

INDUCTIVE SENSORS



NAMUR INDUCTIVE SENSOR ATEX/IECEx



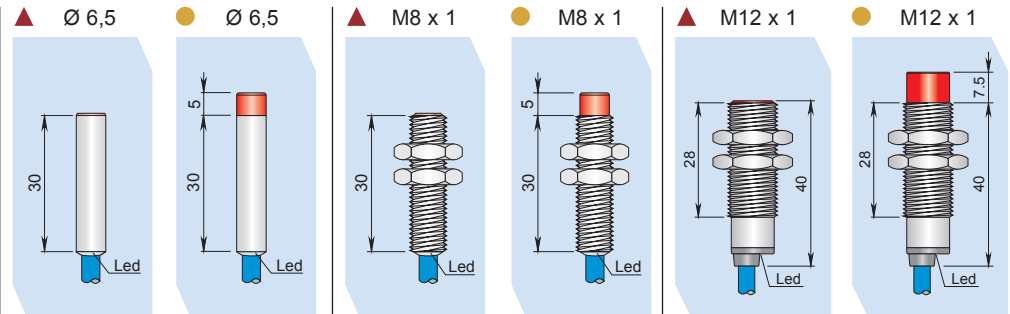
CYLINDRICAL HOUSING 6,5 Dia. – M8-M12-M14-M1-M30
2 WIRES D.C. – VERSION –N

CONFORMING: - Directive ATEX 94/9/CE Group "II" Category "1" Gas "G"(Zone 0) and Dust "D"(Zone 20)
(Reference standards: EN60079-0:2012, EN60079-11:2012 and EN60079-26:2007)
- International Scheme IECEx type of protection "Ex ia"
(Reference standards: IEC60079-0:2011, IEC60079-11:2011 and IEC60079-26:2006)
- Directive Electromagnetic Compatibility 2004/108/CE
- Product standard EN60947-5-6

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

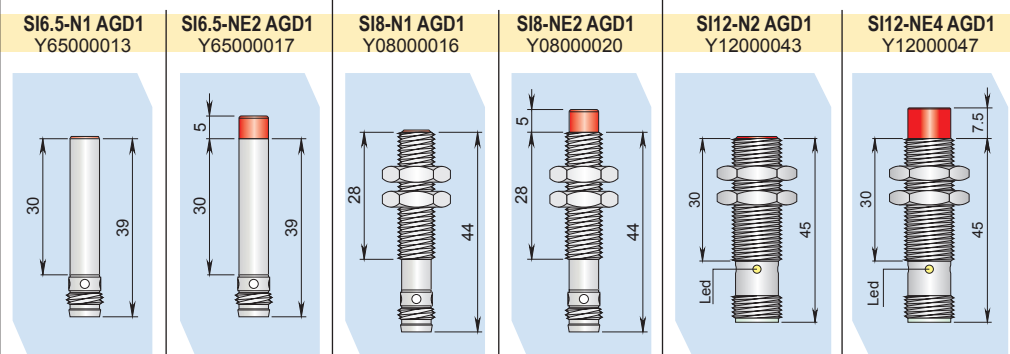
TECHNICAL CHARACTERISTICS

Dimensions in mm

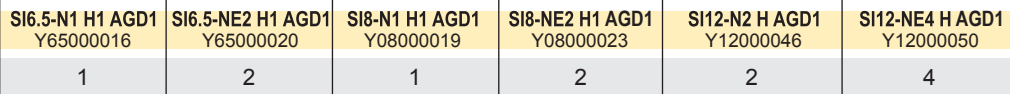


MODELS WITH CABLE

N.B.: 5 or 10mt versions available



MODELS WITH CONNECTOR



Switching distance Sn	mm	1	2	1	2	2	4
Continuous voltage (residual ripple ≤ 10%)	V	8,2					
Current absorption at 8.2V	mA	In presence of metal ≤ 1 mA - In absence of metal ≥ 3 mA					
Switching frequency	Hz	2000		2000		2000	
Repeatability (% Sn)		≤ 3					
Temperature limits	°C	-20 ÷ +60					
IP rating	IP	IP67 with cable – IP66 or IP67 H/H1 plug (Depending on connector)					
Housing		Nickelled brass					
Blue PVC cable	3 m	2 x 0.25 mm ²		2 x 0.25 mm ²		2 x 0.25 mm ²	
Connector plug		H1 (M8)		H1 (M8)		H (M12)	
MARKING		ATEX : II 1G Ex ia IIC T6 Ga II 1D Ex ia IIIC T85°C Da IP67			IECEx : Ex ia IIC T6 Ga Ex ia IIIC T85°C Da IP67		

