

INDUCTIVE SENSORS

RECHNER
SENSORS 



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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

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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.

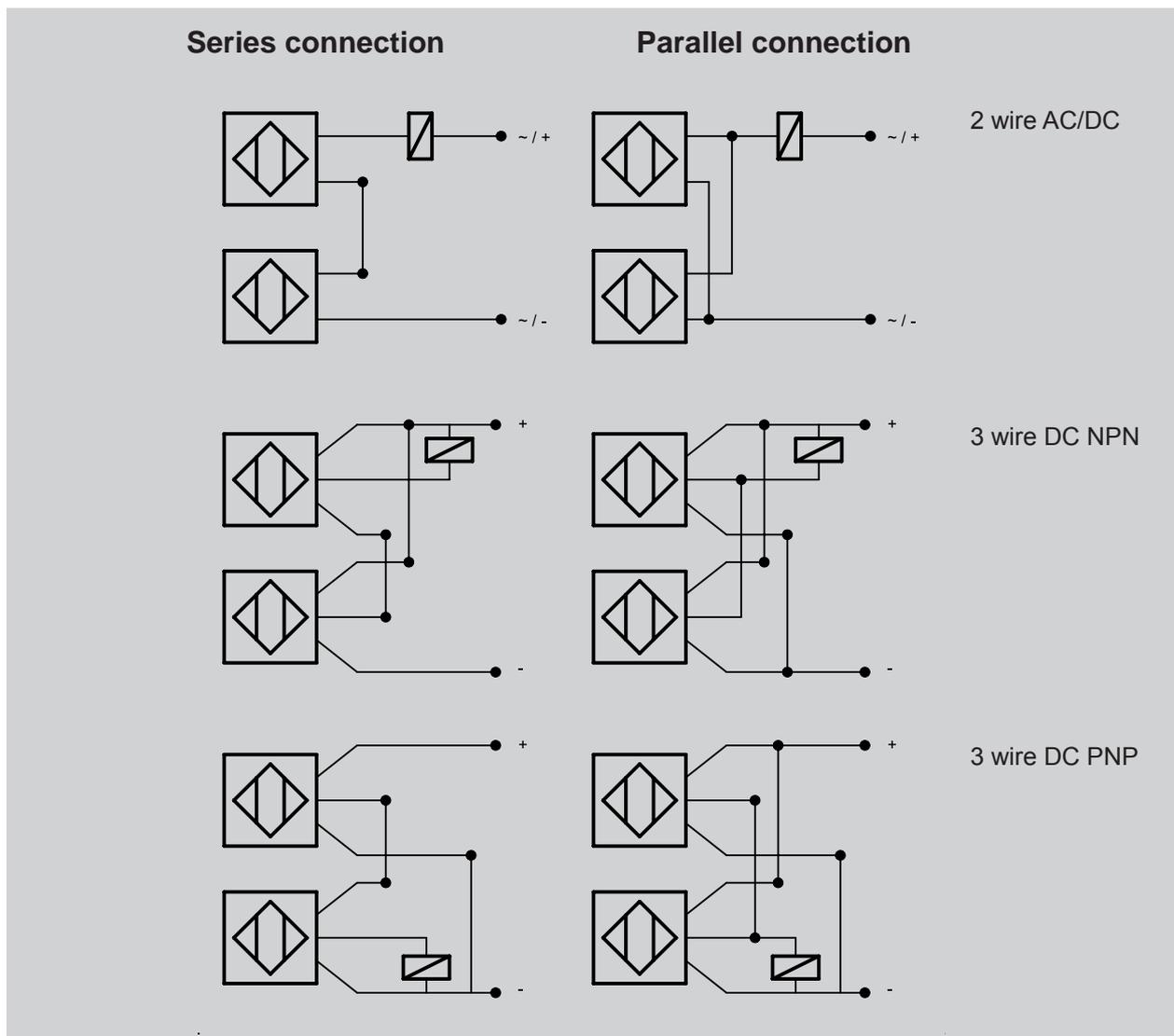
IAS can be used in machines, systems and vehicles as limit switches, contactless position switches for monitoring and positioning, as pulse generators for counting tasks, distance and speed measurements, and for many other applications (for application examples see page 11).

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.

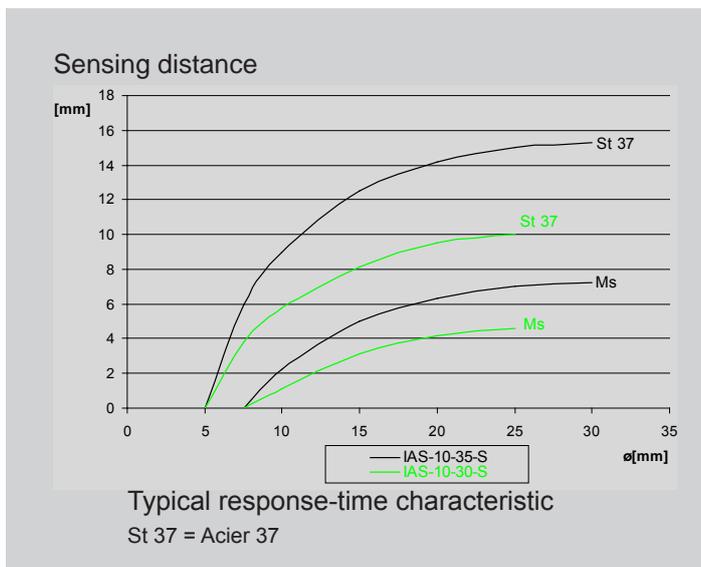


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ADJUSTMENT

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 $I_A < 4 \text{ mA}$ and $I_A > 20 \text{ mA}$ 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 $> 20 \text{ mA}$ 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 $\pm 10 \%$. 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 $3 \times S_n$, depending on which value is greater. With a different material or a smaller surface of the actuating element, the sensing distance is smaller.



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 / \varnothing 30:

First open plastic tab.

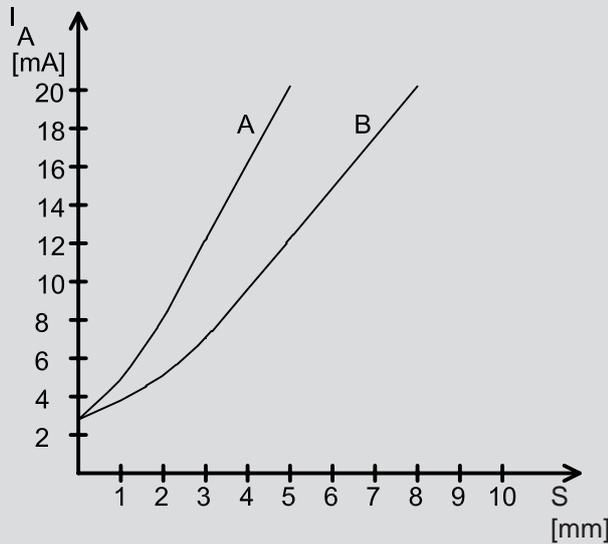
For size M30x1.5 / \varnothing 30:

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 = $S_n \times$ 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

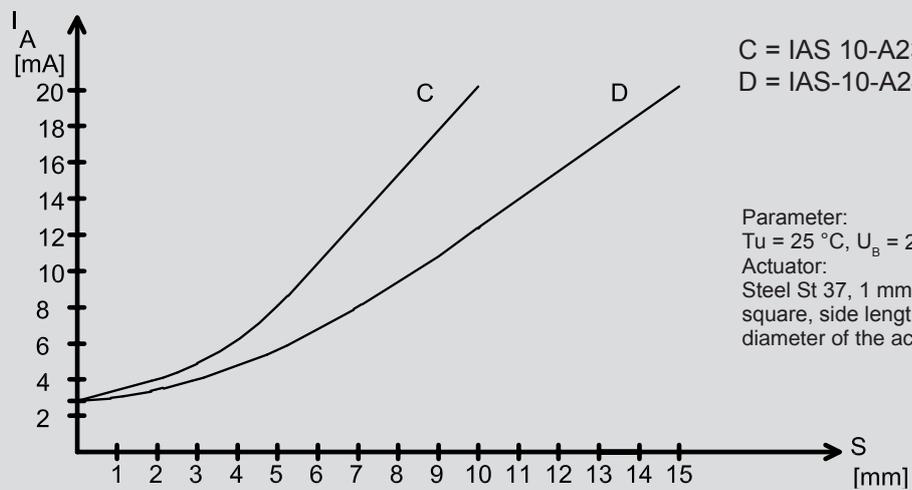
TYPICAL CURVES



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

Parameter:
T_u = 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:
T_u = 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

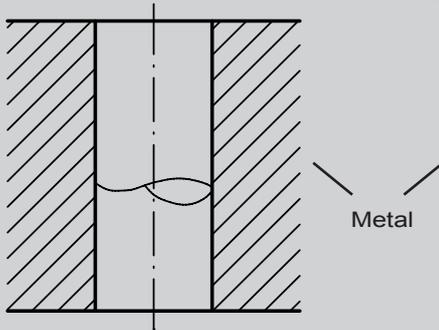
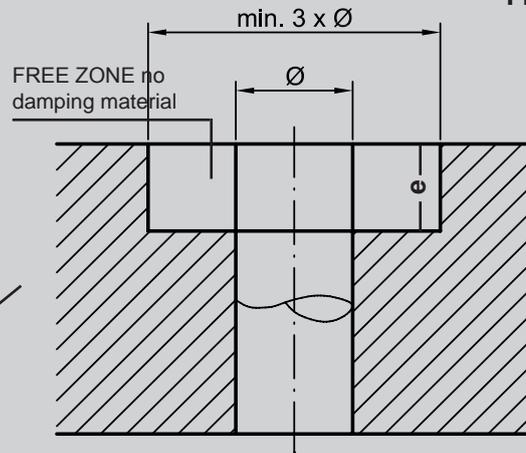


Fig.2



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

Fig.3

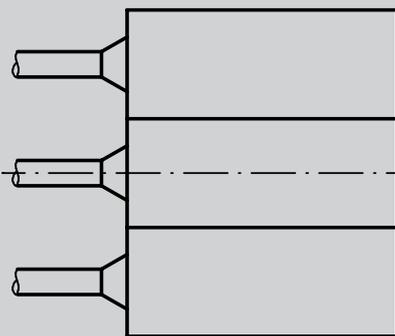
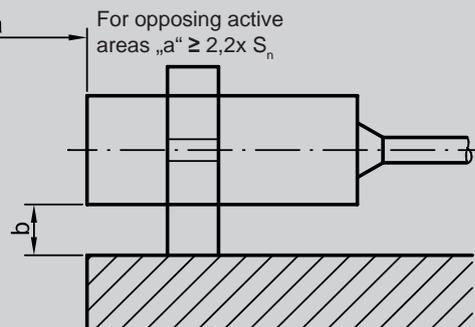


Fig.4



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

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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.

