

NAMUR INDUCTIVE SENSORS ATEX SERIES

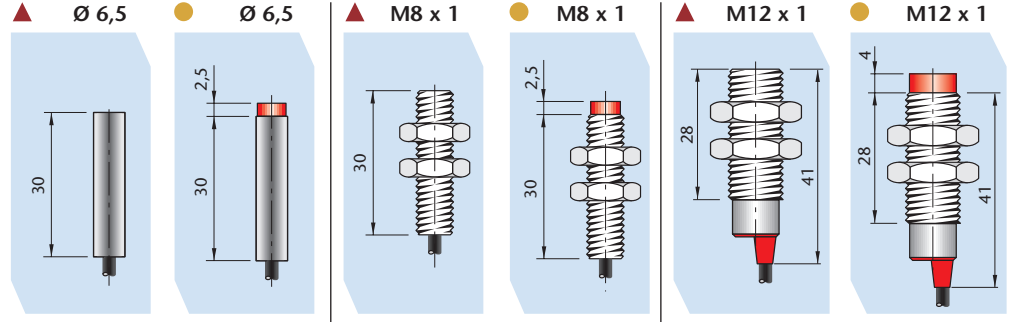


CYLINDRICAL HOUSING Ø 6.5 - M8-M12-M14-M18-M30
2 WIRES D.C. - VERSION-N

- ▲ **EMBEDDABLE** (FLUSH MOUNTING)
- **NOT EMBEDDABLE** (NON FLUSH MOUNTING)

TECHNICAL CHARACTERISTICS

Dimensions mm



MODELS WITH CABLE

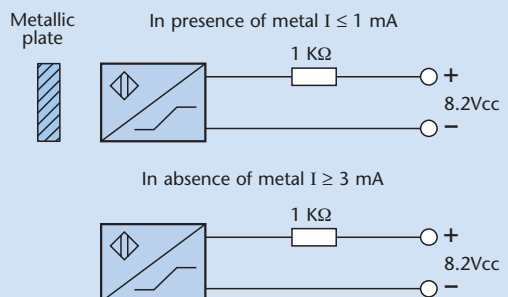
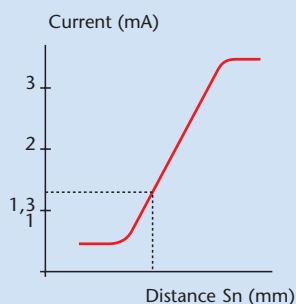
SI 6.5 - N1 AG1 EX	SI 6.5 - NE2 AG1 EX	SI 8 - N1 AG1 EX	SI 8 - NE2 AG1 EX	SI 12 - N2 AG1 EX	SI 12 - NE4 AG1 EX

MODELS WITH CONNECTOR

-	-	-	-	SI 12 - N2 H AG1 EX	SI 12 - NE4 H AG1 EX

Switching distance (Sn)	mm	1	2	1	2	2	4
Continuous voltage (residual ripple ≤10%)	V	8,2					
Absorption current at 8.2V	mA	In presence of metal ≤ 1 mA - In absence of metal ≥ 3 mA					
Switching frequency	Hz	2000	2000	2000	2000	2000	2000
Repeatability	% of Sn	≤ 3					
Temperature limits	°C	-20 ÷ +70					
IP rating	IP	67 (With H depending on connector)					
Housing		Nickelled brass					
Cable PVC blue	3 m	2 x 0.25 mm ²	2 x 0.25 mm ²	2 x 0.25 mm ²	2 x 0.25 mm ²	2 x 0.25 mm ²	2 x 0.25 mm ²
Connector plug		-	-	-	-	H	H
MARKING		II 1G EEx ia IIC T6			II 1G EEx ia IIC T5		

WORKING PRINCIPLE



N.B.: upon request cable for sensors with different lengths 5, 10 metres is available.

