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RECHNER SENSORS

CATALOGUE

INDUCTIVE SENSORS IAS

Registration No.: 1327-01

Testing laboratory accredited according to
DIN EN ISO IEC 17025 Reg.-No. DGA-PL-048/95-03

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With publication of this catalogue all former printed catalogues about RECHNER inductive sensors are invalid.

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INDUCTIVE SENSORS IAS

TECHNOLOGY

The **inductive** sensors, our abbreviation **IAS,** contain a transistor oscillator whose power consumption is influenced by the approach of metals and other electrically conductive materials. This effect can also be achieved through a non-conductive material. Depending on the type, the current change of the oscillator will be amplified to a streamlined output signal or output as a binary signal by a switching amplifier.

Output stages with **npn or pnp transistors** are available for **DC** operation.
A **transistor output** stage or FET-output is integrated for **AC** connection

The output switching functions are
NO, NC or change-over (antivalent),
similar to mechanical switches.

Electronic circuits, PLCs, relays or contactors can be activated directly with inductive sensors. The current change in the oscillator is caused without contact by the approach of the actuating material to the active area. The damping of the oscillator is possible between the active surface and specified maximum sensing distance (Sn) ± 10 %. No mechanical force is exerted on the actuating material in the process, and no magnetic effect is caused by the high-frequency alternating field.

The components of the IAS are mounted in plastic or metal casings and encapsulated with epoxy casting resin. The plastics used for the housings are:

- ⇨ PVC (polyvinylchloride)
- ⇨ PA (polyamide) 6.6 glass-fibre reinforced
- ⇨ PC (polycarbonate) (FDA 21 CFR 177.1580)
- ⇨ PTFE (polytetrafluor ethylene) (FDA 21 CFR 177.1550)
- ⇨ PEEK (polyetheretherketone) (FDA 21 CFR 177.2415)
- ⇨ PP (Polypropylen) (FDA 21 CFR 177.1520)
- ⇨ POM (Polyoxymethylen)

And the metal housings are

- ⇨ Brass / chrome or nickel-plated
- ⇨ VA stainless-steel, material No. 1.4301 or No. 1.4305
- ⇨ Aluminium die-cast

By means of the following measures all devices are insensitive to dirt, vibration (vibration stability: 30 g, 100...2000 Hz, 1 hour) and are watertight (depending on the type, up to IP 68 an IP 69 K). The choice of housings enables a wide range of applications, e.g. with aggressive media, in hot areas or in areas subjected to steam.
Only pre-tested electronic components, proven integrated circuits and hybrid circuits are used and produced with SMT. The standard constant ambient temperature permitted is -25 up to +200 °C, and up to 90 °C for brief periods. High-temperature types for use from -70 up to +250 °C are also included in our general product line.
With contactless detection no physical actuating force is required for operation. There is no contact bounce, no sensor wear, no maintenance and the service life is independent of the switching frequency.

IAS can be used in machines, systems and vehicles as limit switches, contactless position switches for monitoring and positioning, as pulse generators for counting tasks, distance and speed measurements, and for many other applications (for application examples see page 11).

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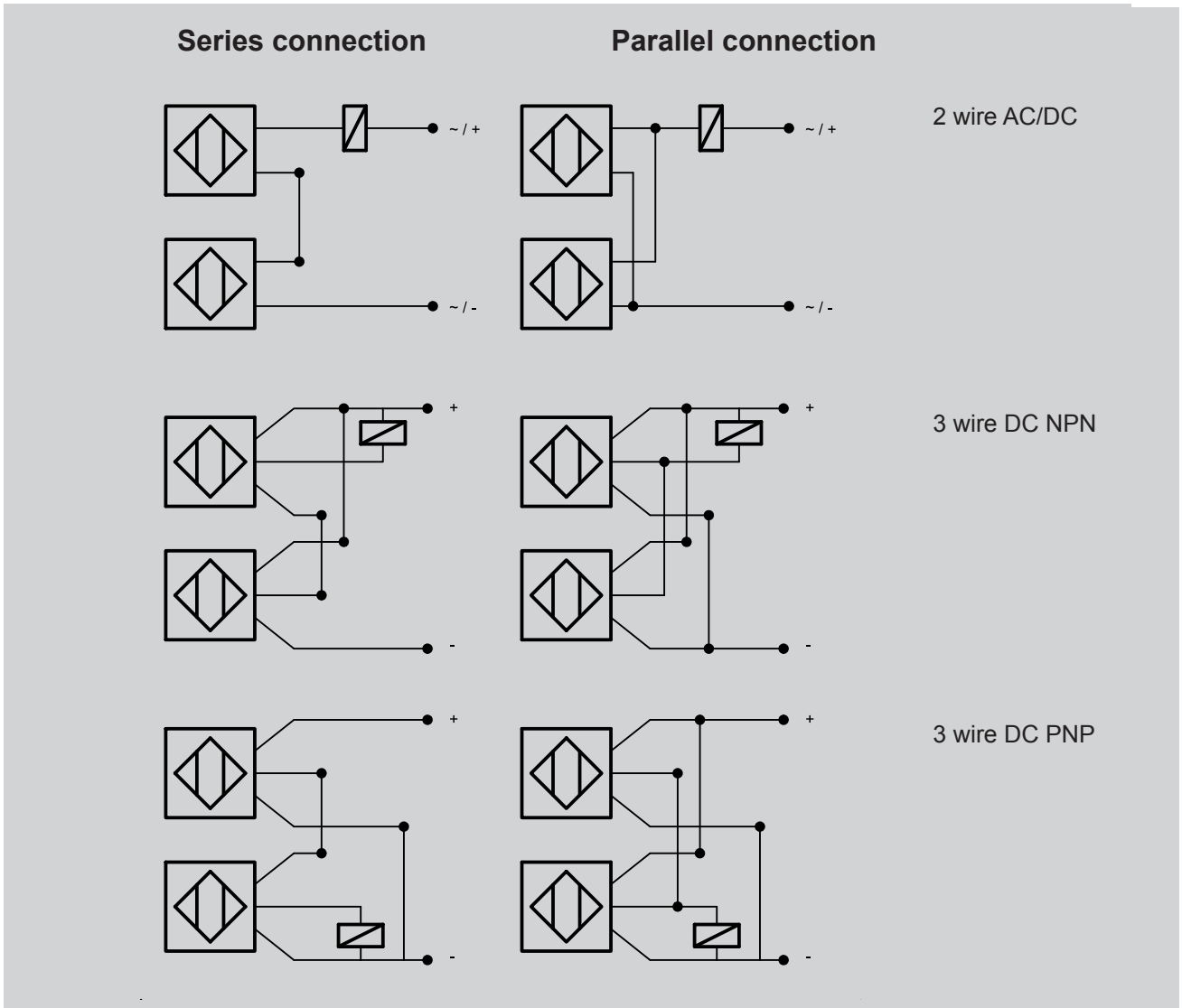
TECHNOLOGY

Wiring of the inductive sensors should be routed separately or screened from heavy conductor lines, as in extreme cases inductive peak voltages can destroy the sensors despite the integrated protective circuit. Screened cable or twisted lines are recommended, especially for longer cable runs > 5 m. Direct control of electric light bulbs is to be avoided, because during the switch-on moment cold current is many times the rated current and can destroy the output stage of the sensor.

Units with strong local fields, e. g. high power walkie-talkies, or noise sources in the lower frequency range, e.g. long, middle or short wave transmitters should not be operated close to the sensors or additional measures have to be taken in order to eliminate their maloperation.

2- and 3-wire sensors with binary output can be used in series or parallel connection, similar to mechanical contacts. The type-typical voltage drop and the residual voltage U_d, which must be multiplied in accordance with the number of sensors for series connection, must be noted. In the case of parallel connection of sensors with thyristor output, the first switched output takes over the total load current.

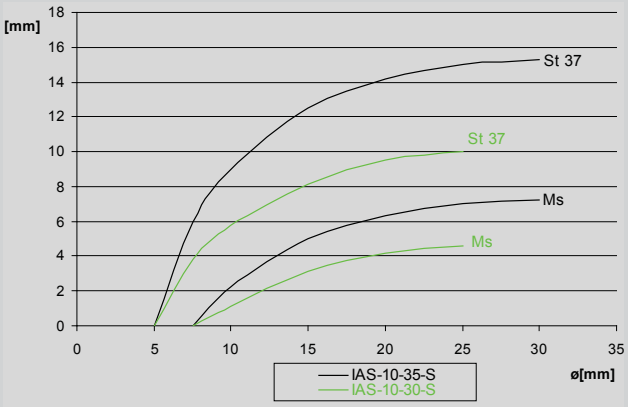


ADJUSTMENT

Analog inductive sensors are equipped with a 20-turn spindle potentiometer. This allows adjustment of an application specific operating range between the minimum distance “0 mm” and the type-typical maximum value. Consequently, the full output current range (4...20 mA) is always present, regardless of the required measuring distance. The analog sensors of series 10 are designed with a 2-colour LED that facilitates adjustment. Outside the operating range I_A < 4 mA and I_A > 20 mA green light is emitted to display operational readiness. Within the operating range of 4...20 mA the LED is yellow. In the undamped state the output current value is > 20 mA and moves with the reduction of the object distance toward 4 mA (value at total damping approx. 2.5 mA).

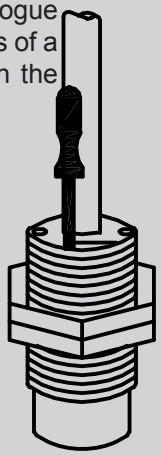
The data of the **nominal sensing distance** are based on the measuring method according to DIN VDE 0660, Part 208. The respective nominal sensing distance is indicated with a tolerance of ± 10 %. The standard measurement plate is square with a thickness of 1 mm and is made of carbon steel FE 360 (defined in ISO 630: 1980) with a smoothed surface and earthed. The side lengths are equal to the diameter of the active area of the IAS or equal to 3 x Sn, depending on which value is greater. With a different material or a smaller surface of the actuating element, the sensing distance is smaller.

Sensing distance



Typical response-time characteristic
St 37 = Acier 37

Adjustment of the sensing distance of the inductive analogue sensors is made by means of a spindle potentiometer with the screwdriver provided.



For size M30x1.5 / ∅ 30:
First open plastic tab.
For size M30x1.5 / ∅ 30:
First remove plastic sealing screw.

The possible sensing distance on a particular metal can be worked out by means of the typical reduction factors: **Sensing distance = S_n x reduction factor**.

Metal type:	FE 360	St 37	CrNi	V 2A	V 4A	Ms	Al	Cu	Au
Reduction factor approx.	1	1	0.85	0.75	0.7	0.45	0.4	0.3	0.24

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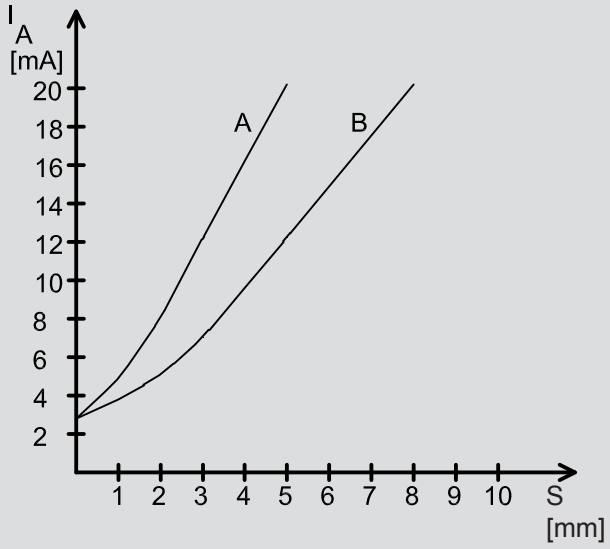
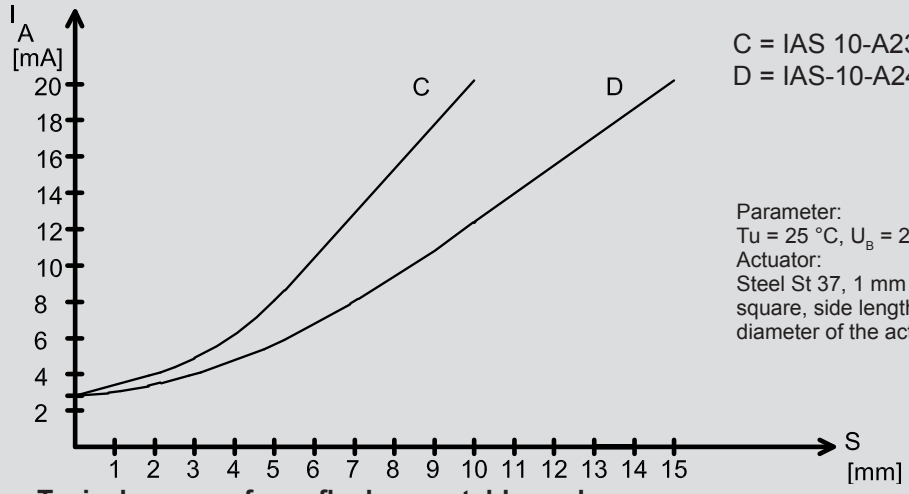
TYPICAL CURVES



A = IAS 10-A13-IL
B = IAS-10-A14-IL

Parameter:
Tu = 25 °C, U_B = 24 V DC
Actuator:
Steel St 37, 1 mm thick,
square, side length equal to the
diameter of the active area.

Typical curves of flush mountable analogue sensors



C = IAS 10-A23-IL
D = IAS-10-A24-IL

Parameter:
Tu = 25 °C, U_B = 24 V DC
Actuator:
Steel St 37, 1 mm thick,
square, side length equal to the
diameter of the active area.

Typical curves of non-flush mountable analogue sensors

MOUNTING

There are two different types of inductive sensors:

1. **For flush mounting** in metal and other materials. These sensors can also be mounted close together (see Fig. 1 and 3).

2. **For non-flush mounting** in metal. However, these types can also be mounted flush in nonmetals. When mounting two or more sensors side by side a space / free zone must be provided (see Fig. 2 and 4).

Mounting

Fig.1

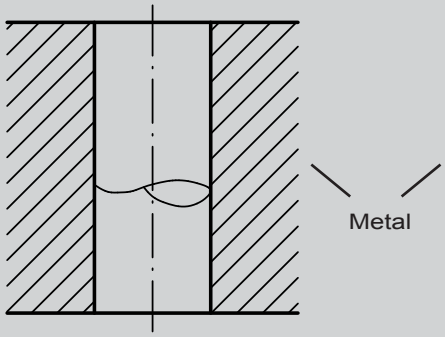
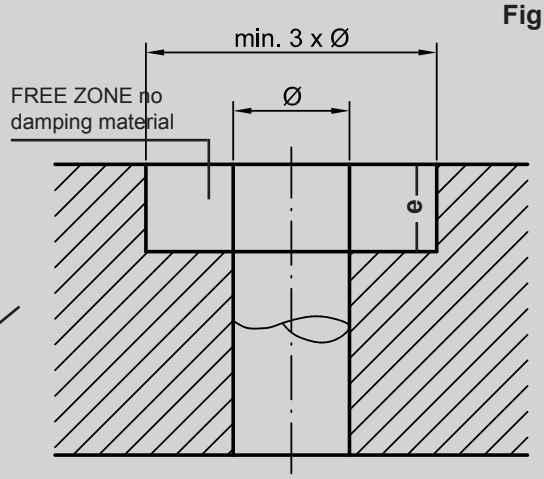


Fig.2



The dimension „e“ corresponds to the thread-free area of standard sensor types (-A21-...) Otherwise „e“ is ≥ 7 mm.

Fig.3

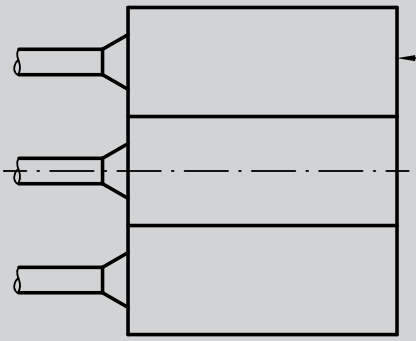
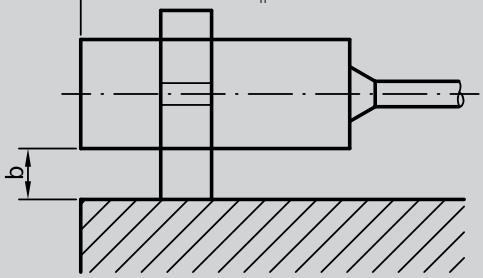


Fig.4



For **non-flush mountable** Sensors distance „b“ has to be ≥1,5xS_n

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MOUNTING

In order to prevent damage to the threaded sleeves when mounting, the material and version-dependent **maximum torque** should be taken into consideration. The values listed in the table are based on the use of the nuts supplied with the sensors.

	Housing Material					
Thread	**PVC**	**PPO**	**PA 6.6**	**PTFE**	**Brass**	**Stainless Steel**
M 5 x 0.5	-	-	-	-	-	1.5 Nm
M 8 x 1	-	-	-	-	-	4.5 Nm
M 12 x 1	1.5 Nm	1 Nm	1 Nm	0.2 Nm	15 Nm	15 Nm
M 18 x 1	-	3 Nm	1.7 Nm	0.5 Nm	28 Nm	40 Nm
M 22 x 1.5	12 Nm	10 Nm	6 Nm	1.4 Nm	32 Nm	50 Nm
M 30 x 1.5	-	8 Nm	8 Nm	2.5 Nm	82 Nm	150 Nm
M 32 x 1.5	-	13 Nm	13 Nm	3 Nm	110 Nm	180 Nm
G 1”	-	-	-	2,5 Nm	-	-

Due to the permitted thread tolerances specified in German standard DIN 13, the **maximum screw-in length** for threaded sensors should be taken into consideration. Depending on that the length of the threaded block for screwing in proximity sensors should not exceed the following dimensions. In the case of larger threaded blocks we recommend drilling a blind hole in order to adhere to the maximum screw-in length.

Thread:	M 5 x 0.5	M 8 x 1	M 12 x 1	M 18 x 1	M 22 x 1.5	M 30 x 1.5	M 32 x 1.5
Maximum length	3 mm	6 mm	8 mm	12 mm	12 mm	12 mm	12 mm

TECHNICAL TERMS

Unless otherwise specified technical data is as follows: +24 °C, U_B = 8 V DC for IAS-30; U_B = 24 V DC for IAS-10 and IAS-20 and U_B = 230 V AC for IAS-60.

Operating sensing distance / S_a
Within the operating sensing distance the sensor operates reliably taking in to account all the possible tolerances. It lies between 0 and 0.81 x S_n.

Power up time delay
The time the sensor needs to be ready for operation after connecting the operating voltage. It is in the milliseconds range.

TECHNICAL TERMS

Housing materials
The application of the housing materials used is based on the technical specifications of the material and of the manufacturer. Even though RECHNER Sensors have far-reaching application experience concerning the use of different housing materials, the customer is responsible for checking in each case that the housing material is suitable for the application.

Cable
For the standard models PVC- or PUR-cable are used. One has to take into consideration that the cable should not be moved with ambient temperatures below –5 °C. PVC is not suitable for use in applications with oil-based liquids or with UV-radiation. PUR is not suitable for continuous contact with water. For special application areas silicone or PTFE cables are available.

Nominal sensing distance / S_n
The characteristic value of a proximity sensor, without consideration of production tolerances and variations due to temperature and voltages.

Real sensing distance / S_r
The sensing distance determined at +20 °C and rated voltage. Here the series variance is taken into consideration. Variation max. ± 10 %.

Reduction factors
The reduction factors, as shown in the table on page 6, should be taken into consideration, for metals other than FE 360 or ST 37.

Series- and parallel connection
It is possible to connect the proximity sensors in series or parallel. When considering this it must be taken into account that the voltage drops are added for series connection and the residual voltages for parallel connection. Under these circumstances it is advisable to operate a maximum of three sensors in a corresponding circuit.

Repeat accuracy of the switching point
The variation of the switching point of two successive measurements at constant ambient conditions.

Frequency of operating cycles
The maximum damping and un-damping cycles of the proximity sensor within one second. To ascertain the frequency of operating cycles a pulse / break ratio of 1 : 2 is used as a basis, at S_n ½.

Switching hysteresis
The difference between the switch-on and switch-off point of a proximity sensor, when approaching or moving away from the standard measuring plate. It is < 20 % of the real sensing distance.