Thread	Housing Material					
	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, $U_B = 8 \text{ V DC}$ for IAS-30; $U_B = 24 \text{ V DC}$ for IAS-10 and IAS-20 and $U_B = 230 \text{ V AC}$ 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 $0.81 \times S_n$.

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 $-5\text{ }^{\circ}\text{C}$. 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 $+20\text{ }^{\circ}\text{C}$ and rated voltage. Here the series variance is taken into consideration. Variation max. $\pm 10\text{ }%$.

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 $S_n \frac{1}{2}$.

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 $< 20\text{ }%$ 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.

APPLICATION EXAMPLES

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

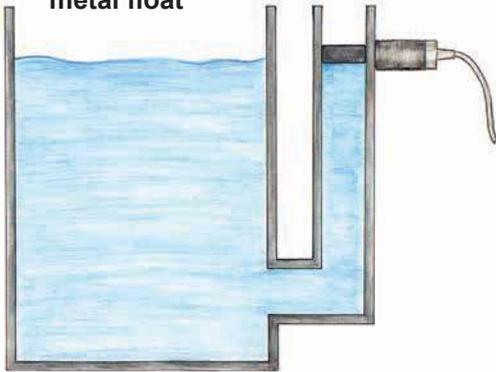


Fig. 2: Position aid for transported tins



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

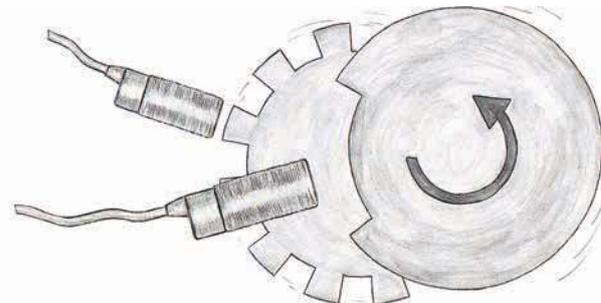


Fig. 4: Counting of metal containers

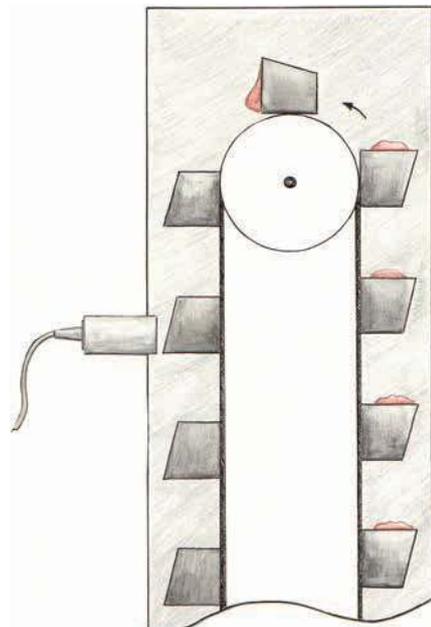
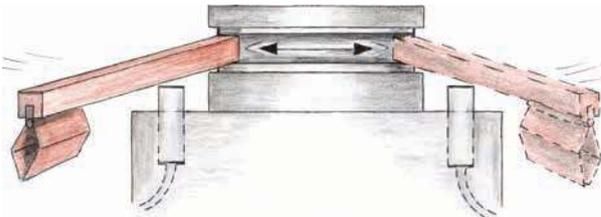


Fig. 5: Position aid for the gripper of industrial robots



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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 $R_i \leq 300 \text{ ohm}$. 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-131... Depending on which isolating switching amplifier is used the NAMUR-sensors of this series can be used up to zone 0. 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.

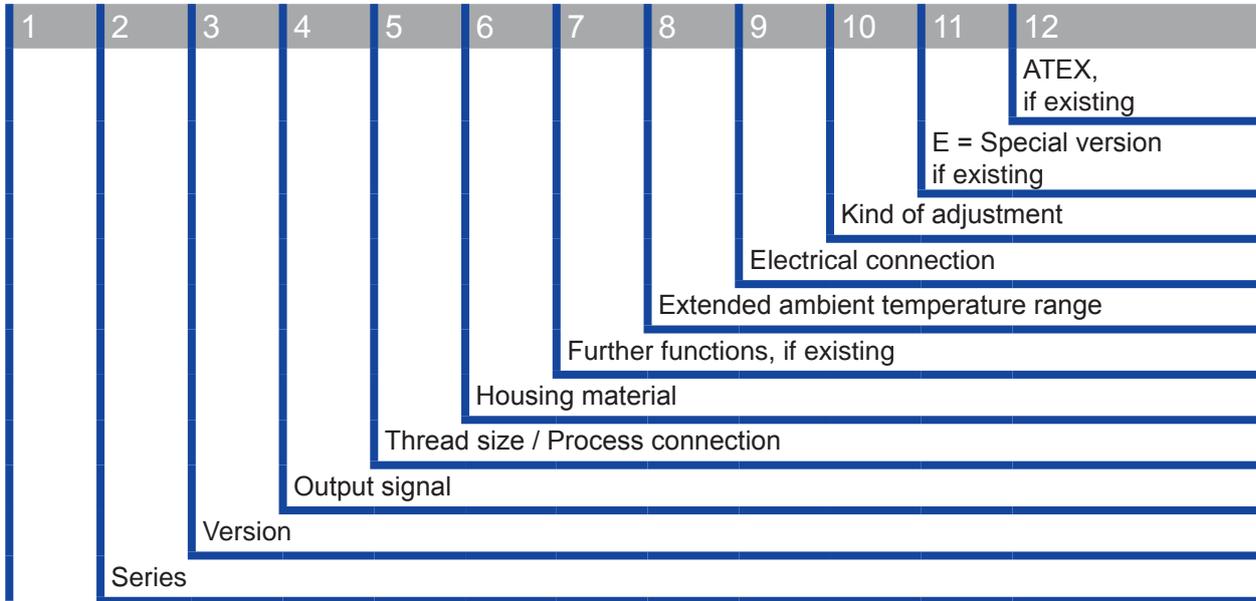
The **series 60** contains inductive 2-wire AC/DC proximity sensors with digital output with NO and NC function. AC / DC relays, conductors, solenoid valves can be activated directly. PLCs with AC inputs can also be connected if the minimum load current is taken into consideration. The sensors have a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

TYPE CODE

Example:

IAS - 10 - 35 - A - M32 -PTFE/VA- - - 100C - Z02 - 0



IAS = Inductive proximity sensor

IS = Inductive probe

ISA = Inductive evaluation unit for probes

Position 2

Serie	Output	Supply voltage
30	NAMUR DIN 60947-5-6, ATEX	DC
32	NAMUR DIN 60947-5-6 ohne ATEX	DC
20	NPN	DC
10	PNP	DC
60	FET output	AC/DC

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TYPE CODE

Position 3

Value	Body size (Ø = mm)	Cylindrical	Mounting version	Special length (mm)
A11	M8 x 1	Yes	Flush	-
A21	M8 x 1	Yes	Non-flush	-
A12	M12 x 1	Yes	Flush	-
A12/40	M12 x 1	Yes	Flush	40
A12/70	M12 x 1	Yes	Flush	70
A22	M12 x 1	Yes	Non-flush	-
A22/40	M12 x 1	Yes	Non-flush	40
A22/45	M12 x 1	Yes	Non-flush	45
A22/65	M12 x 1	Yes	Non-flush	65
A22/75	M12 x 1	Yes	Non-flush	75
A22/80	M12 x 1	Yes	Non-flush	80
A13	M18 x 1	Yes	Flush	-
A13/33	M18 x 1	Yes	Flush	33
A23	M18 x 1	Yes	Non-flush	-
A23/35	M18 x 1	Yes	Non-flush	35
A14	M30 x 1,5	Yes	Flush	-
A24	M30 x 1,5	Yes	Non-flush	-
6.5/15	Ø 6,5	Yes	Flush	15
6.5/25	Ø 6,5	Yes	Flush	25
6.5/30	Ø 6,5	Yes	Flush	30
6.5/31	Ø 6,5	Yes	Flush	31
6.5/42	Ø 6,5	Yes	Flush	42
M5	M5 x 0,5	Yes	Flush	-
M8	M8 x 1	Yes	Flush	-
M8/31	M8 x 1	Yes	Flush	31
04	Ø 4	Yes	Flush	-
10	Ø 10	Yes	Flush	-
10	Ø 11	Yes	Flush	-
14	Ø 11	Yes	Non-flush	-
14	Ø 12	Yes	Non-flush	-
14/50	Ø 12	Yes	Non-flush	50
18	Ø 18	Yes	Flush	-
20	Ø 20	Yes	Flush	-
20	Ø 22	Yes	Flush	-
20/11	Ø 20	Yes	Flush	11
20	M22 x 1,5	Yes	Flush	-
23	Ø 20	Yes	Non-flush	-
23	Ø 22	Yes	Non-flush	-
23	M22 x 1,5	Yes	Non-flush	-
30	Ø 30	Yes	Flush	-
30	Ø 32	Yes	Flush	-
30	M32 x 1,5	Yes	Flush	-
35	Ø 30	Yes	Non-flush	-
35	Ø 32	Yes	Non-flush	-

