

NAMUR INDUCTIVE SENSORS

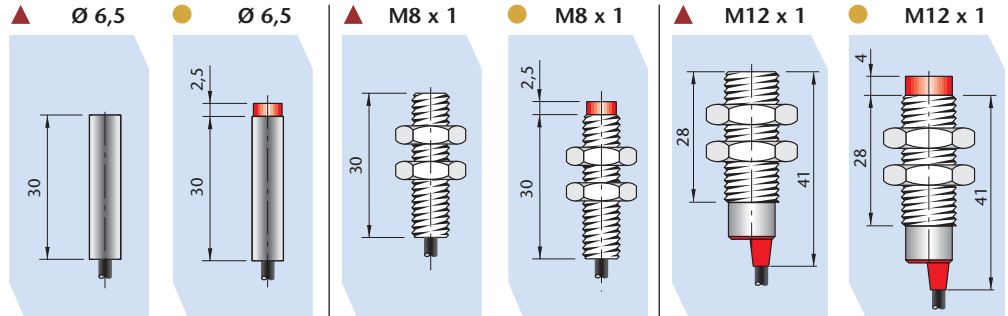


CYLINDRICAL HOUSING Ø 6.5 - M8-M12-M14-M18-M30
2 WIRES D.C. - VERSION N

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

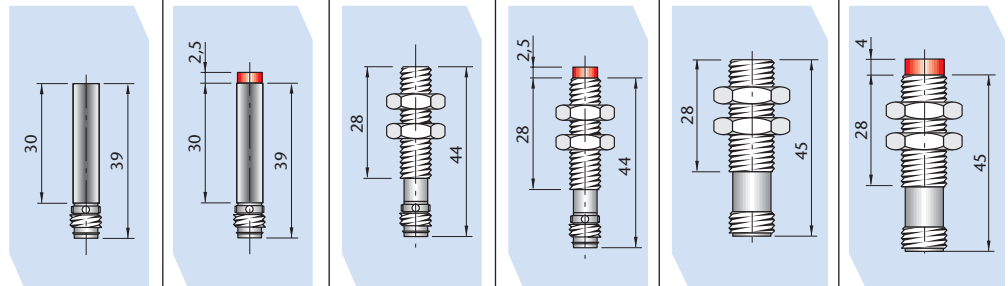
TECHNICAL CHARACTERISTICS

Dimensions mm



MODELS WITH CABLE

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



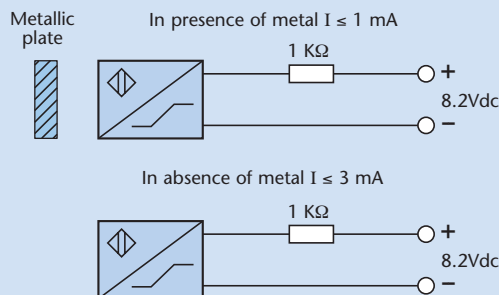
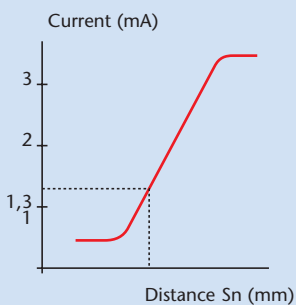
MODELS WITH CONNECTOR

SI 6.5 - N1 H1 SI 6.5 - NE2 H1 SI 8 - N1 H1 SI 8 - NE2 H1 SI 12 - N2 H SI 12 - NE4 H

Switching distance (Sn)	mm	1	2	1	2	2	4
Continuous voltage (residual ripple ≤10%)	V	8,2 ("5 ÷ 30" see note 1)					
Absorption current at 8.2V	mA	In presence of metal ≤ 1 mA - In absence of metal ≥ 3 mA					
Switching frequency	Hz	2000		2000		2000	
Repeatability	% of Sn	≤ 3					
Temperature limits	°C	-25 ÷ +70					
Degree of protection	IP	67 (With H1 - H depending on connector)					
Housing		Nickelled brass					
Cable PUR blue	2 m	2 x 0.25 mm ²		2 x 0.25 mm ²		2 x 0.25 mm ²	
Connector plug		H1		H1		H	

NAMUR DIN 19234 - EEx ia IIC T4 - NAMUR DIN 19234 - EEx ia IIC T4 - NAMUR DIN 19234 - EEx ia IIC T4 - NAMUR DIN 19234 - EEx ia IIC T4 -

WORKING PRINCIPLE



The NAMUR sensors are electronic devices whose absorbed current varies in the presence of a metallic object. The difference between these sensors and traditional sensors is the absence of amplifier trigger stages.

