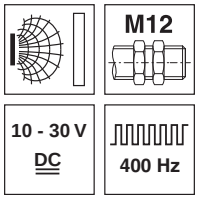
ISS 212

Inductive switches



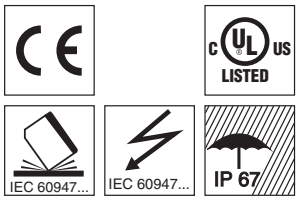
Part No. 501 10221



4 mm
10 mm

non-embedded

- Slim and very 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°



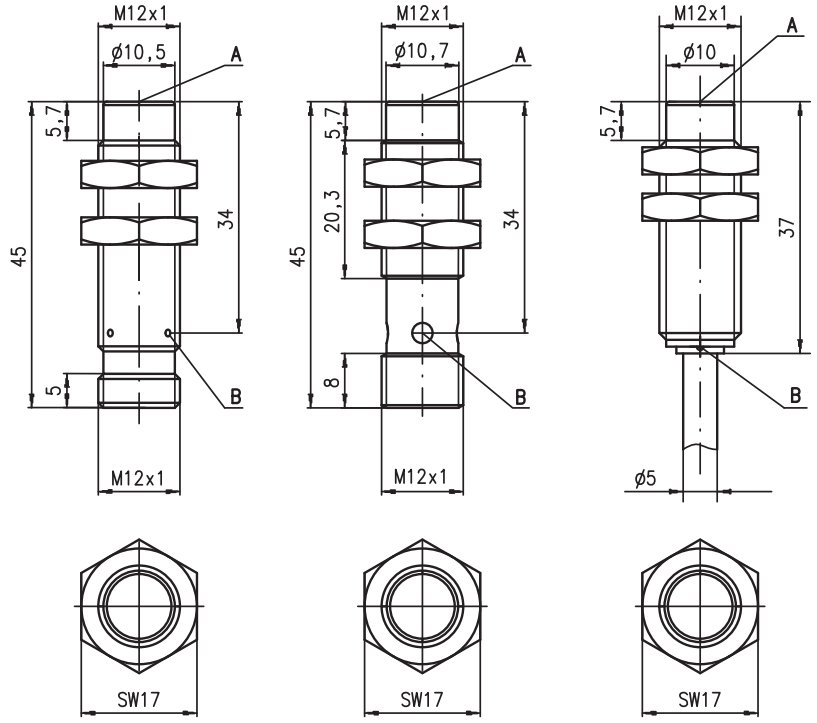
Accessories:

(available separately)

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

Dimensioned drawing

ISS 212…-4N0-S12 **ISS 212…-10N-S12**

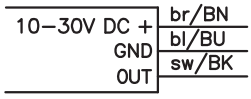


Tightening torque of the fastening nuts < 10Nm !

A Active surface
B Yellow indicator diode

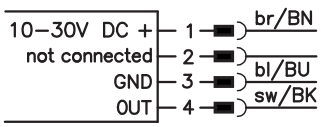
Electrical connection

Cable

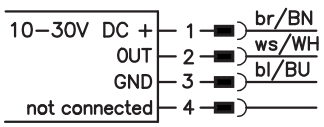


M12 connector

…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.

We reserve the right to make changes • 212_04gb.fm

Specifications

		ISS 212…-4N0…	ISS 212…-10N…
General specifications			
Type of installation		non-embedded installation	
Typ. operating range limit S_n		4.0mm	10.0mm
Operating range S_a		0 … 3.2mm	0 … 8.1mm
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		≤ 10%	
Temperature drift of S_r		≤ 10% 2)	
Repeatability		≤ 5% 3)	≤ 3% 3)
Timing			
Switching frequency f		2kHz	400Hz
Delay before start-up		≤ 10ms	≤ 50ms
Indicators			
Yellow LED (visible from 360°)		switching state	
Mechanical data			
Housing		chromium-plated brass	
Standard surface plate		12 x 12mm², Fe360	30 x 30mm², Fe360
Active surface		PBTP	
Weight (M12 plug/cable)		approx. 30g/approx. 95g	
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 = 10mm	ISS 212 MM/4N0-10N-S12	501 09680

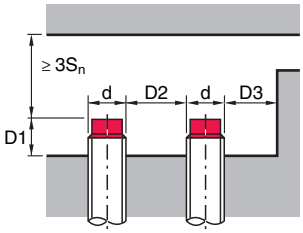
Tables

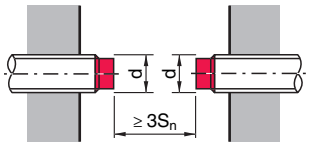
Reduction factors:

for S_n = 4.0mm		for S_n = 10.0mm	
Steel Fe360	1	Steel Fe360	1
Copper	0.50	Copper	0.41
Aluminum	0.50	Aluminum	0.46
Brass	0.60	Brass	0.52
Stainless steel	0.90	Stainless steel	0.74

Mounting

Non-embedded installation:

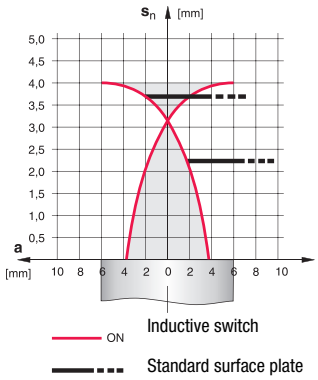




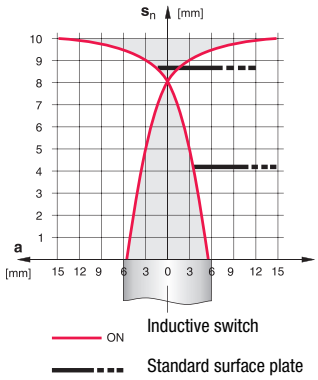
Ferromagnetic and non-ferromagnetic materials			
S_n [mm]	D1 [mm]	D2 [mm]	D3 [mm]
4.0	6.0	16.0	6.0
10.0	10.0	30.0	10.0

Diagrams

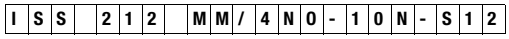
Models with **S_n = 4.0mm**



Models with **S_n = 10.0mm**



Type key



Operating principle / construction

ISS	Inductive switch / short construction

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

4NO	typ. scan range limit 4.0 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

Remarks

- **Approved purpose**:
  Inductive switches are electronic sensors used for the inductive, contactless detection of objects.