Position 3

Value	Body size (Ø = mm)	Cylindrical	Mounting version	Special length (mm)
35	M32 x 1,5	Yes	Non-flush	-
37	Ø 34	Yes	Flush	-
40	Ø 40	Yes	Flush	-
41	Ø 40	Yes	Non-flush	-
53	Ø 50	Yes	Non-flush	-
61	Ø 64	Yes	Non-flush	-
C10	40 x 26 x 12	Quader	Flush	-
C14	40 x 26 x 12	Quader	Non-flush	-
BB	50 x 50 x 25	Quader	Non-flush	-
B	46,6 x 74,5 x 30	Quader	Non-flush	-
BXL	110 x 70 x 40	Quader	Non-flush	-
BA1	57,5 x 64 x 34,5	Quader	Non-flush	-
BA2	98,5 x 64 x 34	Quader	Non-flush	-

Position 4

Value	Output signal
A	Antivalent (NO + NC)
S	Normally open (NO)
Ö	Normally closed (NC)
N	NAMUR
IL0	Analogue current output 0...20 mA
IL4	Analogue current output 4...20 mA
IL20	Analogue current output 20...4 mA
II	Impulse - Normally open (NO)

Position 5

Value	Thread / Process connection
M5	M5 x 0,5
M8	M8 x 1
M12	M12 x 1
M18	M18 x 1
M22	M22 x 1,5
M30	M30 x 1,5
M32	M32 x 1,5

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TYPE CODE

Position 6

Material	Active surface	Housing
PA	Polyamide 6.6. glass-fibre reinforced	Polyamide 6.6. glass-fibre reinforced
PEEK	Polyetheretherketone FDA 21 CFR 177.2415	Polyetheretherketon
PEEK/VAa	Polyetheretherketone FDA 21 CFR 177.2415	Stainless steel No. 1.4301 (AISI 304)
PEEK/VAb	Polyetheretherketone FDA 21 CFR 177.2415	Stainless steel No. 1.4305 (AISI 303)
PEEK/VAc	Polyetheretherketone FDA 21 CFR 177.2415	Stainless steel No. 1.4404 (AISI 316L)
PPO	Polyphenylenoxide	Polyphenylenoxide
PTFE	Polytetrafluoroethylene FDA 21 CFR 177.1550	Polytetrafluoroethylene FDA 21 CFR 177.1550
PTFE/VAa	Polytetrafluoroethylene FDA 21 CFR 177.1550	Stainless steel No. 1.4301 (AISI 304)
PTFE/VAb	Polytetrafluoroethylene FDA 21 CFR 177.1550	Stainless steel No. 1.4305 (AISI 303)
PTFE/VAc	Polytetrafluoroethylene FDA 21 CFR 177.1550	Stainless steel No. 1.4404 (AISI 316L)
PTFE/MS	Polytetrafluoroethylene FDA 21 CFR 177.1550	Brass nickel
PVC	Polyvinylchloride	Polyvinylchloride
AL	-	Aluminium

Position 7

Value	More properties
HC	Products with a high dielectric constant or conductivity

Position 8

Value	Advanced temperature range
No indication	No advanced temperature range
90C	90°C
100C	100°C
120C	120°C
150C	150°C
180C	180°C
250C	250°C

Position 9

Value	Electrical connection
Z0E	Special cable length
Z01	1 m connection cable
Z02	2 m connection cable
Z03	3 m connection cable
Z04	4 m connection cable
Z05	5 m connection cable
Z10	10 m connection cable
Y1	Flange connector M 12 x 1, AC, 2 Pin
Y3	Flange connector M 12 x 1 (Plastic), DC, 4 Pin
Y5	Flange connector M 12 x 1 (Metal), DC, 4 Pin
Y9	Flange connector M 12 x 1, AC, 3 Pin
Y10	Flange connector M 12 x 1, DC, 5 Pin
Y10C	Coupling plug M 12 x 1, DC, 5 Pin
Y7	Flange connector M 8 x 1, DC, 3 Pin
Y12	Flange connector M 8 x 1 (Metall), DC, 4 Pin
Y20	Connection to evaluation unit / Sensor Y20
YE	Flange connector special housing

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TYPE CODE

Position 10

Value	Sensitivity adjustment
1	Potentiometer
0	Fix adjusted, no adjustment possible

Position 11

Value	Special version
E	Special version

Position 12

Value	Device for use in areas with the risk of explosion
StEx	For ATEX zone 20
3D	With manufacturer declaration for ATEX zone 22
3G	With manufacturer declaration for ATEX zone 2
3D3G	With manufacturer declaration for ATEX zone 22 and 2

CYLINDRICAL HOUSINGS

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Inductive Sensors M 18 to M 22	32 - 41
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Inductive Sensors Ø 40 mm to Ø 64 mm	49 - 51

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Inductive Sensors Series 20 - NPN Series 10 - PNP

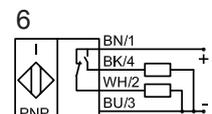
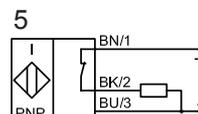
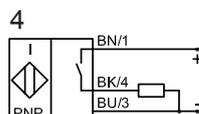
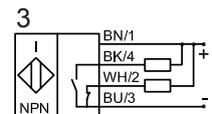
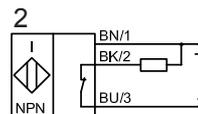
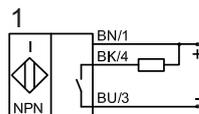
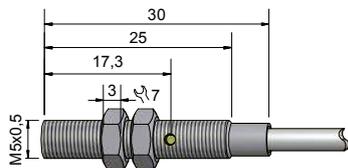
Housing M 5 x 0.5

- Housing material: Stainless steel VA
- Sensing distance $S_n = 0.8$ mm

Certificate:



Technical data	Flush mountable
Operating distance S_n	0.8 mm
Electrical version	3-wire DC
Output	Normally open (NO)
Type NPN	IAS-20-M5-S-PA/VAb-Z02-0
Art.-No.	214 010
Connection diagram No.	1
Type PNP	IAS-10-M5-S-PA/VAb-Z02-0
Art.-No.	114 010
Connection diagram No.	4
Operating voltage (U_B)	10...35 V DC
Output current max. (I_o)	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.	500 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Red
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 mm ²
Housing material	VA No. 1.4305
Active surface	PA / PPO
Lid	-



Made in Germany

All specifications are subject to change without notice. (01/2017)



Inductive Sensors

Series 10 - PNP

Housing M 5 x 0.5

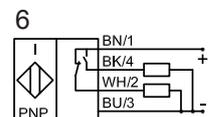
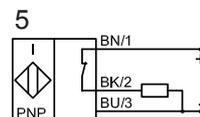
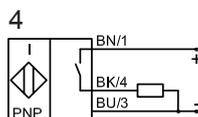
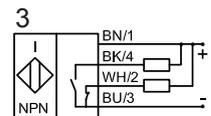
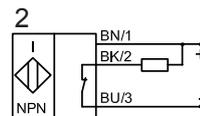
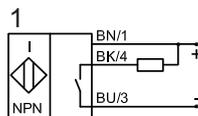
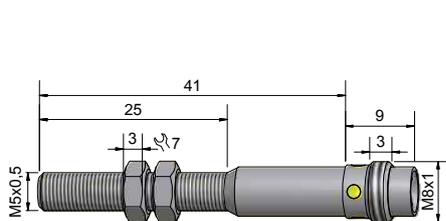
- Housing material: Stainless steel VA
- Sensing distance $S_n = 0.8 \text{ mm}$
- With flange connector M 8 x 1

Certificate:



Technical data	Flush mountable
Operating distance S_n	0.8 mm
Electrical version	3-pin DC
Output	Normally open (NO)
Type NPN	
Art.-No.	
Connection diagram No.	
Type PNP	IAS-10-M5-S-PA/VA Ab-Y7-0
Art.-No.	114 400
Connection diagram No.	4
Operating voltage (U_B)	10...35 V DC
Output current max. (I_o)	150 mA
Voltage drop max. (U_d)	$\leq 3.5 \text{ V}$
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	Connector M 8 x 1
Housing material	VA No. 1.4305
Active surface	PA / PPO
Lid	-

All specifications are subject to change without notice. (01/2017)



Made in Germany



Inductive Sensors

Series 10 - PNP

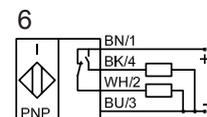
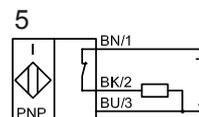
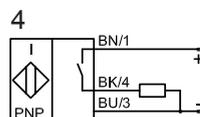
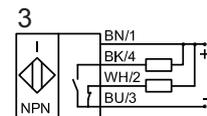
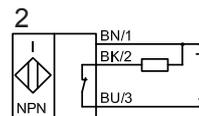
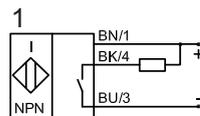
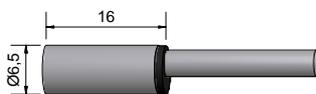
Housing Ø 6,5 mm

- Housing material: Stainless steel VA
- Sensing distance $S_n = 1,5$ mm

Certificado:



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-PA/ VAAb-Z02-0
Art.-No.	IA 0254
Connection diagram No.	4
Operating voltage (U_B)	10...30 V DC
Output current max. (I_o)	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 mm ²
Housing material	VA No. 1.4305
Active surface	PA / PPO
Lid	PUR



Made in Switzerland

All specifications are subject to change without notice. (01/2017)



Inductive Sensors

Series 10 - PNP

Housing \varnothing 6.5 mm

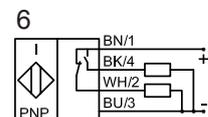
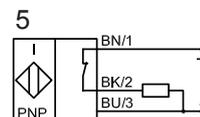
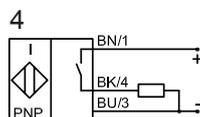
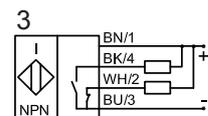
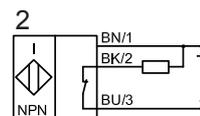
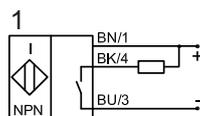
- Housing material: Stainless steel VA
- Sensing distance $S_n = 1.5$ mm

Certificate:



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-S-PVC/ VAAb-Z02-0
Art.-No.	114 510
Connection diagram No. 4	
Operating voltage (U_B)	10...35 V DC
Output current max. (I_e)	150 mA
Voltage drop max. (U_o)	≤ 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 mm ²
Housing material	VA No. 1.4305
Active surface	PVC
Lid	-