Note 1: In applications outside security conditions the sensors can be used in the 5-30Vdc range.

NAMUR INDUCTIVE SENSORS

CONFORMING TO NAMUR STANDARDS (DIN 19234)
APPROVAL **EEx ia IIc T4***



INDUCTIVE

SI 14 - N3	SI 14 - NE5	SI 18 - N5	SI 18 - NE8	SI 30 - N10	SI 30 - NE15
-	-	SI 18 - N5 H	SI 18 - NE8 H	SI 30 - N10 H	SI 30 - NE15 H
3	5	5	8	10	15

8,2 ("5 ÷ 30" see note 1 at page 6)

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

2000

1000

500

≤ 3

-25 ÷ +70

67 (With H depending on connector)

Nickelled brass

2 x 0.25 mm²

2 x 0.50 mm²

2 x 0.50 mm²

Non previsto

H

H

- NAMUR DIN 19234 - EEx ia IIc T4 - NAMUR DIN 19234 - EEx ia IIc T4 - NAMUR DIN 19234 - EEx ia IIc T4 - NAMUR DIN 19234 - EEx ia IIc T4 -

APPLICATIONS

The NAMUR (DIN 19234) proximity switches are electronic sensors whose absorbed current varies in the presence of metallic objects.

The reduced dimensions, the low values of voltage, current and impedance (unaffected by overvoltage and excessive current from inductive or capacitive sources), allows them to be used in various applications in both intrinsically safe and normal areas.

Applications in intrinsically safe areas (explosive atmospheres). *

The sensor must be used with an intrinsically safe relay or an equivalent static input suitable for intrinsically safe applications.

Standard applications (normal atmospheres).

The sensor must be used with AECO supply and amplifier units ALNC, ALN2 or similar.

* When ordering, add "Ex" (Es. SI8-N1 Ex).



NAMUR INDUCTIVE SENSORS



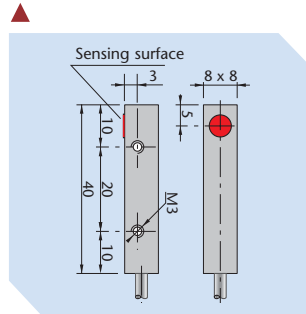
RECTANGULAR HOUSING SIPA8 - SIPC8 - SIP10 - SIP12 - SIP17 - SIP40 - SIQ80
2 WIRES D.C. - VERSION N

