 | | F | M | / | 4 | N | 0 | . | 5 | - | 2 | E | 0 | - | S | 8 | . | 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Operating principle / construction**

| | |
|---|---|
| **IS** | Inductive switch / Standard |

**Series**

| | |
|---|---|
| **208** | Series with M8 x 1 external thread |

**Housing / thread**

| | |
|---|---|
| **FM** | Full-metal housing (one piece, gap-free) / metric thread |

**Output function**

| | |
|---|---|
| **4NO** | PNP transistor, NO contact |
| **4NC** | PNP transistor, NC contact |
| **2NO** | NPN transistor, NO contact |
| **2NC** | NPN transistor, NC contact |

**Properties / Special equipment**

| | |
|---|---|
| **5** | Housing material V2A (1.4305, AISI 303) |

**Measurement range / type of installation**

| | |
|---|---|
| **2E0** | Typ. scan range limit 2.0 mm / embedded installation |

**Electrical connection**

| | |
|---|---|
| **N/A** | Cable, PUR, standard length 2000 mm |
| **S8.3** | M8 connector, 3-pin, axial |

## IS 208 factor 1