All specifications are subject to change without notice. (01/2017)



Made in Germany



Inductive Sensors Series 20 - NPN

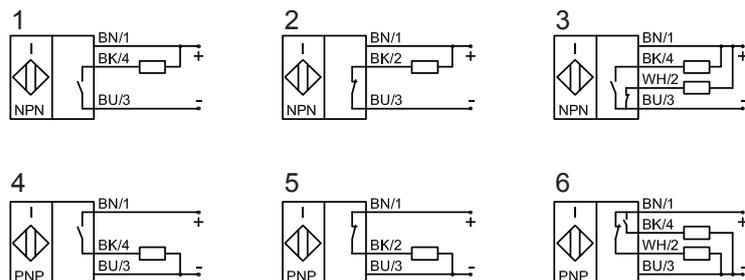
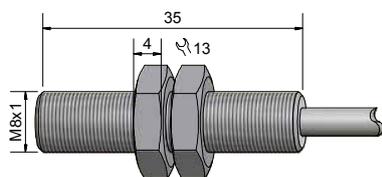
Housing M 8 x 1

- Housing material: Stainless steel VA
- Sensing distance $S_n = 2$ 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-M8-PA/ VAb-Z02-0
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_o)	≤ 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 mm ²
Housing material	VA No. 1.4305
Active surface	PA
Lid	PA



Made in Switzerland

All specifications are subject to change without notice. (01/2017)



Inductive Sensors Series 10 - PNP

Housing M 8 x 1

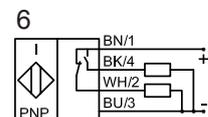
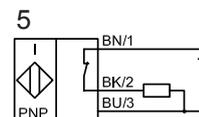
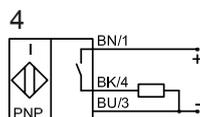
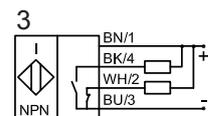
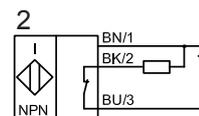
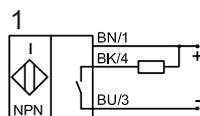
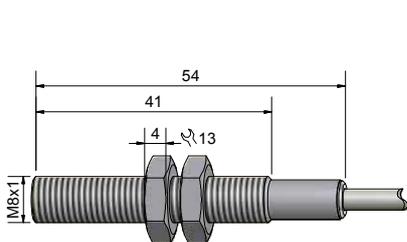
- Housing material: Stainless steel VA
- Sensing distance $S_n = 1$ mm

Certificate:



Technical data	Flush mountable
Operating distance S_n	1 mm
Electrical version	3-wire DC
Output	Normally
Type NPN	
Art.-No.	
Connection diagram No.	
Type PNP	
IAS-10-A11-S-M8-PVC/VAb-Z02-0	
Art.-No.	
100 500	
Connection diagram No.	
4	
Operating voltage (U_B)	10...35 V DC
Output current max. (I_o)	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 mm ²
Housing material	VA No. 1.4305
Active surface	PVC
Lid	PC (FDA 21 CFR 177.1580)

All specifications are subject to change without notice. (01/2017)



Made in Germany



Inductive Sensors

Series 10 - PNP

Housing M 8 x 1

- Housing material: Stainless steel VA
- Sensing distance $S_n = 1.5 \text{ mm}$

Certificate:



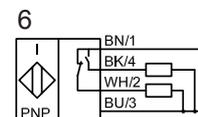
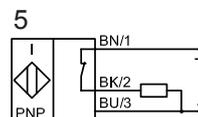
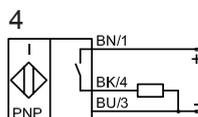
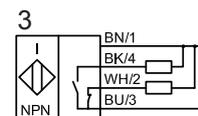
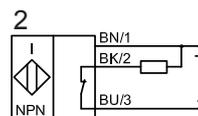
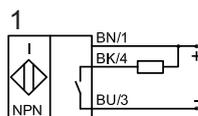
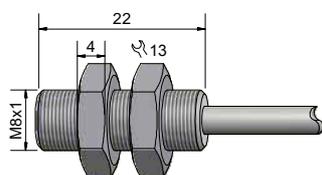
Technical data	Flush mountable	Flush mountable
Operating distance S_n	1.5 mm	1.5 mm
Electrical version	3-wire DC	3-wire DC
Output	Normally open (NO)	Normally closed (NC)

Type NPN

Art.-No.

Connection diagram No.

Type PNP	IAS-10-M8-S-PVC/VAb-Z02-0	IAS-10-M8-Ö-PVC/VAb-Z02-0
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_o)	$\leq 200 \text{ mA}$	$\leq 200 \text{ mA}$
Voltage drop max. (U_d)	$\leq 2 \text{ V}$	$\leq 2 \text{ V}$
Permitted residual ripple max.	20 %	20 %
No-load current (I_o)	$\leq 10 \text{ mA}$	$\leq 10 \text{ mA}$
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 mm ²	2 m, PVC, 3 x 0.14 mm ²
Housing material	VA No. 1.4305	VA No. 1.4305
Active surface	PA	PA
Lid	PA	PA



Made in China

All specifications are subject to change without notice. (01/2017)



Inductive Sensors

Series 10 - PNP

Housing M 8 x 1

- Housing material: Stainless steel VA
- Sensing distance $S_n = 1.5$ 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)

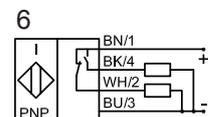
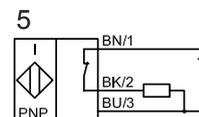
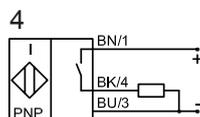
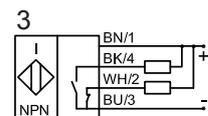
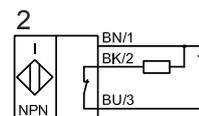
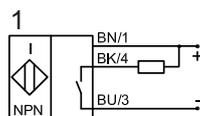
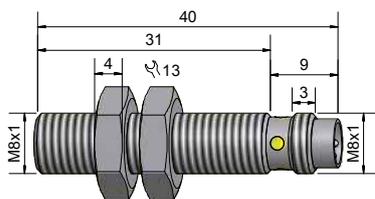
Type NPN

Art.-No.

Connection diagram No.

Type PNP	IAS-10-M8-S-PVC/ VAb-Y7-0	IAS-10-M8-Ö-PVC/ VAb-Y7-0
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_o)	≤ 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	-	-

All specifications are subject to change without notice. (01/2017)



Made in Germany



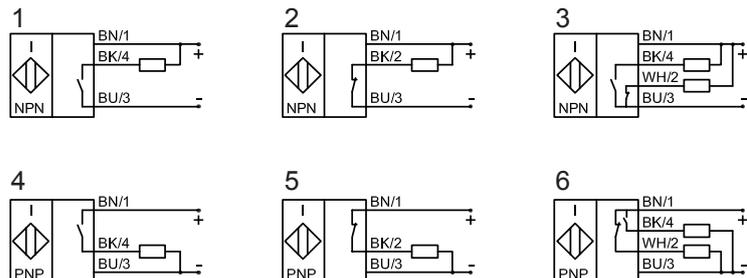
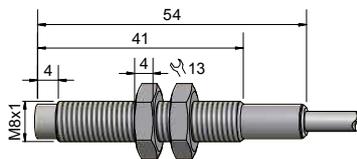
Inductive Sensors
Series 20 - NPN
Series 10 - PNP

- Housing M 8 x 1
- Housing material: Stainless steel VA
 - Sensing distance $S_n = 2$ 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-M8-PVC/ VAb-Z02-0
Art.-No.	101 200
Connection diagram No.	
Operating voltage (U_B)	10...35 V DC
Output current max. (I_o)	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 mm ²
Housing material	VA No. 1.4305
Active surface	PVC
Lid	PC (FDA 21 CFR 177.1580)



Made in Germany

All specifications are subject to change without notice. (01/2017)



Inductive Sensors

Series 10 - PNP

Housing \varnothing 11 mm

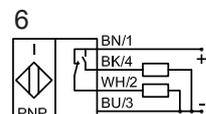
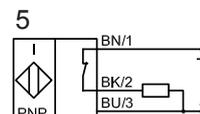
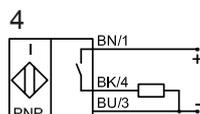
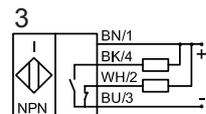
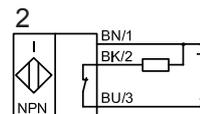
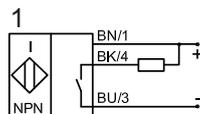
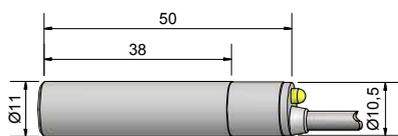
- Housing material: PA / PPO
- Sensing distance $S_n = 5$ mm

Certificate:



Technical data	Non-flush mountable
Operating distance S_n	5 mm
Electrical version	3-wire DC
Output	Normally open (NO)
Type NPN	
Art.-No.	
Connection diagram No.	
Type PNP	IAS-10-14-S-PA-Z02-0
Art.-No.	115 300
Connection diagram No.	4
Operating voltage (U_B)	10...35 V DC
Output current max. (I_o)	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 cable	2 m, PUR, 3 x 0.14 mm ²
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PA / PPO

All specifications are subject to change without notice. (01/2017)



Made in Germany



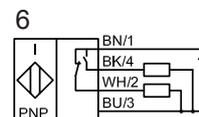
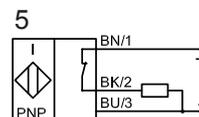
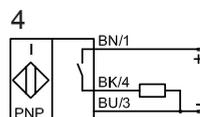
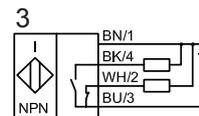
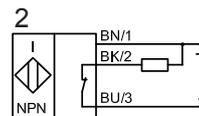
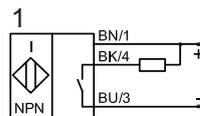
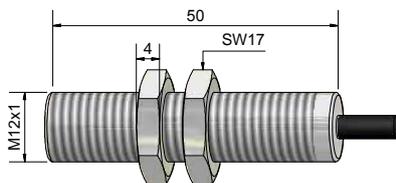
Inductive Sensors
Series 20 - NPN
Series 10 - PNP