Enclosure rating
IP 65: Protection against contact with voltage-carrying parts, protection against ingress of dust and water jet.
IP 67: Protection against contact with voltage-carrying parts, protection against ingress of dust and protection against ingress of water when the equipment is immersed in water, up to 1 m depths and for a period of 30 minutes.

Temperature variation
The displacement of the switching point if the ambient temperature changes.

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APPLICATION EXAMPLES

Fig. 1: Inductive level control within a plastic container at a by-pass, by means of a metal float

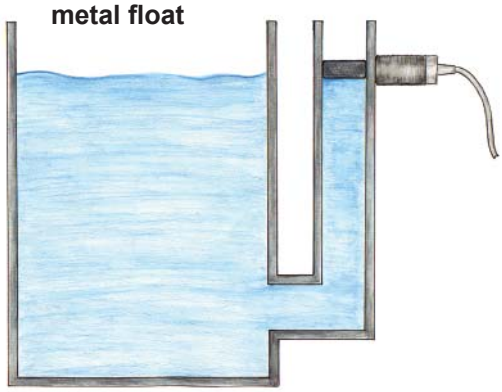


Fig. 2: Position aid for transported tins

Fig. 3: Detection of a gear wheel or cam wheel

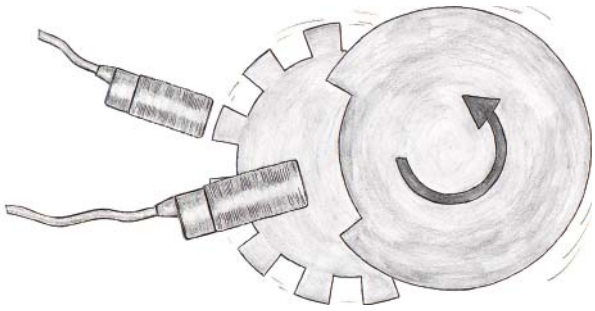


Fig. 4: Counting of metal containers

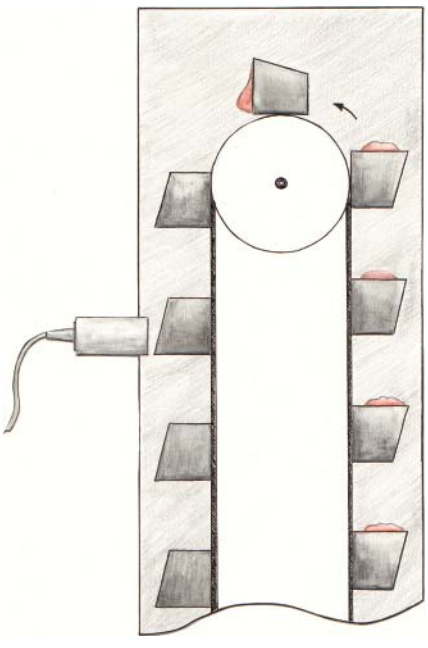
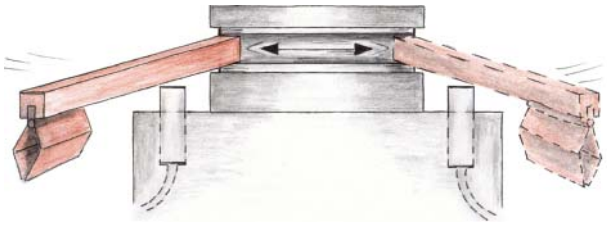


Fig. 5: Position aid for the gripper of industrial robots



SERIES

The ***series 10*** contains inductive 3-wire proximity sensors with digital output **pnp** with NO or NC-function. Electronic circuits, PLC's, relays and our power supplies of series 130 can be directly activated. Analog sensors with 4...20 mA output are also available. The operating range of these analog sensors is adjustable by means of a potentiometer and they can be actuated by analog interfaces with internal resistance Ri ≤ 300 ohm. The sensors are reverse polarity protected, overload protected and have electronic short-circuit protection.
StEx-Sensors for use in Zone 20 with ATEX-certificate complete this series.

The ***series 20*** contains inductive 3-wire proximity sensors with digital output **npn** with NO or NC-function. Electronic circuits, PLC's, relays and our power supplies of series 130 can be directly activated. The sensors are reverse-polarity protected, overload-protected and have electronic short-circuit protection.
StEx-Sensors for use in Zone 20 with ATEX-certificate complete this series.

The ***series 30*** contains inductive 2-wire proximity signal generators according to **NAMUR DIN 60947-5-6** These sensors can be mounted in explosion hazardous areas when they are connected to approved isolating switching amplifiers with intrinsically safe control circuits. [EExia] or [EExib], our series N-132... Depending on which isolating switching amplifier is used the NAMUR-sensors of this series can be used up to zone 1. The data specified in the certificate of conformity of the isolating switching amplifier used must be taken into consideration.
StEx-Sensors for use in Zone 20 with ATEX-certificate complete this series.

The ***series 60*** contains inductive 2-wire AC/DC proximity sensors with digital output with NO and NC function. AC / DC relays, conductors, solenoid valves can be activated directly. PLCs with AC inputs can also be connected if the minimum load current is taken into consideration. The sensors have a protective circuit against high induction voltages.

For increased requirements for the permitted ambient temperature range of our inductive proximity sensors, we offer the series from +100 °C up to +180 °C with integrated electronic as a 3-Wire DC version. The sensors are available with housings made of PTFE, PTFE / VA or PTFE / brass and have a silicone connection cable. For extreme ambient or product-temperature conditions, our high temperature sensors up to +250 °C are available with external electronics. The sensors are integrated in PEEK, PTFE, PEEK / VA or PTFE / VA housings. The FEP-coated sensor cable with VA grid screening, in the lengths 2, 5 or 10 m, is the connection to the evaluation unit and may also be used under high-temperature conditions. The evaluation unit is connected to the sensor by means of a plug-in connector. On the sensor side the cable is permanently cast in or equipped with a temperature-resistant plug-in connector (...Y-version). The sensing distance for high temperature sensors can be adjusted on the evaluation unit and the switching state is displayed by an LED. The sensing distance adjustment should be made at operating temperature. Here the maximum specified sensing distance and the temperature drift must be taken into consideration.

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TYPE CODE

IAS–...–...–...–...–...–...–...

if existing
StEx = StEx according to ATEX

if existing
Y... = with flange connector

if existing
e. g. 100°C,... = higher temperature range
3 D = with manufacturer certificate according to ATEX

if existing
e. g. PTFE, PTFE/Ms,... = housing material

if existing
M... = thread size
K = plastic housing

A = Antivalent function (NO / NC)
IL = Analogue function
N = NAMUR
Ö = NC
S = NO

A... = European standard
(M).../... = Thread
C = Rectangular housing
NPN, PNP = Output function
04, 6.5, 40, ... = Version

10 = 3-wire / 4-wire DC PNP / 3-wire analogue
20 = 3-wire / 4-wire DC NPN
30 = NAMUR DIN 60947-5-6
60 = 2-wire AC / DC

AC/DC metal version have an earth wire. Pluggabel version have an additional pin.

= **Inductive Proximity Sensor**

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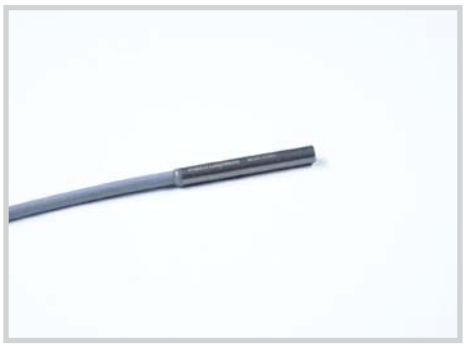
CYLINDRICAL HOUSINGS

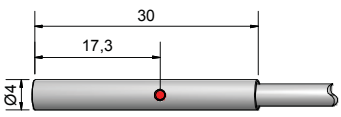


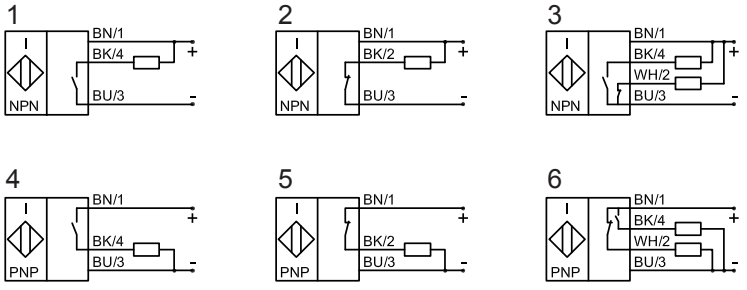
Inductive Sensors
Series 20 - NPN
Series 10 - PNP

Housing Ø 4 mm
- Housing material: Stainless steel VA
- Sensing distance Sn = 0.8 mm

Certificate:

Technical data	Flush mountable	Flush mountable
Operating distance S_n	0.8 mm	0.8 mm
Electrical version	3-wire DC	3-wire DC
Output	Normally open (NO)	Normally closed (NC)
Type NPN		**IAS-20-04-Ö**
Art.-No.		**213 650**
Connection diagram No.		2
Type PNP	**IAS-10-04-S**	**IAS-10-04-Ö**
Art.-No.	**113 610**	**113 650**
Connection diagram No.	4	5
Operating voltage (U_B)	10...35 V DC	10...35 V DC
Output current max. (I_e)	150 mA	150 mA
Voltage drop max. (U_d)	≤ 3.5 V	≤ 3.5 V
Permitted residual ripple max.	5 %	5 %
No-load current (I_o)	Typ. 10 mA	Typ. 10 mA
Frequency of operating cycles max.	2 kHz	2 kHz
Permitted ambient temperature	-25...+70 °C	-25...+70 °C
LED-display	Red	Red
Protective circuit	Built-in	Built-in
Degree of protection IEC 60529	IP 67	IP 67
Norm	EN 60 947-5-2	EN 60 947-5-2
Connection cable	2 m, PUR,3 x 0.14 mm²	2 m, PUR, 3 x 0.14 mm²
Housing material	VA No. 1.4305	VA No. 1.4305
Active surface	-	-
Lid	-	-





Made in Germany

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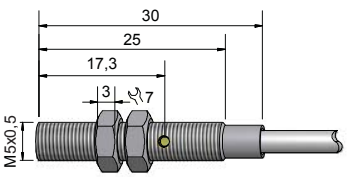
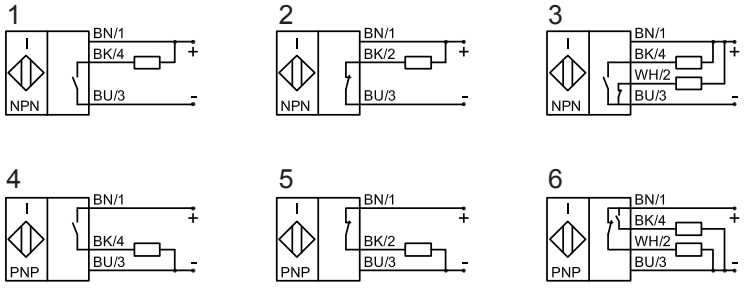
Inductive Sensors
Series 20 - NPN
Series 10 - PNP

Housing M 5 x 0.5
- Housing material: Stainless steel VA
- Sensing distance Sn = 0.8 mm

Certificate:

Technical data	Flush mountable	Flush mountable
Operating distance S_n	0.8 mm	0.8 mm
Electrical version	3-wire DC	3-wire DC
Output	Normally open (NO)	Normally closed (NC)
Type NPN	**IAS-20-M5-S**	**IAS-20-M5-Ö**
Art.-No.	**214 010**	**214 110**
Connection diagram No.	1	2
Type PNP	**IAS-10-M5-S**	**IAS-10-M5-Ö**
Art.-No.	**114 010**	**114 110**
Connection diagram No.	4	5
Operating voltage (U_B)	10...35 V DC	10...35 V DC
Output current max. (I_e)	150 mA	150 mA
Voltage drop max. (U_d)	≤ 3.5 V	≤ 3.5 V
Permitted residual ripple max.	5 %	5 %
No-load current (I_o)	Typ. 10 mA	Typ. 10 mA
Frequency of operating cycles max.	2 kHz	2 kHz
Permitted ambient temperature	-25...+70 °C	-25...+70 °C
LED-display	Red	Red
Protective circuit	Built-in	Built-in
Degree of protection IEC 60529	IP 67	IP 67
Norm	EN 60 947-5-2	EN 60 947-5-2
Connection cable	2 m, PUR, 3 x 0.14 mm²	2 m, PUR, 3 x 0.14 mm²
Housing material	VA No. 1.4305	VA No. 1.4305
Active surface	PA / PPO	PA / PPO
Lid	-	-





Made in Germany

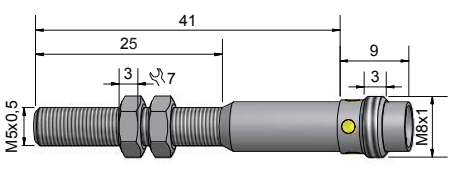
Inductive Sensors

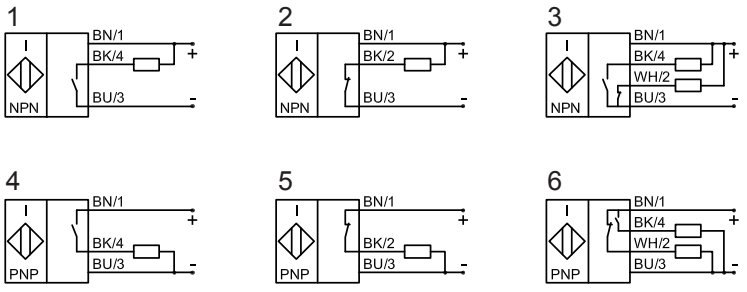
Series 10 - PNP

Housing M 5 x 0.5
- Housing material: Stainless steel VA
- Sensing distance Sn = 0.8 mm
- With flange connector M 8 x 1

Certificate:

Technical data	Flush mountable	Flush mountable
Operating distance S_n	0.8 mm	0.8 mm
Electrical version	3-pin DC	3-pin DC
Output	Normally open (NO)	Normally closed (NC)
Type NPN		
Art.-No.		
Connection diagram No.		
Type PNP	**IAS-10-M5-S-Y7**	**IAS-10-M5-Ö-Y7**
Art.-No.	**114 400**	**114 450**
Connection diagram No.	4	5
Operating voltage (U_B)	10...35 V DC	10...35 V DC
Output current max. (I_e)	150 mA	150 mA
Voltage drop max. (U_d)	≤ 3.5 V	≤ 3.5 V
Permitted residual ripple max.	5 %	5 %
No-load current (I_o)	Typ. 10 mA	Typ. 10 mA
Frequency of operating cycles max.	1 kHz	1 kHz
Permitted ambient temperature	-25...+70 °C	-25...+70 °C
LED-display	Yellow	Yellow
Protective circuit	Built-in	Built-in
Degree of protection IEC 60529	IP 67	IP 67
Norm	EN 60 947-5-2	EN 60 947-5-2
Connection	Connector M 8 x 1	Connector M 8 x 1
Housing material	VA No. 1.4305	VA No. 1.4305
Active surface	PA / PPO	PA / PPO
Lid	-	-





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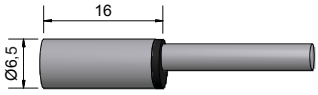
Inductive Sensors

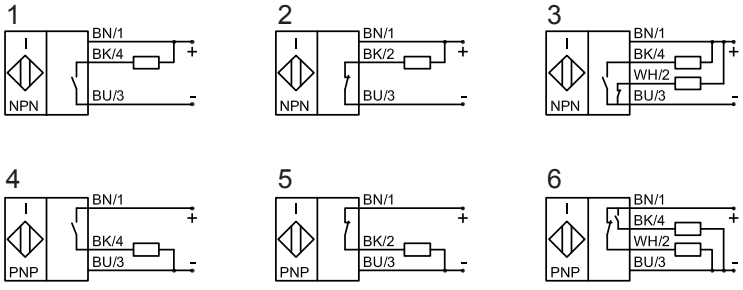
Series 10 - PNP

Housing Ø 6,5 mm
- Housing material: Stainless steel VA
- Sensing distance Sn = 1,5 mm

Certificado: CE RoHS COMPLIANT

Technical data	Flush mountable
Operating distance S_n	1.5 mm
Electrical version	3-wire DC
Output	Normally open (NO)
Type NPN	
Art.-No.	
Connection diagram No.	
Type PNP	**IAS-10-6.5/15-S**
Art.-No.	**IA 0254**
Connection diagram No.	4
Operating voltage (U_B)	10...30 V DC
Output current max. (I_e)	200 mA
Voltage drop max. (U_d)	≤ 2 V
Permitted residual ripple max.	20 %
No-load current (I_o)	Typ. 10 mA
Frequency of operating cycles max.	5 kHz
Permitted ambient temperature	-25...+70 °C
LED-display	Yes
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67
Norm	EN 60 947-5-2
Connection cable	2 m, PVC, 3 x 0.14 mm²
Housing material	VA No. 1.4305
Active surface	PA / PPO
Lid	PUR





Made in Switzerland

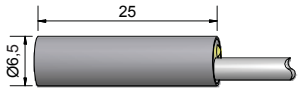
Inductive Sensors

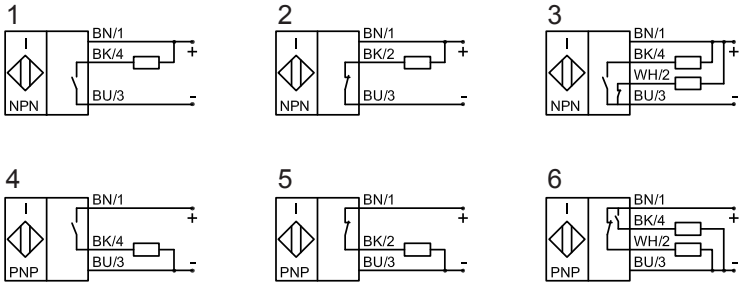
Series 10 - PNP

Housing Ø 6.5 mm
- Housing material: Stainless steel VA
- Sensing distance Sn = 1.5 mm

Certificate:

Technical data	Flush mountable	Flush mountable
Operating distance S_n	1.5 mm	1.5 mm
Electrical version	3-wire DC	3-wire DC
Output	Normally open (NO)	Normally closed (NC)
Type NPN		
Art.-No.		
Connection diagram No.		
Type PNP	**IAS-10-6.5-S-LED**	**IAS-10-6.5-Ö-LED**
Art.-No.	**114 510**	**114 610**
Connection diagram No.	4	5
Operating voltage (U_B)	10...35 V DC	10...35 V DC
Output current max. (I_e)	150 mA	150 mA
Voltage drop max. (U_d)	≤ 3.5 V	≤ 3.5 V
Permitted residual ripple max.	5 %	5 %
No-load current (I_o)	Typ. 10 mA	Typ. 10 mA
Frequency of operating cycles max.	1 kHz	1 kHz
Permitted ambient temperature	-25...+70 °C	-25...+70 °C
LED-display	Yellow	Yellow
Protective circuit	Built-in	Built-in
Degree of protection IEC 60529	IP 67	IP 67
Norm	EN 60 947-5-2	EN 60 947-5-2
Connection cable	2 m, PUR, 3 x 0.14 mm²	2 m, PUR, 3 x 0.14 mm²
Housing material	VA No. 1.4305	VA No. 1.4305
Active surface	PVC	PVC
Lid	-	-





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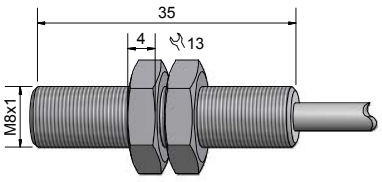
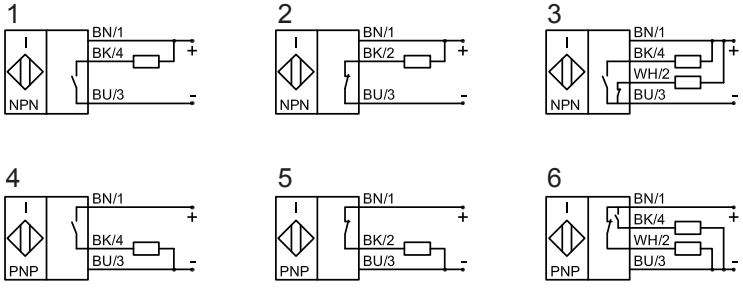
Inductive Sensors
Series 20 - NPN

