en 03-2015/05 50110219

4 mm
8 mm
10 mm

M12

10 - 30 V DC
2 kHz
non-embedded

- Slim and short cylindrical metal housing M12
- Chromium-plated brass housing
- Built-in short circuit protection, inductive protection and polarity reversal protection
- LED for switching state visible from 360°

CE   UL US LISTED

IEC 60947…   IEC 60947…   IP 67

We reserve the right to make changes • DS_IS212N_en_50110219.fm

Accessories:

(available separately)

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

Dimensioned drawing

IS 212…-4N0-S12
IS 212…-8N0-S12   IS 212…-10N-S12

M12x1   ø10,5   A
5,7
51,7
60
2,7
5
M12x1
SW17

M12x1   ø10,7   A
5,7
41
60
49
8
M12x1
SW17

M12x1   ø10   A
5,7
52
5
SW17
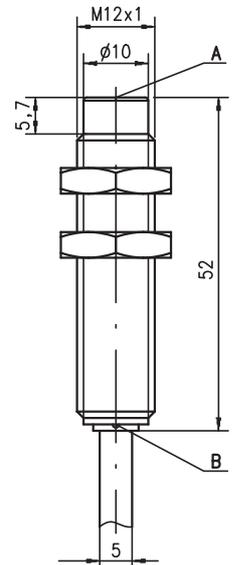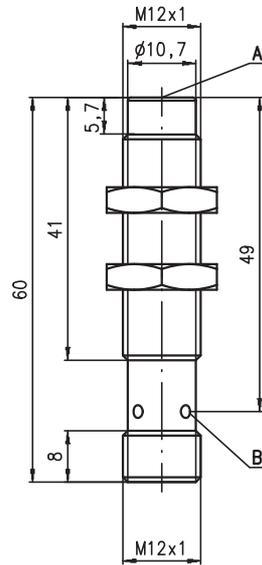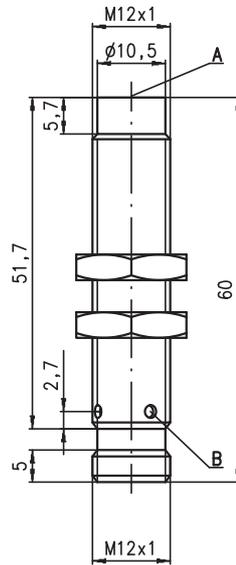
⚠ **Tightening torque of the fastening nuts < 10Nm !**

A   Active surface
B   Yellow indicator diode

Electrical connection

Cable

10−30V DC +   br/BN
GND   bl/BU
OUT   sw/BK
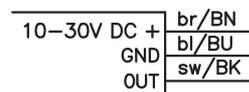
M12 connector

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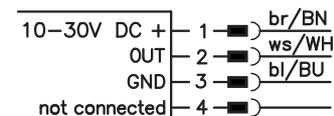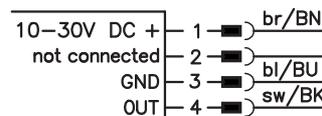
…NO…-S12 (normally open):   3-pin **or** 4-pin M12 connection cables can be used.
…NC…-S12 (normally closed):   **only** 4-pin M12 connection cables can be used.

Specifications

General specifications	IS 212…-4N0…	IS 212…-8N0…	IS 212…-10N…
Type of installation	non-embedded installation		
Typ. operating range limit S_n	4.0 mm	8.0 mm	10.0 mm
Operating range S_a	0 … 3.2 mm	0 … 6.4 mm	0 … 8.1 mm

Electrical data

Operating voltage U_B [1]	10 … 30 VDC	
Residual ripple σ	≤ 20 % of U_B	
Output current I_L	≤ 200 mA	
Open-circuit current I_0	≤ 10 mA	
Residual current I_r	≤ 100 µA	
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	≤ 10 %	
Temperature drift of S_r	≤ 10 % [2]	
Repeatability	≤ 5 % [3] ≤ 5 % [3]	≤ 3 % [3]

Timing

Switching frequency f	2 kHz	1.5 kHz	400 Hz
Delay before start-up	≤ 10 ms	≤ 10 ms	≤ 50 ms

Indicators

Yellow LED (visible from 360°)	switching state

Mechanical data

Housing	chromium-plated brass		
Standard surface plate	12 x 12 mm², Fe360	24 x 24 mm², Fe360	30 x 30 mm², Fe360
Active surface	PBTP		
Weight (M12 plug/cable)	approx. 30 g/ approx. 95 g		
Connection type	M12 connector 4-pin or cable: 2m, PVC, 3 x 0.34 mm², Ø 5.0 mm		