- Housing M 12 x 1
- Housing material: Brass
 - Sensing distance $S_n = 2$ 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-M12-PBT/ MS-Z03-0
Art.-No.	IA 0246
Connection diagram No.	1
Type PNP	IAS-10-A12-S-M12-PBT/ MS-Z03-0
Art.-No.	IA 0247
Connection diagram No.	4
Operating voltage (U_b)	10...30 V DC
Output current max. (I_o)	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 mm ²
Housing material	Brass
Active surface	PBT
Lid	BPT



Made in Indonesia

All specifications are subject to change without notice. (01/2017)



Inductive Sensors

Series 10 - PNP

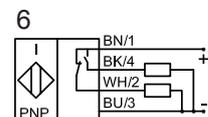
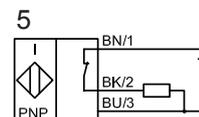
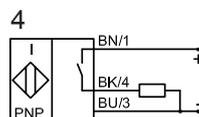
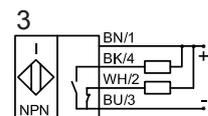
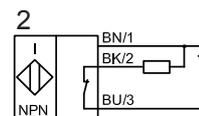
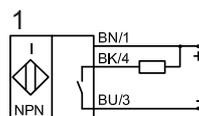
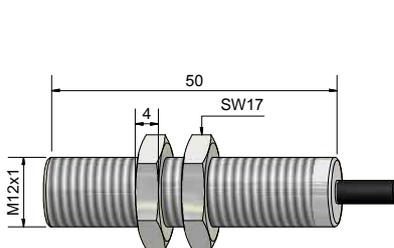
Housing M 12 x 1

- Housing material: Brass
- Sensing distance $S_n = 4$ 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-M12-PBTB/ MS-Z02-0
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_o)	≤ 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 mm ²
Housing material	Brass
Active surface	PBTP
Lid	PA

All specifications are subject to change without notice. (01/2017)



Made in Switzerland



Inductive Sensors

Series 10 - PNP

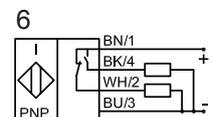
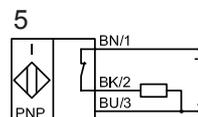
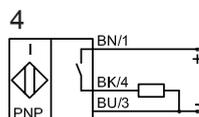
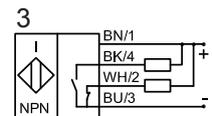
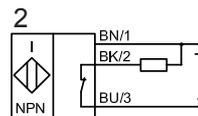
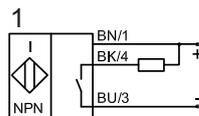
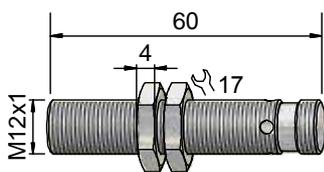
Housing M 12 x 1

- Housing material: Brass
- With increased sensing distance
- Sensing distance $S_n = 4$ 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-M12-PBT/ MS-Y5-0
Art.-No.	IA 0175
Connection diagram No.	
Operating voltage (U_b)	10...30 V DC
Output current max. (I_o)	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	-



Made in China

All specifications are subject to change without notice. (01/2017)



Inductive Sensors
Series 20 - NPN
Series 10 - PNP

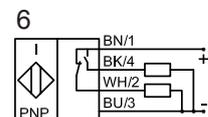
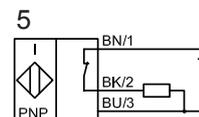
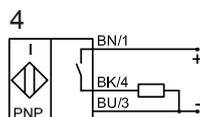
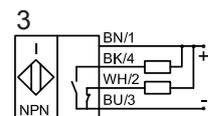
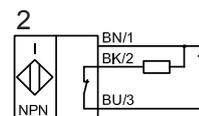
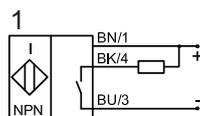
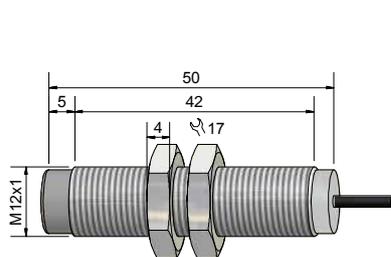
- Housing M 12 x 1
- Housing material: Brass
 - Sensing distance $S_n = 4$ mm

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-M12-PBT/ Ms-Z02-0
Art.-No.	IA 0249
Connection diagram No.	1
Type PNP	IAS-10-A22-S-M12-PBT/ Ms-Z02-0
Art.-No.	IA 0248
Connection diagram No.	4
Operating voltage (U_B)	10...30 V DC
Output current max. (I_o)	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 mm ²
Housing material	Brass
Active surface	PBT
Lid	BPT

All specifications are subject to change without notice. (01/2017)



Made in Indonesia



Inductive Sensors

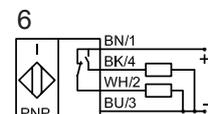
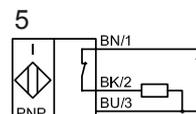
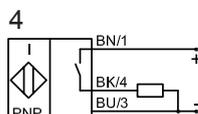
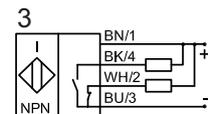
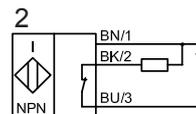
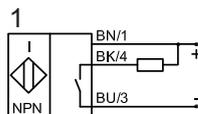
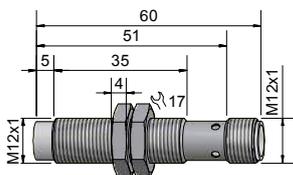
Series 10 - PNP

Housing M 12 x 1

- Housing material: Stainless steel
- Sensing distance $S_n = 4$ 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-M12-PBT/ Ms-Y5-0
Art.-No.	103 001
Connection diagram No.	4
Operating voltage (U_B)	10...35 V DC
Output current max. (I_o)	150 mA
Voltage drop max. (U_d)	$\leq 2,5$ 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	-



Made in Germany

All specifications are subject to change without notice. (01/2017)



Inductive Sensors
Series 20 - NPN
Series 10 - PNP

Housing M 18 x 1

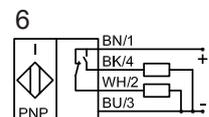
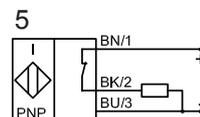
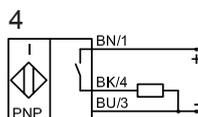
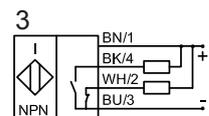
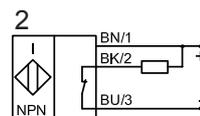
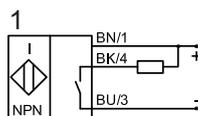
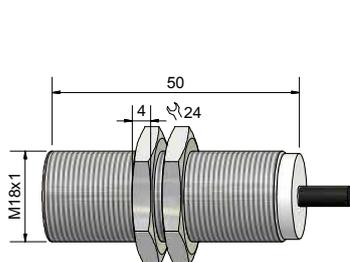
- Housing material: Brass
- Sensing distance $S_n = 5$ mm

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-M18-PBT/ Ms-Z02-0
Art.-No.	IA 0250
Connection diagram No.	1
Type PNP	IAS-10-A13-S-M18-PBT/ Ms-Z02-0
Art.-No.	IA 0251
Connection diagram No.	4
Operating voltage (U_B)	10...30 V DC
Output current max. (I_o)	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 mm ²
Housing material	Brass
Active surface	PBT
Lid	BPT

All specifications are subject to change without notice. (01/2017)



Made in Indonesia



Inductive Sensors

Series 10 - PNP

Housing M 18 x 1

- With increased sensing distance
- Housing material: Brass
- Sensing distance $S_n = 8\text{ mm}$

Certificate:



Technical data

Flush mountable

Operating distance S_n	8 mm
Electrical version	3-wire DC
Output	Normally open (NO)

Type NPN

Art.-No.

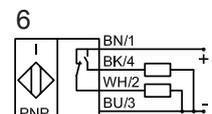
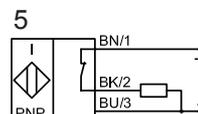
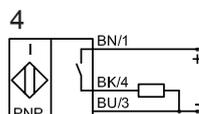
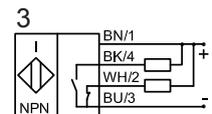
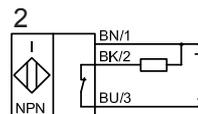
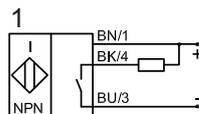
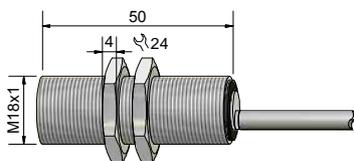
Connection diagram No.

Type PNP	IAS-10-A13-S-M18-PBTP/ Ms-Z02-0
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Art.-No.

IA0185

Connection diagram No.	4
Operating voltage (U_B)	10...30 V DC
Output current max. (I_o)	200 mA
Voltage drop max. (U_d)	$\leq 2,5\text{ V}$
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 mm ²
Housing material	Brass
Active surface	PBTP
Lid	PA / PBTB



Made in Switzerland

All specifications are subject to change without notice. (01/2017)



Inductive Sensors

Series 10 - PNP

Housing M 18 x 1

- With increased sensing distance
- Housing material: Brass
- Sensing distance $S_n = 8\text{ mm}$
- 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.

**IAS-10-A13-S-M18-PBTP/
Ms-Y5-0**

Type PNP

Art.-No.

IA0176

Connection diagram No.

