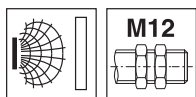
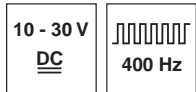


Part No. 501 10221



M12
4 mm
10 mm

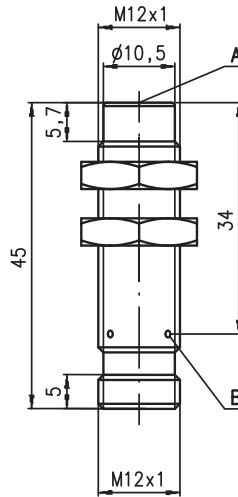


non-embedded

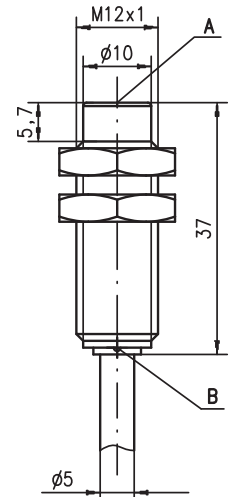
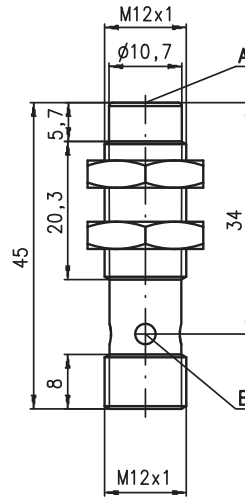
- Slim and very short cylindrical metal housing M12
- Chromium-plated brass housing
- Built-in short circuit protection, inductive protection and polarity reversal protection
- LED for switching state visible from 360°

Dimensioned drawing

ISS 212...-4NO-S12



ISS 212...-10N-S12

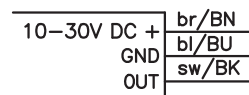


Tightening torque of the fastening nuts < 10Nm !

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

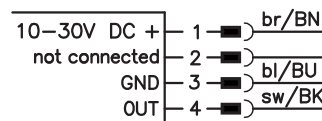
Electrical connection

Cable

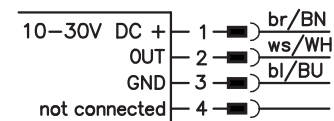


M12 connector

...NO... (normally open)



...NC... (normally closed)



...NO...-S12 (normally open):
...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 012...)

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

Specifications

General specifications

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

ISS 212...-4NO...

non-embedded installation
 4.0mm
 0 ... 3.2mm

ISS 212...-10N...

10.0mm
 0 ... 8.1mm

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
 ≤ 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
 $\leq 10\%$
 $\leq 10\%$ 2)
 $\leq 5\%$ 3)

Timing

Switching frequency f
 Delay before start-up

2kHz
 ≤ 10 ms
 400Hz
 ≤ 50 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
 12 x 12mm², Fe360
 PBTP
 approx. 30g/approx. 95g
 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 $U_B = 20 \dots 30$ 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.

$S_n = 10$ mm	Designation	Part No.
	ISS 212 MM/4NO-10N-S12	501 09680

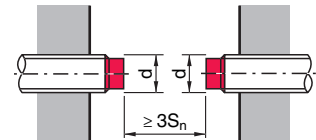
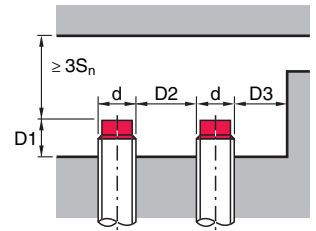
Tables

Reduction factors:

for $S_n = 4.0$ mm		for $S_n = 10.0$ mm	
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

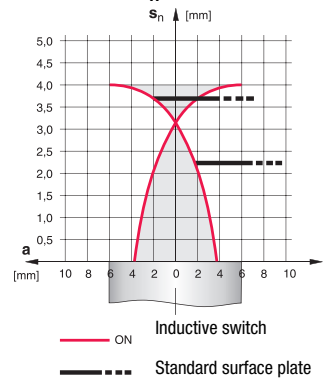
Non-embedded installation:



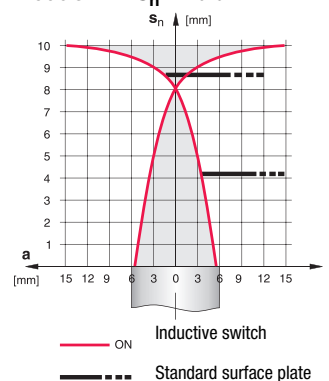
Ferromagnetic and non-ferromagnetic materials			
S_n [mm]	D1 [mm]	D2 [mm]	D3 [mm]
4.0	6.0	16.0	6.0
10.0	10.0	30.0	10.0

Diagrams

Models with $S_n = 4.0$ mm



Models with $S_n = 10.0$ mm



Type key

I	S	S	2	1	2	M	M	/	4	N	0	-	1	0	N	-	S	1	2
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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 4.0mm / non-embedded installation

10N typ. scan range limit 10.0mm / non-embedded installation

Electrical connection

N/A cable, PVC, standard length 2000mm

S12 M12 connector, 4-pin, axial

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

Remarks

● **Approved purpose:**

Inductive switches are electronic sensors used for the inductive, contactless detection of objects.