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

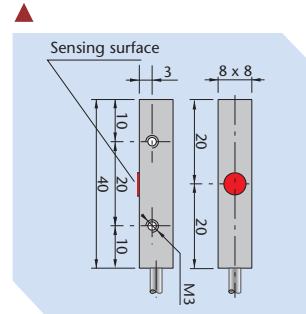
TECHNICAL CHARACTERISTICS

Dimensions mm

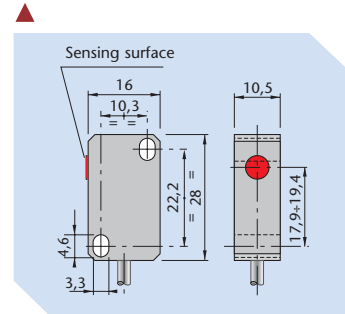
MODELS WITH CABLE



SIP A8 - N1.5

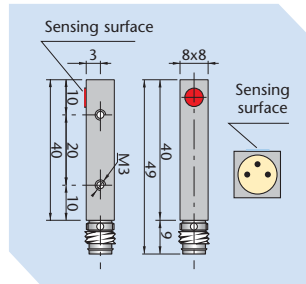


SIP C8 - N1.5

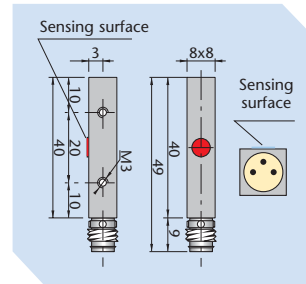


SIP 10 - N2

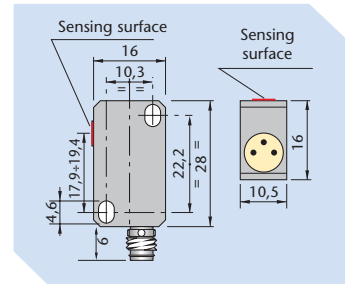
MODELS WITH CONNECTOR



SIP A8 - N1.5 H1



SIP C8 - N1.5 H1

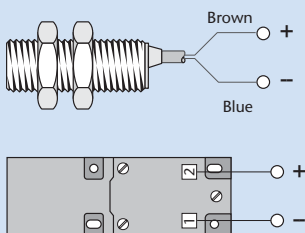


SIP 10 - N2 H1

Switching distance (Sn)	mm	1.5	1.5	2
Continuous voltage (residual ripple ≤10%)	V	8,2 ("5 ÷ 30" see note 1 at page 6)		
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	-25 ÷ +70		
Degree of protection	IP	67 (With H1 depending on connector)		
Housing		Anodized aluminium		Plastic
Cable PUR blue	2 m	2 x 0.25 mm ²	2 x 0.25 mm ²	2 x 0.25 mm ²
Connector plug		H1	H1	H1

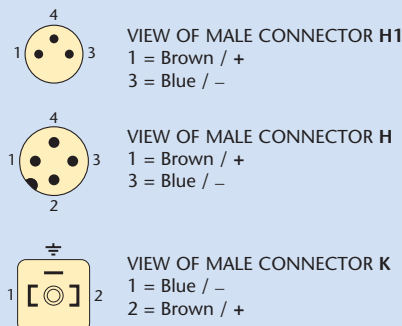
NAMUR DIN 19234 - EEx ia IIc T4 - NAMUR DIN 19234 - EEx ia IIc T4 - NAMUR DIN 19234 - EEx ia IIc T4 - NAMUR DIN 19234 - EEx ia IIc T4 -

WIRING DIAGRAMS WITH CABLE OR TERMINAL BLOCK

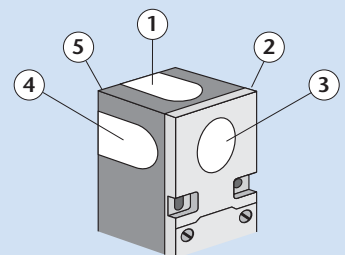


N.B.: On request is available cable for sensors with different length 3.5 - 7.5 - 5 - 10 metres.

CONNECTION WITH H1 - H - K PLUG FOR THE CONNECTORS SEE PAGE 85



ADJUSTABLE SENSITIVITY SIP 40



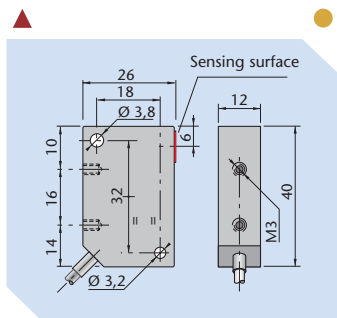
NOTE: In the SIP 40 sensor the oscillator is contained in a module which clips into the body whose surface can then be sensitive on five different positions. The surface chosen can be identified by applying the circular adhesive label.

NAMUR INDUCTIVE SENSORS

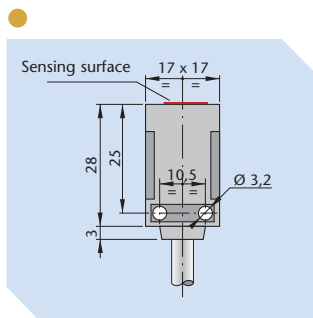
CONFORMING TO NAMUR STANDARDS (DIN 19234)
APPROVAL **EEx ia IIc T4***