Housing M 8 x 1
- Housing material: Stainless steel VA
- Sensing distance Sn = 2 mm

Certificate:

Technical data	Flush mountable
Operating distance S_n	2 mm
Electrical version	3-wire DC
Output	Normally open (NO)
Type NPN	**IAS-20-A11-S**
Art.-No.	**IA 0146**
Connection diagram No.	1
Type PNP	
Art.-No.	
Connection diagram No.	
Operating voltage (U_B)	10...30 V DC
Output current max. (I_e)	≤ 200 mA
Voltage drop max. (U_d)	≤ 2 V
Permitted residual ripple max.	20 %
No-load current (I_o)	≤ 10 mA
Frequency of operating cycles max.	5 kHz
Permitted ambient temperature	-25...+70 °C
LED-display	Yes
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67
Norm	EN 60 947-5-2
Connection cable	2 m, PVC, 3 x 0.14 mm²
Housing material	VA No. 1.4305
Active surface	PA
Lid	PA





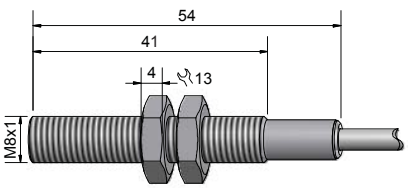
Made in Switzerland

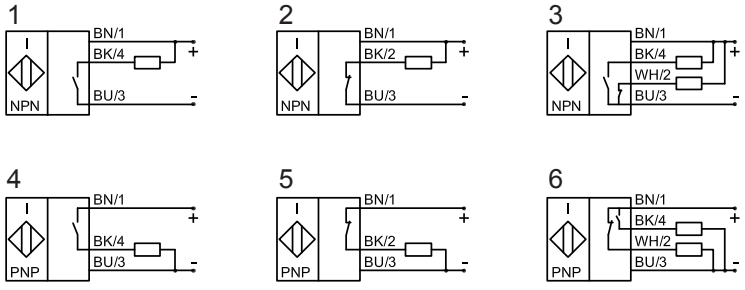
Inductive Sensors
Series 20 - NPN
Series 10 - PNP

Housing M 8 x 1
- Housing material: Stainless steel VA
- Sensing distance Sn = 1 mm

Certificate:

Technical data	Flush mountable	Flush mountable
Operating distance S_n	1 mm	1 mm
Electrical version	3-wire DC	3-wire DC
Output	Normally (NO)	Normally closed (NC)
Type NPN		
Art.-No.		
Connection diagram No.		
Type PNP	**IAS-10-A11-S**	**IAS-10-A11-Ö**
Art.-No.	**100 500**	**101 010**
Connection diagram No.	4	5
Operating voltage (U_B)	10...35 V DC	10...35 V DC
Output current max. (I_e)	150 mA	150 mA
Voltage drop max. (U_d)	≤ 3.5 V	≤ 3.5 V
Permitted residual ripple max.	5 %	5 %
No-load current (I_o)	Typ. 10 mA	Typ. 10 mA
Frequency of operating cycles max.	1 kHz	1 kHz
Permitted ambient temperature	-25...+70 °C	-25...+70 °C
LED-display	Yellow	Yellow
Protective circuit	Built-in	Built-in
Degree of protection IEC 60529	IP 67	IP 67
Norm	EN 60 947-5-2	EN 60 947-5-2
Connection cable	2 m, PUR, 3 x 0.14 mm²	2 m, PUR, 3 x 0.14 mm²
Housing material	VA No. 1.4305	VA No. 1.4305
Active surface	PVC	PVC
Lid	PC (FDA 21 CFR 177.1580)	PC (FDA 21 CFR 177.1580)





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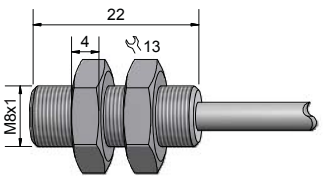
Inductive Sensors

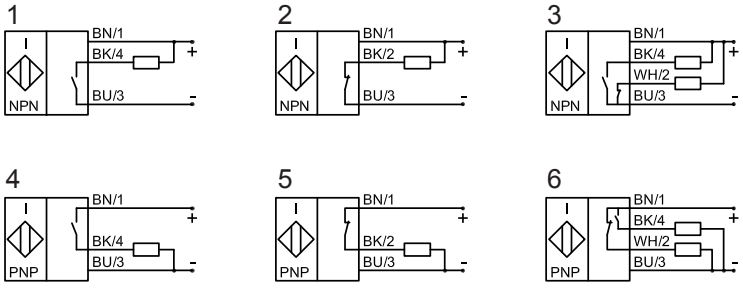
Series 10 - PNP

Housing M 8 x 1
- Housing material: Stainless steel VA
- Sensing distance Sn = 1.5 mm

Certificate:

Technical data	Flush mountable	Flush mountable
Operating distance S_n	1.5 mm	1.5 mm
Electrical version	3-wire DC	3-wire DC
Output	Normally open (NO)	Normally closed (NC)
Type NPN		
Art.-No.		
Connection diagram No.		
Type PNP	**IAS-10-M8-S**	**IAS-10-M8-Ö**
Art.-No.	**IA 0273**	**IA 0275**
Connection diagram No.	4	5
Operating voltage (U_B)	10...30 V DC	10...30 V DC
Output current max. (I_e)	≤ 200 mA	≤ 200 mA
Voltage drop max. (U_d)	≤ 2 V	≤ 2 V
Permitted residual ripple max.	20 %	20 %
No-load current (I_o)	≤ 10 mA	≤ 10 mA
Frequency of operating cycles max.	5 kHz	5 kHz
Permitted ambient temperature	-25...+70 °C	-25...+70 °C
LED-display	Yes	Yes
Protective circuit	Built-in	Built-in
Degree of protection IEC 60529	IP 67	IP 67
Norm	EN 60 947-5-2	EN 60 947-5-2
Connection cable	2 m, PVC, 3 x 0.14 mm²	2 m, PVC, 3 x 0.14 mm²
Housing material	VA No. 1.4305	VA No. 1.4305
Active surface	PA	PA
Lid	PA	PA





Made in China

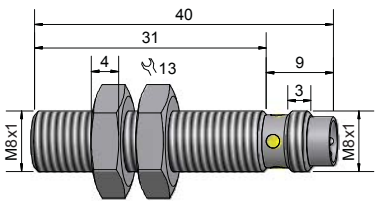
Inductive Sensors

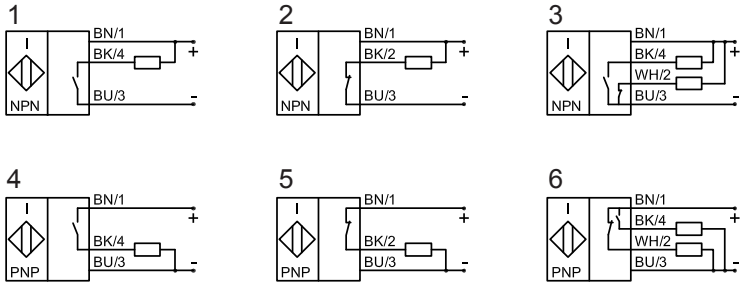
Series 10 - PNP

Housing M 8 x 1
- Housing material: Stainless steel VA
- Sensing distance Sn = 1.5 mm
- With flange connector M 8 x 1

Certificate:

Technical data	Flush mountable	Flush mountable
Operating distance S_n	1.5 mm	1.5 mm
Electrical version	3-pin DC	3-pin DC
Output	Normally open (NO)	Normally closed (NC)
Type NPN		
Art.-No.		
Connection diagram No.		
Type PNP	**IAS-10-M8-S-Y7**	**IAS-10-M8-Ö-Y7**
Art.-No.	**100 200**	**100 310**
Connection diagram No.	4	5
Operating voltage (U_B)	10...35 V DC	10...35 V DC
Output current max. (I_e)	150 mA	150 mA
Voltage drop max. (U_d)	≤ 3.5 V	≤ 3.5 V
Permitted residual ripple max.	5 %	5 %
No-load current (I_o)	Typ. 10 mA	Typ. 10 mA
Frequency of operating cycles max.	1 kHz	1 kHz
Permitted ambient temperature	-25...+70 °C	-25...+70 °C
LED-display	Yellow	Yellow
Protective circuit	Built-in	Built-in
Degree of protection IEC 60529	IP 67	IP 67
Norm	EN 60 947-5-2	EN 60 947-5-2
Connection	Connector M 8 x 1	Connector M 8 x 1
Housing material	VA No. 1.4305	VA No. 1.4305
Active surface	PVC	PVC
Lid	-	-





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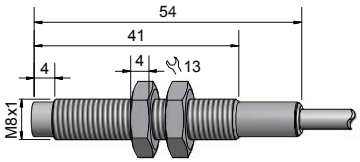
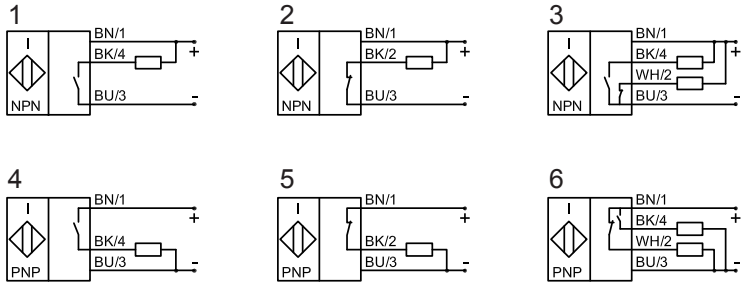
Inductive Sensors
Series 20 - NPN
Series 10 - PNP

Housing M 8 x 1
- Housing material: Stainless steel VA
- Sensing distance Sn = 2 mm

Certificate:

Technical data	Non-flush mountable
Operating distance S_n	2 mm
Electrical version	3-wire DC
Output	Normally open (NO)
Type NPN	
Art.-No.	
Connection diagram No.	
Type PNP	**IAS-10-A21-S**
Art.-No.	**101 200**
Connection diagram No.	4
Operating voltage (U_B)	10...35 V DC
Output current max. (I_e)	150 mA
Voltage drop max. (U_d)	≤ 3.5 V
Permitted residual ripple max.	5 %
No-load current (I_o)	Typ. 10 mA
Frequency of operating cycles max.	1 kHz
Permitted ambient temperature	-25...+70 °C
LED-display	Yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67
Norm	EN 60 947-5-2
Connection cable	2 m, PUR, 3 x 0.14 mm²
Housing material	VA No. 1.4305
Active surface	PVC
Lid	PC (FDA 21 CFR 177.1580)





Made in Germany

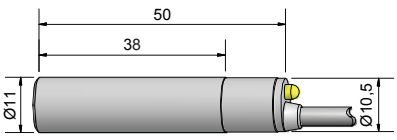
Inductive Sensors

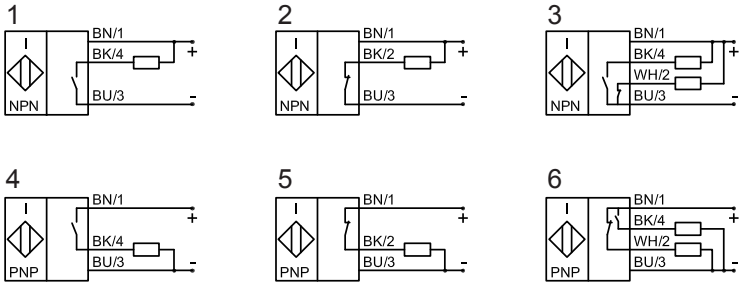
Series 10 - PNP

Housing Ø 11 mm
- Housing material: PA / PPO
- Sensing distance Sn = 5 mm

Certificate:

Technical data	Non-flush mountable	Non-flush mountable
Operating distance S_n	5 mm	5 mm
Electrical version	3-wire DC	3-wire DC
Output	Normally open (NO)	Normally closed (NC)
Type NPN		
Art.-No.		
Connection diagram No.		
Type PNP	**IAS-10-14-S**	**IAS-10-14-Ö**
Art.-No.	**115 300**	**115 350**
Connection diagram No.	4	5
Operating voltage (U_B)	10...35 V DC	10...35 V DC
Output current max. (I_e)	150 mA	150 mA
Voltage drop max. (U_d)	≤ 2.5 V	≤ 2.5 V
Permitted residual ripple max.	10 %	10 %
No-load current (I_o)	Typ. 15 mA	Typ. 15 mA
Frequency of operating cycles max.	2 kHz	2 kHz
Permitted ambient temperature	-25...+70 °C	-25...+70 °C
LED-display	Yellow	Yellow
Protective circuit	Built-in	Built-in
Degree of protection IEC 60529	IP 67	IP 67
Norm	EN 60 947-5-2	EN 60 947-5-2
Connection cable	2 m, PUR, 3 x 0.14 mm²	2 m, PUR, 3 x 0.14 mm²
Housing material	PA / PPO	PA / PPO
Active surface	PA / PPO	PA / PPO
Lid	PA / PPO	PA / PPO





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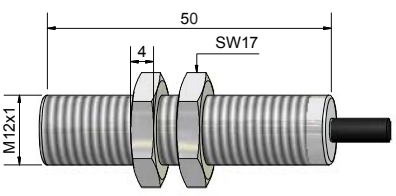
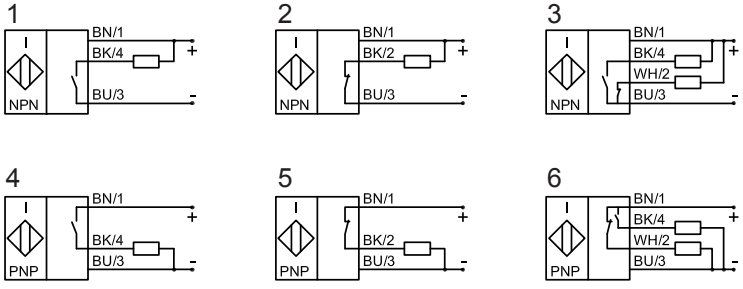
Inductive Sensors
Series 20 - NPN
Series 10 - PNP

Housing M 12 x 1
- Housing material: Brass
- Sensing distance Sn = 2 mm

Certificate:

Technical data	Flush mountable
Operating distance S_n	2 mm
Electrical version	3-wire DC
Output	Normally open (NO)
Type NPN	**IAS-20-A12-S**
Art.-No.	**IA 0246**
Connection diagram No.	1
Type PNP	**IAS-10-A12-S**
Art.-No.	**IA 0247**
Connection diagram No.	4
Operating voltage (U_B)	10...30 V DC
Output current max. (I_e)	200 mA
Voltage drop max. (U_d)	≤ 3 V
Permitted residual ripple max.	-
No-load current (I_o)	Typ. 17 mA
Frequency of operating cycles max.	1,5 kHz
Permitted ambient temperature	-25...+70 °C
LED-display	Yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67
Norm	EN 60947-5-2
Connection cable	3 m, PUR, 3 x 0,14 mm²
Housing material	Brass
Active surface	PBT
Lid	BPT





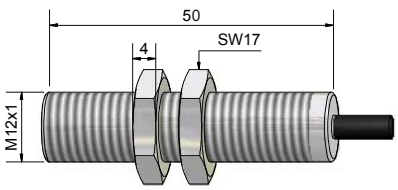
Made in Indonesia

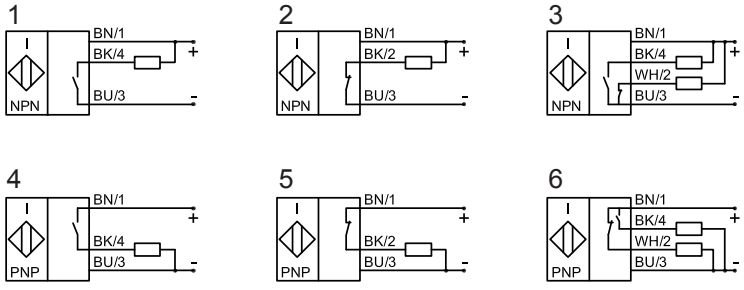
Inductive Sensors

Series 10 - PNP

Housing M 12 x 1
- Housing material: Brass
- Sensing distance Sn = 4 mm

Technical data	Flush mountable
Operating distance S_n	4 mm
Electrical version	3-wire DC
Output	Normally open (NO)
Type NPN	
Art.-No.	
Connection diagram No.	
Type PNP	**IAS-10-A12-S-SN4**
Art.-No.	**IA 0184**
Connection diagram No.	4
Operating voltage (U_B)	10...30 V DC
Output current max. (I_e)	200 mA
Voltage drop max. (U_d)	≤ 2 V
Permitted residual ripple max.	20 %
No-load current (I_o)	Typ. 10 mA
Frequency of operating cycles max.	2 kHz
Permitted ambient temperature	-25...+70 °C
LED-display	Yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67
Norm	EN 60947-5-2
Connection cable	2 m, PVC, 3 x 0,14 mm²
Housing material	Brass
Active surface	PBTP
Lid	PA





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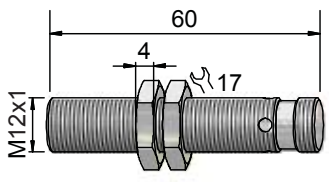
Inductive Sensors

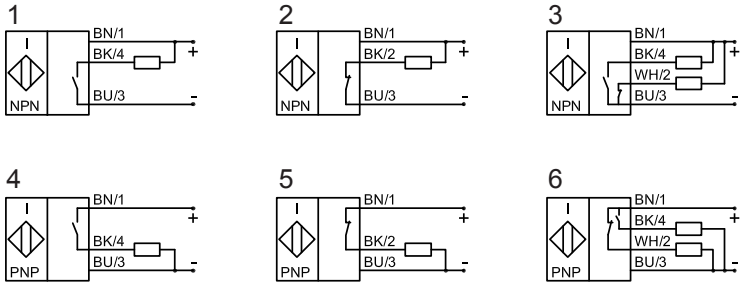
Series 10 - PNP

Housing M 12 x 1
- Housing material: Brass
- With increased sensing distance
- Sensing distance Sn = 4 mm
- With flange connector M 12 x 1

Certificate:

Technical data	Flush mountable
Operating distance S_n	4 mm
Electrical version	3-pin DC
Output	Normally open (NO)
Type NPN	
Art.-No.	
Connection diagram No.	
Type PNP	**IAS-10-A12-S-Y5-SN4**
Art.-No.	**IA 0175**
Connection diagram No.	4
Operating voltage (U_B)	10...30 V DC
Output current max. (I_e)	200 mA
Voltage drop max. (U_d)	≤ 2 V
Permitted residual ripple max.	20 %
No-load current (I_o)	Typ. 10 mA
Frequency of operating cycles max.	2 kHz
Permitted ambient temperature	-25...+70 °C
LED-display	Yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67
Norm	EN 60 947-5-2
Connection	Connector M 12 x 1
Housing material	Brass
Active surface	PBTP
Lid	-





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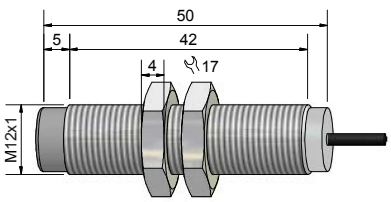
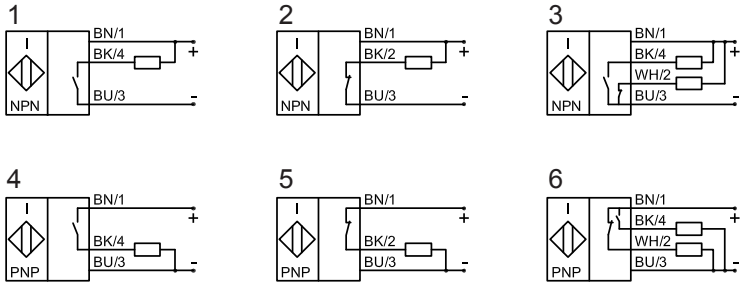
Inductive Sensors
Series 20 - NPN
Series 10 - PNP

Housing M 12 x 1
- Housing material: Brass
- Sensing distance Sn = 4 mm

Certificate:

Technical data	Non-flush mountable
Operating distance S_n	4 mm
Electrical version	3-wire DC
Output	Normally open (NO)
Type NPN	**IAS-20-A22-S**
Art.-No.	**IA 0249**
Connection diagram No.	1
Type PNP	**IAS-10-A22-S**
Art.-No.	**IA 0248**
Connection diagram No.	4
Operating voltage (U_B)	10...30 V DC
Output current max. (I_e)	200 mA
Voltage drop max. (U_d)	≤ 3 V
Permitted residual ripple max.	-
No-load current (I_o)	Typ. 17 mA
Frequency of operating cycles max.	1,2 kHz
Permitted ambient temperature	-25...+70 °C
LED-display	Yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67
Norm	EN 60947-5-2
Connection cable	3 m, PUR, 3 x 0,14 mm²
Housing material	Brass
Active surface	PBT
Lid	BPT