NAMUR INDUCTIVE SENSORS ATEX SERIES



- CONFORMITY:
- 94/9 EC ATEX Directive
 - EC Type Examination: CESI 04 ATEX 131
 - Production Quality Assurance Notification: CESI 04 ATEX 132Q
 - 89/336 EC Electromagnetic Compatibility Directive
 - EN60947-5-6 Namur Standard

INDUCTIVE

M14 x 1	M14 x 1	M18 x 1	M18 x 1	M30 x 1.5	M30 x 1.5
SI 14 - N3 AG1 EX	SI 14 - NE5 AG1 EX	SI 18 - N5 AG1 EX	SI 18 - NE8 AG1 EX	SI 30 - N10 AG1 EX	SI 30 - NE15 AG1 EX
-	-	SI 18 - N5 H AG1 EX*	SI 18 - NE8 H AG1 EX	SI 30 - N10 H AG1 EX	SI 30 - NE15 H AG1 EX
3	5	5	8	10	15

8,2

In presence of metal ≤ 1 mA - In absence of metal ≥ 3 mA

2000

1000

500

≤ 3

-20 ÷ +70

67 (With H depending on connector)

Nickelled brass

2 x 0.25 mm²

2 x 0.50 mm²

2 x 0.50 mm²

-

H

H

II 1G EEx ia IIC T5

II 1G EEx ia IIB T5

II 1G EEx ia IIB T6

APPLICATIONS

The NAMUR proximity switches ATEX SERIES are electronic sensors whose absorbed current varies in the presence of metallic objects. The reduced dimensions, the low values of voltage, current and impedance, allows them to be used in various applications in explosive areas where an explosive mixture of AIR and GAS is present.

CONNECTION TO INTRINSICALLY SAFE CIRCUITS

See pag. 7

(*) Only for this model the MARKING is: II 1G EEx ia IIC T5

NAMUR INDUCTIVE SENSORS ATEX SERIES

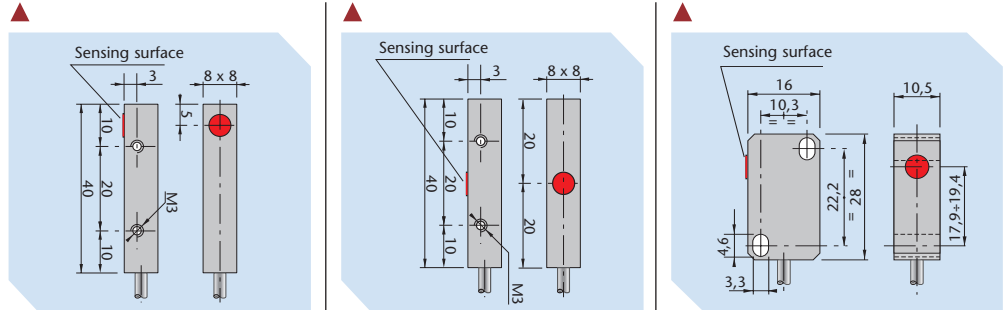


RECTANGULAR HOUSING SIPA8 - SIPC8 - SIP10 - SIP12 - SIP17 - SIP40 - SIQ80
2 WIRES D.C. - VERSION-N

- ▲ **EMBEDDABLE** (FLUSH MOUNTING)
- **NOT EMBEDDABLE** (NON FLUSH MOUNTING)

TECHNICAL CHARACTERISTICS

Dimensions mm



MODELS WITH CABLE

SIP A8 - N1.5 AG1 EX

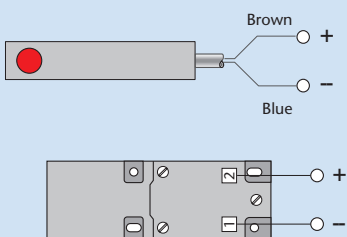
SIP C8 - N1.5 AG1 EX

SIP 10 - N2 AG1 EX

MODELS WITH CONNECTOR

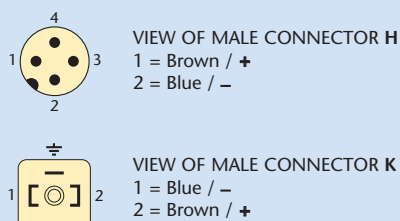
Switching distance (Sn)	mm	1.5	1.5	2
Continuous voltage (residual ripple ≤10%)	V	8,2		
Absorption current at 8.2V	mA	In presence of metal ≤ 1 mA - In absence of metal ≥ 3 mA		
Switching frequency	Hz	2000	2000	1000
Repeatability	% of Sn	≤ 3		
Temperature limits	°C	-20 ÷ +70		
IP rating	IP	67		
Housing		Nikelled Brass		Plastic
Cable PVC blue	3 m	2 x 0.25 mm ²	2 x 0.25 mm ²	2 x 0.25 mm ²
Connector plug		-	-	-
MARKING		II 1G EEx ia IIC T6		II 1G EEx ia IIB T6