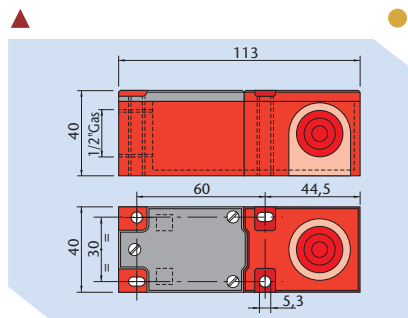
INDUCTIVE



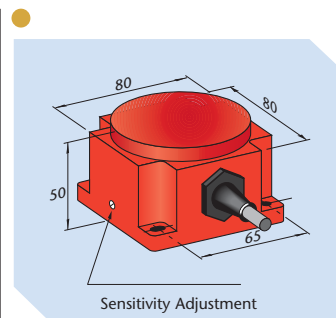
SIP 12 - N2 | SIP 12 - NE4



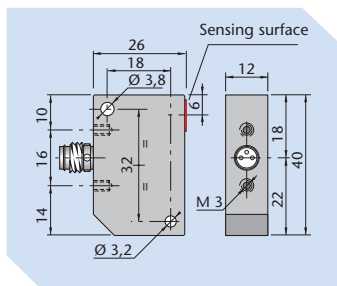
SIP 17 - NE5



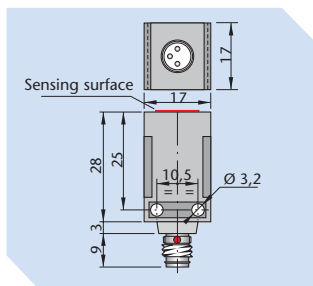
SIP 40 - N15 | SIP 40 - NE20



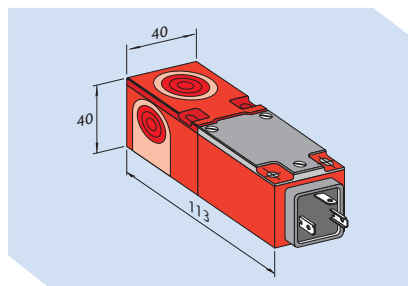
SIQ 80 - NE50



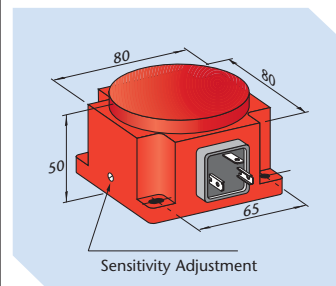
SIP 12 - N2 H1 | SIP 12 - NE4 H1



SIP 17 - NE5 H1



SIP 40 - N15 K | SIP 40 - NE20 K



SIQ 80 - NE50 K

2

4

5

15

20

10 ÷ 60 (Adjustable)

8,2 ("5 ÷ 30" see note 1 at page 6)

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

2000

2000

500

100

≤ 3

-25 ÷ +70

67 (With H1 depending on connector)

65 (IP67 with cable)

Plastic

2 x 0.25 mm²

2 x 0.50 mm²

Terminal block (On request cable)

2 x 0.50 mm²

H1

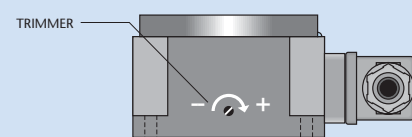
H1

K

K

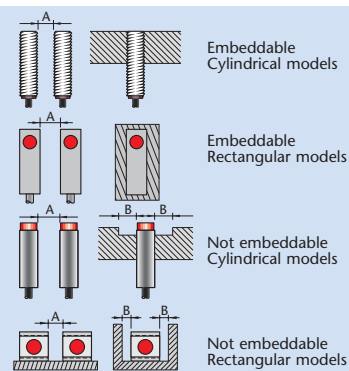
- NAMUR DIN 19234 - EEx ia IIc T4 - NAMUR DIN 19234 - EEx ia IIc T4 - NAMUR DIN 19234 - EEx ia IIc T4 - NAMUR DIN 19234 - EEx ia IIc T4 -

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 capacity 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