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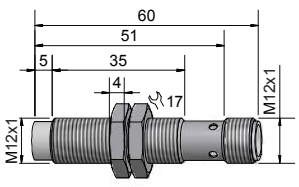
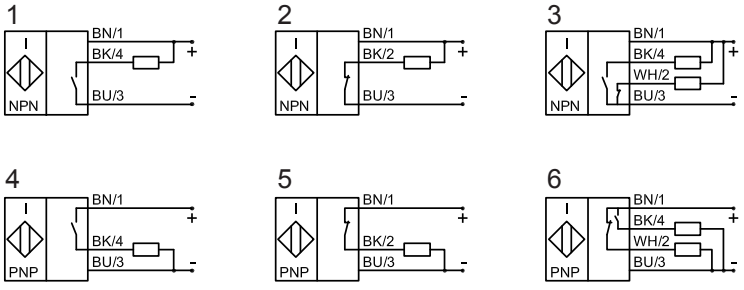
Inductive Sensors

Series 10 - PNP

Housing M 12 x 1
- Housing material: Stainless steel
- Sensing distance Sn = 4 mm
- With flange connector M 12 x 1

Technical data	Non-flush mountable
Operating distance S_n	4 mm
Electrical version	3-pin DC
Output	Normally open (NO)
Type NPN	
Art.-No.	
Connection diagram No.	
Type PNP	**IAS-10-A22-S-Y5**
Art.-No.	**103 001**
Connection diagram No.	4
Operating voltage (U_B)	10...35 V DC
Output current max. (I_e)	150 mA
Voltage drop max. (U_d)	≤ 2,5 V
Permitted residual ripple max.	10 %
No-load current (I_o)	Typ. 15 mA
Frequency of operating cycles max.	2 kHz
Permitted ambient temperature	-25...+70 °C
LED-display	Yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67
Norm	EN 60 947-5-2
Connection	Connector M 12 x 1
Housing material	VA No. 1.4305
Active surface	PA / PPO
Lid	-





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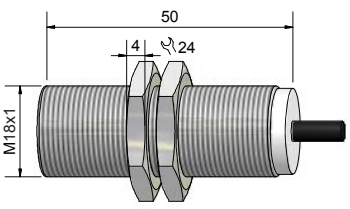
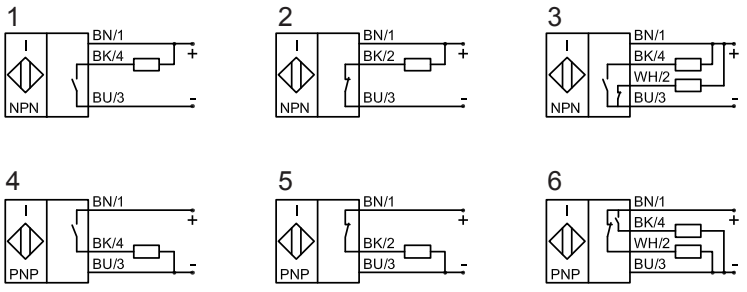
Inductive Sensors
Series 20 - NPN
Series 10 - PNP

Housing M 18 x 1
- Housing material: Brass
- Sensing distance Sn = 5 mm

Certificate:

Technical data	Flush mountable
Operating distance S_n	5 mm
Electrical version	3-wire DC
Output	Normally open (NO)
Type NPN	**IAS-20-A13-S**
Art.-No.	**IA 0250**
Connection diagram No.	1
Type PNP	**IAS-10-A13-S**
Art.-No.	**IA 0251**
Connection diagram No.	4
Operating voltage (U_B)	10...30 V DC
Output current max. (I_e)	200 mA
Voltage drop max. (U_d)	≤ 3 V
Permitted residual ripple max.	-
No-load current (I_o)	≤ 20 mA
Frequency of operating cycles max.	800 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67
Norm	EN 60947-5-2
Connection cable	2 m, PUR, 3 x 0.34 mm²
Housing material	Brass
Active surface	PBT
Lid	BPT





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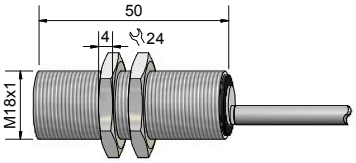
Inductive Sensors

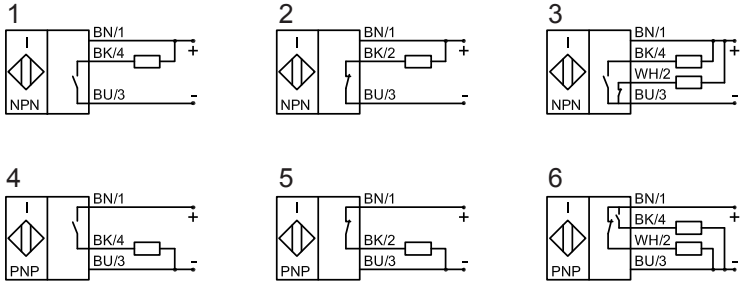
Series 10 - PNP

Housing M 18 x 1
- With increased sensing distance
- Housing material: Brass
- Sensing distance Sn = 8 mm

Certificate:

Technical data	Flush mountable
Operating distance S_n	8 mm
Electrical version	3-wire DC
Output	Normally open (NO)
Type NPN	
Art.-No.	
Connection diagram No.	
Type PNP	**IAS-10-A13-S-SN8**
Art.-No.	**IA0185**
Connection diagram No.	4
Operating voltage (U_B)	10...30 V DC
Output current max. (I_e)	200 mA
Voltage drop max. (U_d)	≤ 2,5 V
Permitted residual ripple max.	10%
No-load current (I_o)	Typ. 10 mA
Frequency of operating cycles max.	1 kHz
Permitted ambient temperature	-25...+70 °C
LED-display	Yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67
Norm	EN 60947-5-2
Connection cable	2 m, PVC, 3 x 0,34 mm²
Housing material	Brass
Active surface	PBTP
Lid	PA / PBTB





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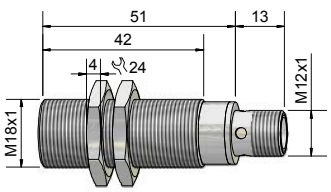
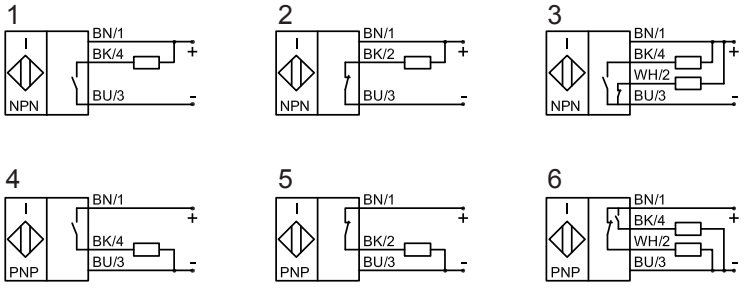
Inductive Sensors

Series 10 - PNP

Housing M 18 x 1
- With increased sensing distance
- Housing material: Brass
- Sensing distance Sn = 8 mm
- With flange connector M 12 x 1

Technical data	Flush mountable
Operating distance S_n	8 mm
Electrical version	3-pin DC
Output	Normally open (NO)
Type NPN	
Art.-No.	
Connection diagram No.	
Type PNP	**IAS-10-A13-S-Y5-SN8**
Art.-No.	**IA0176**
Connection diagram No.	4
Operating voltage (U_B)	10...30 V DC
Output current max. (I_e)	200 mA
Voltage drop max. (U_d)	≤ 2,5 V
Permitted residual ripple max.	10%
No-load current (I_o)	Typ. 10 mA
Frequency of operating cycles max.	1 kHz
Permitted ambient temperature	-25...+70 °C
LED-display	Yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67
Norm	EN 60947-5-2
Connection cable	Flange connector M 12 x 1
Housing material	Brass
Active surface	PBTP
Lid	-





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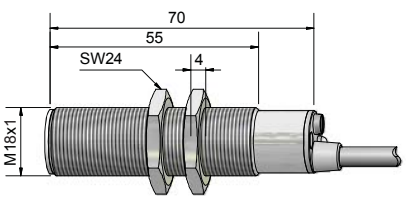
Inductive Sensors With Analogue Output

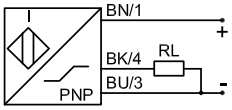
Series 10 - IL

Housing M 18 x 1
- Housing material: Brass
- Operating range 0...5 mm adjustable

Certificate:

Technical data	Flush mountable
Operating range	0...5 mm
Linear range	1.5...5 mm
Electrical version	3-wire DC
Output function	Analogue
Type analogue	**IAS-10-A13-IL**
Art.-No.	**105 750**
Connection diagram No.	See below
Operating voltage (U_B)	15...30 V DC
Output current max. (I_e)	≤ 4...> 20 mA
Permitted residual ripple max.	5 %
No-load current (I_o)	Typ. 40 mA
Output current active surface free	> 20 mA
Output current active surface covered	≤ 20...< 4 mA
Load resistor	R_L = 0...300 Ω
Permitted ambient temperature	0...+60 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67
Norm	EN 60 947-5-2
Connection cable	2 m, PUR, 3 x 0.34 mm²
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO





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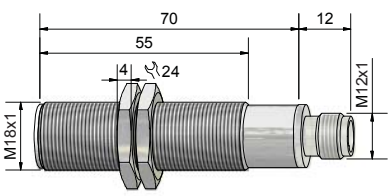
Inductive Sensors With Analogue Output

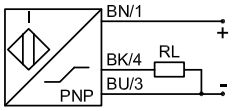
Series 10 - IL

Housing M 18 x 1
- Housing material: Brass
- Operating range 0...5 mm adjustable
- With flange connector M 12 x 1

Certificate:

Technical data	Flush mountable
Operating range	0...5 mm
Linear range	1.5...5 mm
Electrical version	3-pin DC
Output function	Analogue
Type analogue	**IAS-10-A13-IL-Y3**
Art.-No.	**105 751**
Connection diagram No.	See below
Operating voltage (U_B)	15...30 V DC
Output current max. (I_e)	2.5 > 20 mA
Permitted residual ripple max.	5 %
No-load current (I_o)	Typ. 40 mA
Output current active surface free	> 20 mA
Output current active surface covered	≤ 20...< 4 mA
Load resistor	R_L = 0...300 Ω
Permitted ambient temperature	0...+60 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67
Norm	EN 60 947-5-2
Connection	Connector M 12 x 1
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	-





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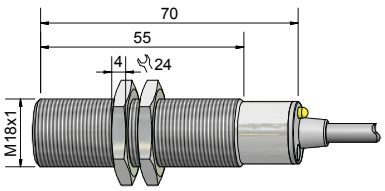
Inductive Sensors
Series 60 - AC / DC

Housing M 18 x 1
- Housing material: Brass
- Sensing distance Sn = 5 mm

Certificate:

Technical data	Flush mountable	Flush mountable
Operating distance S_n	5 mm	5 mm
Electrical version	2-wire AC / DC	2-wire AC / DC
Output	Normally open (NO)	Normally closed (NC)
Type	**IAS-60-A13-S**	**IAS-60-A13-Ö**
Art.-No.	**601 000**	**601 200**
Connection diagram No.	1	2
Operating voltage (U_B)	20...250 V AC / DC	20...250 V AC / DC
Output current max. (I_e)	300 mA	300 mA
Minimum load	Typ. 9 mA	Typ. 9 mA
Voltage drop max. (U_d)	Typ. 6 V	Typ. 6 V
No-load current (I_o)	Typ. 3.5 mA	Typ. 3.5 mA
Frequency of operating cycles max.	25 Hz	25 Hz
Permitted ambient temperature	-25...+70 °C	-25...+70 °C
LED-display	Yellow	Yellow
Protective circuit	Built-in	Built-in
Degree of protection IEC 60529	IP 67	IP 67
Norm	EN 60 947-5-2	EN 60 947-5-2
Connection cable	2 m, PUR, 3 x 0.34 mm²	2 m, PUR, 3 x 0.34 mm²
Housing material	Brass	Brass
Active surface	PA / PPO	PA / PPO
Lid	PA / PPO	PA / PPO



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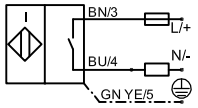

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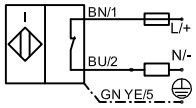

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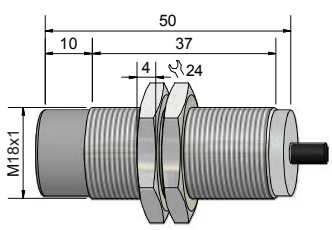
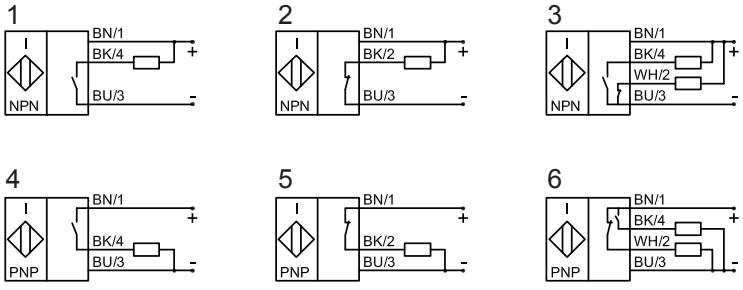
Inductive Sensors
Series 20 - NPN
Series 10 - PNP

Housing M 18 x 1
- Housing material: Brass
- Sensing distance Sn = 8 mm

Certificate:

Technical data	Non-flush mountable
Operating distance S_n	8 mm
Electrical version	3-wire DC
Output	Normally open (NO)
Type NPN	**IAS-20-A23-S**
Art.-No.	**IA 0252**
Connection diagram No.	1
Type PNP	**IAS-10-A23-S**
Art.-No.	**IA 0253**
Connection diagram No.	4
Operating voltage (U_B)	10...30 V DC
Output current max. (I_e)	200 mA
Voltage drop max. (U_d)	≤ 3 V
Permitted residual ripple max.	-
No-load current (I_o)	≤ 18 mA
Frequency of operating cycles max.	500 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67
Norm	EN 60 947-5-2
Connection cable	2 m, PUR, 3 x 0.34 mm²
Housing material	Brass
Active surface	PBT
Lid	BPT





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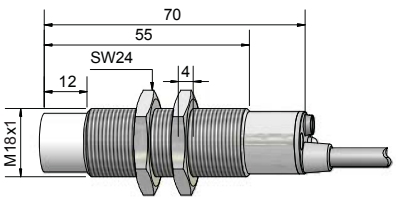
Inductive Sensors With Analogue Output

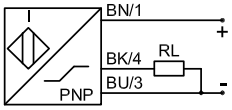
Series 10 - IL

Housing M 18 x 1
- Housing material: Brass
- Operating range 0...8 mm adjustable

Certificate:

Technical data	Non-flush mountable
Operating distance S_n	0...8 mm
Linear range	3...8 mm
Electrical version	3-wire DC
Output	Analogue
Type NPN	**IAS-10-A23-IL**
Art.-No.	**108 350**
Connection diagram No.	See below
Operating voltage (U_B)	15...30 V DC
Output current max. (I_e)	4...> 20 mA
Permitted residual ripple max.	5 %
No-load current (I_o)	Typ. 40 mA
Output current active surface free	> 20 mA
Output current active surface covered	≤ 20...< 4 mA
Load resistor	R_L = 0...300 Ω
Permitted ambient temperature	0...+60 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67
Norm	EN 60 947-5-2
Connection cable	2 m, PUR, 3 x 0.34 mm²
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO





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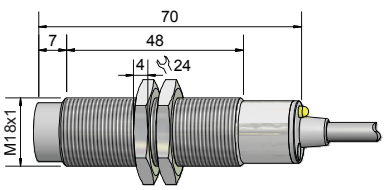
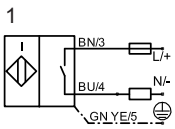
Inductive Sensors
Series 60 - AC / DC

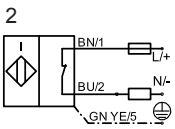
Housing M 18 x 1
- Housing material: Brass
- Sensing distance Sn = 8 mm

Certificate:

Technical data	Non-flush mountable	Non-flush mountable
Operating distance S_n	8 mm	8 mm
Electrical version	2-wire AC / DC	2-wire AC / DC
Output	Normally open (NO)	Normally closed (NC)
Type	**IAS-60-A23-S**	**IAS-60-A23-Ö**
Art.-No.	**604 100**	**604 300**
Connection diagram No.	1	2
Operating voltage (U_B)	20...250 V AC / DC	20...250 V AC / DC
Output current max. (I_e)	300 mA	300 mA
Minimum load	Typ. 9 mA	Typ. 9 mA
Voltage drop max. (U_d)	Typ. 6 V	Typ. 6 V
No-load current (I_o)	Typ. 3.5 mA	Typ. 3.5 mA
Frequency of operating cycles max.	25 Hz	25 Hz
Permitted ambient temperature	-25...+70 °C	-25...+70 °C
LED-display	Yellow	Yellow
Protective circuit	Built-in	Built-in
Degree of protection IEC 60529	IP 67	IP 67
Norm	EN 60 947-5-2	EN 60 947-5-2
Connection cable	2 m, PUR, 3 x 0.34 mm²	2 m, PUR, 3 x 0.34 mm²
Housing material	Brass	Brass
Active surface	PA / PPO	PA / PPO
Lid	PA / PPO	PA / PPO







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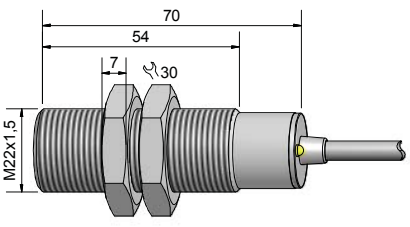
Inductive Sensors

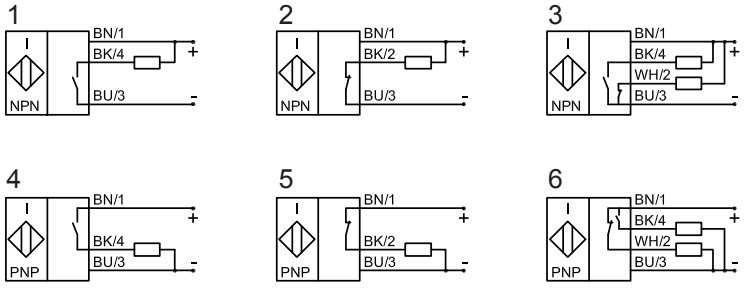
Series 10 - PNP

Housing M 22 x 1.5
- Housing material: PA / PPO
- Sensing distance Sn = 10 mm

Certificate:

Technical data	Non-flush mountable	Non-flush mountable
Operating distance S_n	10 mm	10 mm
Electrical version	3-wire DC	3-wire DC
Output	Normally open (NO)	Normally closed (NC)
Type NPN		
Art.-No.		
Connection diagram No.		
Type PNP	**IAS-10-23-S-M22**	**IAS-10-23-Ö-M22**
Art.-No.	**116 900**	**117 000**
Connection diagram No.	4	5
Operating voltage (U_B)	10...35 V DC	10...35 V DC
Output current max. (I_e)	250 mA	250 mA
Voltage drop max. (U_d)	≤ 2.5 V	≤ 2.5 V
Permitted residual ripple max.	10 %	10 %
No-load current (I_o)	Typ. 15 mA	Typ. 15 mA
Frequency of operating cycles max.	2 kHz	2 kHz
Permitted ambient temperature	-25...+70 °C	-25...+70 °C
LED-display	Yellow	Yellow
Protective circuit	Built-in	Built-in
Degree of protection IEC 60529	IP 67	IP 67
Norm	EN 60 947-5-2	EN 60 947-5-2
Connection cable	2 m, PUR, 3 x 0.34 mm²	2 m, PUR, 3 x 0.34 mm²
Housing material	PA / PPO	PA / PPO
Active surface	PA / PPO	PA / PPO
Lid	PA / PPO	PA / PPO