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	1 kV	1 kV
	IEC 61000-4-2	Level 3 air 8kV (ESD)	Level 3 air 8kV (ESD)
	IEC 61000-4-3	Level 3 10V/m (RFI)	Level 3 10V/m (RFI)
	IEC 61000-4-4	Level 3 2kV (Burst)	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 … 30 VDC, ambient temperature T_a = 23°C ± 5°C
4) 1=polarity reversal protection, 2=short circuit protection, 3=inductive protection for all outputs

Tables

Reduction factors:

for S_n = 4.0mm		for S_n = 8.0mm	
Steel Fe360	1	Steel Fe360	1
Copper	0.50	Copper	0.45
Aluminum	0.50	Aluminum	0.7
Brass	0.60	Brass	0.55
Stainless steel	0.90	Stainless steel	0.75

for S_n = 10.0mm	
Steel Fe360	1
Copper	0.41
Aluminum	0.46
Brass	0.52
Stainless steel	0.74

Mounting

Non-embedded installation:
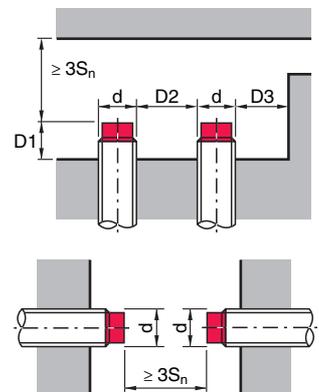
Ferromagnetic and non-ferromagnetic materials			
S_n [mm]	D1 [mm]	D2 [mm]	D3 [mm]
4.0	6.0	16.0	6.0
8.0	9.0	33.0	14.0
10.0	13.0	30.0	10.0

Diagrams

Models with S_n = 4.0mm

Inductive switch
Standard surface plate

Models with S_n = 8.0mm

Inductive switch
Standard surface plate

Models with S_n = 10.0mm

Inductive switch
Standard surface plate
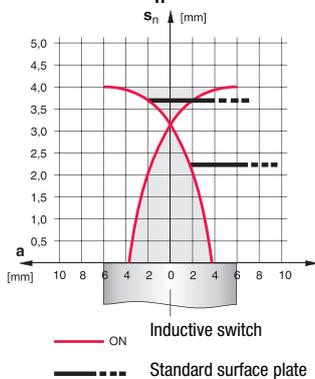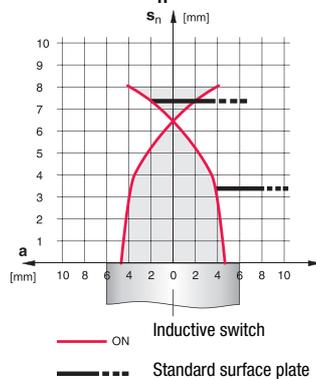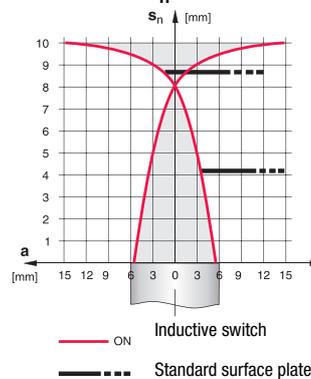
Remarks

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.

Type key

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IS 212 MM/4N0-4N0-S12
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Operating principle / construction

IS — Inductive switch / Standard

Series

212 — Series with M12 x 1 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

4N0 — Typ. scan range limit 4.0 mm / non-embedded installation
8N0 — Typ. scan range limit 8.0 mm / non-embedded installation
10N — Typ. scan range limit 10.0 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

Order guide

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

	Designation	Part No.
$S_n = 4mm$	IS 212 MM/4N0-4N0	50109668
	IS 212 MM/4N0-4N0-S12	50109669
	IS 212 MM/4NC-4N0	50129351
	IS 212 MM/4NC-4N0-S12	50112914
	IS 212 MM/2N0-4N0	50109670
	IS 212 MM/2NC-4N0	50129352
$S_n = 8mm$	IS 212 MM/4N0-8N0	50112807
	IS 212 MM/4N0-8N0-S12	50112808
	IS 212 MM/4NC-8N0	50129357
	IS 212 MM/4NC-8N0-S12	50129358
	IS 212 MM/2N0-8N0	50112806
	IS 212 MM/2NC-8N0	50129356
$S_n = 10mm$	IS 212 MM/4N0-10N	50109689
	IS 212 MM/4NC-10N	50129355
	IS 212 MM/2N0-10N	50111952