WORKING PRINCIPLE

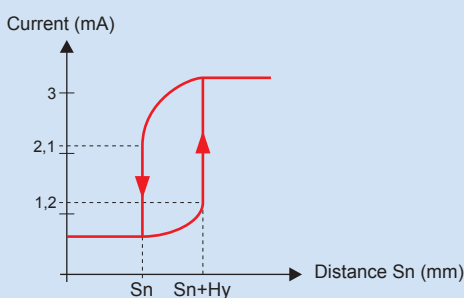


Fig.1

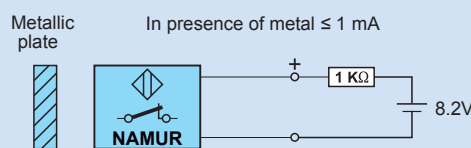


Fig.2

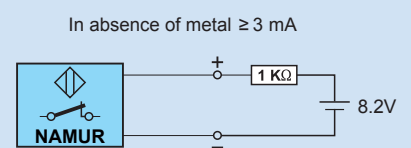


Fig.3

NAMUR INDUCTIVE SENSORS ATEX/IECEX

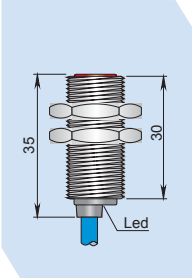
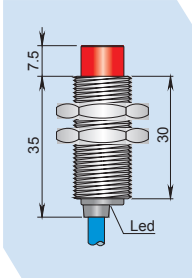
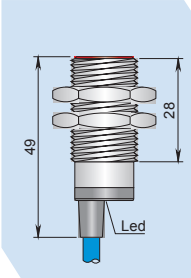
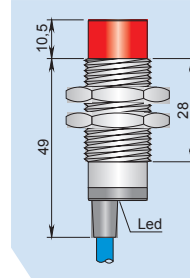
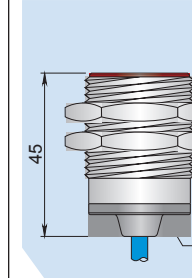
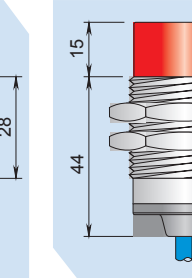
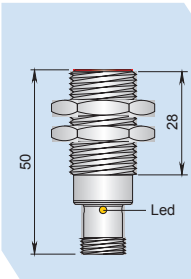
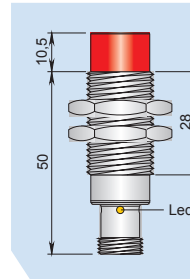
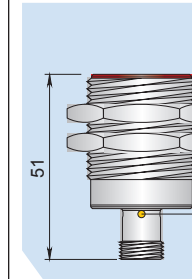
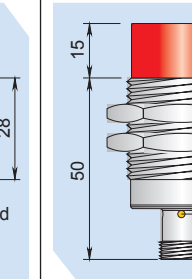


APPROVALS: EC- Type Examination Certificate - **ATEX n° IMQ 13 ATEX 019**

Certificate of Conformity IECEx n° **IECEx IMQ 13.0012X**

Notification of production quality assurance: **CESI 04 ATEX 132 Q**

INDUCTIVE

					
SI14-N3 AGD1 Y14000011	SI14-NE5 AGD1 Y14000014	SI18-N5 AGD1 Y18000040	SI18-NE8 AGD1 Y18000044	SI30-N10 AGD1 Y30000039	SI30-NE15 AGD1 Y30000043
					
-	-	SI18-N5 H AGD1 Y18000043	SI18-NE8 H AGD1 Y18000047	SI30-N10 H AGD1 Y30000042	SI30-NE15 H AGD1 Y30000046
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 ÷ +60