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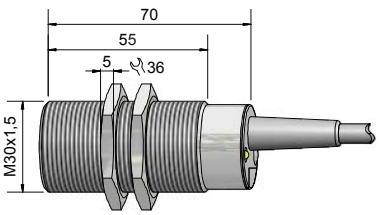
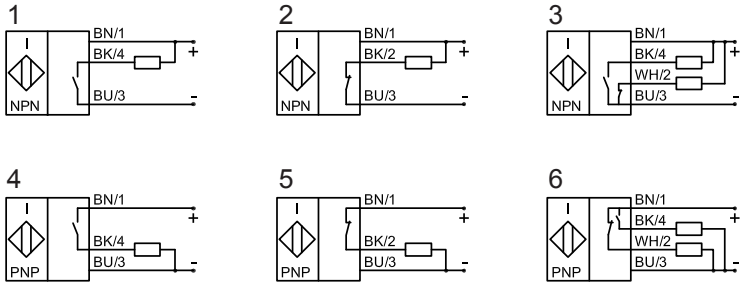
Inductive Sensors
Series 20 - NPN
Series 10 - PNP

Housing M 30 x 1.5
- Housing material: Brass
- Sensing distance Sn = 10 mm

Certificate:

Technical data	Flush mountable	Flush mountable
Operating distance S_n	10 mm	10 mm
Electrical version	3-wire DC	4-wire DC
Output	Normally open (NO)	Antivalent (NO + NC)
Type NPN	**IAS-20-A14-S**	**IAS-20-A14-A**
Art.-No.	**208 400**	**208 380**
Connection diagram No.	1	3
Type PNP	**IAS-10-A14-S**	**IAS-10-A14-A**
Art.-No.	**108 400**	**108 380**
Connection diagram No.	4	6
Operating voltage (U_B)	10...35 V DC	10...35 V DC
Output current max. (I_e)	250 mA	2 x 250 mA
Voltage drop max. (U_d)	≤ 2.5 V	≤ 2.5 V
Permitted residual ripple max.	10 %	10 %
No-load current (I_o)	Typ. 15 mA	Typ. 15 mA
Frequency of operating cycles max.	1 kHz	1 kHz
Permitted ambient temperature	-25...+70 °C	-25...+70 °C
LED-display	Yellow	Green / yellow
Protective circuit	Built-in	Built-in
Degree of protection IEC 60529	IP 67	IP 67
Norm	EN 60 947-5-2	EN 60 947-5-2
Connection cable	2 m, PVC, 3 x 0.75 mm²	2 m, PVC, 4 x 0.5 mm²
Housing material	Brass	Brass
Active surface	PVC	PVC
Lid	PA / PPO	PA / PPO





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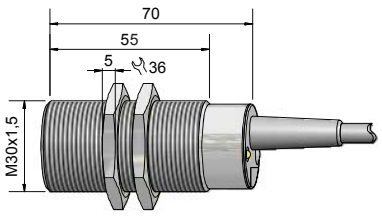
Inductive Sensors With Analogue Output

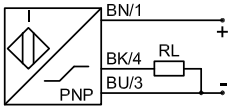
Series 10 - IL

Housing M 30 x 1.5
- Housing material: Brass
- Operating range 0...10 mm adjustable

Certificate:

Technical data	Flush mountable
Operating range	0...10 mm
Linear range	3...10 mm
Electrical version	3-wire DC
Output function	Analogue
Type analogue	**IAS-10-A14-IL**
Art.-No.	**110 950**
Connection diagram No.	See below
Operating voltage (U_B)	15...30 V DC
Output current max. (I_e)	≤ 4... > 20 mA
Permitted residual ripple max.	5 %
No-load current (I_o)	Typ. 40 mA
Output current active surface free	> 20 mA
Output current active surface covered	≤ 20...< 4 mA
Load resistor	R_L = 0...300 Ω
Permitted ambient temperature	0...+60 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67
Norm	EN 60 947-5-2
Connection cable	2 m, PVC, 3 x 0.75 mm²
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO





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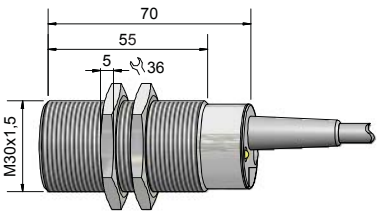
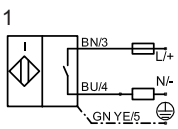
Inductive Sensors
Series 60 - AC / DC

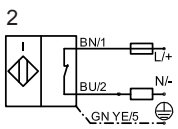
Housing M 30 x 1.5
- Housing material: Brass
- Sensing distance Sn = 10 mm

Certificate:

Technical data	Flush mountable	Flush mountable
Operating distance S_n	10 mm	10 mm
Electrical version	3-wire AC / DC	3-wire AC / DC
Output	Normally open (NO)	Normally closed (NC)
Type	**IAS-60-A14-S**	**IAS-60-A14-Ö**
Art.-No.	**607 300**	**607 500**
Connection diagram No.	1	2
Operating voltage (U_B)	20...250 V AC / DC	20...250 V AC / DC
Output current max. (I_e)	300 mA	300 mA
Minimum load	Typ. 9 mA	Typ. 9 mA
Voltage drop max. (U_d)	Typ. 6 V	Typ. 6 V
No-load current (I_o)	Typ. 3.5 mA	Typ. 3.5 mA
Frequency of operating cycles max.	25 Hz	25 Hz
Permitted ambient temperature	-25...+70 °C	-25...+70 °C
LED-display	Yellow	Yellow
Protective circuit	Built-in	Built-in
Degree of protection IEC 60529	IP 67	IP 67
Norm	EN 60 947-5-2	EN 60 947-5-2
Connection cable	2 m, PVC, 3 x 0.75 mm²	2 m, PVC, 3 x 0.75 mm²
Housing material	Brass	Brass
Active surface	PVC	PVC
Lid	PA / PPO	PA / PPO







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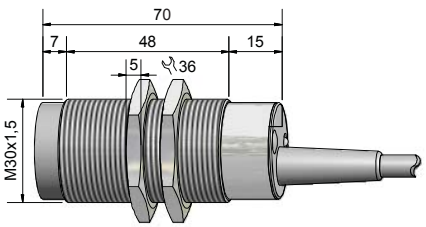
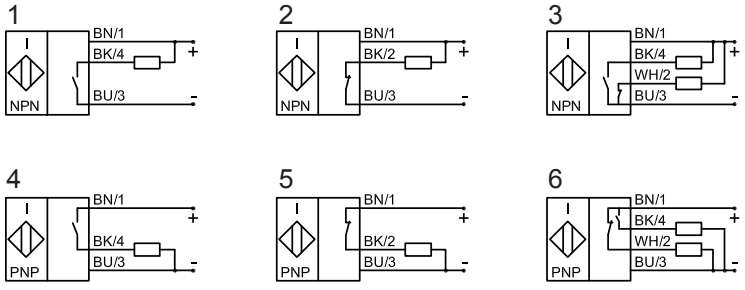
Inducitve Sensors
Series 20 - NPN
Series 10 - PNP

Housing M 30 x 1.5
- Housing material: Brass
- Sensing distance Sn = 15 mm

Certificate:

Technical data	Non-flush mountable	Non-flush mountable
Operating distance S_n	15 mm	15 mm
Electrical version	3-wire DC	4-wire DC
Output	Normally open (NO)	Antivalent (NO + NC)
Type NPN	**IAS-20-A24-S**	**IAS-20-A24-A**
Art.-No.	**211 000**	**210 980**
Connection diagram No.	1	3
Type PNP	**IAS-10-A24-S**	**IAS-10-A24-A**
Art.-No.	**111 000**	**110 980**
Connection diagram No.	4	6
Operating voltage (U_B)	10...35 V DC	10...35 V DC
Output current max. (I_e)	250 mA	2 x 250 mA
Voltage drop max. (U_d)	≤ 2.5 V	≤ 2.5 V
Permitted residual ripple max.	10 %	10 %
No-load current (I_o)	Typ. 15 mA	Typ. 15 mA
Frequency of operating cycles max.	1 kHz	1 kHz
Permitted ambient temperature	-25...+70 °C	-25...+70 °C
LED-display	Yellow	Green / yellow
Protective circuit	Built-in	Built in
Degree of protection IEC 60529	IP 67	IP 67
Norm	EN 60 947-5-2	EN 60 947-5-2
Connection cable	2 m, PVC, 3 x 0.75 mm²	2 m, PVC, 4 x 0.5 mm²
Housing material	Brass	Brass
Active surface	PVC	PVC
Lid	PA / PPO	PA / PPO





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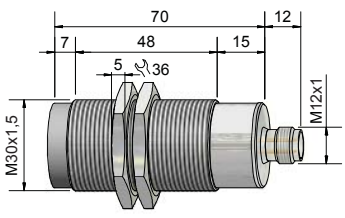
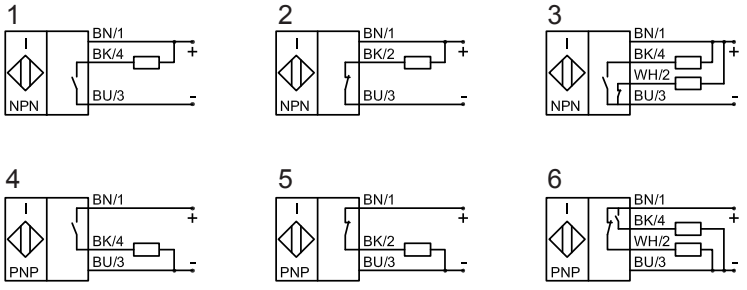
Inductive Sensors
Series 20 - NPN
Series 10 - PNP

Housing M 30 x 1.5
- Housing material: Brass
- Sensing distance Sn = 15 mm
- With plastic flange connector M 12 x 1

Certificate:

Technical data	Non-flush mountable
Operating distance S_n	15 mm
Electrical version	4-pin DC
Output	Antivalent (NO + NC)
Type NPN	**IAS-20-A24-A-Y3**
Art.-No.	**210 985**
Connection diagram No.	3
Type PNP	**IAS-10-A24-A-Y3**
Art.-No.	**110 985**
Connection diagram No.	6
Operating voltage (U_B)	10...35 V DC
Output current max. (I_e)	2 x 250 mA
Voltage drop max. (U_d)	≤ 2.5 V
Permitted residual ripple max.	10 %
No-load current (I_o)	Typ. 15 mA
Frequency of operating cycles max.	1 kHz
Permitted ambient temperature	-25...+70 °C
LED-display	Yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67
Norm	EN 60 947-5-2
Connection	Connector M 12 x 1
Housing material	Brass
Active surface	PVC
Lid	-





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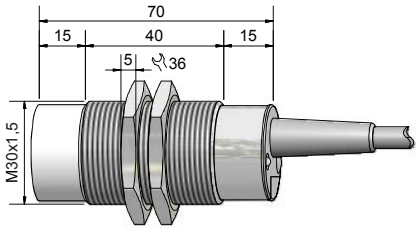
Inductive Sensors With Analogue Output

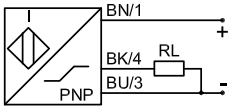
Series 10 - IL

Housing M 30 x 1.5
- Housing material: Brass
- Operating range 0...15 mm adjustable

Certificate:

Technical data	Non-flush mountable
Operating range	0...15 mm
Linear range	5...15 mm
Electrical version	3-wire DC
Output function	Analogue
Type analogue	**IAS-10-A24-IL**
Art.-No.	**113 550**
Connection diagram No.	See below
Operating voltage (U_B)	15...30 V DC
Output current max. (I_e)	≤ 4...> 20 mA
Permitted residual ripple max.	5 %
No-load current (I_o)	Typ. 40 mA
Output current active surface free	> 20 mA
Output current active surface covered	≤ 20...< 4 mA
Load resistor	R_L = 0...300 Ω
Permitted ambient temperature	0...+60 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67
Norm	EN 60 947-5-2
Connection cable	2 m, PVC, 3 x 0.75 mm²
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO





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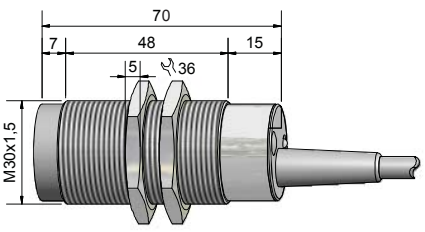
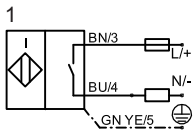
Inductive Sensors
Series 60 - AC / DC

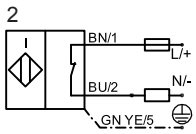
Housing M 30 x 1.5
- Housing material: Brass
- Sensing distance Sn = 15 mm

Certificate: CE RoHS COMPLIANT

Technical data	Non-flush mountable	Non-flush mountable
Operating distance S_n	15 mm	15 mm
Electrical version	3-wire AC / DC	3-wire AC / DC
Output	Normally open (NO)	Normally closed (NC)
Type	**IAS-60-A24-S**	**IAS-60-A24-Ö**
Art.-No.	**610 500**	**610 700**
Connection diagram No.	1	2
Operating voltage (U_B)	20 ... 250 V AC / DC	20 ... 250 V AC / DC
Output current max. (I_e)	300 mA	300 mA
Minimum load	Typ. 9 mA	Typ. 9 mA
Voltage drop max. (U_d)	Typ. 6 V	Typ. 6 V
No-load current (I_o)	Typ. 3.5 mA	Typ. 3.5 mA
Frequency of operating cycles max.	25 Hz	25 Hz
Permitted ambient temperature	-25...+70 °C	-25...+70 °C
LED-display	Yellow	Yellow
Protective circuit	Built-in	Built-in
Degree of protection IEC 60529	IP 67	IP 67
Norm	EN 60 947-5-2	EN 60 947-5-2
Connection cable	2 m, PVC, 3 x 0.75 mm²	2 m, PVC, 3 x 0.75 mm²
Housing material	Brass	Brass
Active surface	PVC	PVC
Lid	PA / PPO	PA / PPO







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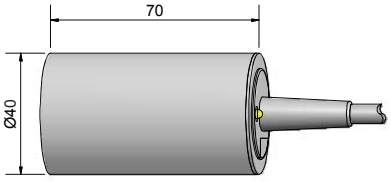
Inductive Sensors

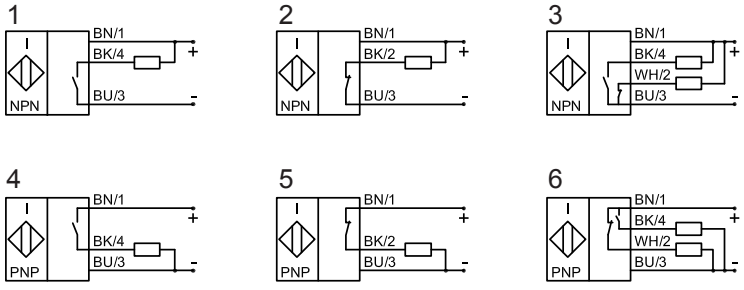
Series 10 - PNP

Housing Ø 40 mm
- Housing material: PA / PPO
- Sensing distance Sn = 20 mm

Certificate:

Technical data	Flush mountable
Operating distance S_n	20 mm
Electrical version	4-wire DC
Output	Antivalent (NO + NC)
Type NPN	
Art.-No.	
Connection diagram No.	
Type PNP	**IAS-10-40-A**
Art.-No.	**119 480**
Connection diagram No.	6
Operating voltage (U_B)	10...35 V DC
Output current max. (I_e)	2 x 250 mA
Voltage drop max. (U_d)	≤ 2.5 V
Permitted residual ripple max.	10 %
No-load current (I_o)	Typ. 15 mA
Frequency of operating cycles max.	250 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built in
Degree of protection IEC 60529	IP 67
Norm	EN 60 947-5-2
Connection cable	2 m, PVC, 4 x 0.5 mm²
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PA / PPO





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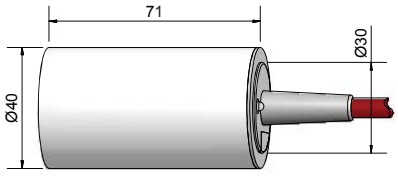
Inductive Sensors

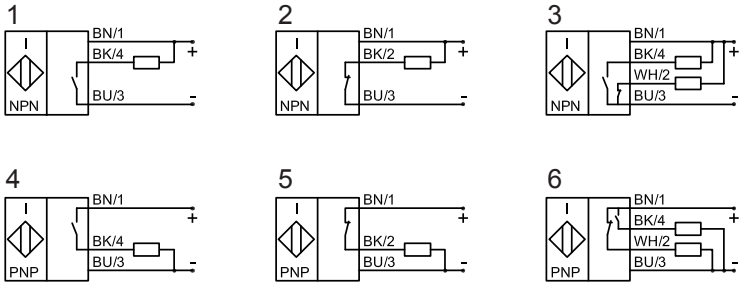
Series 10 - PNP

Housing Ø 40 mm
- Housing material: PTFE
- Sensing distance Sn = 20 mm
- Useable for an ambient temperature up to +100 °C

Certificate:

Technical data	Flush mountable
Operating distance S_n	20 mm
Electrical version	4-wire DC
Output	Antivalente (NO + NC)
Type NPN	
Art.-No.	
Connection diagram No.	
Type PNP	**IAS-10-40-A-PTFE-100°C, 5 m**
Art.-No.	**IA 0221**
Connection diagram No.	6
Operating voltage (U_B)	10...35 V DC
Output current max. (I_e)	2 x 250 mA
Voltage drop max. (U_d)	≤ 2.5 V
Permitted residual ripple max.	10 %
No-load current (I_o)	Typ. 15 mA
Frequency of operating cycles max.	250 Hz
Permitted ambient temperature	-25...+100 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67
Norm	EN 60947-5-2
Connection cable	5 m, Silicone, 4 x 0.5 mm²
Housing material	PTFE (FDA 21 CFR 177.1550)
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO





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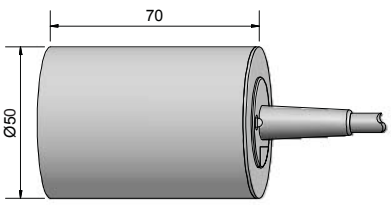
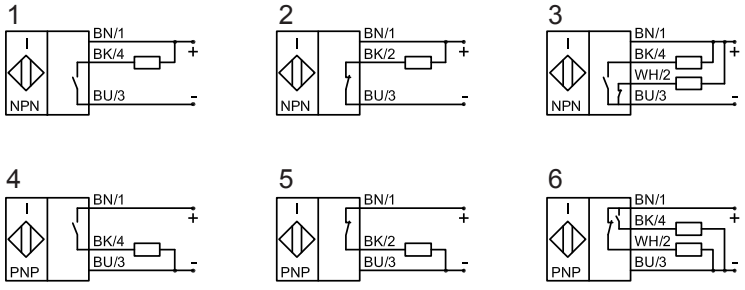
Inductive Sensors
Series 20 - NPN

Housing Ø 50 mm
- Housing material: PA / PPO
- Sensing distance Sn = 25 mm

Certificate:

Technical data	Non-flush mountable
Operating distance S_n	25 mm
Electrical version	4-wire DC
Output	Antivalent (NO + NC)
Type NPN	**IAS-20-51-A**
Art.-No.	**219 880**
Connection diagram No.	3
Type PNP	
Art.-No.	
Connection diagram No.	
Operating voltage (U_B)	10...35 V DC
Output current max. (I_e)	2 x 250 mA
Voltage drop max. (U_d)	≤ 2.5 V
Permitted residual ripple max.	10 %
No-load current (I_o)	Typ. 15 mA
Frequency of operating cycles max.	250 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built in
Degree of protection IEC 60529	IP 67
Norm	EN 60 947-5-2
Connection cable	2 m, PVC, 4 x 0.5 mm²
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PA / PPO





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RECTANGULAR HOUSINGS

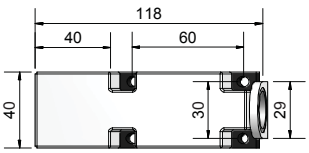
Inductive Sensors

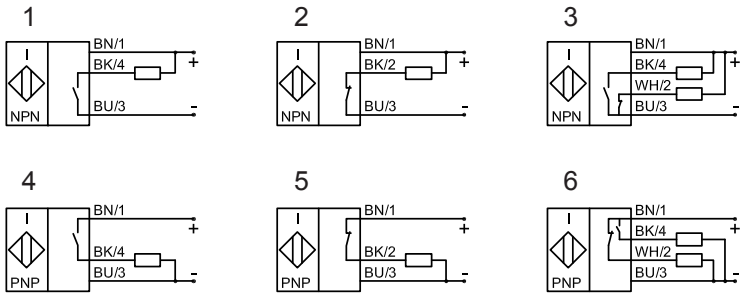
Series 10 - PNP

Housing 40 x 40 x 118 mm
- Housing material: PBT
- Sensing distance Sn = 20 mm
- Position of the active zone selectable