WIRING DIAGRAMS WITH CABLE OR TERMINAL BLOCK

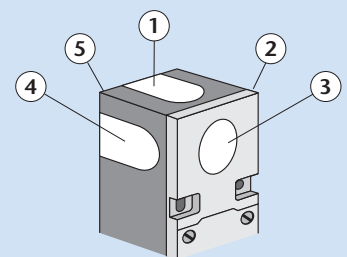


N.B.: Upon request cable for sensors with different lengths 5 - 10 metres is available.

CONNECTION WITH H - K PLUG



ADJUSTABLE SENSING SIDE



NOTE: In the SIP 40 sensor the oscillator is contained in a module which clips into the body whose surface can then be sensitive on five different positions. The surface chosen can be identified by applying the enclosed circular adhesive label.

NAMUR INDUCTIVE SENSORS ATEX SERIES



- CONFORMITY:
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 - EC Type Examination: CESI 04 ATEX 131 (*)
 - Production Quality Assurance Notification: CESI 04 ATEX 132Q (*)
 - 89/336 EC Electromagnetic Compatibility Directive
 - EN60947-5-6 Namur Standard

(*) For 1G and 2G Category Sensors only.

SIP 12 - N2 AG1 EX SIP 12 - NE4 AG1 EX		SIP 17 - NE5 AG1 EX	SIP 40 - N15 AG3 EX SIP 40 - NE20 AG3 EX		SIQ 80 - NE50 AG3 EX
-		-	SIP 40 - N15 K AG3 EX SIP 40 - NE20 K AG3 EX		SIQ 80 - NE50 K AG3 EX
2	4	5	15	20	10 ÷ 60 (Adjustable)
8,2					
In presence of metal ≤ 1 mA - In absence of metal ≥ 3 mA					
2000	2000	500	100		
≤ 3					
-20 ÷ +70					
67			65 (IP67 with cable)		
Plastic					
2 x 0.25 mm ²		2 x 0.25 mm ²	Terminal block (On request with 3 mt cable)		2 x 0.50 mm ²
-		-	K		K
II 1G EEx ia IIA T5		II 1G EEx ia IIB T5		II 3G EEx nL IIC T6	

SENSITIVITY ADJUSTMENT

This sensor is supplied with a trimmer for the sensitivity adjustment. The sensitivity increases when the trimmer is rotated in the clockwise direction and de-creases in the anti-clockwise direction. Avoid using for a sensing distance greater than 60 mm referred to a square piece of (FE 37) steel of 1 mm thickness the side of which is equal to 100 mm. When setting the sensor keep in consideration all other metallic objects nearby, in fact setting is suggested to be made when the sensor is installed in the normal working conditions. The sensor is supplied already pre-set to 50 mm sensitivity.

INSTRUCTIONS FOR CORRECT INSTALLATION

	(A) mm	(A) mm	(B) mm
SI 6.5	≥ 4	≥ 16	≥ 8
SI 8	≥ 4	≥ 16	≥ 8
SI 12	≥ 6	≥ 24	≥ 12
SI 14	≥ 7	≥ 28	≥ 14
SI 18	≥ 9	≥ 36	≥ 18
SI 30	≥ 15	≥ 60	≥ 30
SIP A8	≥ 2	-	-
SIP C8	≥ 2	-	-
SIP 10	≥ 10	-	≥ 0
SIP 12	≥ 6	≥ 12	≥ 6
SIP 17	-	≥ 20	≥ 6
SIP 40	≥ 30	≥ 50	≥ 15
SIQ 80	-	≥ 450	≥ 70