IP67 with cable – IP66 or IP67 H/H1 plug (Depending on connector)

Nickelled brass

2 x 0.25 mm²


2 x 0.50 mm²

2 x 0.50 mm²

Not foreseen

H (M12)

H (M12)

ATEX :  II 1G Ex ia IIC T6 Ga
II 1D Ex ia IIIC T85°C Da IP67

IECEx : Ex ia IIC T6 Ga
Ex ia IIIC T85°C Da IP67

ATEX :  II 1G Ex ia IIB T6 Ga
II 1D Ex ia IIIC T85°C Da IP67

IECEx : Ex ia IIB T6 Ga
Ex ia IIIC T85°C Da IP67

APPLICATIONS

The NAMUR ATEX/IECEx series inductive sensors are electronic proximity sensors whose input current is changed with the approach of a metal actuator (see figs. 1, 2 and 3). The small size, low current, voltage and impedance values that characterise them allow their use in various applications in hazardous areas with explosive atmospheres consisting of a mixture of AIR/GAS and/or AIR/DUST. The sensors of this series must always be connected to intrinsically safe circuits covered by an EC Type examination certificate, respecting the connection instructions given on page 7.

NAMUR INDUCTIVE SENSORS ATEX/IECEX



RECTANGULAR HOUSING SIPA8 – SIPC8 – SIP10 – SIP12 – SIP40 – SIQ80

2 WIRES D.C. – VERSION-N

- CONFORMING: - Directive ATEX 94/9/CE Group "II" Category "1" Gas "G"(Zone 0) and Dust "D"(Zone 20)
 (Reference standards: EN60079-0:2012, EN60079-11:2012 and EN60079-26:2007)
 - International Scheme IECEx type of protection "Ex ia"
 (Reference standards: IEC60079-0:2011, IEC60079-11:2011 and IEC60079-26:2006)
 - Directive Electromagnetic Compatibility 2004/108/CE
 - Product standard EN60947-5-6

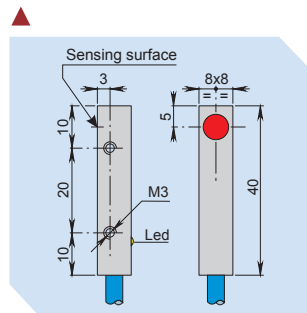
- ▲ EMBEDDABLE (FLUSH MOUNTING)
- NOT EMBEDDABLE (NON FLUSH MOUNTING)