Certificate:

Technical data	Non-flush mountable
Operating distance S_n	20 mm
Electrical version	4-pin DC
Output	Antivalent (NO + NC)
Type NPN	
Art.-No.	
Connection diagram No.	
Type PNP	**IAS-10-C20-A**
Art.-No.	**121 180**
Connection diagram No.	6
Operating voltage (U_B)	10...60 V DC
Output current max. (I_e)	2 x 200 mA
Voltage drop max. (U_d)	≤ 2.5 V
Permitted residual ripple max.	10 %
No-load current (I_o)	Typ. 10 mA
Frequency of operating cycles max.	150 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 68
Norm	EN 60947-5-2
Connection	Terminal connection
Housing material	PBT
Active surface	PBT
Lid	PBT





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SERIES 10 / 20 • ATEX / IECEx

Pages:

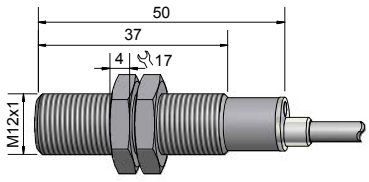
Inductive Sensors
Series 20 - NPN-StEx-ATEX
Series 10 - PNP-StEx-ATEX

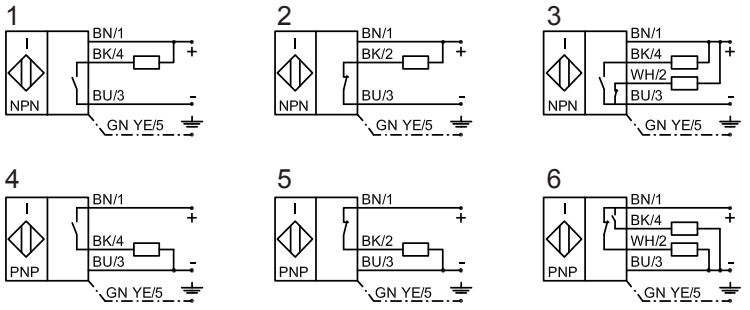
Housing M 12 x 1
- Housing material: Stainless steel VA
- For use in areas with the risk of dust explosion, zone 20
- For use in areas with the risk of gas explosion, zone 1
- Sensing distance Sn 2 mm

Certificate:

DMT 01 ATEX E 157	IECEx BVS 07.0015
Ex II 2G EEx m II T4	Ex mb II T4
Ex II 1/2D IP67 T101°C	Ex tD A20/21 IP 67 T101°C

Technical data	Flush mountable
Operating distance S_n	2 mm
Electrical version	3-wire DC
Output	Normally open (NO)
Type NPN	**IAS-20-A12-S-StEx**
Art.-No.	**IA 0138**
Connection diagram No.	1
Type PNP	**IAS-10-A12-S-StEx**
Art.-No.	**IA 0111**
Connection diagram No.	4
Operating voltage (U_B)	10...30 V DC
Output current max. (I_e)	150 mA
Voltage drop max. (U_d)	≤ 2.5 V
Permitted residual ripple max.	10 %
No-load current (I_o)	Typ. 15 mA
Frequency of operating cycles max.	2 kHz
Permitted ambient temperature	-20...+90 °C
LED-display	Yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67
Norm	EN 60 947-5-2
Connection cable	2 m, PVC, 4 x 0.14 mm²
Housing material	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)





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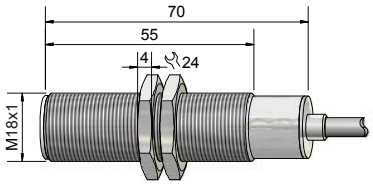
Inductive Sensors
Series 20 - NPN-StEx-ATEX
Series 10 - PNP-StEx-ATEX

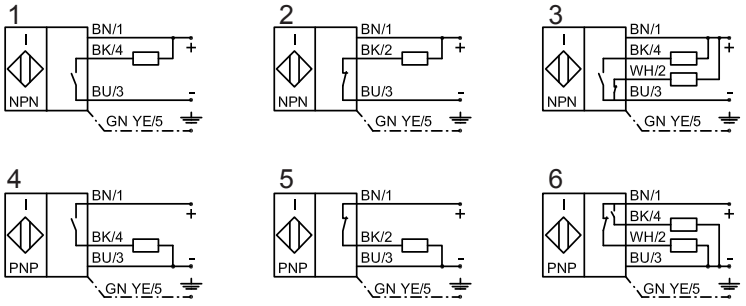
Housing M 18 x 1
- Housing material: Brass
- For use in areas with the risk of dust explosion, zone 20
- For use in areas with the risk of gas explosion, zone 1
- Sensing distance Sn 5 mm

Certificate:

DMT 01 ATEX E 157	IECEx BVS 07.0015
Ex II 2G EEx m II T4	Ex mb II T4
Ex II 1/2D IP67 T101°C	Ex tD A20/21 IP 67 T101°C

Technical data	Flush mountable
Operating distance S_n	5 mm
Electrical version	5-wire DC
Output	Antivalent (NO + NC)
Type NPN	**IAS-20-A13-A-StEx**
Art.-No.	**IA 0136**
Connection diagram No.	3
Type PNP	**IAS-10-A13-A-StEx**
Art.-No.	**IA 0110**
Connection diagram No.	6
Operating voltage (U_B)	10...30 V DC
Output current max. (I_e)	2 x 150 mA
Voltage drop max. (U_d)	≤ 2.5 V
Permitted residual ripple max.	10 %
No-load current (I_o)	Typ. 15 mA
Frequency of operating cycles max.	2 kHz
Permitted ambient temperature	-20...+90 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67
Norm	EN 60 947-5-2
Connection cable	2 m, PVC, 5 x 0.14 mm²
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)





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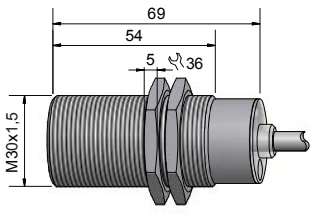
Inductive Sensors
Series 20 - NPN-StEx-ATEX
Series 10 - PNP-StEx-ATEX

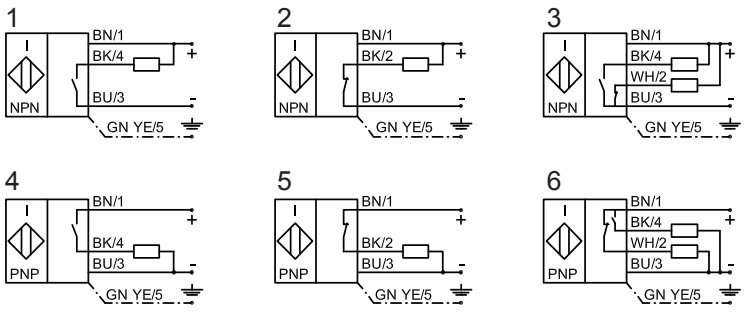
Housing M 30 x 1.5
- Housing material: Brass
- For use in areas with the risk of dust explosion, zone 20
- For use in areas with the risk of gas explosion, zone 1
- Sensing distance Sn 10 mm

Certificate:

DMT 01 ATEX E 157	IECEx BVS 07.0015
Ex II 2G EEx m II T4	Ex mb II T4
Ex II 1/2D IP67 T101°C	Ex tD A20/21 IP 67 T101°C

Technical data	Flush mountable
Operating distance S_n	10 mm
Electrical version	5-wire DC
Output	Antivalent (NO + NC)
Type NPN	**IAS-20-A14-A-StEx**
Art.-No.	**IA 0137**
Connection diagram No.	3
Type PNP	**IAS-10-A14-A-StEx**
Art.-No.	**IA 0109**
Connection diagram No.	6
Operating voltage (U_B)	10...30 V DC
Output current max. (I_e)	2 x 150 mA
Voltage drop max. (U_d)	≤ 2.5 V
Permitted residual ripple max.	10 %
No-load current (I_o)	Typ. 15 mA
Frequency of operating cycles max.	1 kHz
Permitted ambient temperature	-20...+90 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67
Norm	EN 60 947-5-2
Connection cable	2 m, PVC, 5 x 0.34 mm²
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)





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Inductive Sensors

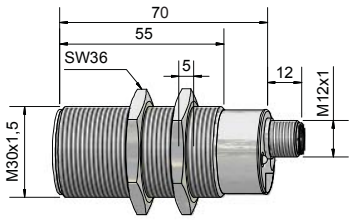
Series 10 - PNP-StEx-ATEX

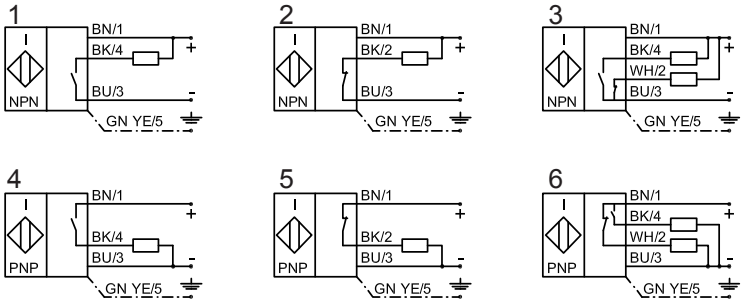
Housing M 30 x 1.5
- Housing material: Brass
- For use in areas with the risk of dust explosion, zone 20
- Sensing distance Sn 10 mm
- With flange connector M 12 x 1

Certificate:

DMT 01 ATEX E 157	IECEx BVS 07.0015
II 1/2D Ex tD A20/21 IP67 T101°C	Ex tD A20/21 IP 67 T101°C

Technical data	Flush mountable
Operating distance S_n	10 mm
Electrical version	5-pin DC
Output	Antivalent
Type NPN	
Art.-No.	
Connection diagram No.	
Type PNP	**IAS-10-A14-A-Y5-StEx**
Art.-No.	**IA 0231**
Connection diagram No.	6
Operating voltage (U_B)	10...30 V DC
Output current max. (I_e)	2 x 150 mA
Voltage drop max. (U_d)	≤ 2.5 V
Permitted residual ripple max.	10 %
No-load current (I_o)	Typ. 15 mA
Frequency of operating cycles max.	1 kHz
Permitted ambient temperature	-20...+90 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67
Norm	EN 60 947-5-2
Connection	Connector M 12 x 1
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)





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SERIES 30 (NAMUR) • ATEX / IEC Ex

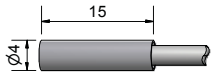
Inductive Sensors
Series 30 - NAMUR EN 60947-5-6

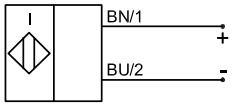
Housing Ø 4 mm
- Housing material: Stainless steel VA
- For use in areas with the risk of gas explosion, zone 0
- Sensing distance Sn = 0.8 mm

Certificates:

DMT 03 ATEX E 048	IECEx BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga

Technical data	Flush mountable
Operating distance S_n	0.8 mm
Electrical version	2-wire DC
Output	NAMUR EN 60947-5-6
Type	**IAS-30-04-N**
Art.-No.	**300 700**
Operating voltage (U_B)	5 - 15 V DC, U_i = 15 V DC
Output current active surface free	> typ. 2 mA
Output current active surface covered	< typ. 1.5 mA
Self-inductance (L)	2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	500 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	-
Degree of protection IEC 60529	IP 67
Connection cable	2 m PVC, 2 x 0.14 mm²
Housing material	VA No. 1.4305
Active surface	-
Lid	-





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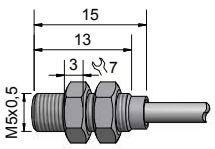
Inductive Sensors
Series 30 - NAMUR EN 60947-5-6

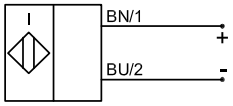
Housing M 5 x 0.5
- Housing material: Stainless steel VA
- For use in areas with the risk of gas explosion, zone 0
- Sensing distance Sn = 0.8 mm

Certificates:

DMT 03 ATEX E 048	IECEx BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga

Technical data	Flush mountable
Operating distance S_n	0.8 mm
Electrical version	2-wire DC
Output	NAMUR EN 60947-5-6
Type	**IAS-30-M5-N**
Art.-No.	**300 800**
Operating voltage (U_B)	5 - 15 V DC, U_i = 15 V DC
Output current active surface free	> typ. 2 mA
Output current active surface covered	< typ. 1.5 mA
Self-inductance (L)	2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	500 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	-
Degree of protection IEC 60529	IP 67
Connection cable	2 m PVC, 2 x 0.14 mm²
Housing material	VA No. 1.4305
Active surface	PA / PPO
Lid	-





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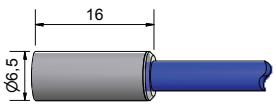
Inductive Sensors
Serie 30 - NAMUR EN 60947-5-6

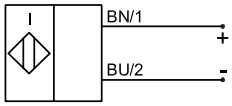
Housing Ø 6.5 mm
- Housing material: Stainless steel VA
- For use in areas with the risk of gas explosion, zone 0
- Sensing distance Sn = 1.5 mm

Certificates:

DMT 03 ATEX E 048	IECEx BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga

Technical data	Flush mountable
Operating distance S_n	1.5 mm
Electrical version	2-wire DC
Output	NAMUR EN 60947-5-6
Type	**IAS-30-6.5-N**
Art.-No.	**300 900**
Operating voltage (U_B)	5 - 15 V DC, U_i = 15 V DC
Output current active surface free	> typ. 2 mA
Output current active surface covered	< typ. 1.5 mA
Self-inductance (L)	2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	500 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	-
Degree of protection IEC 60529	IP 67
Connection cable	2 m PVC, 2 x 0.14 mm²
Housing material	VA No. 1.4305
Active surface	PVC
Lid	PA / PPO





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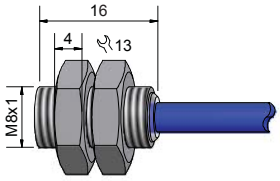
Inductive Sensors
Series 30 - NAMUR EN 60947-5-6

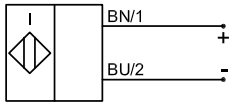
Housing M 8 x 1
- Housing material: Stainless steel VA
- For use in areas with the risk of gas explosion, zone 0
- Sensing distance Sn = 1.5 mm

Certificates:

DMT 03 ATEX E 048	IECEx BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga

Technical data	Flush mountable
Operating distance S_n	1.5 mm
Electrical version	2-wire DC
Output	NAMUR EN 60947-5-6
Type	**IAS-30-M8-N**
Art.-No.	**301 000**
Operating voltage (U_B)	5 - 15 V DC, U_i = 15 V DC
Output current active surface free	> typ. 2 mA
Output current active surface covered	< typ. 1.5 mA
Self-inductance (L)	2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	500 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	-
Degree of protection IEC 60529	IP 67
Connection cable	2 m PVC, 2 x 0.14 mm²
Housing material	VA No. 1.4305
Active surface	PVC
Lid	PA / PPO





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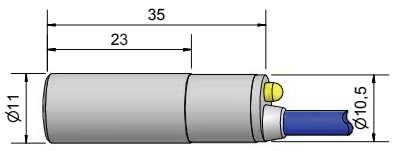
Inductive Sensors
Series 30 - NAMUR EN 60947-5-6

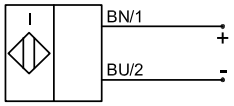
Housing Ø 11 mm
- Housing material: PA / PPO
- For use in areas with the risk of gas explosion, zone 0
- Sensing distance Sn = 5 mm

Certificates:

DMT 03 ATEX E 048	IECEx BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga

Technical data	Non-flush mountable
Operating distance S_n	5 mm
Electrical version	2-wire DC
Output	NAMUR EN 60947-5-6
Type	**IAS-30-14-N**
Art.-No.	**301 500**
Operating voltage (U_B)	5 - 15 V DC, U_i = 15 V DC
Output current active surface free	> typ. 2 mA
Output current active surface covered	< typ. 1.5 mA
Self-inductance (L)	2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	1 kHz
Permitted ambient temperature	-25...+70 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67
Connection cable	2 m PVC, 2 x 0.14 mm²
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PA / PPO





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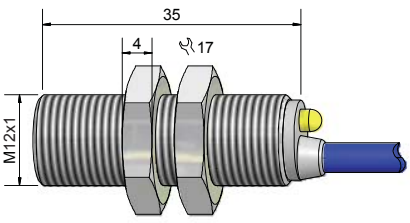
Inductive Sensors
Series 30 - NAMUR EN 60947-5-6

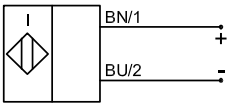
Housing M 12 x 1
- Housing material: Brass
- For use in areas with the risk of gas explosion, zone 0
- Sensing distance Sn = 2 mm

Certificates:

DMT 03 ATEX E 048	IECEx BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga

Technical data	Flush mountable
Operating distance S_n	2 mm
Electrical version	2-wire DC
Output	NAMUR EN 60947-5-6
Type	**IAS-30-A12-N**
Art.-No.	**300 100**
Operating voltage (U_B)	5 - 15 V DC, U_i = 15 V DC
Output current active surface free	> typ. 2 mA
Output current active surface covered	< typ. 1.5 mA
Self-inductance (L)	2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	1.5 kHz
Permitted ambient temperature	-25...+70 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67
Connection cable	2 m PVC, 2 x 0.14 mm²
Housing material	Brass
Active surface	PA / PPO
Lid	PA / PPO





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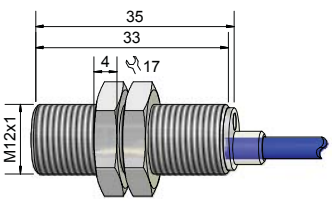
Inductive Sensors
Series 30 - NAMUR EN 60947-5-6

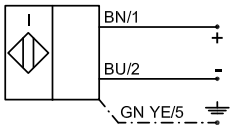
Housing M 12 x 1
- Housing material: Brass
- For use in areas with the risk of gas explosion, zone 0
- For use in areas with the risk of dust explosion, zone 20
- Sensing distance Sn = 2 mm

Certificates:

DMT 03 ATEX E 048	IECEx BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga
Ex II 1D Ex ia IIIC T101°C Da	Ex ia IIIC T101°C Da

Technical data	Flush mountable
Operating distance S_n	2 mm
Electrical version	2-wire DC
Output	NAMUR EN 60947-5-6
Type	**IAS-30-A12-N-StEx**
Art.-No.	**IA 0091**
Operating voltage (U_B)	5 - 15 V DC, U_i = 15 V DC
Output current active surface free	> typ. 2 mA
Output current active surface covered	< typ. 1.5 mA
Self-inductance (L)	2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	1.5 kHz
Permitted ambient temperature	-20...+90 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67
Connection cable	2 m PVC, 3 x 0.14 mm²
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)





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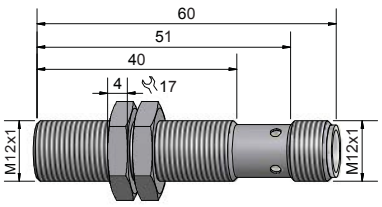
Inductive Sensors
Series 30 - NAMUR EN 60947-5-6

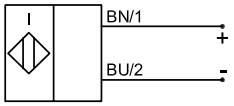
Housing M 12 x 1
- Housing material: Stainless steel VA
- For use in areas with the risk of gas explosion, zone 0
- Sensing distance Sn = 2 mm
- With flange connector M 12 x 1

Certificates:

DMT 03 ATEX E 048	IECEx BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga

Technical data	Flush mountable
Operating distance S_n	2 mm
Electrical version	2-pin DC
Output	NAMUR EN 60947-5-6
Type	**IAS-30-A12-N-Y5**
Art.-No.	**IA 0190**
Operating voltage (U_B)	5 - 15 V DC, U_i = 15 V DC
Output current active surface free	> typ. 2 mA
Output current active surface covered	< typ. 1.5 mA
Self-inductance (L)	2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	1.5 kHz
Permitted ambient temperature	-25...+70 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67
Connection	Flange connector M 12 x 1
Housing material	VA No. 1.4305
Active surface	PA / PPO
Lid	-





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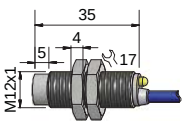
Inductive Sensors
Series 30 - NAMUR EN 60947-5-6

