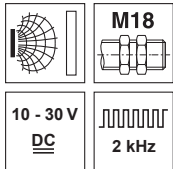


IS 218

Inductive switches

en 02-2010/03 50110213

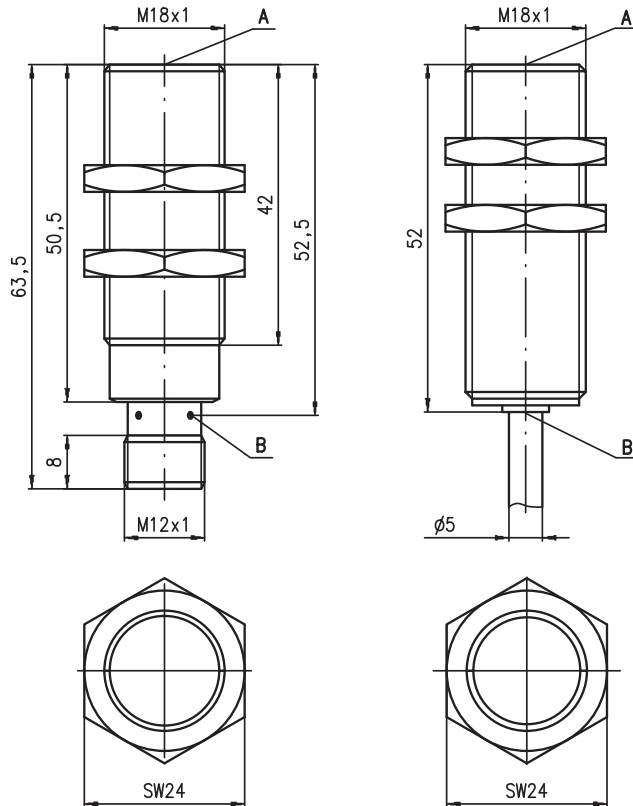


M18
5 mm
8 mm
12 mm

Embedded

- Slim and short cylindrical metal housing M8
- Chromium-plated brass housing
- Built-in short circuit protection, inductive protection and polarity reversal protection
- LED for switching state visible from 360°

Dimensioned drawing

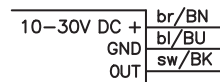


Tightening torque of the fastening nuts
IS 218...5E0..., IS 218...8E0... < 20Nm !
IS 218...12E... < 25Nm !

- A Active surface
- B Yellow indicator diode

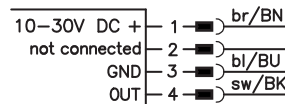
Electrical connection

Cable

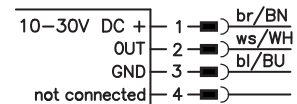


M12 connector

...NO... (normally open)



...NC... (normally closed)



...NO...-S12 (normally open):
...NC...-S12 (normally closed):

3-pin or 4-pin M12 connection cables can be used.
only 4-pin M12 connection cables can be used.

We reserve the right to make changes • DS_IS_218_E_en.fm



Accessories:

(available separately)

- M12 connectors (KD ...)
- Ready-made cables (K-D ...)
- Mounting clamp (MC 018...)

Specifications

General specifications

	IS 218...-5E0...	IS 218...-8E0...	IS 218...-12E...
Type of installation	embedded installation		
Typ. operating range limit S_n	5.0mm	8.0mm	12.0mm
Operating range S_a	0 ... 4.0mm	0 ... 6.5mm	0 ... 9.7mm

Electrical data

Operating voltage U_B ¹⁾	10 ... 30VDC		
Residual ripple σ	$\leq 20\%$ of U_B		
Output current I_L	≤ 200 mA		
Open-circuit current I_0	≤ 10 mA		
Residual current I_r	≤ 100 μ 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	≤ 2 V		
Hysteresis H of S_r	$\leq 10\%$		
Temperature drift of S_r	$\leq 10\%$ ²⁾		
Repeatability	$\leq 5\%$ ³⁾		

Timing

Switching frequency f	2kHz	1.5kHz	500Hz
Delay before start-up	≤ 40 ms	≤ 70 ms	≤ 50 ms

Indicators

Yellow LED (visible from 360°)	switching state
--------------------------------	-----------------