N.B. A = Mutual interference - B = Interference with metallic part

INDUCTIVE

NAMUR INDUCTIVE SENSORS ATEX SERIES

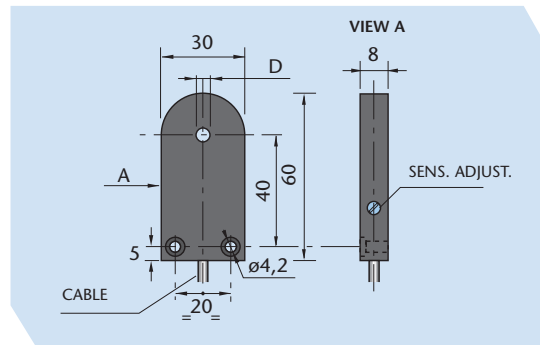
RING HOUSING SIA05 - SIA12 - SIA15 - SIA22 - SIA30 - SIA44 - SIA63 - SIA100
2 WIRES D.C. - VERSION-N



● **NOT EMBEDDABLE**
(NON FLUSH MOUNTING)

TECHNICAL CHARACTERISTICS

Dimensions mm



MODELS WITH CABLE

SIA 05 - NE AG1 EX

SIA 12 - NE AG1 EX

SIA 15 - NE AG1 EX

MODELS WITH CONNECTOR

-

-

-

Hole diameter (D)	mm	5	12	15
Continuous voltage (residual ripple ≤10%)	V	8,2		
Absorption current at 8.2V	mA	In presence of metal ≤ 1 mA - In absence of metal ≥ 3 mA		
Switching frequency (min-max)	Hz	600 ÷ 1500	600 ÷ 1000	600 ÷ 1000
Repeatability	% of Sn	< 0.3		
Temperature limits	°C	-20 ÷ +70		
IP rating	IP	65 (H1 depending on connector)		
Housing		Plastic		
Cable PVC blue	3 m	2 x 0.25 mm ²		
Connector plug		-	-	-

MARKING

II 1G EEx ia IIA T6

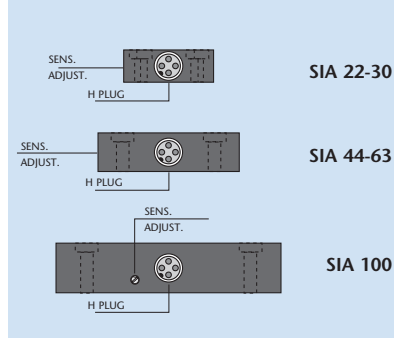
SPECIFICATIONS

In ring sensors, the sensing is carried out inside the ring. The sensor intervenes when a metallic object is introduced. They are particularly suitable for checking the presence and counting of small metal objects, screws, nuts washers etc. or for any similar operation. Also useful in verifying breakage of metal wires that pass through the ring. The ring sensor's housing is in plastic and electrical attachments can be made by means of a cable or M8 and M12 connectors depending on the model type.

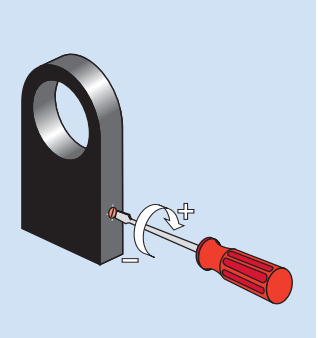
MIN. DIMENSIONS OF THE OBJECT (Fe37) TO DETECT

Model	Length mm	Diameter mm
SIA05	1	0.7
SIA12	2	1.2
SIA15	2	1.2
SIA22	6	3
SIA30	7	4
SIA44	9	5
SIA63	12	6
SIA100	20	12