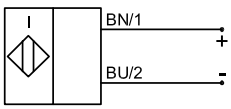
Housing M 12 x1
- Housing material: Brass
- For use in areas with the risk of gas explosion, zone 0
- Sensing distance Sn = 4 mm

Certificates:

DMT 03 ATEX E 048	IECEx BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga

Technical data	Non-flush mountable
Operating distance S_n	4 mm
Electrical version	2-wire DC
Output	NAMUR EN 60947-5-6
Type	**IAS-30-A22-N**
Art.-No.	**300 200**
Operating voltage (U_B)	5 - 15 V DC, U_i = 15 V DC
Output current active surface free	> typ. 2 mA
Output current active surface covered	< typ. 1.5 mA
Self-inductance (L)	2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	1.5 kHz
Permitted ambient temperature	-25...+70 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67
Connection cable	2 m PVC, 2 x 0.14 mm²
Housing material	Brass
Active surface	PA / PPO
Lid	PA / PPO





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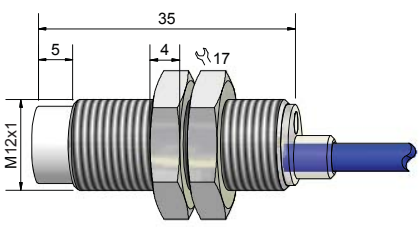
Inductive Sensors
Series 30 - NAMUR EN 60947-5-6

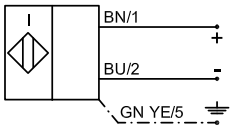
Housing M 12 x1
- Housing material: Brass
- For use in areas with the risk of gas explosion, zone 0
- For use in areas with the risk of dust explosion, zone 20
- Sensing distance Sn = 4 mm

Certificates:

DMT 03 ATEX E 048	IECEx BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga
Ex II 1D Ex ia IIIC T101°C Da	Ex ia IIIC T101°C Da

Technical data	Non-flush mountable
Operating distance S_n	4 mm
Electrical version	2-wire DC
Output	NAMUR EN 60947-5-6
Type	**IAS-30-A22-N-StEx**
Art.-No.	**IA 0090**
Operating voltage (U_B)	5 - 15 V DC, U_i = 15 V DC
Output current active surface free	> typ. 2 mA
Output current active surface covered	< typ. 1.5 mA
Self-inductance (L)	2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	1.5 kHz
Permitted ambient temperature	-20...+90 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67
Connection cable	2 m PVC, 3 x 0.14 mm²
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)





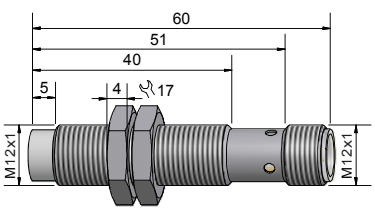
Inductive Sensors
Series 30 - NAMUR EN 60947-5-6

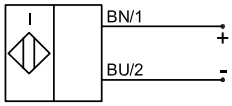
Housing M 12 x 1
- Housing material: Stainless steel VA
- For use in areas with the risk of gas explosion, zone 0
- Sensing distance Sn = 4 mm
- With flange connector M 12 x 1

Certificates:

DMT 03 ATEX E 048	IECEx BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga

Technical data	Non-flush mountable
Operating distance S_n	4 mm
Electrical version	2-pin DC
Output	NAMUR EN 60947-5-6
Type	**IAS-30-A22-N-Y5**
Art.-No.	**IA 0191**
Operating voltage (U_B)	5 - 15 V DC, U_i = 15 V DC
Output current active surface free	> typ. 2 mA
Output current active surface covered	< typ. 1.5 mA
Self-inductance (L)	2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	1.5 kHz
Permitted ambient temperature	-25...+70 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67
Connection	Flange connector M 12 x 1
Housing material	VA No. 1.4305
Active surface	PA / PPO
Lid	-





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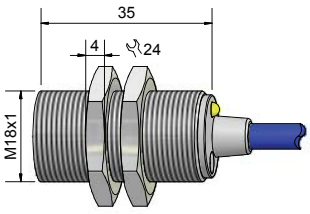
Inductive Sensors
Series 30 - NAMUR EN 60947-5-6

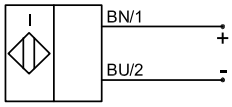
Housing M 18 x 1
- Housing material: Brass
- For use in areas with the risk of gas explosion, zone 0
- Sensing distance Sn = 5 mm

Certificates:

DMT 03 ATEX E 048	IECEx BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga

Technical data	Flush mountable
Operating distance S_n	5 mm
Electrical version	2-wire DC
Output	NAMUR EN 60947-5-6
Type	**IAS-30-A13-N**
Art.-No.	**300 300**
Operating voltage (U_B)	5 - 15 V DC, U_i = 15 V DC
Output current active surface free	> typ. 2 mA
Output current active surface covered	< typ. 1.5 mA
Self-inductance (L)	2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	1.5 kHz
Permitted ambient temperature	-25...+70 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67
Connection cable	2 m PUR, 2 x 0.34 mm²
Housing material	Brass
Active surface	PA / PPO
Lid	PA / PPO





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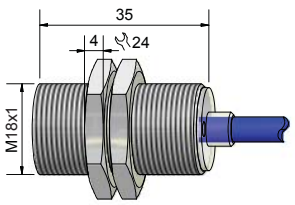
Inductive Sensors
Series 30 - NAMUR EN 60947-5-6

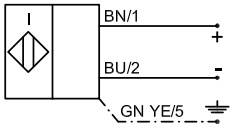
Housing M 18 x 1
- Housing material: Brass
- For use in areas with the risk of gas explosion, zone 0
- For use in areas with the risk of dust explosion, zone 20
- Sensing distance Sn = 5 mm

Certificates:

DMT 03 ATEX E 048	IECEx BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga
Ex II 1D Ex ia IIIC T101°C Da	Ex ia IIIC T101°C Da

Technical data	Flush mountable
Operating distance S_n	5 mm
Electrical version	2-wire DC
Output	NAMUR EN 60947-5-6
Type	**IAS-30-M13-N-StEx**
Art.-No.	**IA 0092**
Operating voltage (U_B)	5 - 15 V DC, U_i = 15 V DC
Output current active surface free	> typ. 2 mA
Output current active surface covered	< typ. 1.5 mA
Self-inductance (L)	2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	1.5 kHz
Permitted ambient temperature	-20...+90 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67
Connection cable	2 m PVC, 3 x 0.34 mm²
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)





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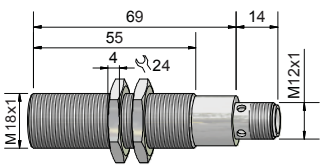
Inductive Sensors
Series 30 - NAMUR EN 60947-5-6

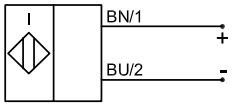
Housing M 18 x 1
- Housing material: Brass
- For use in areas with the risk of gas explosion, zone 0
- Sensing distance Sn = 5 mm
- With flange connector M 12 x 1

Certificates:

DMT 03 ATEX E 048	IECEx BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga

Technical data	Flush mountable
Operating distance S_n	5 mm
Electrical version	2-pin DC
Output	NAMUR EN 60947-5-6
Type	**IAS-30-A13-N-Y5**
Art.-No.	**IA 0188**
Operating voltage (U_B)	5 - 15 V DC, U_i = 15 V DC
Output current active surface free	> typ. 2 mA
Output current active surface covered	< typ. 1.5 mA
Self-inductance (L)	2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	1.5 kHz
Permitted ambient temperature	-25...+70 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67
Connection	Flange connector M 12 x 1
Housing material	Brass
Active surface	PA / PPO
Lid	-





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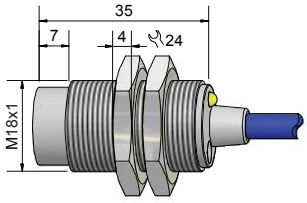
Inductive Sensors
Series 30 - NAMUR EN 60947-5-6

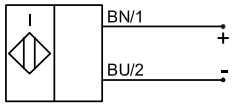
Housing M 18 x 1
- Housing material: Brass
- For use in areas with the risk of gas explosion, zone 0
- Sensing distance Sn = 8 mm

Certificates:

DMT 03 ATEX E 048	IECEx BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga

Technical data	Non-flush mountable
Operating distance S_n	8 mm
Electrical version	2-wire DC
Output	NAMUR EN 60947-5-6
Type	**IAS-30-A23-N**
Art.-No.	**300 400**
Operating voltage (U_B)	5 - 15 V DC, U_i = 15 V DC
Output current active surface free	> typ. 2 mA
Output current active surface covered	< typ. 1.5 mA
Self-inductance (L)	2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	1.5 kHz
Permitted ambient temperature	-25...+70 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67
Connection cable	2 m PUR, 2 x 0.34 mm²
Housing material	Brass
Active surface	PA / PPO
Lid	PA / PPO





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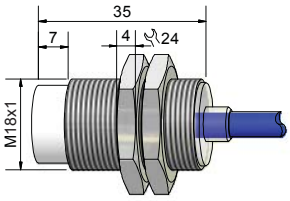
Inductive Sensors
Series 30 - NAMUR EN 60947-5-6

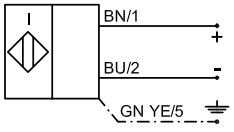
Housing M 18 x 1
- Housing material: Brass
- For use in areas with the risk of gas explosion, zone 0
- For use in areas with the risk of dust explosion, zone 20
- Sensing distance Sn = 8 mm

Certificates:

DMT 03 ATEX E 048	IECEx BVS 07.0031
II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga
II 1D Ex ia IIIC T101°C Da	Ex ia IIIC T101°C Da

Technical data	Non-flush mountable
Operating distance S_n	8 mm
Electrical version	2-wire DC
Output	NAMUR EN 60947-5-6
Type	**IAS-30-A23-N-StEx**
Art.-No.	**IA 0094**
Operating voltage (U_B)	5 - 15 V DC, U_i = 15 V DC
Output current active surface free	> typ. 2 mA
Output current active surface covered	< typ. 1.5 mA
Self-inductance (L)	2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	1.5 kHz
Permitted ambient temperature	-20...+90 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67
Connection cable	2 m PVC, 3 x 0.34 mm²
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)





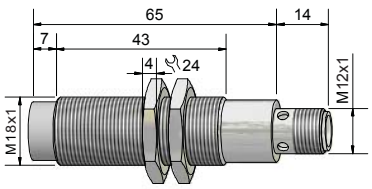
Inductive Sensors
Series 30 - NAMUR EN 60947-5-6

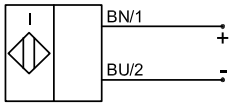
Housing M 18 x 1
- Housing material: Brass
- For use in areas with the risk of gas explosion, zone 0
- Sensing distance Sn = 8 mm
- With flange connector M 12 x 1

Certificates:

DMT 03 ATEX E 048	IECEx BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga

Technical data	Non-flush mountable
Operating distance S_n	8 mm
Electrical version	2-pin DC
Output	NAMUR EN 60947-5-6
Type	**IAS-30-A23-N-Y5**
Art.-No.	**IA 0189**
Operating voltage (U_B)	5 - 15 V DC, U_i = 15 V DC
Output current active surface free	> typ. 2 mA
Output current active surface covered	< typ. 1.5 mA
Self-inductance (L)	2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	1.5 kHz
Permitted ambient temperature	-25...+70 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67
Connection	Flange connector M 12 x 1
Housing material	Brass
Active surface	PA / PPO
Lid	-





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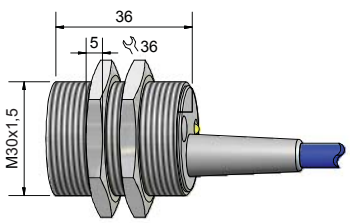
Inductive Sensors
Series 30 - NAMUR EN 60947-5-6

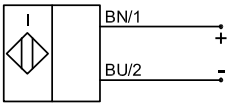
Housing M 30 x 1.5
- Housing material: Brass
- For use in areas with the risk of gas explosion, zone 0
- Sensing distance Sn = 10 mm

Certificates:

DMT 03 ATEX E 048	IECEx BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga

Technical data	Flush mountable
Operating distance S_n	10 mm
Electrical version	2-wire DC
Output	NAMUR EN 60947-5-6
Type	**IAS-30-A14-N**
Art.-No.	**300 500**
Operating voltage (U_B)	5 - 15 V DC, U_i = 15 V DC
Output current active surface free	> typ. 2 mA
Output current active surface covered	< typ. 1.5 mA
Self-inductance (L)	2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	1 kHz
Permitted ambient temperature	-25...+70 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67
Connection cable	2 m PUR, 2 x 0.75 mm²
Housing material	Brass
Active surface	PVC
Lid	PA / PPO





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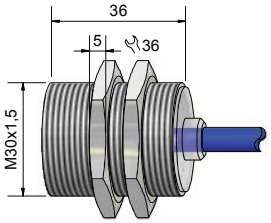
Inductive Sensors
Series 30 - NAMUR EN 60947-5-6

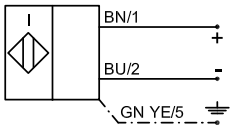
Housing M 30 x 1.5
- Housing material: Brass
- For use in areas with the risk of gas explosion, zone 0
- For use in areas with the risk of dust explosion, zone 20
- Sensing distance Sn = 10 mm

Certificates:

DMT 03 ATEX E 048	IECEx BVS 07.0031
II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga
II 1D Ex ia IIIC T101°C Da	Ex ia IIIC T101°C Da

Technical data	Flush mountable
Operating distance S_n	10 mm
Electrical version	2-wire DC
Output	NAMUR EN 60947-5-6
Type	**IAS-30-A14-N-StEx**
Art.-No.	**IA 0095**
Operating voltage (U_B)	5 - 15 V DC, U_i = 15 V DC
Output current active surface free	> typ. 2 mA
Output current active surface covered	< typ. 1.5 mA
Self-inductance (L)	2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	1 kHz
Permitted ambient temperature	-20...+90 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67
Connection cable	2 m PUR, 3 x 0.75 mm²
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)





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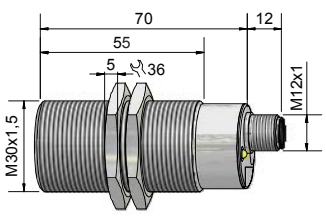
Inductive Sensors
Series 30 - NAMUR EN 60947-5-6

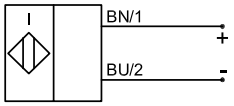
Housing M 30 x 1.5
- Housing material: Brass
- For use in areas with the risk of gas explosion, zone 0
- Sensing distance Sn = 10 mm
- With flange connector M 12 x 1

Certificates:

DMT 03 ATEX E 048	IECEx BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga

Technical data	Flush mountable
Operating distance S_n	10 mm
Electrical version	2-pin DC
Output	NAMUR EN 60947-5-6
Type	**IAS-30-A14-N-Y5**
Art.-No.	**IA 0186**
Operating voltage (U_B)	5 - 15 V DC, U_i = 15 V DC
Output current active surface free	> typ. 2 mA
Output current active surface covered	< typ. 1.5 mA
Self-inductance (L)	2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	1 kHz
Permitted ambient temperature	-25...+70 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67
Connection	Flange connector M 12 x 1
Housing material	Brass
Active surface	PVC
Lid	PA / PPO





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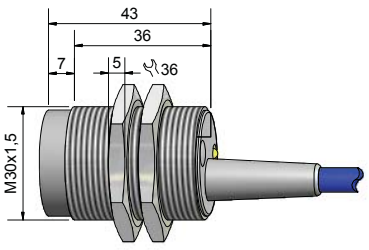
Inductive Sensors
Series 30 - NAMUR EN 60947-5-6

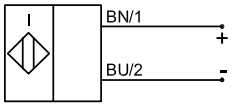
Housing M 30 x 1.5
- Housing material: Brass
- For use in areas with the risk of gas explosion, zone 0
- Sensing distance Sn = 15 mm

Certificates:

DMT 03 ATEX E 048	IECEx BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga

Technical data	Non-flush mountable
Operating distance S_n	15 mm
Electrical version	2-wire DC
Output	NAMUR EN 60947-5-6
Type	**IAS-30-A24-N**
Art.-No.	**300 600**
Operating voltage (U_B)	5 - 15 V DC, U_i = 15 V DC
Output current active surface free	> typ. 2 mA
Output current active surface covered	< typ. 1.5 mA
Self-inductance (L)	2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	1 kHz
Permitted ambient temperature	-25...+70 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67
Connection cable	2 m PUR, 2 x 0.75 mm²
Housing material	Brass
Active surface	PVC
Lid	PA / PPO





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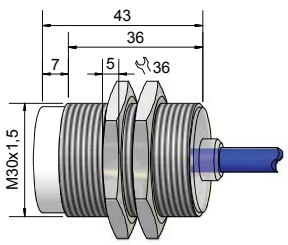
Inductive Sensors
Series 30 - NAMUR EN 60947-5-6

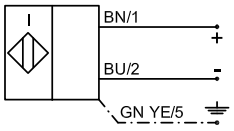
Housing M 30 x 1.5
- Housing material: Brass
- For use in areas with the risk of gas explosion, zone 0
- For use in areas with the risk of dust explosion, zone 20
- Sensing distance Sn = 15 mm

Certificates:

DMT 03 ATEX E 048	IECEx BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga
Ex II 1D Ex ia IIIC T101°C Da	Ex ia IIIC T101°C Da

Technical data	Non-flush mountable
Operating distance S_n	15 mm
Electrical version	2-wire DC
Output	NAMUR EN 60947-5-6
Type	**IAS-30-A24-N-StEx**
Art.-No.	**IA 0096**
Operating voltage (U_B)	5 - 15 V DC, U_i = 15 V DC
Output current active surface free	> typ. 2 mA
Output current active surface covered	< typ. 1.5 mA
Self-inductance (L)	2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	1 kHz
Permitted ambient temperature	-20...+90 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67
Connection cable	2 m PUR, 3 x 0.75 mm²
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)





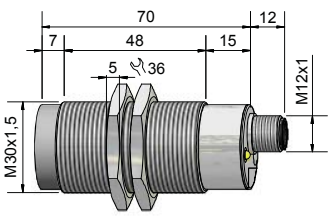
Inductive Sensors
Series 30 - NAMUR EN 60947-5-6

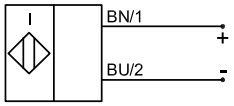
Housing M 30 x 1.5
- Housing material: Brass
- For use in areas with the risk of gas explosion, zone 0
- Sensing distance Sn = 15 mm
- With flange connector M 12 x 1

Certificates:

DMT 03 ATEX E 048	IECEx BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga

Technical data	Non-flush mountable
Operating distance S_n	15 mm
Electrical version	2-pin DC
Output	NAMUR EN 60947-5-6
Type	**IAS-30-A24-N-Y5**
Art.-No.	**IA 0187**
Operating voltage (U_B)	5 - 15 V DC, U_i = 15 V DC
Output current active surface free	> typ. 2 mA
Output current active surface covered	< typ. 1.5 mA
Self-inductance (L)	2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	1 kHz
Permitted ambient temperature	-25...+70 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67
Connection	Flange connector M 12 x 1
Housing material	Brass
Active surface	PVC
Lid	PA / PPO





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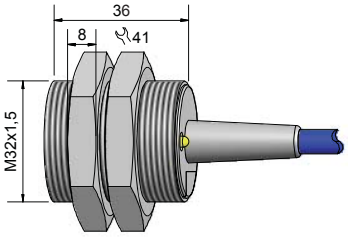
Inductive Sensors
Serie 30 - NAMUR EN 60947-5-6

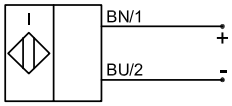
Housing M 32 x 1.5
- Housing material: PA / PPO
- For use in areas with the risk of gas explosion, zone 0
- Sensing distance Sn = 15 mm

Certificates:

DMT 03 ATEX E 048	IECEx BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga

Technical data	Non-flush mountable
Operating distance S_n	15 mm
Electrical version	2-wire DC
Output	NAMUR EN 60947-5-6
Type	**IAS-30-35-N-M32**
Art.-No.	**302 800**
Operating voltage (U_B)	5 - 15 V DC, U_i = 15 V DC
Output current active surface free	> typ. 2 mA
Output current active surface covered	< typ. 1.5 mA
Self-inductance (L)	2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	1 kHz
Permitted ambient temperature	-25...+70 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67
Connection cable	2 m PUR, 2 x 0.75 mm²
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PA / PPO





