

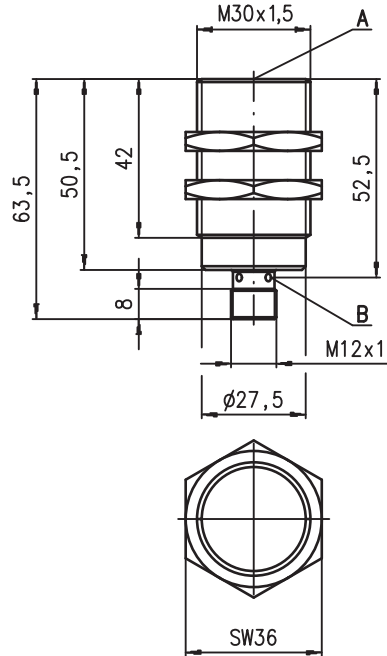
Part No. 501 11727



	M30	<i>stainless steel</i> 316 L	20mm
10 - 30 V DC		100 Hz	embedded

- Slim and short cylindrical metal housing M30x1.5
- 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

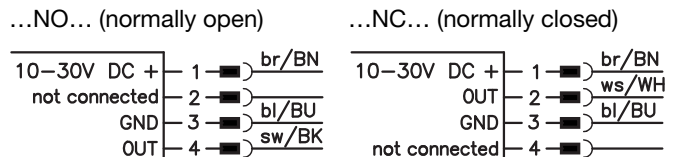


Tightening torque of the fastening nuts < 150Nm !

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

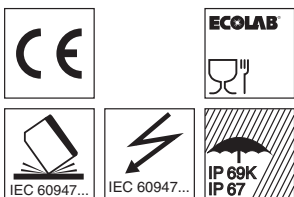
Electrical connection

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 030...)

We reserve the right to make changes • 230_03gb.fm

Specifications

General specifications

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

IS 230...-20E...

embedded installation
 20.0mm
 0 ... 16.2mm

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
 $\leq 15\%$ of U_B
 ≤ 200 mA
 ≤ 10 mA
 $\leq 100\mu$ 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
 $\leq 15\%$
 $\leq 10\%$ 2)
 $\leq 5\%$ 3)

Timing

Switching frequency f
 Delay before start-up

100Hz
 ≤ 40 ms

Indicators

Yellow LED (visible from 360°)

switching state

Mechanical data

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

stainless steel AISI 316L (DIN 1.4404)
 60 x 60mm², Fe360
 stainless steel AISI 316L (DIN 1.4404)
 approx. 140g
 M12 connector, 4-pin

Environmental data

Ambient temperature
 Protection class
 Environmentally tested acc. to
 Protective circuit 4)
 Standards applied
 Electromagnetic compatibility

-25°C ... +85°C
 IP 67, IP 68, IP 69K
 ECOLAB
 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 8kV (ESD)
 Level 3 10V/m (RFI)
 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.

$S_n = 20$ mm	Designation	Part No.
	IS 230 FM/4NO.5F-20E-S12	501 11435

Tables

Reduction factors for surface plates made of:
 for $S_n = 20.0$ mm

Steel Fe360	1
Copper	0.90
Aluminum	1.00
Brass	1.30
Stainless steel	0.7 ¹⁾

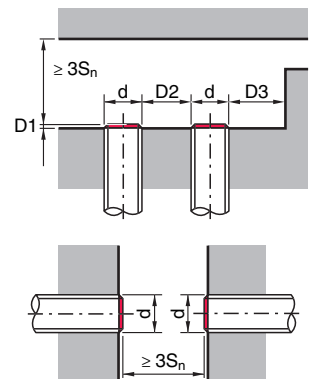
Reduction factors for installation in:
 for $S_n = 20.0$ mm

Steel Fe360	0.90
Aluminum	0.70
Brass	0.60
Stainless steel	1.30

1) Surface plate min. 2mm thick

Mounting

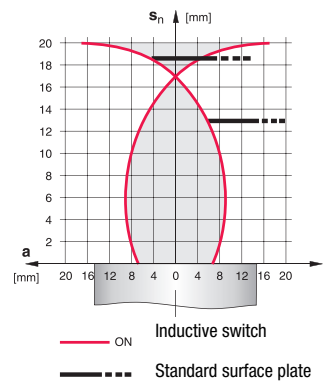
Embedded installation:



Ferromagnetic and non-ferromagnetic materials			
S_n [mm]	D1 [mm]	D2 [mm]	D3 [mm]
20.0	0	80.0	30.0

Diagrams

Models with $S_n = 20.0$ mm



Type key

I	S	2	3	0	F	M	/	4	N	0	.	5	F	-	2	0	E	-	S	1	2
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Operating principle / construction

IS Inductive switch / Standard

Series

230 series with M30 x 1.5 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

20E typ. scan range limit 20.0mm / 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.

