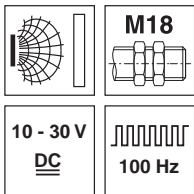


IS 218 factor 1

Inductive switches

en\_03-2017/12 50128377

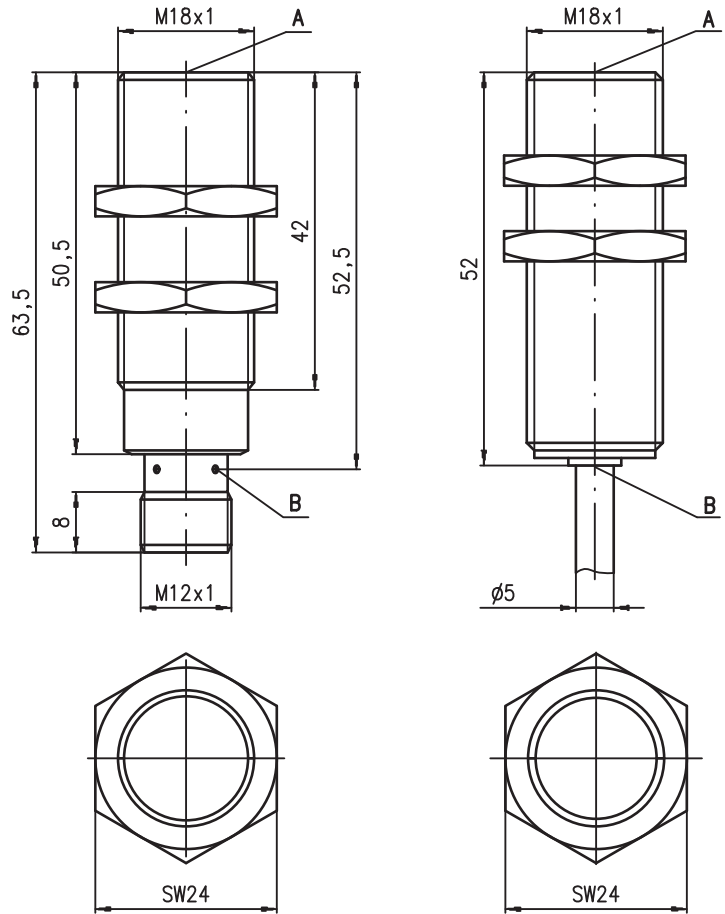


5 mm

Embedded

- Switching distance independent of object property (factor 1 sensor)
- Slim and short cylindrical metal housing M18x1
- 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 < 30Nm!

- A Active surface
- B Yellow indicator diode

Electrical connection

Cable

10-30V DC +	br/BN
GND	bl/BU
OUT	sw/BK

M12 connector

...NO... (normally open)

...NC... (normally closed)

10-30V DC +	1	br/BN
not connected	2	
GND	3	bl/BU
OUT	4	sw/BK

10-30V DC +	1	br/BN
OUT	2	ws/WH
GND	3	bl/BU
not connected	4	



...NO...-S12 (normally open): 3-pin or 4-pin M12 connection cables can be used.  
 ...NC...-S12 (normally closed): only 4-pin M12 connection cables can be used.

We reserve the right to make changes • DS\_IS218E\_F1\_en\_50128377.fm



Accessories:

(available separately)

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

## Specifications

### General specifications

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

**IS 218...-5E0...**  
embedded installation  
5.0mm  
0 ... 4mm

### Electrical data

Operating voltage  $U_B$  <sup>1)</sup>  
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, NO contact  
.../4NC... PNP transistor, NC contact  
.../2NO... NPN transistor, NO contact  
.../2NC... NPN transistor, NC contact

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

$\leq 2$ V  
 $\leq 15\%$   
 $\leq 10\%$  <sup>2)</sup>  
 $\leq 0.3$ mm <sup>3)</sup>

### Timing

Switching frequency f  
Delay before start-up

100Hz  
 $\leq 25$ ms

### Indicators

Yellow LED (visible from 360°)

switching state <sup>4)</sup>

### Mechanical data

Housing  
Standard measuring plate  
Active surface  
Weight (M12 plug/cable)  
Connection type