Mechanical data

Housing	chromium-plated brass		
Standard surface plate	18 x 18mm ² , Fe360	24 x 24mm ² , Fe360	36 x 36mm ² , Fe360
Active surface	PBTP		
Weight (M12 plug/cable)	approx. 50g/ approx. 165g		
Connection type	M12 connector 4-pin or cable: 2m, PVC, 3 x 0.34mm ² , \varnothing 5.0mm		

Environmental data

Ambient temperature	-25°C ... +70°C		
Protection class	IP 67		
Protective circuit ⁴⁾	1, 2, 3		
Standards applied	IEC/EN 60947-5-2		
Electromagnetic compatibility	IEC 60255-5	1 kV	
	IEC 61000-4-2	Level 3 air 8kV (ESD)	
	IEC 61000-4-3	Level 3 10V/m (RFI)	
	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 $U_B = 20 \dots 30$ 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.
$S_n = 5$mm	IS 218 MM/4NO-5E0	50109692
	IS 218 MM/4NO-5E0-S12	50109693
	IS 218 MM/2NO-5E0	50109694
$S_n = 8$mm	IS 218 MM/4NO-8E0	50109700
	IS 218 MM/4NO-8E0-S12	50109701
	IS 218 MM/4NC-8E0-S12	50109702
	IS 218 MM/2NO-8E0	50112104
	IS 218 MM/2NO-8E0-S12	50109704
$S_n = 12$mm	IS 218 MM/4NO-12E	50109706
	IS 218 MM/2NO-12E	50111954

Tables

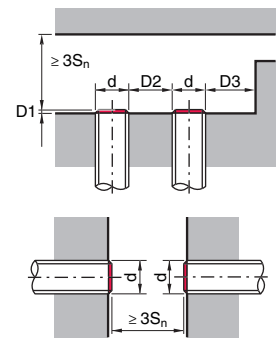
Reduction factors:

for $S_n = 5.0$ mm		for $S_n = 8.0$ mm	
Steel Fe360	1	Steel Fe360	1
Copper	0.40	Copper	0.30
Aluminum	0.40	Aluminum	0.35
Brass	0.50	Brass	0.40
Stainless steel	0.80	Stainless steel	0.70

for $S_n = 12.0$ mm	
Steel Fe360	1
Copper	0.20
Aluminum	0.26
Brass	0.33
Stainless steel	0.63

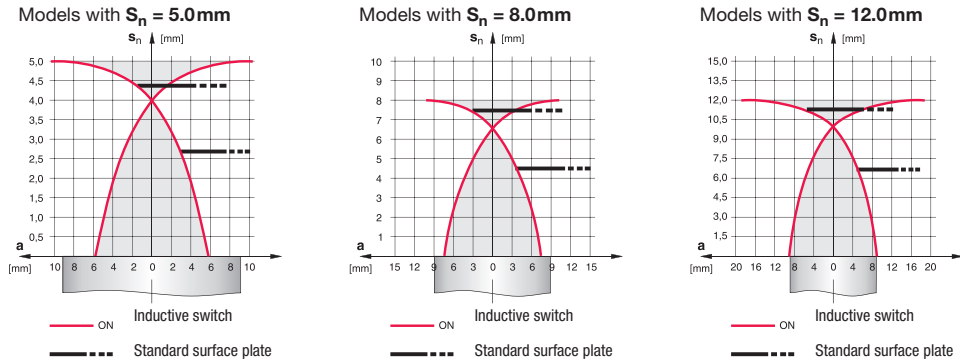
Mounting

Embedded installation:



Ferromagnetic and non-ferromagnetic materials			
S_n [mm]	D1 [mm]	D2 [mm]	D3 [mm]
5.0	0	14.0	5.0
8.0	0.75	22.0	9.0
12.0	4.0	26.0	9.0

Diagrams



Type key

I S 2 1 8 M M / 4 N O - 8 E 0 - S 1 2

Operating principle / construction

IS Inductive switch / Standard

Series

218 Series with M18 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

- 5E0** Typ. scan range limit 5.0mm / embedded installation
- 8E0** Typ. scan range limit 8.0mm / embedded installation
- 12E** Typ. scan range limit 12.0mm / embedded installation

Electrical connection

- N/A** Cable, PVC, standard length 2000mm
- S12** M12 connector, 4-pin, axial
- 200-S12** Cable, PVC, length 200mm with M12 connector, 4-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.