* See page 7 - Applications

NAMUR INDUCTIVE SENSORS

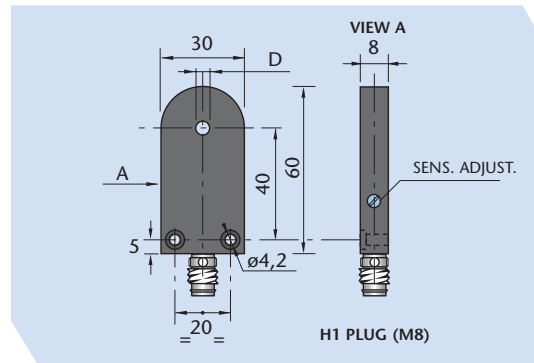
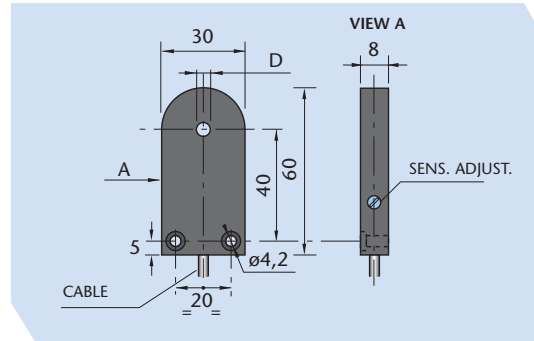


RING HOUSING SIA05 - SIA12 - SIA15 - SIA22 - SIA30 - SIA44 - SIA63 - SIA100
2 WIRES D.C. - VERSION N

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

TECHNICAL CHARACTERISTICS

Dimensions mm



MODELS WITH CABLE	SIA 05 - NE	SIA 12 - NE	SIA 15 - NE
MODELS WITH CONNECTOR	SIA 05 - NE H1	SIA 12 - NE H1	SIA 15 - NE H1
Hole diameter (D) mm	5	12	15
Continuous voltage (residual ripple ≤10%) V	8,2 ("5 ÷ 30" see note 1 at page 6)		
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 ÷ +60		
Degree of protection IP	IP 65		
Housing	Plastic		
Cable PUR blue m	2 m		
Cable PUR blue	2 x 0.25 mm ²		
Connector plug	H1	H1	H1

NAMUR DIN 19234 - EEx ia IIC T4 - NAMUR DIN 19234 - EEx ia IIC T4 - NAMUR DIN 19234 - EEx ia IIC T4 - NAMUR DIN 19234 - EEx ia IIC T4 -

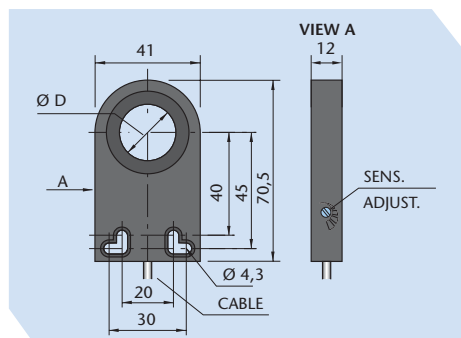
SPECIFICATIONS	MIN. DIMENSIONS OF THE OBJECT (Fe37) TO DETECT	PLUG H1 - H OUTPUT POSITION VIEW	SENSITIVITY ADJUSTMENT																											
<p>In ring sensors, the sensing is carried out inside the ring. The sensor intervenes when a metallic object is introduced. They are particularly suitable for 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.</p>	<table border="1"> <thead> <tr> <th>Model</th> <th>Length mm</th> <th>Diameter mm</th> </tr> </thead> <tbody> <tr><td>SIA05</td><td>1</td><td>0.7</td></tr> <tr><td>SIA12</td><td>2</td><td>1.2</td></tr> <tr><td>SIA15</td><td>2</td><td>1.2</td></tr> <tr><td>SIA22</td><td>6</td><td>3</td></tr> <tr><td>SIA30</td><td>7</td><td>4</td></tr> <tr><td>SIA44</td><td>9</td><td>5</td></tr> <tr><td>SIA63</td><td>12</td><td>6</td></tr> <tr><td>SIA100</td><td>20</td><td>12</td></tr> </tbody> </table>	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		
	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																												