PLUG H OUTPUT POSITION VIEW



SENSITIVITY ADJUSTMENT

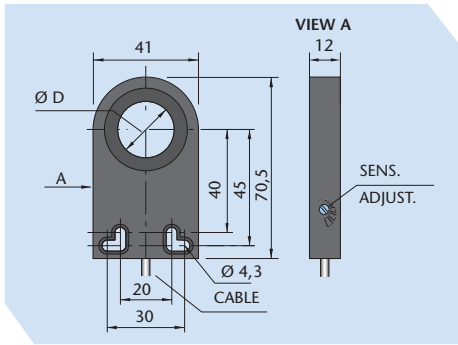


NAMUR INDUCTIVE SENSORS ATEX SERIES



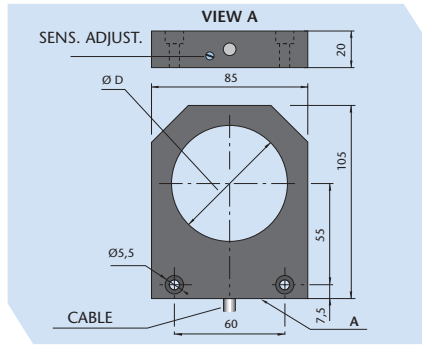
- CONFORMITY:
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 - EC Type Examination: CESI 04 ATEX 131 (*)
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(*) For 1G and 2G Category Sensors only.



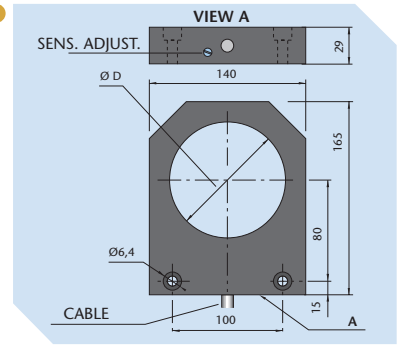
SIA 22 - NE AG2 EX

SIA 30 - NE AG2 EX

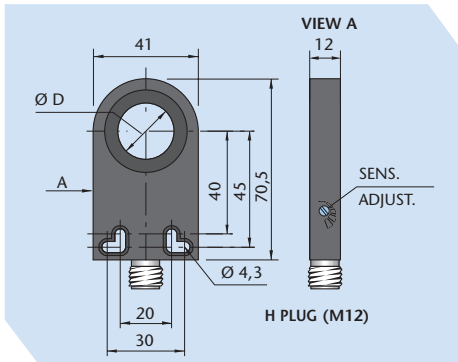


SIA 44 - NE AG3 EX

SIA 63 - NE AG3 EX

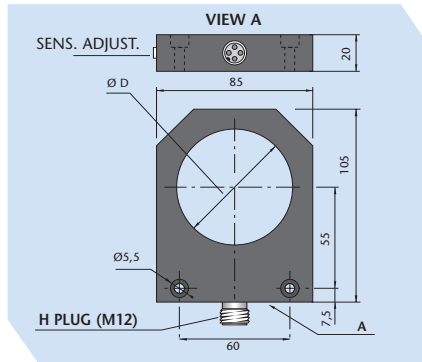


SIA 100 - NE AG3 EX



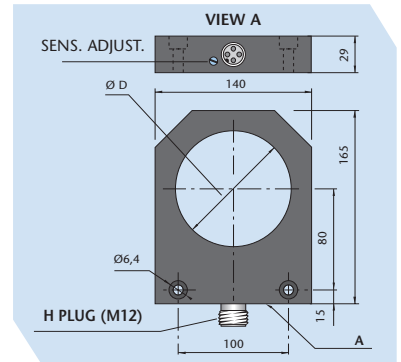
SIA 22 - NE H AG2 EX

SIA 30 - NE H AG2 EX



SIA 44 - NE H AG3 EX

SIA 63 - NE H AG3 EX



SIA 100 - NE H AG3 EX

22

30

44

63

100

8,2

In presence of metal ≤ 1 mA - In absence of metal ≥ 3 mA

600 ÷ 1000

600 ÷ 800

250 ÷ 600

100 ÷ 200

100

< 0.3

-20 ÷ +70

65 (H depending on connector)

Plastic

2 x 0.25 mm²

2 x 0.50 mm²

H

H

H

H

H

II 2G EEx ia IIB T6

II 3G EEx nL IIC T6

SELECTION OF RING SENSOR

Selection should be made based on the minimum hole diameter required. In this way the sensitivity adjustment can be made within normal parameters and need not be pushed to the maximum risking the proper functioning of the unit.