TECHNICAL CHARACTERISTICS

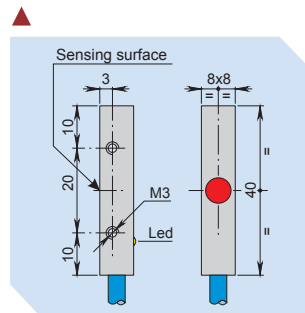
Dimensions in mm

MODELS WITH CABLE

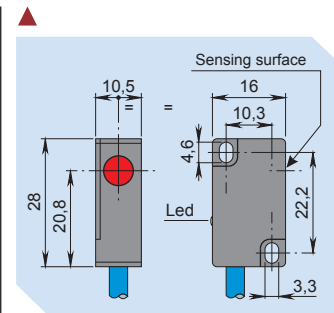
N.B.: 5 or 10mt versions available



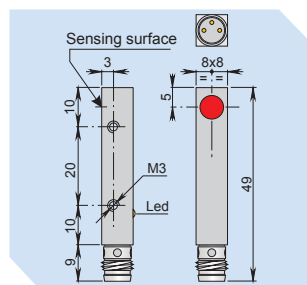
SIPA8-N1.5 AGD1
YIP000059



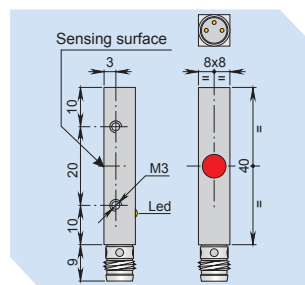
SIPC8-N1.5 AGD1
YIP000063



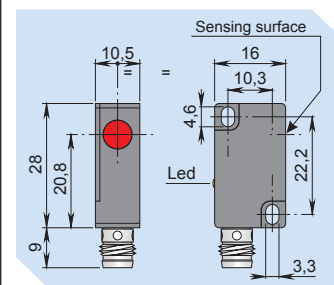
SIP10-N2 AGD1
YIP000067



SIPA8-N1.5 H1 AGD1
YIP000062



SIPC8-N1.5 H1 AGD1
YIP000066

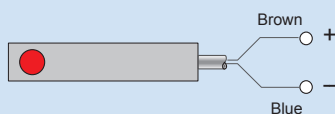


SIP10-N2 H1 AGD1
YIP000070

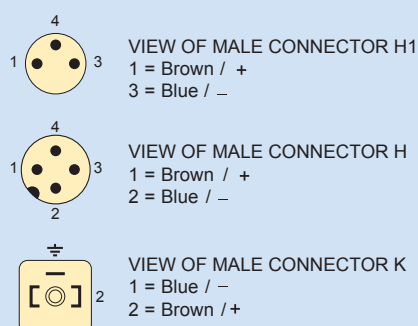
MODELS WITH CONNECTOR

Switching distance Sn	mm	1.5	1.5	2
Continuous voltage (residual ripple ≤ 10%)	V	8,2		
Current absorption at 8.2V	mA	In presence of metal ≤1 mA - In absence of metal ≥3 mA		
Switching frequency	Hz	2000	2000	1000
Repeatability (% Sn)		≤ 3		
Temperature limits	°C	-20 ÷ +60		
IP rating	IP	IP67 with cable – IP66 or IP67 H/H1 plug (Depending on connector)		
Housing		Nickelled brass		Plastic
Blue PVC cable	3 m	2 x 0.25 mm ²	2 x 0.25 mm ²	2 x 0.25 mm ²
Connector plug		H1 (M8)	H1 (M8)	H1 (M8)
MARKING		ATEX: II 1G Ex ia IIC T5 Ga II 1D Ex ia IIC T100°C Da IP67		IECEX: Ex ia IIC T5 Ga Ex ia IIC T100°C Da IP67
		ATEX: II 1G Ex ia IIB T6 Ga II 1D Ex ia IIC T85°C Da IP67		IECEX: Ex ia IIB T6 Ga Ex ia IIC T85°C Da IP67

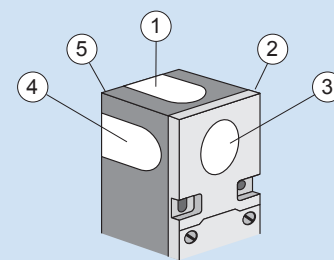
WIRING DIAGRAM WITH CABLE



CONNECTION WITH H1 – H – K



ADJUSTABLE SENSITIVITY SIP 40



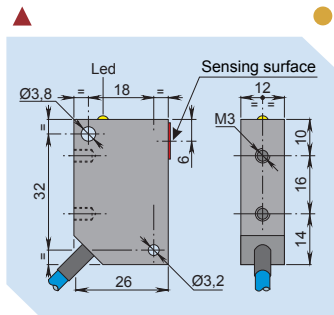
Note: In the SIP40 sensor the oscillator is contained in a module which clips into the body whose surface can then be sensitive on five different positions. The surface chosen can be identified by applying the circular adhesive label.

NAMUR INDUCTIVE SENSOR ATEX/IECEX

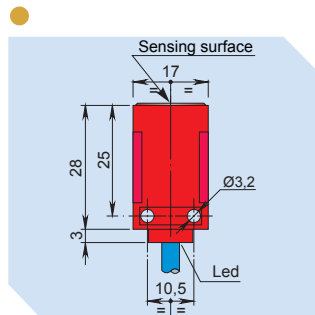


APPROVALS: EC- Type Examination Certificate - **ATEX n° IMQ 13 ATEX 019**
 Certificate of Conformity IECEx n° **IECEx IMQ 13.0012X**
 Notification of production quality assurance: **CESI 04 ATEX 132 Q**

