

IS 230

Inductive switches

en 03-2015/05 50110212



M30
15 mm
40 mm



non-embedded
700 Hz

- Slim and short cylindrical metal housing M30
- Chromium-plated brass housing
- Built-in short circuit protection, inductive protection and polarity reversal protection
- LED for switching state visible from 360°

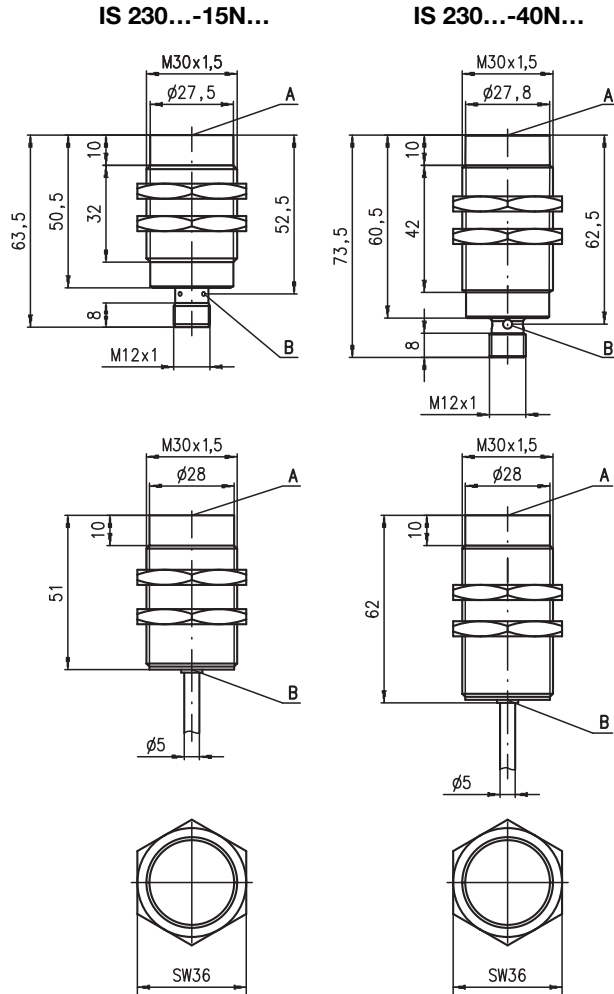


Accessories:

(available separately)

- M12 connectors (KD ...)
- Ready-made cables (K-D ...)
- Mounting clamp (MC 030...)

Dimensioned drawing



Tightening torque of the fastening nuts < 40Nm !

- 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)

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

...NC... (normally closed)

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



...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_IS230N_en_50110212.fm

Specifications

General specifications

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

IS 230...-15N...

non-embedded installation
 15.0mm
 0 ... 12.1mm

IS 230...-40N...

40.0mm
 0 ... 32.4mm

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
 $\leq 20\%$ of U_B
 $\leq 200\text{mA}$
 $\leq 10\text{mA}$
 $\leq 100\mu\text{A}$
 .../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

$\leq 2\text{V}$
 $\leq 15\%$
 $\leq 10\%$ 2)
 $\leq 5\%$ 3)

Timing

Switching frequency f
 Delay before start-up

700Hz
 $\leq 300\text{ms}$
 100Hz
 $\leq 200\text{ms}$

Indicators

Yellow LED (visible from 360°)

switching state

Mechanical data

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

chromium-plated brass
 45 x 45mm², Fe360
 PBTP
 approx. 145g/approx. 210g
 M12 connector 4-pin or
 cable: 2m, PVC, 3 x 0.34mm², \varnothing 5.0mm

Environmental data

Ambient temperature
 Protection class
 Protective circuit 4)
 Standards applied
 Electromagnetic compatibility

-25°C ... +70°C
 IP 67
 1, 2, 3
 IEC/EN 60947-5-2
 IEC 60255-5
 IEC 61000-4-2
 IEC 61000-4-3
 IEC 61000-4-4
 1kV
 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 $U_B = 20 \dots 30\text{VDC}$, 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

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.

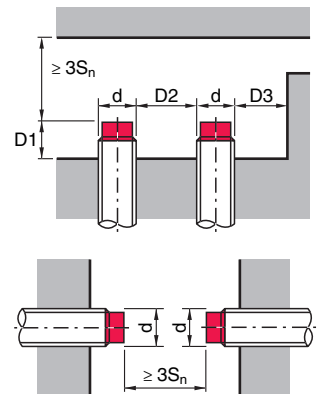
Tables

Reduction factors:

for $S_n = 15.0\text{mm}$		for $S_n = 40.0\text{mm}$	
Steel Fe360	1	Steel Fe360	1
Copper	0.43	Copper	0.37
Aluminum	0.49	Aluminum	0.42
Brass	0.53	Brass	0.47
Stainless steel	0.84	Stainless steel	0.78

Mounting

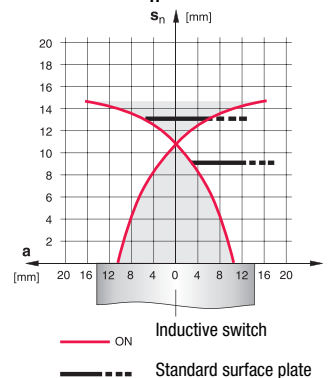
Non-embedded installation:



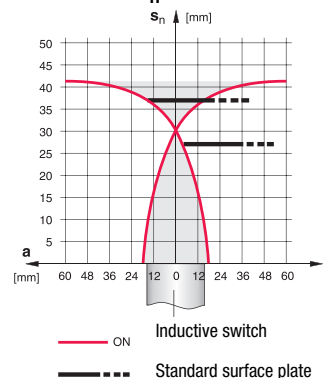
Ferromagnetic and non-ferromagnetic materials			
S_n [mm]	D1 [mm]	D2 [mm]	D3 [mm]
15.0	13.0	45.0	15.0
40.0	Fe360:	35.0	120.0
	Aluminum:	25.0	
	Brass:	25.0	
	Stainless steel:	20.0	

Diagrams

Models with $S_n = 15.0\text{mm}$



Models with $S_n = 40.0\text{mm}$



Type key

I	S	2	3	0	M	M	/	4	N	0	-	1	5	N	-	S	1	2
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Operating principle / construction

IS Inductive switch / Standard

Series

230 Series with M30 x 1.5 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

15N Typ. scan range limit 15.0 mm / non-embedded installation

40N Typ. scan range limit 40.0 mm / non-embedded installation

Electrical connection

N/A Cable, PVC, standard length 2000mm

S12 M12 connector, 4-pin, axial

200-S12 Cable, PVC, length 200 mm with M12 connector, 4-pin, axial

Order guide

The sensors listed here are preferred types; current information at www.leuze.com.

	Designation	Part No.
S_n = 15mm	IS 230 MM/4NO-15N	50109716
	IS 230 MM/4NO-15N-S12	50109717
	IS 230 MM/4NC-15N	50129370
	IS 230 MM/2NO-15N	50109718
	IS 230 MM/2NC-15N	50129371
S_n = 40mm	IS 230 MM/4NO-40N	50109726
	IS 230 MM/4NO-40N-S12	50109727
	IS 230 MM/2NO-40N	50109728

