



## Specifications

### General specifications

Type of installation  
 Typ. operating range limit  $S_n$   
 Operating range  $S_a$

**IS 208...-1E5...**  
 embedded installation  
 1.5mm  
 0 ... 1.2mm

**IS 208...-2E0...**  
 2.0mm  
 0 ... 1.6mm

### Electrical data

Operating voltage  $U_B$  1)  
 Residual ripple  $\sigma$   
 Output current  $I_L$   
 Open-circuit current  $I_0$   
 Residual current  $I_r$   
 Switching output/function

10 ... 30VDC  
 $\leq 20\%$  of  $U_B$   
 $\leq 200$ mA  
 $\leq 10$ mA  
 $\leq 100\mu$ A  
 .../4NO... PNP transistor, make-contact (NO)  
 .../4NC... PNP transistor, break-contact (NC)  
 .../2NO... NPN transistor, make-contact (NO)  
 .../2NC... NPN transistor, break-contact (NC)

Voltage drop  $U_d$   
 Hysteresis H of  $S_r$   
 Temperature drift of  $S_r$   
 Repeatability

$\leq 2$ V  
 $\leq 5\%$   
 $\leq 10\%$  2)  
 $\leq 4.7\%$  3)

### Timing

Switching frequency f  
 Delay before start-up

5kHz  
 $\leq 10$ ms  
 $\leq 40$ ms

### Indicators

Yellow LED (visible from 360°)

switching state

### Mechanical data

Housing  
 Standard surface plate  
 Active surface  
 Weight (M8 plug/cable)  
 Connection type

stainless steel  
 8 x 8mm<sup>2</sup>, Fe360  
 PA12  
 approx. 8g/approx. 70g  
 M8 connector, 3-pin, or  
 M12 connector, 4-pin, or  
 cable: 2m, PVC, 3 x 0.14mm<sup>2</sup>,  $\varnothing$  3.5mm

### Environmental data

Ambient temperature  
 Protection class  
 Protective circuit 4)  
 Standards applied  
 Electromagnetic compatibility

-25°C ... +70°C  
 IP 67  
 1, 2, 3  
 IEC/EN 60947-5-2  
 IEC 60255-5  
 IEC 61000-4-2  
 IEC 61000-4-3  
 IEC 61000-4-4  
 1kV  
 Level 3 air 8kV (ESD)  
 Level 3 10V/m (RFI)  
 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  $U_B = 20 \dots 30$ VDC, ambient temperature  $T_a = 23^\circ\text{C} \pm 5^\circ\text{C}$
- 4) 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](http://www.leuze.com).

	Designation	Part No.
$S_n = 1.5$ mm	IS 208 MM/4NO-1E5	501 09636
	IS 208 MM/4NO-1E5-S8.3	501 09640
	IS 208 MM/4NO-1E5-S12	501 09641
$S_n = 2$ mm	IS 208 MM/4NO-2E0	501 09652
	IS 208 MM/4NO-2E0-S8.3	501 09653
	IS 208 MM/4NC-2E0-S8.3	501 09654
	IS 208 MM/2NO-2E0	501 09655
	IS 208 MM/2NO-2E0-S8.3	501 09656

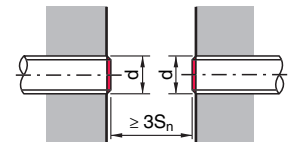
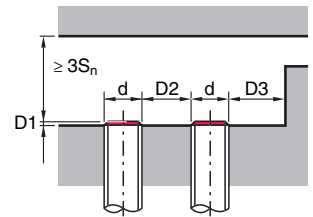
## Tables

### Reduction factors:

for $S_n = 1.5$ mm		for $S_n = 2.0$ mm	
Steel Fe360	1	Steel Fe360	1
Copper	0.20	Copper	0.25
Aluminum	0.25	Aluminum	0.25
Brass	0.35	Brass	0.35
Stainless steel	0.70	Stainless steel	0.65

## Mounting

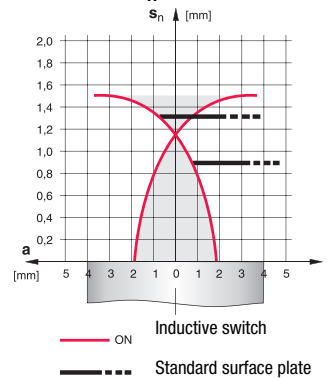
### Embedded installation:



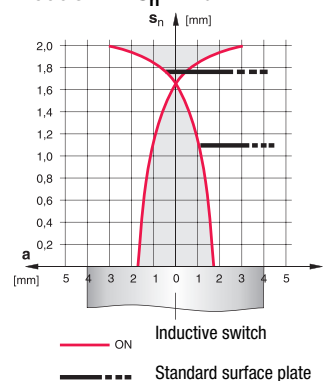
Ferromagnetic and non-ferromagnetic materials			
$S_n$ [mm]	D1 [mm]	D2 [mm]	D3 [mm]
1.5	0	2.0	1.5
2.0	0	6.0	2.0

## Diagrams

### Models with $s_n = 1.5$ mm



### Models with $S_n = 2.0$ mm



**Type key**

I	S	2	0	8	M	M	/	4	N	0	-	2	E	0	-	S	8	.	3
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**Operating principle / construction**

**IS** Inductive switch / Standard

**Series**

**208** series with M8 x 1 external thread

**Housing / thread**

**MM** metal housing (active surface: plastic) / metric thread

**Output function**

**4NO** PNP transistor, make-contact (NO)

**4NC** PNP transistor, break-contact (NC)

**2NO** NPN transistor, make-contact (NO)

**2NC** NPN transistor, break-contact (NC)

**Measurement range / type of installation**

**1E5** typ. scan range limit 2.0mm / embedded installation

**2E0** typ. scan range limit 2.0mm / embedded installation

**Electrical connection**

**N/A** cable, PVC, standard length 2000mm

**S8.3** M8 connector, 3-pin, axial

**S12** M12 connector, 4-pin, axial

**200-S8.3** cable, PVC, length 200mm with M8 connector, 3-pin, axial

**Remarks**

- **Approved purpose:**  
Inductive switches are electronic sensors used for the inductive, contactless detection of objects.