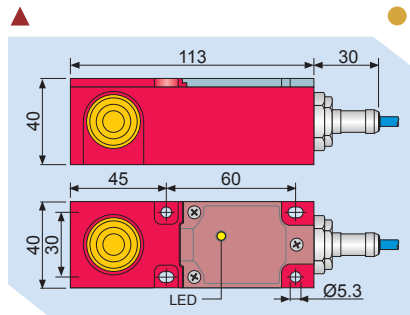
INDUCTIVE



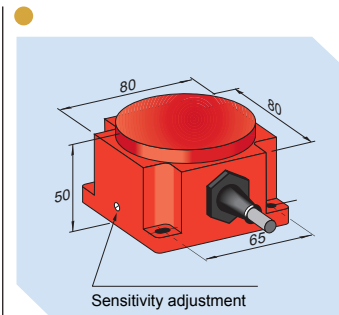
SIP12-N2 AGD1 YIP000071 | **SIP12-NE4 AGD1** YIP000075



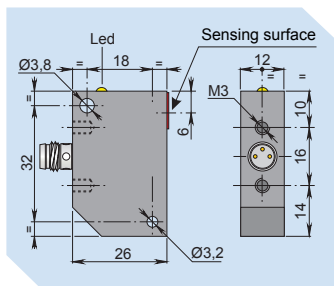
SIP17-NE5 AGD1 YIP000079



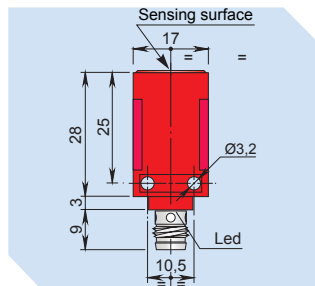
SIP40-N15 LC3 AGD1 YIP000083 | **SIP40-NE20 LC3 AGD1** YIP000093



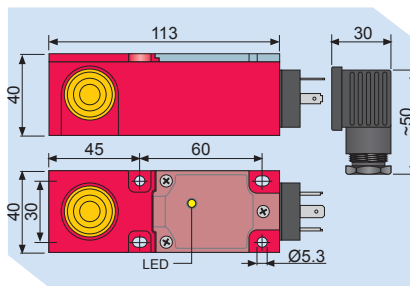
SIQ80-NE50 AGD2 YIP000097



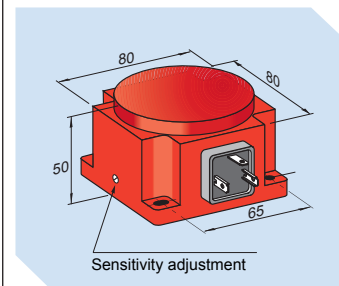
SIP12-N2 H1 AGD1 YIP000074 | **SIP12-NE4 H1 AGD1** YIP000078



SIP17-NE5 H1 AGD1 YIP000082



SIP40-N15 K AGD2 YIP000089 | **SIP40-NE20 K AGD2** YIP000096



SIQ80-NE50 K AGD2 YIP000100

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 ÷ +60

IP67 with cable – IP66 or IP67 H/H1 plug (Depending on connector)

IP67 with cable with plug IP66

Plastic

0.25

0.25

2 x 0.50 mm²

2 x 0.50 mm²

H1 (M8)

H1 (M8)

K

K

ATEX: II 1G Ex ia IIB T6 Ga
II 1D Ex ia IIIC T85°C Da IP67

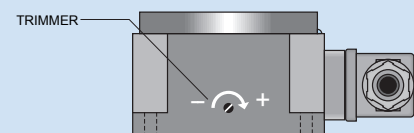
IECEx: Ex ia IIB T6 Ga
Ex ia IIIC T85°C Da IP67

con cavo: ATEX: II 1G Ex ia IIA T5 Ga
II 1D Ex ia IIIC T100°C Da IP67
IECEx: Ex ia IIA T5 Ga
Ex ia IIIC T100°C Da IP67

con conn K: ATEX: II 2G Ex ia IIB T5 Cb
II 2D Ex ia IIIC T100°C Db IP66
Ex ia IIB T5 Cb
IECEx: Ex ia IIIC T100°C Db IP66