CONNECTION TO INTRINSICALLY SAFE CIRCUIT

See pag. 7

CONNECTION TO ENERGY LIMITED CIRCUIT

See pag. 7

SENSITIVITY ADJUSTMENT

After having followed the instructions regarding the choice of the most suitable unit it is recommended that the sensitivity adjustment be carried out when the sensor is installed in the final position taking into account how much metal mass is close by which could alter its functioning. The sensitivity increases turning the trimmer clockwise.

EFFECTS OF METAL IN THE CLOSE VICINITY

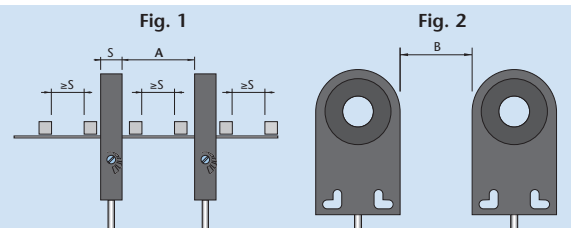
If a moving metal part is close to the sensing area the functioning can be disturbed.

In order to avoid this, install the units some distance from metallic objects. Ensure that this does not interfere with the functioning. When applying to a metal surface make sure not to apply too close to ring hole otherwise sensor may not-function correctly.

USE OF SENSOR

A distance equal to the width of the sensor should be left between each object that passes through the sensor. If more than one sensor is to be installed in close vicinity, the minimum distance indicated between sensors should be maintained as per chart indications.

INSTRUCTIONS FOR CORRECT INSTALLATION



Model	SIA05	SIA12	SIA15	SIA22	SIA30	SIA44	SIA63	SIA100
A (Fig. 1) mm	25	30	30	60	60	300	300	600
B (Fig. 2) mm	10	10	10	20	20	250	250	650

CONNECTION TO INTRINSICALLY SAFE CIRCUITS - "CATEGORY 1G and 2G SENSORS"

The **category 1G and 2G** NAMUR inductive sensors ATEX SERIES should be connected only to **intrinsically safe circuits** which are approved with the EC type examination certificate and with following values:

$V_o < 17V$ **$I_o < 17mA$** **$P_o < 73mW$** **$C_o > 0.123\mu F$** **$L_o > 175\mu H$**

where:

V_o = Maximum output voltage in an **intrinsically safe circuit** that can appear under open circuit conditions at the connection facilities of the apparatus.

I_o = Maximum current in an **intrinsically safe circuit** that can be taken from the connection facilities of the apparatus.

P_o = Maximum electrical power in an **intrinsically safe circuit** that can be taken from the apparatus.

C_o = Maximum capacitance in an **intrinsically safe circuit** that can be connected to the connection facilities of the apparatus without invalidating intrinsic safety.

L_o = Maximum value of inductance in an **intrinsically safe circuit** that can be connected to the connection facilities of the apparatus.

CONNECTION TO ENERGY LIMITED CIRCUITS - "CATEGORY 3G SENSORS"

The **category 3G** NAMUR inductive sensors ATEX SERIES should be connected only to **energy limited circuits** with following values:

$V_o < 17V$ **$I_o < 17mA$** **$P_o < 73mW$** **$C_o > 0.235\mu F$** **$L_o > 195\mu H$**
 $V_o < 15.8V$ **$I_o < 20mA$** **$P_o < 79mW$** **$C_o > 0.475\mu F$** **$L_o > 160\mu H$** (SIP40-N15... Models only)

where:

V_o = Maximum output voltage in an **energy limited circuit** that can appear under open circuit conditions at the connection facilities of the apparatus.

I_o = Maximum current in an **energy limited circuit** that can be taken from the connection facilities of the apparatus.

P_o = Maximum electrical power in an **energy limited circuit** that can be taken from the apparatus.

C_o = Maximum capacitance in an **energy limited circuit** that can be connected to the connection facilities of the apparatus.

L_o = Maximum value of inductance in an **energy limited circuit** that can be connected to the connection facilities of the apparatus.