4

Operating voltage (U_B)

10...30 V DC

Output current max. (I_o)

200 mA

Voltage drop max. (U_d)

$\leq 2,5\text{ V}$

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

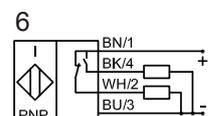
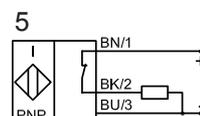
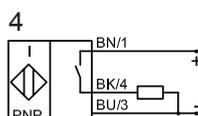
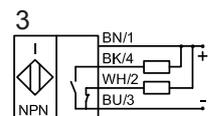
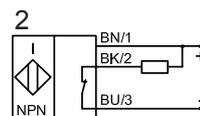
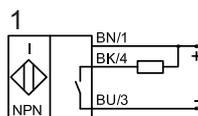
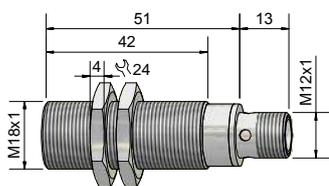
Active surface

PBTP

Lid

-

All specifications are subject to change without notice. (01/2017)



Made in Switzerland



Inductive Sensors With Analogue Output

Series 10 - IL

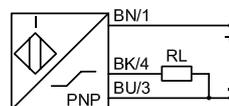
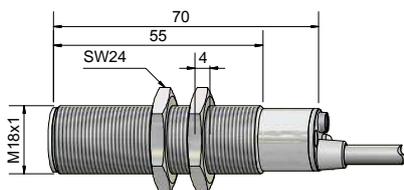
Housing M 18 x 1

- 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-M18-PTFE/Ms-Z02-1
Art.-No.	105 750
Connection diagram No.	See below
Operating voltage (U_B)	15...30 V DC
Output current max. (I_o)	$\leq 4... > 20$ 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	$\leq 20... < 4$ mA
Load resistor	$R_L = 0...300 \Omega$
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 mm ²
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO



All specifications are subject to change without notice. (01/2017)

Made in Germany



Inductive Sensors Series 60 - AC / DC

Housing M 18 x 1

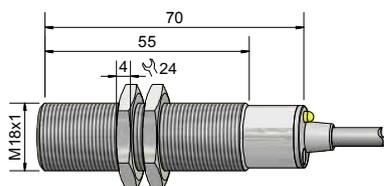
- Housing material: Brass
- Sensing distance $S_n = 5$ mm

Certificate:

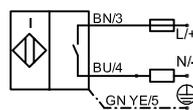


Technical data	Flush mountable	Flush mountable
Operating distance S_n	5 mm	5 mm
Electrical version	2-wire AC / DC	2-wire AC / DC
Output	Normally open (NO)	Normally closed (NC)
Type	IAS-60-A13-S-M18-PA/Ms-Z02-0	IAS-60-A13-Ö-M18-PA/Ms-Z02-0
Art.-No.	601 000	601 200
Connection diagram No.	1	2
Operating voltage (U_B)	20...250 V AC / DC	20...250 V AC / DC
Output current max. (I_o)	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 mm ²	2 m, PUR, 3 x 0.34 mm ²
Housing material	Brass	Brass
Active surface	PA / PPO	PA / PPO
Lid	PA / PPO	PA / PPO

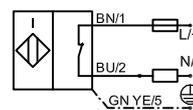
All specifications are subject to change without notice. (01/2017)



1



2



Made in Germany



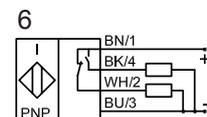
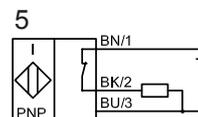
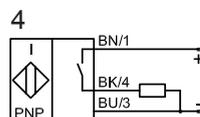
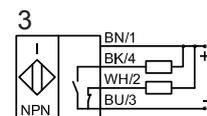
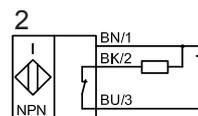
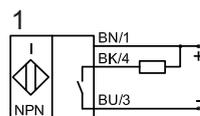
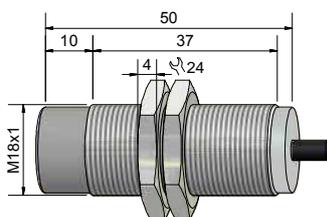
Inductive Sensors Series 20 - NPN Series 10 - PNP

- Housing M 18 x 1
- Housing material: Brass
 - Sensing distance $S_n = 8$ 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-M18-PBT/ Ms-Z02-0
Art.-No.	IA 0252
Connection diagram No.	1
Type PNP	IAS-10-A23-S-M18-PBT/ Ms-Z02-0
Art.-No.	IA 0253
Connection diagram No.	4
Operating voltage (U_b)	10...30 V DC
Output current max. (I_o)	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 mm ²
Housing material	Brass
Active surface	PBT
Lid	BPT



Made in Indonesia

All specifications are subject to change without notice. (01/2017)



Inductive Sensors With Analogue Output

Series 10 - IL

Housing M 18 x 1

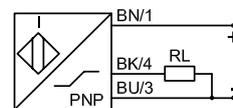
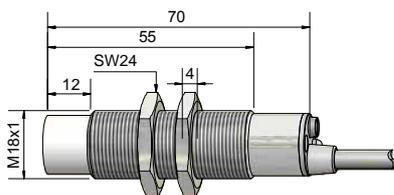
- Housing material: Brass
- Operating range 0...8 mm adjustable

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-M18-PTFE/Ms-Z02-1
Art.-No.	108 350
Connection diagram No.	See below
Operating voltage (U_B)	15...30 V DC
Output current max. (I_o)	$\leq 4... > 20$ 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	$\leq 20... < 4$ mA
Load resistor	$R_L = 0...300 \Omega$
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 mm ²
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO

All specifications are subject to change without notice. (01/2017)



Made in Germany



Inductive Sensors Series 60 - AC / DC

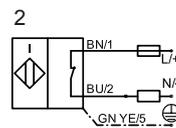
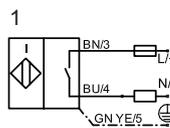
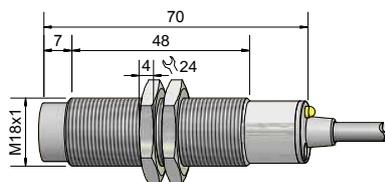
Housing M 18 x 1

- Housing material: Brass
- Sensing distance $S_n = 8$ 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-A13-S-M18-PA/Ms-Z02-0	IAS-60-A13-Ö-M18-PA/Ms-Z02-0
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_o)	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 mm ²	2 m, PUR, 3 x 0.34 mm ²
Housing material	Brass	Brass
Active surface	PA / PPO	PA / PPO
Lid	PA / PPO	PA / PPO



All specifications are subject to change without notice. (01/2017)

Made in Germany



Inductive Sensors

Series 10 - PNP

Housing M 22 x 1.5

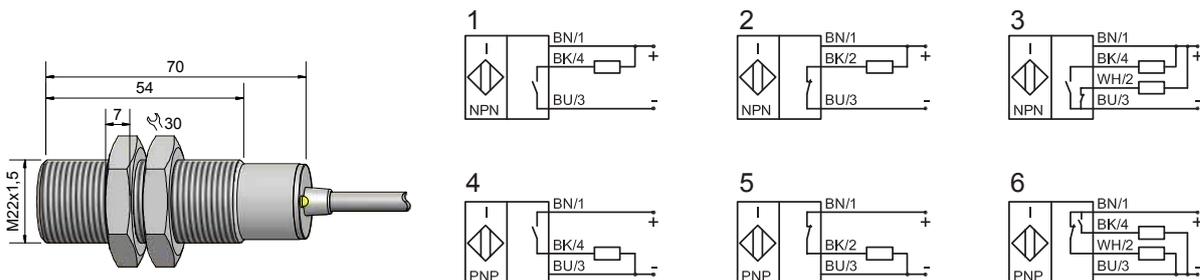
- Housing material: PA / PPO
- Sensing distance $S_n = 10$ mm

Certificate:



Technical data	Non-flush mountable
Operating distance S_n	10 mm
Electrical version	3-wire DC
Output	Normally open (NO)
Type NPN	
Art.-No.	
Connection diagram No.	
Type PNP	IAS-10-23-S-M22-PPO-Z02-0-E
Art.-No.	116 900
Connection diagram No.	4
Operating voltage (U_B)	10...35 V DC
Output current max. (I_e)	250 mA
Voltage drop max. (U_o)	≤ 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 cable	2 m, PUR, 3 x 0.34 mm ²
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PA / PPO

All specifications are subject to change without notice. (01/2017)



Made in Germany



Inductive Sensors Series 20 - NPN Series 10 - PNP

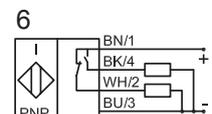
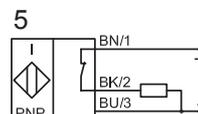
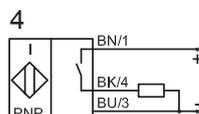
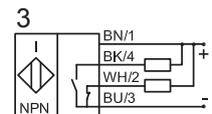
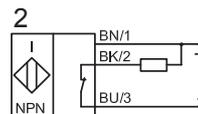
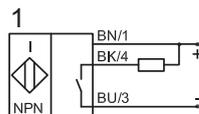
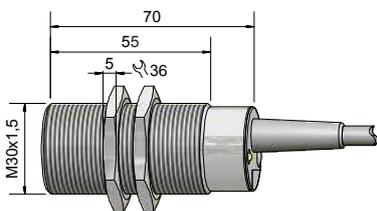
Housing M 30 x 1.5

- Housing material: Brass
- Sensing distance $S_n = 10$ 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-M30-PVC/ Ms-Z02-0	
Art.-No.	208 400	
Connection diagram No.	1	
Type PNP	IAS-10-A14-S-M30-PVC/ Ms-Z02-0	IAS-10-A14-A-M30-PVC/Ms- Z02-0
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_o)	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 mm ²	2 m, PVC, 4 x 0.5 mm ²
Housing material	Brass	Brass
Active surface	PVC	PVC
Lid	PA / PPO	PA / PPO



Made in Germany

All specifications are subject to change without notice. (01/2017)