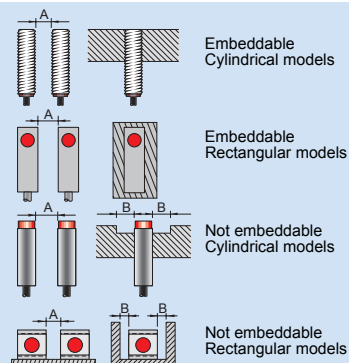
ATEX: II 2G Ex ia IIB T5 Cb
II 2D Ex ia IIIC T100°C Db IP66
Ex ia IIB T5 Cb
IECEx: Ex ia IIIC T100°C Db IP66

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 decreases in the anticlockwise direction. Avoid using for a capacity greater than 60mm referred to a square piece of steel (FE37) of 1mm thickness the side of which is equal to 100mm. When setting the sensor keep in consideration all other Metallic object 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 50mm 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 parts

NAMUR INDUCTIVE SENSORS ATEX/IECEX



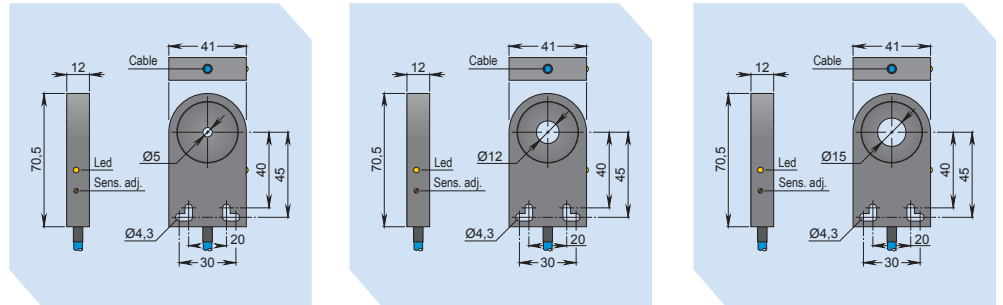
RING HOUSING SIA05 - SIA12 - SIA15 - SIA22 - SIA30 - SIA44 - SIA63
2 WIRES D.C. – VERSION – N

- CONFORMING: - Directive ATEX 94/9/CE Group "II" Category "1" Gas "G" (Zone 0) and Dust "D" (Zone 20)
(Reference standards: EN60079-0:2012, EN60079-11:2012 and EN60079-26:2007)
- International Scheme IECEx type of protection "Ex ia"
(Reference standards: IEC60079-0:2011, IEC60079-11:2011 and IEC60079-26:2006)
- Directive Electromagnetic Compatibility 2004/108/CE
- Product standard EN60947-5-6

● NOT EMBEDDABLE (NON FLUSH MOUNTING)

TECHNICAL CHARACTERISTICS

Dimensions in mm



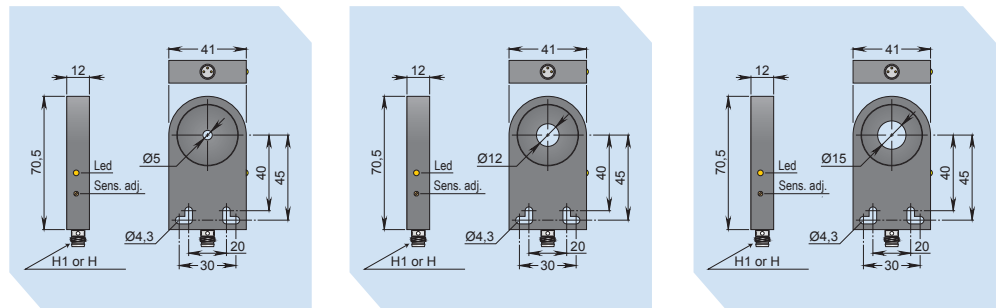
MODELS WITH CABLE

N.B.: 5 or 10mt versions available

SIA05-NE AGD1
YIA000050

SIA12-NE AGD1
YIA000055

SIA15-NE AGD1
YIA000060



MODELS WITH CONNECTOR

SIA05-NE H1 AGD1 YIA000053	SIA05-NE H AGD1 YIA000054	SIA12-NE H1 AGD1 YIA000058	SIA12-NE H AGD1 YIA000059	SIA15-NE H1 AGD1 YIA000063	SIA15-NE H AGD1 YIA000064
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Switching distance Sn	mm	5	12	15
Continuous voltage (residual ripple ≤ 10%)	V	8,2		
Current absorption 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 (% di Sn)		< 0.3		
Temperature limits	°C	-20 ÷ +60		
IP rating	IP	IP67 with cable – IP66 or IP67 H/H1 plug (Depending on connector)		
Housing		Plastic		
Blue PVC cable	3 m	2 x 0.25 mm ²		
Connector plug		H1 (M8) o H (M12)		

