

en 01-2010/02 50112988



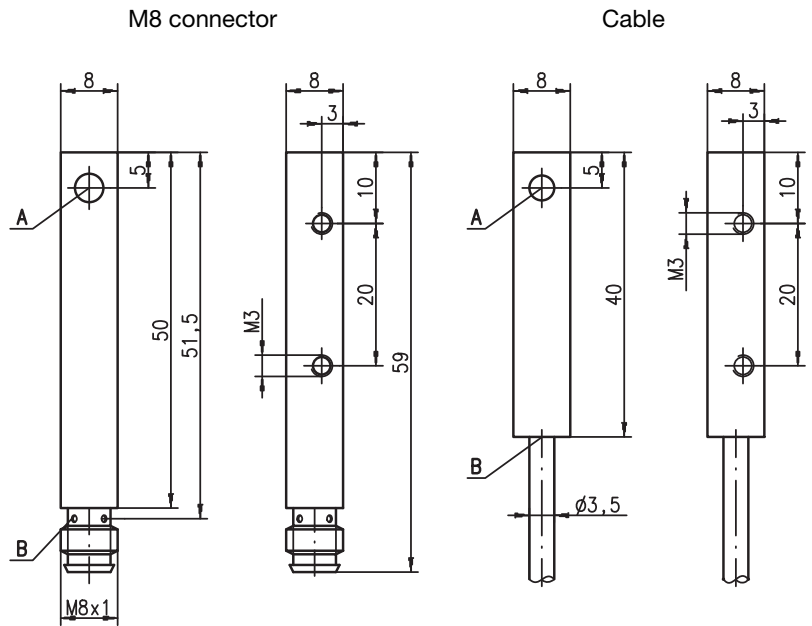
**8x8**  
1.5 mm  
2 mm  
3 mm



**Embedded**  
10 - 30 V  
DC  
5 kHz

- Slim and short 8x8mm cubical metal housing
- Nickel-plated brass housing
- Built-in short circuit protection, inductive protection and polarity reversal protection
- LED for switching state

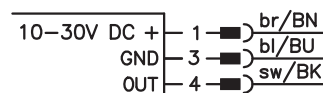
**Dimensioned drawing**



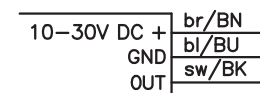
- A** Active surface
- B** Yellow indicator diode

**Electrical connection**

M8 connector



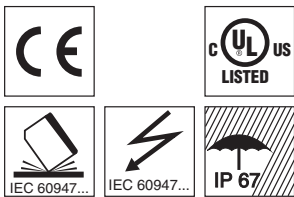
Cable



**Accessories:**

(available separately)

- M8 connectors (D M8...)
- Ready-made cables (K-D ...)



We reserve the right to make changes • DS\_IS288\_01 en.fm

## Specifications

### General specifications

	IS 288...-1E5...	IS 288...-2E0...	IS 288...-3E0...
Type of installation	embedded installation		
Typ. operating range limit $S_n$	1.5 mm	2.0 mm	3.0 mm
Operating range $S_a$	0 ... 1.2 mm	0 ... 1.6 mm	0 ... 2.4 mm

### Electrical data

Operating voltage $U_B$ <sup>1)</sup>	10 ... 30VDC		
Residual ripple $\sigma$	$\leq 20\%$ of $U_B$		
Output current $I_L$	$\leq 200$ mA		
Open-circuit current $I_0$	$\leq 10$ mA		
Residual current $I_r$	$\leq 100$ $\mu$ A		
Switching 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)	
Voltage drop $U_d$	$\leq 2$ V		
Hysteresis H of $S_r$	$\leq 5\%$		
Temperature drift of $S_r$	$\leq 10\%$ <sup>2)</sup>		
Repeatability	$\leq 5\%$ <sup>3)</sup>		

### Timing

Switching frequency $f$	5 kHz	3 kHz	1 kHz
Delay before start-up	$\leq 10$ ms	$\leq 10$ ms	$\leq 50$ ms

### Indicators

Yellow LED	switching state
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### Mechanical data

Housing	brass nickel-plated		
Standard surface plate	8 x 8 mm <sup>2</sup> , Fe360	8 x 8 mm <sup>2</sup> , Fe360	9 x 9 mm <sup>2</sup> , Fe360
Active surface	PBTP		
Weight (M8 plug/cable)	approx. 15 g/ approx. 45 g		
Connection type	M8 connector, 3-pin cable: 2 m, PVC, 3 x 0.14 mm <sup>2</sup> , $\varnothing$ 3.5 mm		

### Environmental data

Ambient temperature	-25°C ... +70°C		
Protection class	IP 67		
Protective circuit <sup>4)</sup>	1, 2, 3		
Standards applied	IEC/EN 60947-5-2		
Electromagnetic compatibility	IEC 60255-5	1 kV	
	IEC 61000-4-2	Level 3 air 8 kV (ESD)	
	IEC 61000-4-3	Level 3 10V/m (RFI)	
	IEC 61000-4-4	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](http://www.leuze.com).