NAMUR INDUCTIVE SENSORS

CONFORMING TO NAMUR STANDARDS (DIN 19234)
APPROVAL **EEx ia IIC T4***

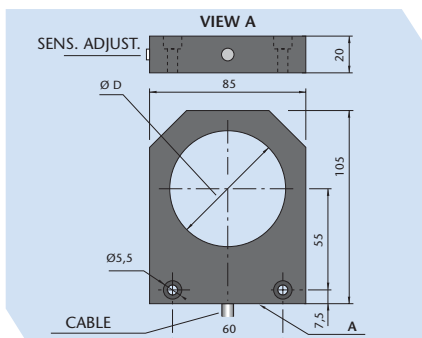


INDUCTIVE



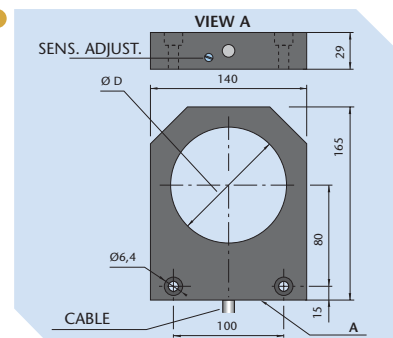
SIA 22 - NE

SIA 30 - NE

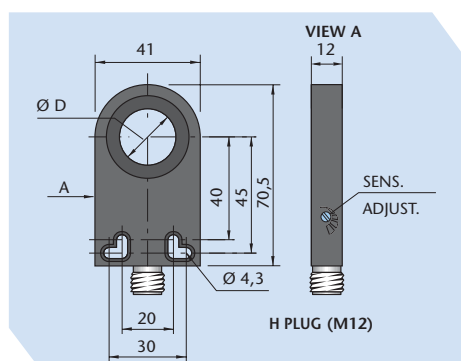


SIA 44 - NE

SIA 63 - NE

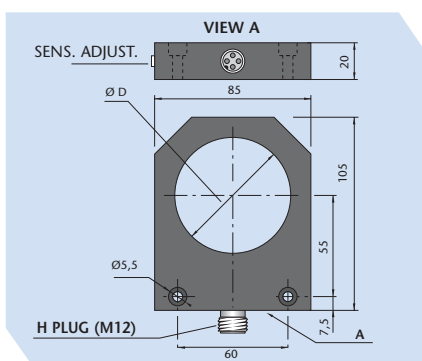


SIA 100 - NE



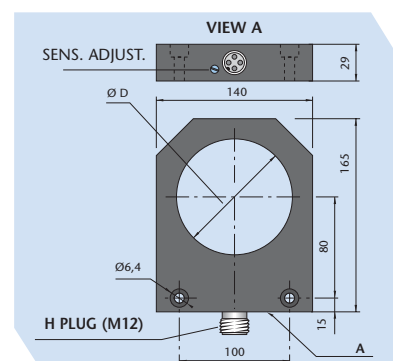
SIA 22 - NE H

SIA 30 - NE H



SIA 44 - NE H

SIA 63 - NE H



SIA 100 - NE H

8,2 ("5 ÷ 30" see note 1 at page 6)

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

600 ÷ 1000

600 ÷ 800

250 ÷ 600

100 ÷ 200

100

< 0.3

-20 ÷ +60

IP 65

Plastic

2 x 0.25 mm²

2 x 0.50 mm²

H

H

H

H

H

- NAMUR DIN 19234 - EEx ia IIC T4 - NAMUR DIN 19234 - EEx ia IIC T4 - NAMUR DIN 19234 - EEx ia IIC T4 - NAMUR DIN 19234 - EEx ia IIC T4 -

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.

USE WITH A DELAYED AMPLIFIERS

All types of ring sensor can work in combination with a delayed amplifier of the programmable ALTP series or ALNC series which ensures the sensing of small objects in rapid movement.

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.

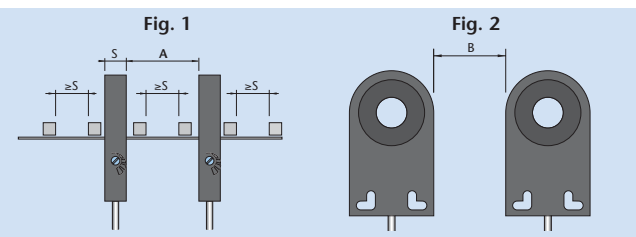
EFFECTS OF METAL IN THE CLOSE VICINITY

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

* See page 7 - Applications