MARKING

ATEX: II 1G Ex ia IIA T5 Ga II 1D Ex ia IIIC T100°C Da IP67	IECEX: Ex ia IIA T5 Ga Ex ia IIIC T100°C Da IP67	ATEX: II 1G Ex ia IIB T5 Ga II 1D Ex ia IIIC T100°C Da IP67	IECEX: Ex ia IIB T5 Ga Ex ia IIIC T100°C Da IP67
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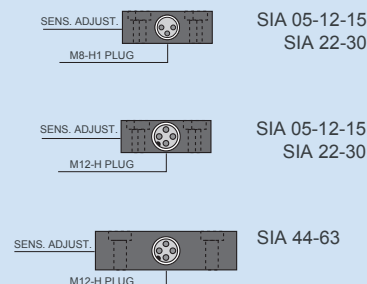
SPECIFICATIONS

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.

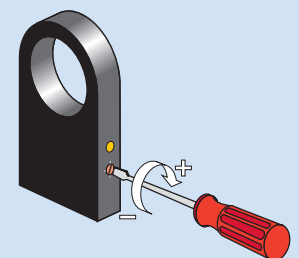
MIN. DIMENSIONS OF THE OBJECT (Fe37) TO DETECT

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

PLUG H1 - H OUTPUT POSITION VIEW



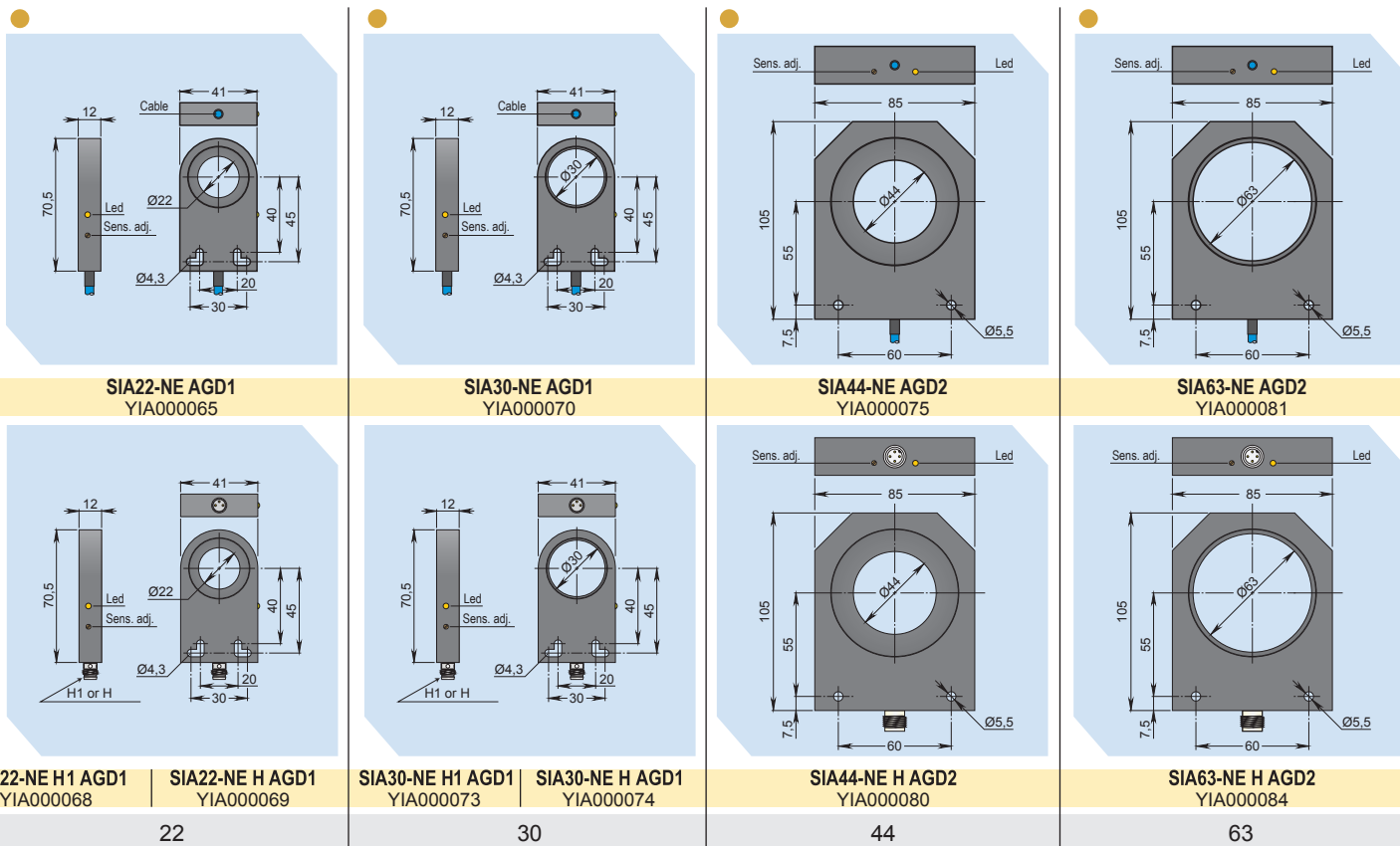
SENSITIVITY ADJUSTMENT



NAMUR INDUCTIVE SENSORS ATEX/IECEX



APPROVALS: EC- Type examination certificate - **ATEX n° IMQ 13 ATEX 019**
 Certificate of Conformity IECEx n° **IECEx IMQ 13.0012X**
 Notification of production quality assurance: **CESI 04 ATEX 132 Q**



8,2

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

600 ÷ 1000 600 ÷ 800 250 ÷ 600 100 ÷ 200

< 0.3

-20 ÷ +60

IP67 with cable – IP66 or IP67 H/H1 plug (Depending on connector)

Plastic

2 x 0.25 mm²

2 x 0.50 mm²

H1 (M8) o H (M12)

H (M12)

ATEX : II 1G Ex ia IIB T5 Ga
 II 1D Ex ia IIIC T100°C Da IP67 IECEx : Ex ia IIB T5 Ga
 Ex ia IIIC T100°C Da IP67

ATEX : II 2G Ex ia IIB T5 Gb
 II 2D Ex ia IIIC T100°C Db IP67 IECEx : Ex ia IIB T5 Gb
 Ex ia IIIC T100°C Db IP67

