en 02-2010/03 50110212

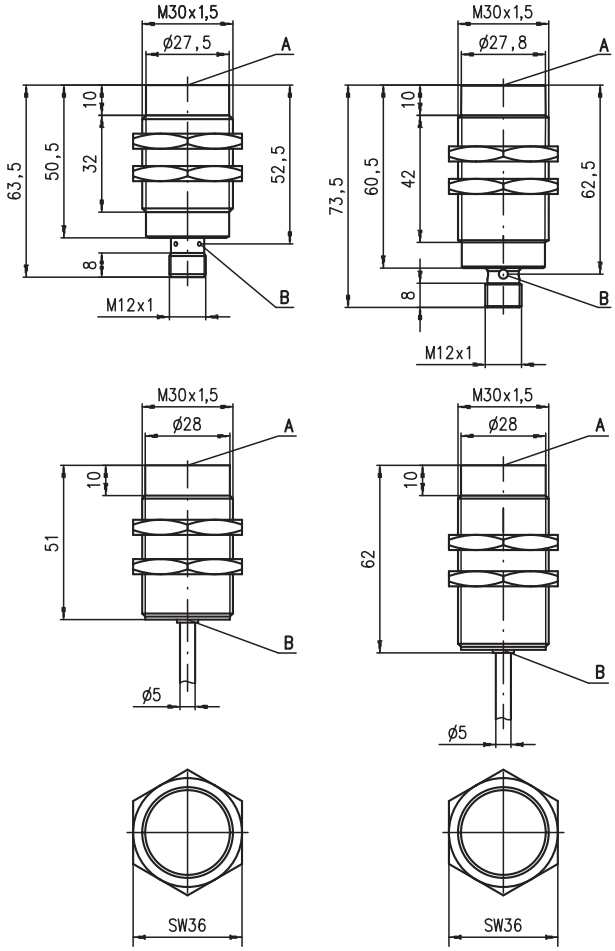
M30 **15 mm**
40 mm

10 - 30 V DC 700 Hz **non-embedded**

- 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°

Dimensioned drawing

IS 230…-15N… **IS 230…-40N…**

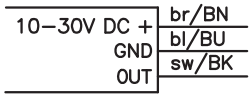


Tightening torque of the fastening nuts < 40 Nm !

A Active surface
B Yellow indicator diode

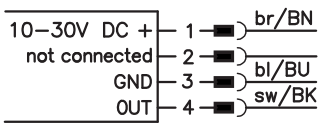
Electrical connection

Cable

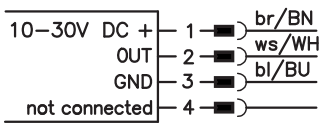


M12 connector

…NO… (normally open)



…NC… (normally closed)



…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.

IEC 60947... IEC 60947... IP 67

Accessories:

(available separately)

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

Specifications

		IS 230…-15N…	IS 230…-40N…
General specifications			
Type of installation		non-embedded installation	
Typ. operating range limit S_n		15.0mm	40.0mm
Operating range S_a		0 … 12.1mm	0 … 32.4mm
Electrical data			
Operating voltage U_B 1)		10 … 30VDC	
Residual ripple σ		≤ 20% of U_B	
Output current I_L		≤ 200mA	
Open-circuit current I_0		≤ 10mA	
Residual current I_r		≤ 100µA	
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		≤ 2V	
Hysteresis H of S_r		≤ 15%	≤ 10%
Temperature drift of S_r		≤ 10% 2)	
Repeatability		≤ 5% 3)	
Timing			
Switching frequency f		700Hz	100Hz
Delay before start-up		≤ 300ms	≤ 200ms
Indicators			
Yellow LED (visible from 360°)		switching state	
Mechanical data			
Housing		chromium-plated brass	
Standard surface plate		45 x 45mm², Fe360	120 x 120mm², Fe360
Active surface		PBTP	
Weight (M12 plug/cable)		approx. 145g/approx. 210g	
Connection type		M12 connector 4-pin or cable: 2m, PVC, 3 x 0.34mm², Ø 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	1kV
		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 … 30VDC, ambient temperature T_a = 23°C ± 5°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 = 15mm	IS 230 MM/4NO-15N	501 09716
	IS 230 MM/4NO-15N-S12	501 09717
	IS 230 MM/2NO-15N	501 09718
S_n = 40mm	IS 230 MM/4NO-40N	501 09726
	IS 230 MM/4NO-40N-S12	501 09727
	IS 230 MM/2NO-40N	501 09728

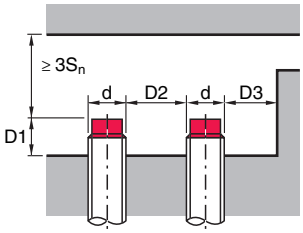
Tables

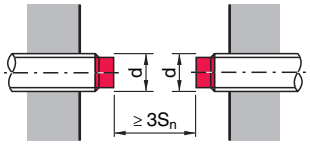
Reduction factors:

for S_n = 15.0mm		for S_n = 40.0mm	
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:

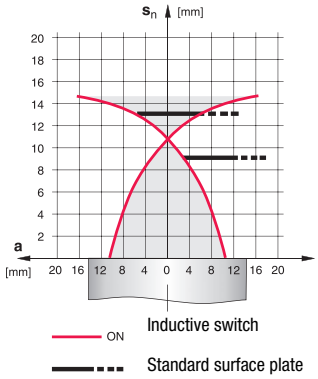




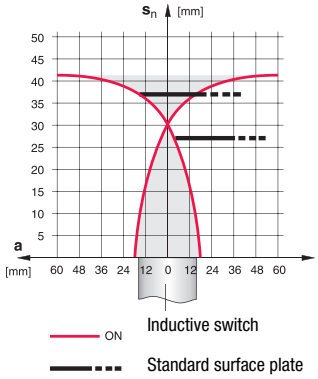
Ferromagnetic and non-ferromagnetic materials				
S_n [mm]	D1 [mm]		D2 [mm]	D3 [mm]
15.0	13.0		45.0	15.0
40.0	Fe360:	35.0	120.0	30.0
	Aluminum:	25.0		
	Brass:	25.0		
	Stainless steel:	20.0		

Diagrams

Models with **S_n = 15.0mm**



Models with **S_n = 40.0mm**



Type key

I	S		2	3	0		M	M	/	4	N	O	-	1	5	N	-	S	1	2

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 2000 mm
S12	M12 connector, 4-pin, axial
200-S12	Cable, PVC, length 200 mm 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.