

Specifications

General specifications

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

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

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

Electrical data

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

10 ... 30VDC
 $\leq 20\%$ of U_B
 ≤ 200 mA
 ≤ 10 mA
 ≤ 100 μ 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

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

Timing

Switching frequency f
Delay before start-up

5 kHz
 ≤ 10 ms ≤ 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 8 mm², Fe360
PA12
approx. 8g/approx. 70g
M8 connector, 3-pin, or
M12 connector, 4-pin, or
cable: 2m, PVC, 3 x 0.14 mm², \varnothing 3.5 mm

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
1 kV
Level 3 air 8 kV (ESD)
Level 3 10 V/m (RFI)
Level 3 2 kV (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.

	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

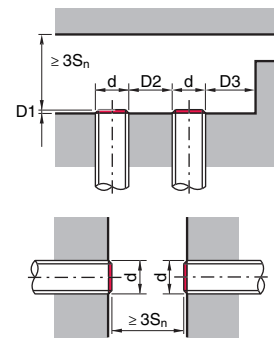
Tables

Reduction factors:
for $S_n = 1.5$ mm for $S_n = 2.0$ mm

Material	for $S_n = 1.5$ mm	Material	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:

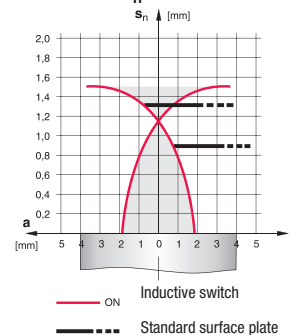


Ferromagnetic and non-ferromagnetic materials

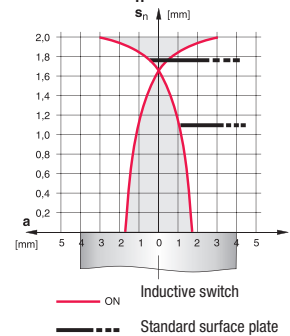
S_n [mm]	D1 [mm]	D2 [mm]	D3 [mm]
1.5	0	2.0	1.5
2.0	0	6.0	2.0

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.