Inductive Sensors With Analogue Output

Series 10 - IL

Housing M 30 x 1.5

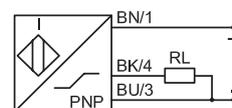
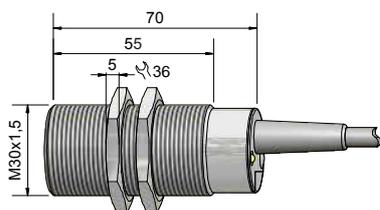
- Housing material: Brass
- Operating range 0...10 mm adjustable

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-M30-PTFE/ Ms-Z02-1
Art.-No.	110 950
Connection diagram No.	See below
Operating voltage (U_B)	15...30 V DC
Output current max. (I_o)	$\leq 4... > 20$ 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	$\leq 20... < 4$ mA
Load resistor	$R_L = 0...300 \Omega$
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 mm ²
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO

All specifications are subject to change without notice. (01/2017)



Made in Germany



Inductive Sensors Series 60 - AC / DC

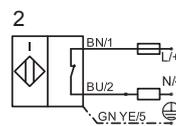
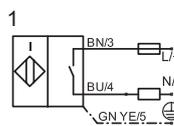
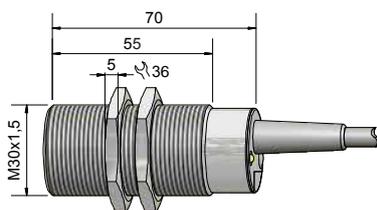
Housing M 30 x 1.5

- Housing material: Brass
- Sensing distance $S_n = 10$ mm

Certificate:



Technical data	Flush mountable
Operating distance S_n	10 mm
Electrical version	3-wire AC / DC
Output	Normally open (NO)
Type	IAS-60-A14-S-M30-PVC/ Ms-Z02-0
Art.-No.	607 300
Connection diagram No.	1
Operating voltage (U_B)	20...250 V AC / DC
Output current max. (I_o)	300 mA
Minimum load	Typ. 9 mA
Voltage drop max. (U_d)	Typ. 6 V
No-load current (I_o)	Typ. 3.5 mA
Frequency of operating cycles max.	25 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, PVC, 3 x 0.75 mm ²
Housing material	Brass
Active surface	PVC
Lid	PA / PPO



All specifications are subject to change without notice. (01/2017)

Made in Germany



Inductive Sensors
Series 20 - NPN
Series 10 - PNP

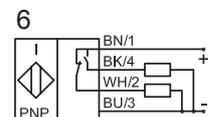
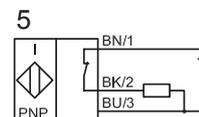
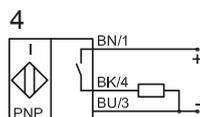
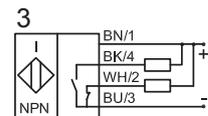
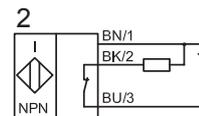
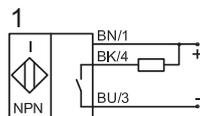
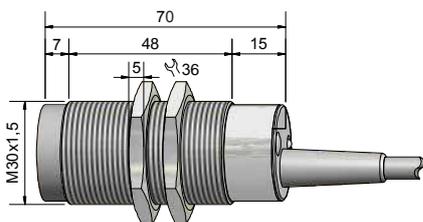
- Housing M 30 x 1.5
- Housing material: Brass
 - Sensing distance $S_n = 15\text{ mm}$

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		
Art.-No.		
Connection diagram No.		
Type PNP	IAS-10-A24-S-M30-PVC/ Ms-Z02-0	IAS-10-A24-A-M30-PVC/Ms- Z02-0
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_o)	$\leq 2.5\text{ V}$	$\leq 2.5\text{ V}$
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 mm ²	2 m, PVC, 4 x 0.5 mm ²
Housing material	Brass	Brass
Active surface	PVC	PVC
Lid	PA / PPO	PA / PPO

All specifications are subject to change without notice. (01/2017)



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Inductive Sensors With Analogue Output

Series 10 - IL

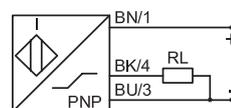
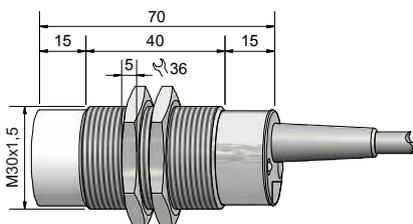
Housing M 30 x 1.5

- 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-M30-PTFE/MS-Z02-1
Art.-No.	113 550
Connection diagram No.	See below
Operating voltage (U_b)	15...30 V DC
Output current max. (I_o)	$\leq 4... > 20$ 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	$\leq 20... < 4$ mA
Load resistor	$R_L = 0...300 \Omega$
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 mm ²
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO



All specifications are subject to change without notice. (01/2017)

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Inductive Sensors Series 60 - AC / DC

Housing M 30 x 1.5

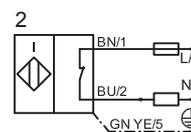
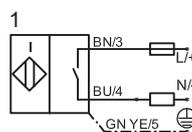
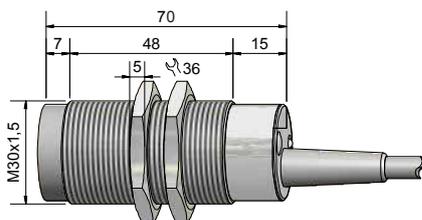
- Housing material: Brass
- Sensing distance $S_n = 15$ mm

Certificate:



Technical data	Non-flush mountable
Operating distance S_n	15 mm
Electrical version	3-wire AC / DC
Output	Normally open (NO)
Type	IAS-60-A24-S-M30-PVC/ Ms-Z02-0
Art.-No.	610 500
Connection diagram No.	1
Operating voltage (U_B)	20 ... 250 V AC / DC
Output current max. (I_o)	300 mA
Minimum load	Typ. 9 mA
Voltage drop max. (U_d)	Typ. 6 V
No-load current (I_o)	Typ. 3.5 mA
Frequency of operating cycles max.	25 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, PVC, 3 x 0.75 mm ²
Housing material	Brass
Active surface	PVC
Lid	PA / PPO

All specifications are subject to change without notice. (01/2017)



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Inductive Sensors

Series 10 - PNP

Housing Ø 40 mm

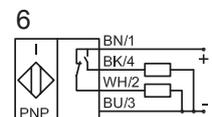
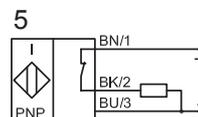
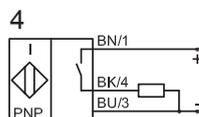
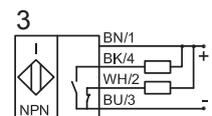
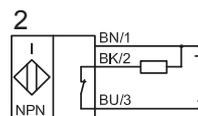
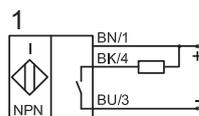
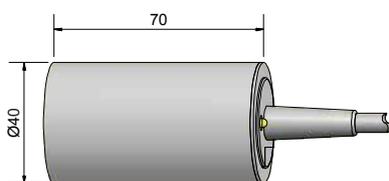
- Housing material: PA / PPO
- Sensing distance $S_n = 20$ mm

Certificate:



Technical data

Operating distance S_n	20 mm	Flush mountable
Electrical version	4-wire DC	
Output	Antivalent (NO + NC)	
Type NPN		
Art.-No.		
Connection diagram No.		
Type PNP		IAS-10-40-A-PPO--Z02-0
Art.-No.		119 480
Connection diagram No.		6
Operating voltage (U_B)	10...35 V DC	
Output current max. (I_o)	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 mm ²	
Housing material	PA / PPO	
Active surface	PA / PPO	
Lid	PA / PPO	



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All specifications are subject to change without notice. (01/2017)

RECTANGULAR HOUSINGS

Pages

Inductive Sensors IAS serie 10 rectangular housings 40 x 118 mm

54

All specifications are subject to change without notice. (01/2017)



Inductive Sensors

Series 10 - PNP

Housing 40 x 40 x 118 mm

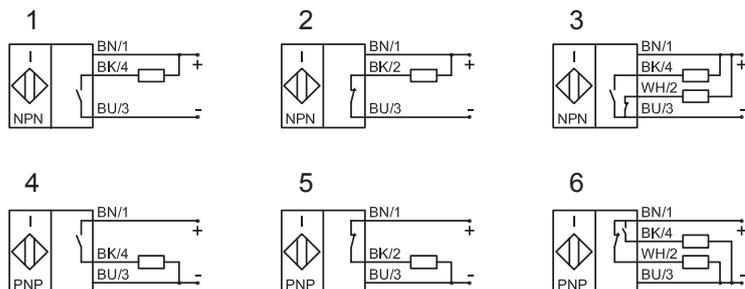
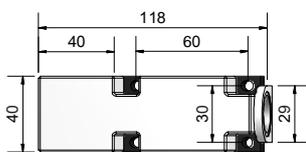
- Housing material: PBT
- Sensing distance $S_n = 20$ mm
- Position of the active zone selectable

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-PBT-KL-0	
Art.-No.	
121 180	
Connection diagram No.	
6	
Operating voltage (U_B)	10...60 V DC
Output current max. (I_o)	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

All specifications are subject to change without notice. (01/2017)



SERIES 10 / 20 • ATEX / IECEx

	Pages
Inductive Sensors StEx - ATEX zone 20, zone 1, M 12	56
Inductive Sensors StEx - ATEX zone 20, zone 1, M 12	57
Inductive Sensors StEx - ATEX zone 20, zone 1, M 12	58 -59

All specifications are subject to change without notice. (09/2016)