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.

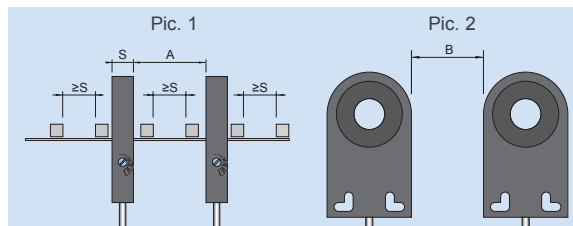
CONNECTION TO INTRINSICALLY SAFE CIRCUITS
 See page 7

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.

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 observed.

MINIMUM DISTANCES BETWEEN SENSORS



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

CONNECTION TO INTRINSICALLY SAFE CIRCUITS

The NAMUR series inductive sensors must always be connected to associated equipment with intrinsically safe electronic circuits with an EC Type examination certificate/certificate of conformity (CoG) with the following safety parameters:

$V_o < 17V$ **$I_o < 17mA$** **$P_o < 73mW$** **$C_o > 250\mu F$** **$L_o > 175\mu H$**

Where:

V_o = Maximum open circuit voltage at the terminals of the intrinsically safe circuit of the associated device.

I_o = Maximum current that may be taken from the ends of the intrinsically safe circuit of the associated device

P_o = Maximum power that can be supplied by an intrinsically safe circuit of the associated device.

C_o = Maximum capacity that can be connected to the ends of the intrinsically safe circuit of the associated device.

L_o = Maximum inductance that can be connected to the ends of the intrinsically safe circuit of the associated device.



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