

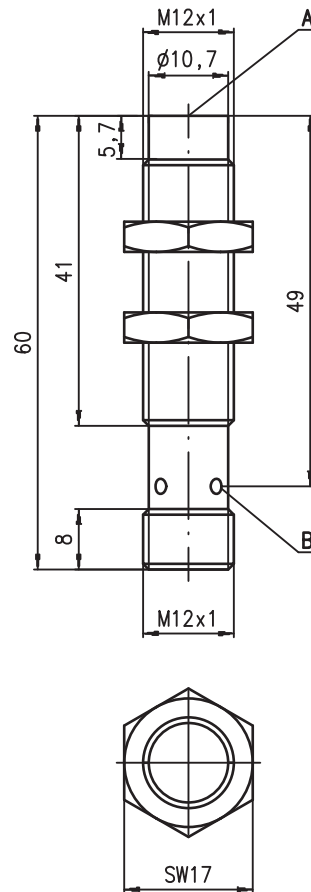
Part No. 501 10224



	M12	<i>stainless steel</i> 316 L	10mm
10 - 30 V DC		400 Hz	non-embedded

- Slim and short cylindrical metal housing M12x1
- V4A / AISI 316L stainless steel housing
- ECOLAB tested
- For food and beverage applications
- Built-in short circuit protection, inductive protection and polarity reversal protection
- LED for switching state visible from 360°

Dimensioned drawing

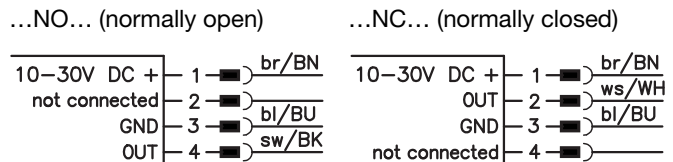


Tightening torque of the fastening nuts < 20Nm !

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

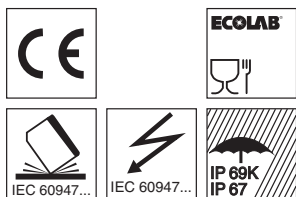
Electrical connection

M12 connector



...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.



Accessories:

(available separately)

- M12 connectors (KD ...)
- Ready-made cables (K-D ...)
- Mounting clamp (MC 012...)

We reserve the right to make changes • 212_06gb.fm

Specifications

General specifications

Type of installation non-embedded installation
 Typ. operating range limit S_n 10.0mm
 Operating range S_a 0 ... 8.1mm

Electrical data

Operating voltage U_B 1) 10 ... 30VDC
 Residual ripple σ $\leq 15\%$ of U_B
 Output current I_L ≤ 200 mA
 Open-circuit current I_0 ≤ 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 ≤ 2 V
 Hysteresis H of S_r $\leq 15\%$
 Temperature drift of S_r $\leq 10\%$ 2)
 Repeatability $\leq 5\%$ 3)

Timing

Switching frequency f 400Hz
 Delay before start-up ≤ 40 ms

Indicators

Yellow LED (visible from 360°) switching state

Mechanical data

Housing stainless steel AISI 316L (DIN 1.4404)
 Standard surface plate 30 x 30mm², Fe360
 Active surface stainless steel AISI 316L (DIN 1.4404)
 Weight (M12 plug) approx. 80g
 Connection type M12 connector, 4-pin

Environmental data

Ambient temperature -25°C ... +85°C
 Protection class IP 67, IP 68, IP 69K
 Environmentally tested acc. to ECOLAB
 Protective circuit 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.

$S_n = 10$ mm	Designation	Part No.
	IS 212 FM/4NO.5F-10N-S12	501 09738

Tables

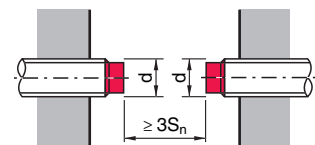
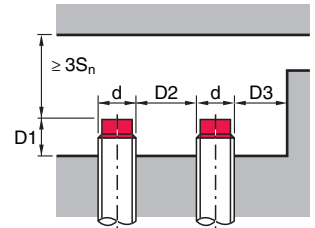
Reduction factors:
for $S_n = 10.0$ mm

Steel Fe360	1
Copper	0.80
Aluminum	1.00
Brass	1.40
Stainless steel	0.65 ¹⁾

1) Surface plate min. 2mm thick

Mounting

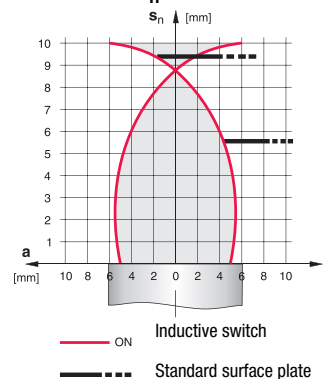
Non-embedded installation:



Ferromagnetic and non-ferromagnetic materials				
S_n [mm]	Installation in	D1 [mm]	D2 [mm]	D3 [mm]
10.0	Aluminum	13.0	108.0	24.0
	Steel Fe360	22.0		
	Brass	15.0		
	Stainless steel	21.0		

Diagrams

Models with $S_n = 10.0$ mm



Type key

I	S	2	1	2	F	M	/	4	N	0	.	5	F	-	1	0	N	-	S	1	2
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Operating principle / construction

IS Inductive switch / Standard

Series

212 series with M12 x 1 external thread

Housing / thread

FM Full metal housing (active surface: stainless steel AISI 316L) / 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)

Special equipment

5F Food version

Measurement range / type of installation

10N typ. scan range limit 10.0mm / non-embedded installation

Electrical connection

S12 M12 connector, 4-pin, axial

Remarks

● **Approved purpose:**

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