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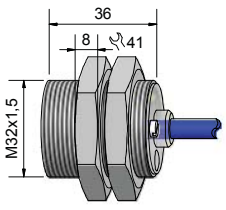
Inductive Sensors
Serie 30 - NAMUR EN 60947-5-6

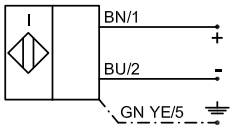
Housing M 32 x 1.5
- Housing material: PA / PPO
- For use in areas with the risk of gas explosion, zone 0
- For use in areas with the risk of dust explosion, zone 20
- Sensing distance Sn = 15 mm

Certificates:

DMT 03 ATEX E 048	IECEx BVS 07.0031
II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga
II 1D Ex ia IIIC T101°C Da	Ex ia IIIC T101°C Da

Technical data	Non-Flush mountable
Operating distance S_n	15 mm
Electrical version	2-wire DC
Output	NAMUR EN 60947-5-6
Type	**IAS-30-35-N-M32-StEx**
Art.-No.	**IA 0098**
Operating voltage (U_B)	5 - 15 V DC, U_i = 15 V DC
Output current active surface free	> typ. 2 mA
Output current active surface covered	< typ. 1.5 mA
Self-inductance (L)	2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	1 kHz
Permitted ambient temperature	-20...+90 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67
Connection cable	2 m PUR, 2 x 0.75 mm²
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PC (FDA 21 CFR 177.1580)





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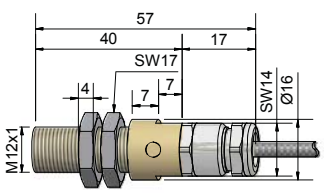
INDUCTIVE HIGH-TEMPERATURE SENSORS

Inductive High-Temperature Sensors
Series - 250

Housing M 12 x 1 with sealing screw
- For connection to the evaluation unit ISA-...-Y10-M12
- Housing material: PEEK
- For an ambient temperature of max. 250 °C

Certificate: CE

Technical data	Non-flush mountable
Operating distance S_n	4 mm
Sensing distance adjustable at the evaluation unit	-
Type	**IS-250-M12**
Art.-No.	**IA 0117**
Permitted ambient temperature	-70...+250 °C
Degree of protection IEC 60529	IP 68
Norm	EN 60947-5-2
Connection cable for connection to inductive evaluation units ISA-.... with plug-in connector	2 m PTFE with VA screen grid lead 2 x 0.22 AWG
Housing material	PEEK (FDA 21 CFR 177.2415)
Active surface	PEEK (FDA 21 CFR 177.2415)



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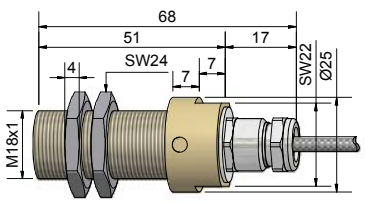
Inductive High-Temperature Sensors
Series - 250

Housing M 18 x 1 with sealing screw
- For connection to the evaluation unit ISA-...-Y10-M18
- Housing material: PEEK
- For an ambient temperature of max. 250 °C

Certificate: CE

Technical data	Non-flush mountable
Operating distance S_n	8 mm
Sensing distance adjustable at the evaluation unit	-
Type	**IS-250-M18**
Art.-No.	**IA 0118**
Permitted ambient temperature	-70...+250 °C
Degree of protection IEC 60529	IP 68
Norm	EN 60947-5-2
Connection cable for connection to inductive evaluation units ISA-.... with plug-in connector	2 m PTFE with VA screen grid lead 2 x 0.22 AWG
Housing material	PEEK (FDA 21 CFR 177.2415)
Active surface	PEEK (FDA 21 CFR 177.2415)



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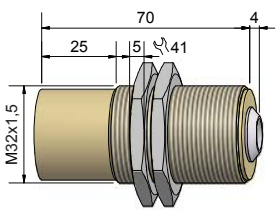
Inductive High-Temperature Sensors
Series - 250

Housing M 32 x 1.5
- For connection to the evaluation unit ISA-...-Y10-M30/M32
- Housing material: PEEK
- For an ambient temperature of max. 250 °C

Certificate: CE

Technical data	Non-flush mountable
Operating distance S_n	15 mm
Sensing distance adjustable at the evaluation unit	-
Type	**IS-250-M32-Y**
Art.-No.	**IA 0122**
Permitted ambient temperature	-70...+250 °C
Degree of protection IEC 60529	IP 67
Norm	EN 60947-5-2
Connection for inductive evaluation units ISA-...	Connector
Housing material	PEEK (FDA 21 CFR 177.2415)
Active surface	PEEK (FDA 21 CFR 177.2415)

Connection cable is not delivered with the probe (see page 94).
Order specifications: 2 m PTFE-cable with VA screen grid lead and connectors Art. No. 193312
5 m PTFE-cable with VA screen grid lead and connectors Art. No. 193313
10 m PTFE-cable with VA screen grid lead and connectors Art. No. 193314



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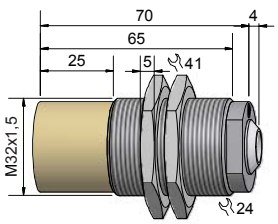
Inductive High-Temperature Sensors
Series - 250

Housing M 32 x 1.5
- For connection to the evaluation unit ISA-...-Y10-M30/M32
- Housing material: PEEK / VA
- For an ambient temperature of max. 250 °C

Certificate: CE

Technical data	Non-flush mountable
Operating distance S_n	15 mm
Sensing distance adjustable at the evaluation unit	-
Type	**IS-250-M32-PEEK/VA-Y**
Art.-No.	**IA 0124**
Permitted ambient temperature	-70...+250 °C
Degree of protection IEC 60529	IP 67
Norm	EN 60947-5-2
Connection for inductive evaluation units ISA-...	Connector
Housing material	VA No. 1.4305
Active surface	PEEK (FDA 21 CFR 177.2415)

Connection cable is not delivered with the probe (see page 94).
Order specifications: 2 m PTFE-cable with VA screen grid lead and connectors Art. No. 193312
5 m PTFE-cable with VA screen grid lead and connectors Art. No. 193313
10 m PTFE-cable with VA screen grid lead and connectors Art. No. 193314



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Evaluation Unit For Inductive High-Temperature Sensors Series - 250 • PNP

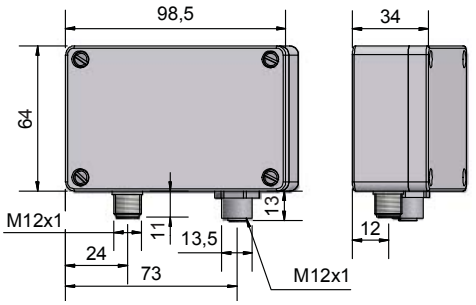
Housing 98.5 x 64 x 34.5 mm
- For connection to inductive high-temperature sensors IS-250-...
- Housing material: Aluminium

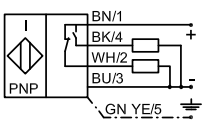
Certificate: CE RoHS COMPLIANT

Technical data

Electrical version	5-pin DC	5-pin DC	5-pin DC
Output	Antivalent (NO + NC)	Antivalent (NO + NC)	Antivalent (NO + NC)
Type PNP	**ISA-10-250-A-Y10-M12 for 2 m***	**ISA-10-250-A-Y10-M18 for 2 m***	**ISA-10-250-A-Y10-M30/M32 for 2 m***
Art.-No.	**IA 0133**	**IA 0132**	**IA 0130**
Type PNP		**ISA-10-250-A-Y10-M18 for 5 m***	**ISA-10-250-A-Y10-M30/M32 for 5 m***
Art. No.		**IA 0209**	**IA 0207**
Type PNP			**ISA-10-250-A-Y10-M30/M32 for 10 m***
Art. No.			**IA 0208**
Operating voltage (U_B)	10...35 V DC	10...35 V DC	10...35 V DC
Output current max. (I_e)	2 x 250 mA	2 x 250 mA	2 x 250 mA
Voltage drop max. (U_d)	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V
Permitted residual ripple max.	10 %	10 %	10 %
No-load current (I_o)	Typ. 15 mA	Typ. 15 mA	Typ. 15 mA
Frequency of operating cycles max.	50 Hz	50 Hz	50 Hz
Permitted ambient temperature	-25...+70 °C	-25...+70 °C	-25...+70 °C
Protective circuit	Built-in	Built-in	Built-in
Degree of protection IEC 60529	IP 67	IP 67	IP 67
Norm	EN 60 947-5-2	EN 60 947-5-2	EN 60 947-5-2
Connection	Connector M 12 x 1	Connector M 12 x 1	Connector M 12 x 1
Housing material	AL	AL	AL

*Connection cable between high-temperature sensor and evaluation unit





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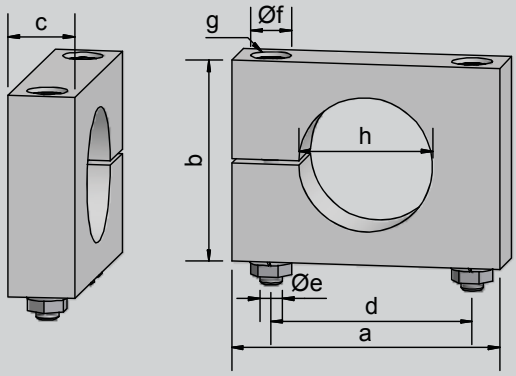
FEMALE CONNECTORS

Sensor	Female connector		Article No.	LED	IP	Connection	Cable-length	Sensor + Length	Version
Type	No.	Fig.		Green/ yellow		[mm²]	[m]	[mm]	Connector
pnp/npn	9		191500	-	67	4 x 0,75/ Pg 9 clampable	-	28	Y3, Y5 antivalent
AC/DC	9a		191550	-	67	4 x 0,75/ Pg 9 clampable	-	28	Y1
pnp/npn	16		191900	-	67	4 x 0,34	2,5	17	Y3, Y5
pnp/npn	18		192000	-	67	3 x 0,34	5	35	Y3, Y5
pnp	21		192150	+	67	3 x 0,34	5	18	Y3, Y5
npn	22		192200						
pnp/npn	36		192900	-	67	4 x 0,25	5	31	Y3, Y5 antivalent
pnp/npn	38		193000	-	67	4 x 0,25	5	17	Y3, Y5 antivalent
pnp/npn	45		193210	-	67	3 x 0,25	5	29	Y7, Y8
pnp	46		193220	+	67	3 x 0,25	5	12	Y7, Y8
pnp/npn	47		193230	-					
pnp/npn	49a		193345	-	68	5 x 0,5	2	20	Y10
pnp/npn AC/DC	50		193350	-	67	5 x 0,25	2	18	Y1, Y9
pnp/npn	57a		193385		67	4 x 0,34	5	18	Y3, Y5 antivalent
NAMUR	58a		193386		67	2 x 0,34	5	18	Y3, Y5

MOUNTING BLOCKS

Dimension:



Art.-No.	Block No.	Ø Sensor [mm]	a	b	c	d	Ø e	Ø f	g	Ø h	Nuts
190150	131	10	30	20	10	20	4.3	8	4.5	10	M4
190200	132	11	30	20	10	20	4.3	8	4.5	11	M4
190250	133	20	45	30	15	30	5.3	9	6	20	M5
190300	134	22	45	30	15	30	5.3	9	6	22	M5
190350	135	30	60	45	15	45	5.3	9	6	30	M5
190400	136	32	60	45	15	45	5.3	9	6	32	M5
190450	137	34	60	45	15	45	5.3	9	6	34	M5
190030	138	40	80	65	15	65	5.3	9	6	40	M5
190050	139	50	80	65	15	65	5.3	9	6	50	M5
190100	140	64	95	80	15	80	5.3	9	6	64	M5

Dimensions „a" to „h" in mm, Material PA

FEMALE CONNECTOR, SCREENED

Connection cable

For inductive high-temperature sensors with Lemo-connector and screened cable

2 m Art.-No. 193312
5 m Art.-No. 193313
10 m Art.-No. 193314

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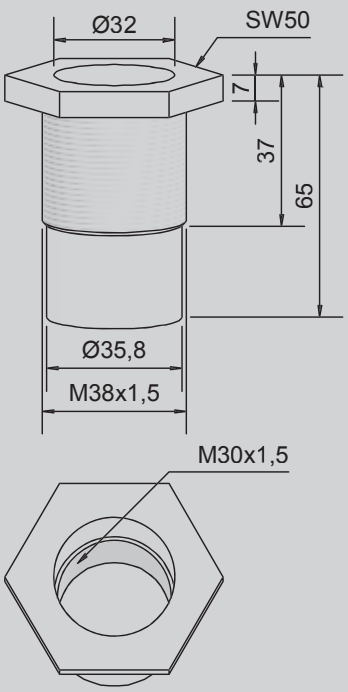
PROTECTION CAPS AND PROTECTION SETS

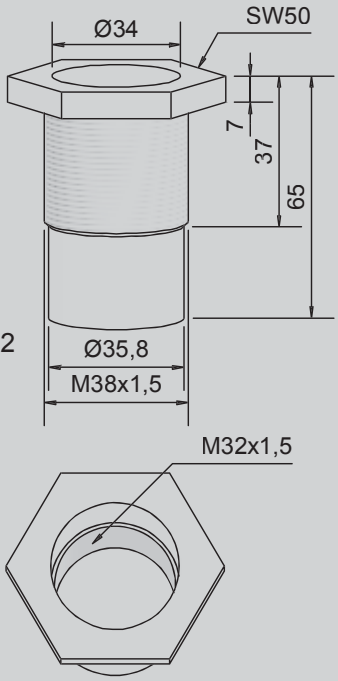
Example: Protection Caps M30/M32 PTFE

PROTECTION CAP

The PTFE protection cap (PEEK and Delrin are also available) is designed for applications where the detected material is highly abrasive, e.g. granules. It is a protection cap for the front cap of the sensor. In the case of damage due to abrasion one only has to change the protection cap and the sensor remains in good condition.



Dimension: Protection Cap M30
PTFE Art.-No. 190503
PEEK Art.-No. 190504
Delrin Art.-No. 190505



Dimension: Protection Cap M32
PTFE Art.-No. 190500
PEEK Art.-No. 190501
Delrin Art.-No. 190502

Example: Protection Set M32

Protection Set M18 Art.-No. 196305
Protection Set M30 Art.-No. 196302
Protection Set M32 Art.-No. 196301

PROTECTION SET

The PTFE protection set M32 x 1.5 consists of an internally threaded cover, a Pg9-screwing for cable entry and a rubber gasket between the cover and the sensor. This protection cover serves as improvement to the degree of protection, against infiltration of liquids, for example in applications where the sensor is totally immersed in liquids. The resistance of the material still needs to be checked.

The thread of the sensor has to be sealed, for example with PTFE sealing- tape. The protection cover has to be screwed totally up to the end, and then the Pg-screw has to be fixed.

NORMS

The products of Rechner Industrie-Elektronik GmbH are designed and checked in accordance with the standards and specifications, DIN - VDE - IEC, for electric and electronic instruments. For new and revised products the newest standards are always used.

Effective standards for proximity switches and sensors:

IEC 947-5-2 Low-voltage switchgear and controlgear
Control circuit devices and switching elements - proximity switches

EN 60947-5-6 Low-voltage switchgear and controlgear Part 5
Control circuit devices and switching elements, proximity sensors - DC interface for proximity sensors and switching amplifiers (NAMUR)

International Standards

IEC 947-5-2 Low-voltage switchgear and controlgear Part 5
Control circuit devices and switching elements - Section 2, proximity switches

Draft IEC 61934
Control circuit devices and switching elements DC interface for proximity sensors and switching amplifiers (NAMUR)

Standards On Explosion Protection

DIN EN 60079-0
Explosive atmospheres - Part 0: Equipment - General requirements

DIN EN 60079-10
Explosive atmospheres - Part 10-1: Classification of areas - Explosive gas atmospheres

DIN EN 60079-11
Explosive atmospheres - Part 11: Equipment protection by intrinsic safety „i“

DIN EN 60079-15
Electrical apparatus for potentially explosive gas atmospheres - Part 15: construction, test and marking of type of protection “n” electrical apparatus

DIN EN 60079-18
Electrical apparatus for potentially explosive gas atmospheres - Part 18: Construction, test and marking of type of protection encapsulation “m” electrical apparatus

EN 60079-14
Electrical apparatus for potentially explosive gas environments.
Classification of hazardous areas (mines excepted).

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NORMS

Norms for quality assurance (QS)

DIN ISO 9000-9004 (EN 29000-29 004)
Quality assurance (QA) for products and services

DIN ISO 9001
Quality assurance in design/development, production, installation and servicing

DIN ISO 9002
Quality assurance in production

DIN ISO 9003
Quality assurance for final testing only

DIN ISO 9004
Quality management and elements of a quality management system

RECHNER Industrie-Elektronik-GmbH is certified according to DIN ISO 9001:2008.

CE - Marking

The CE marking represents the manufacturer‘s confirmation that the identified product conforms to applicable standards and directives throughout Europe.
The following regulations apply to the RECHNER products.

2004/108/EG
EMC Directive (EN 60 947-5-2)

2006/95/EG
Low-voltage Directive (compare with VDE 0160, product standard EN 60947-5-2)

Directive 94/9/EG
Equipment and Protection Systems designed for use in potentially explosive environments

RECHNER Industrie-Elektronik GmbH certifies the conformity of its products with each of the applicable directives in a Manufacturer‘s Declaration. In addition RECHNER has a laboratory accredited by DAkkS for testings according to IEC/EN 60947-5-2 and also an accredited EMC laboratory.

SPECIFICATION FOR EXPLOSION PROTECTION

	European Union	North America
Division of Hazards	Explosive mixtures in Group 1: mines susceptible to fire damp Group 2: areas other than mines	Explosive mixtures of air with CLASS I: Gases and vapours CLASS II: Dust CLASS III: Fibers
Ignition Hazards due to Sparks	Classification of the protection types intrinsic safety/ flame-proof enclosure according to minimum ignition current/limit gap with reference to the minimum ignition energy of representative gases: Group I Methane Group IIA Propane Group IIB Ethylene Group IIC Hydrogen, Acetylene This classification also partially applies to the type of protection „n“ (zone 2 equipment)	Division of CLASS according to ignition energy: CLASS I Group A Acetylene B Hydrogen C Ethylene D Methane CLASS II Group E Metal dust F Coal dust G Grain dust CLASS III No grouping
Ignition Hazards due to Hot Surfaces	Classification into temperature according to IEC 79-8 for maximum surface temperatures at an ambient temperature of 40 °C under failure conditions: T1 ≤ 450 °C T2 ≤ 300 °C T3 ≤ 200 °C T4 ≤ 135 °C T5 ≤ 100 °C T6 ≤ 85 °C	
Division of Hazardous Areas	The following are classified according to the probability of the occurrence of an explosive atmosphere: For gases, fumes and vapours: (EN 60079-10) Zone 0 constant or long term 1 occasional 2 rare and short term for dusts: (EN 1127-1) Zone 20 constant or long term or frequent 21 occasional 22 short term or accumulation or layers of dust for gases and dusts } Division 1 } Division 2 Note (see IEC 79-10): constant or long term > 1000 h/year, occasionally represents 10…1000 h/year, rare or short term < 10h/year	
Safety data	For the ratings of combustible gases and vapours as a basis for classification according to ignition energy, ignition temperature and flash point, see: Redeker, Nabert, Schön/Safety Ratings of Combustible Gases and Vapours	NFPA 497 M CSA Nr. C22-1
Certification Authorities	PTB Physikalisch-Technische Bundesanstalt DEKRA EXAM formerly DMT, BVS BASEEFA British Approvals Service for Electrical Equipment in Flammable Atmosphere and others	UL Underwriters Laboratories, USA FM Factory Mutual Research, USA CSA Canadian Standards Association ETL Electrical Testing Laboratories
Installation Requirements	DIN EN 60079-14 (VDE 0165 Part 1) for explosive gas environments DIN EN 50281-1-2 (VDE 0165 Part 2) for environments with flammable dust	NFPA 70 National Electrical Code Art. 500 NFPA 493 Standard for Intrinsically safe operations...

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TYPE SELECTION IN ARTICLE NUMBER ORDER

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