V2A stainless steel (1.4305, AISI 303)  
30 x 30mm<sup>2</sup>, Fe360  
V2A stainless steel (1.4305, AISI 303)  
approx. 50g/approx. 115g  
M12 connector, 4-pin, or  
cable: 2m, PUR, 3 x 0.34mm<sup>2</sup>,  $\varnothing$  5mm

### Environmental data

Ambient temperature  
Degree of protection  
Protective circuit <sup>5)</sup>  
Standards applied  
Electromagnetic compatibility

-25°C ... +70°C  
IP 67, IP 68, IP 69K  
1, 2, 3  
IEC/EN 60947-5-2  
IEC 60255-5  
IEC 61000-4-2  
IEC 61000-4-3  
IEC 61000-4-4  
UL 508, CSA C22.2 No.14-13 <sup>1) 6)</sup>

1kV  
Level 4 air 8kV (ESD)  
Level 3 10V/m (RFI)  
Level 3 2kV (Burst)

### Certifications

- 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) Continuous LED:  $0 \leq S \leq 0.8S_r$ ; flashing LED:  $0.8S_r \leq S \leq S_r$
- 5) 1=polarity reversal protection, 2=short circuit protection, 3=inductive protection for all outputs
- 6) These proximity switches shall be used with UL Listed Cable assemblies rated 30V, 0.5A min, in the field installation, or equivalent (categories: CYJV/CYJV7 or PVVA/PVVA7)

## Order guide

The sensors listed here are preferred types; current information at [www.leuze.com](http://www.leuze.com).

$S_n = 5$ mm

Designation	Part no.
IS 218 FM/2NO.5-5E0	50128172
IS 218 FM/4NO.5-5E0	50128170
IS 218 FM/2NO.5-5E0-S12	50128171
IS 218 FM/4NO.5-5E0-S12	50128169
IS 218 FM/4NC.5-5E0	50138121

Additional types on request

## Tables

Reduction factors for surface plates made of:  
for  $S_n = 5.0$ mm

Steel Fe360	1
Copper	0.8
Aluminum	1
Brass	1.3
Stainless steel	0.7 <sup>1)</sup>

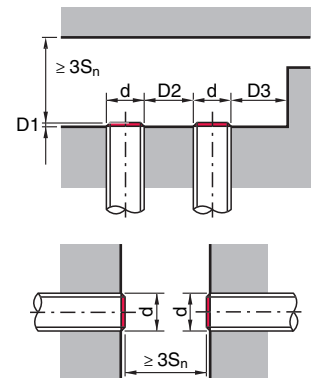
Reduction factors for installation in:  
for  $S_n = 5.0$ mm

Steel Fe360	0.9
Aluminum	0.9
Brass	0.9
Stainless steel	0.9

1) Surface plate min. 2mm thick

## Mounting

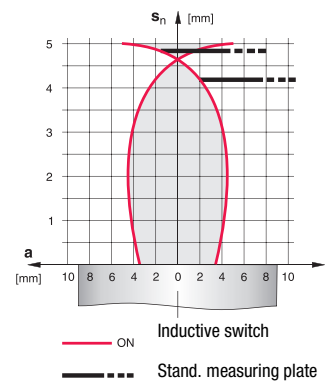
### Embedded installation:



Ferromagnetic and non-ferromagnetic materials			
$S_n$ [mm]	D1 [mm]	D2 [mm]	D3 [mm]
5.0	0	12.0	6.0

## Diagrams

### Models with $S_n = 5.0$ mm



## 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.

**IS 218 factor 1**

**Inductive switches**

**Part number code**

I	S	2	1	8	F	M	/	4	N	O	.	5	-	5	E	0	-	S	1	2
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

**Operating principle / construction**

**IS** Inductive switch / Standard

**Series**

**218** Series with M18 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**

**5E0** Typ. scan range limit 5.0 mm / embedded installation

**Electrical connection**

**N/A** Cable, PUR, standard length 2000 mm

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