	Designation	Part No.
$S_n = 1.5$ mm	IS 288 MP/4NO-1E5	50112885
	IS 288 MP/4NO-1E5-S8.3	50112886
$S_n = 2$ mm	IS 288 MP/4NO-2E0	50112887
	IS 288 MP/4NO-2E0-S8.3	50112888
$S_n = 3$ mm	IS 288 MP/4NO-3E0	50112889
	IS 288 MP/4NO-3E0-S8.3	50112890

## Tables

### Reduction factors:

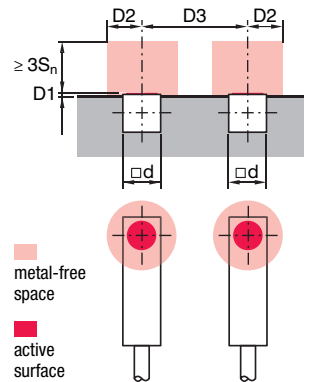
for $S_n = 1.5$ mm		for $S_n = 2.0$ mm	
Steel Fe360	1	Steel Fe360	1
Copper	0.50	Copper	0.50
Aluminum	0.50	Aluminum	0.50
Brass	0.55	Brass	0.55
Stainless steel	0.80	Stainless steel	0.80

### for $S_n = 3.0$ mm

Steel Fe360	1
Copper	0.27
Aluminum	0.36
Brass	0.45
Stainless steel	0.77

## Mounting

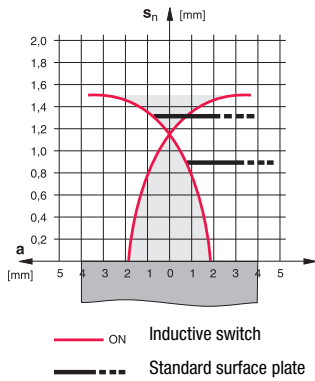
### Embedded installation:



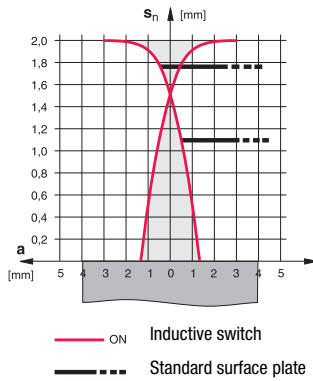
Ferromagnetic and non-ferromagnetic materials			
$S_n$ [mm]	D1 [mm]	D2 [mm]	D3 [mm]
1.5	0	5.5	10
2.0	0	5	10
3.0	1	6	16

Diagrams

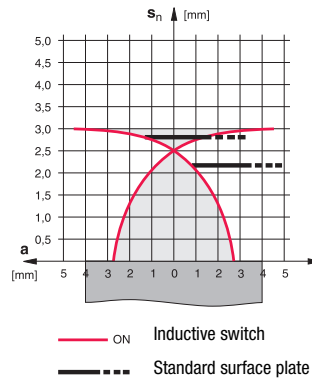
Models with  $s_n = 1.5\text{mm}$



Models with  $s_n = 2.0\text{mm}$



Models with  $s_n = 3.0\text{mm}$



Type key

IS 288 MP / 4 NO - 2 E0 - S8.3

Operating principle / construction

IS Inductive switch / Standard

Series

288 Cubic series with  $8 \times 8\text{mm}^2$  cross section

Housing / thread

MP Metal housing (active surface: plastic) / smooth

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 1.5 mm / embedded installation
- 2E0 Typ. scan range limit 2.0 mm / embedded installation
- 3E0 Typ. scan range limit 3.0 mm / embedded installation

Electrical connection

- N/A Cable, PVC, standard length 2000mm
- S8.3 M8 connector, 3-pin, axial
- 200-S8.3 Cable, PVC, length 200mm with M8 connector, 3-pin, axial

Remarks

● Approved purpose:

The inductive switches are electronic sensors for the inductive, contactless detection of objects.

This product may only be used by qualified personnel and must only be used for the approved purpose. This sensor is not a safety sensor and is not to be used for the protection of persons.