Inductive Sensors

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

Housing M 12 x 1

- 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 S_n 2 mm

DMT 01 ATEX E 157

IECEX BVS 07.0015

II 2 G Ex mb IIC T4 Gb

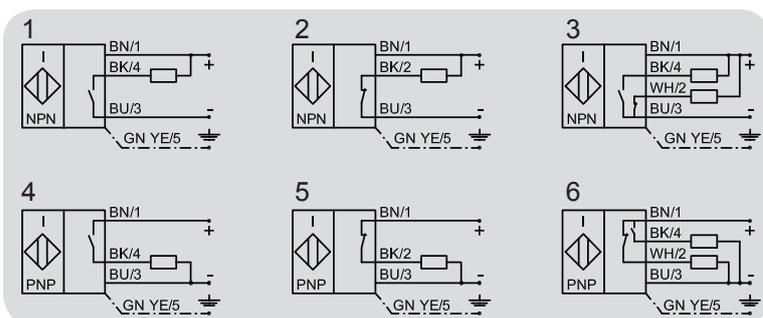
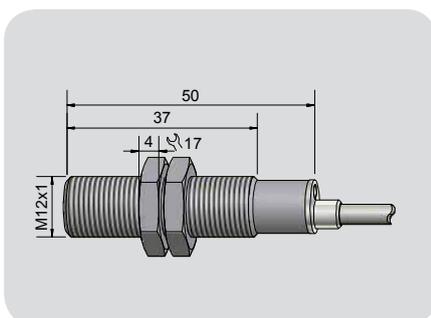
Ex mb IIC T4 Gb

II 1/2 D Ex ta/tb IIIC T101°C Da/Db

Ex ta/tb IIIC T101°C Da/Db



Technical data	Flush mountable
Operating distance S_n	2 mm
Electrical version	3-wire DC
Output	Normally open
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
Voltage drop max. (U_d)	≤ 2.5 V
Permitted residual ripple max.	10 %
Operating current (I_o)	0...150 mA
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 mm ²
Housing material	Stainless steel VA No. 1.4305 / AISI 303
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)
Accessories (delivered with the sensor)	2 nuts M 12 x 1



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

Housing M 18 x 1

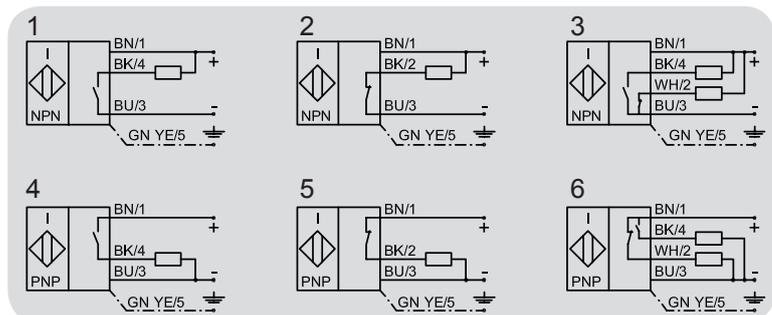
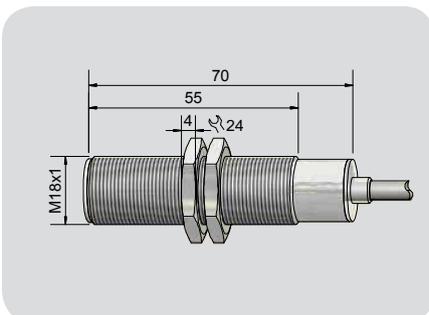
- Housing material: Brass
- For use in areas with the risk of dust explosion, zone 20
- For use in areas with the risk of gas explosion, zone 1
- Sensing distance S_n 5 mm

DMT 01 ATEX E 157	IECEX BVS 07.0015
II 2 G Ex mb IIC T4 Gb	Ex mb IIC T4 Gb
II 1/2 D Ex ta/tb IIIC T101°C Da/Db	Ex ta/tb IIIC T101°C Da/Db



Technical data	Flush mountable
Operating distance S _n	5 mm
Electrical version	4-wire DC
Output	Antivalent
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
Voltage drop max. (U _d)	≤ 2.5 V
Permitted residual ripple max.	10 %
Operating current (I _B)	2 x 0...150 mA
No-load current (I ₀)	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 mm ²
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)
Accessories (delivered with the sensor)	2 nuts M 18 x 1

All specifications are subject to change without notice. (09/2016)



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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 S_n 10 mm

DMT 01 ATEX E 157

IECEX BVS 07.0015

II 2 G Ex mb IIC T4 Gb

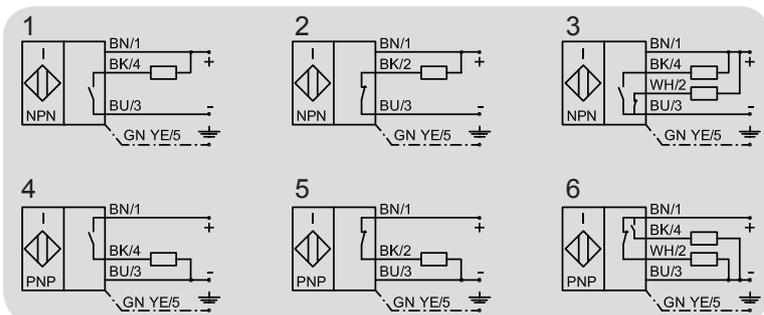
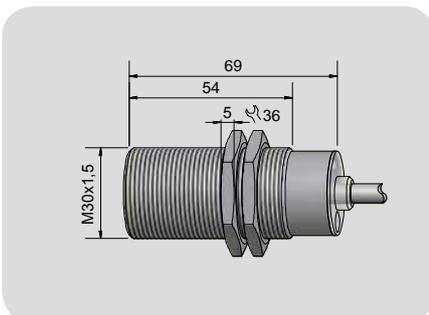
Ex mb IIC T4 Gb

II 1/2 D Ex ta/tb IIIC T101°C Da/Db

Ex ta/tb IIIC T101°C Da/Db



Technical data	Flush mountable
Operating distance S_n	10 mm
Electrical version	4-wire DC
Output	Antivalent
Type NPN	IAS-20-A14-A-StEx
Art.-No.	IA 0137
Connection diagram No.	3
Type PNP	IAS-20-A14-A-StEx
Art.-No.	IA 0109
Connection diagram No.	6
Operating voltage (U_B)	10...30 V DC
Voltage drop max. (U_d)	≤ 2.5 V
Permitted residual ripple max.	10 %
Operating current (I_o)	2 x 0...150 mA
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 mm ²
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)
Accessories (delivered with the sensor)	2 nuts M 30 x 1.5



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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 S_n 10 mm
- With flange connector M 12 x 1

DMT 01 ATEX E 157

IECEX BVS 07.0015

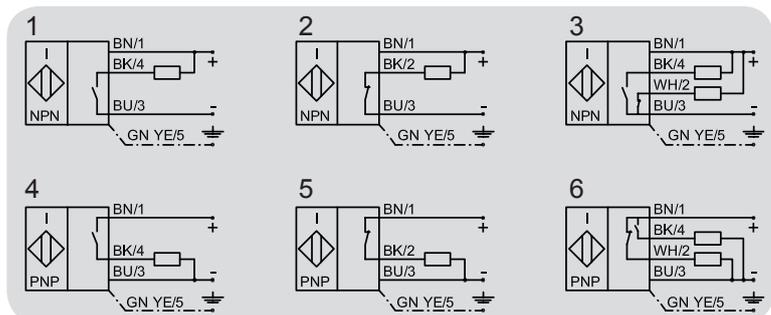
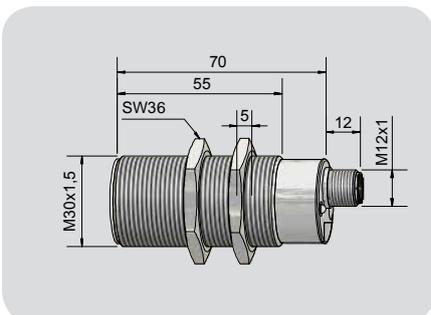
Ex II 1/2 D Ex ta/tb IIIC T101°C Da/Db

Ex ta/tb IIIC T101°C Da/Db



Technical data	Flush mountable
Operating distance S_n	10 mm
Electrical version	4-pin DC
Output	Antivalent
Type NPN	
Art.-No.	
Connection diagram No.	
Type PNP	IAS-10-A14-A-Y10-StEx
Art.-No.	IA 0231
Connection diagram No.	6
Operating voltage (U_b)	10...30 V DC
Voltage drop max. (U_d)	≤ 2.5 V
Permitted residual ripple max.	10 %
Operating current (I_o)	2 x 0...150 mA
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)
Accessories (delivered with the sensor)	2 nuts M 30 x 1.5, protective clip
For matching connectors please see our selection of accessories.	

All specifications are subject to change without notice. (09/2016)



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SERIES 30 (NAMUR) • ATEX / IECEx

Pages:

Inductive Sensors, ATEX Zone 0, Ø 4 mm to Ø 11 mm	14 - 18
Inductive Sensors, ATEX Zone 0, M 12	19 - 22
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All specifications are subject to change without notice. (01/2017)



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 $S_n = 0.8$ mm

Certificates:



DMT 03 ATEX E 048

IECEx BVS 07.0031

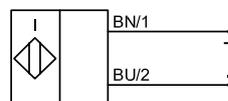
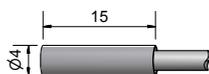
Ex II 1G Ex ia IIC T1-T6 Ga

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	-20...+70 °C
LED-display	-
Degree of protection IEC 60529	IP 67
Connection cable	2 m PVC, 2 x 0.14 mm ²
Housing material	VA No. 1.4305
Active surface	-
Lid	-



All specifications are subject to change without notice. (01/2017)

Made in Germany



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 $S_n = 0.8 \text{ mm}$

Certificates:



DMT 03 ATEX E 048

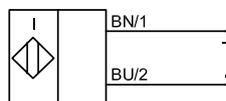
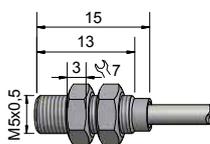
IECEx BVS 07.0031

II 1G Ex ia IIC T1-T6 Ga

Ex ia IIC T1-T6 Ga

Technical data

Operating distance S_n	Flush mountable 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, $U_i = 15 \text{ V DC}$
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	-20...+70 °C
LED-display	-
Degree of protection IEC 60529	IP 67
Connection cable	2 m PVC, 2 x 0.14 mm ²
Housing material	VA No. 1.4305
Active surface	PA / PPO
Lid	-



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All specifications are subject to change without notice. (01/2017)



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 $S_n = 1.5 \text{ mm}$

Certificates:



DMT 03 ATEX E 048

IECEX BVS 07.0031

II 1G Ex ia IIC T1-T6 Ga

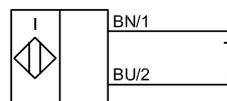
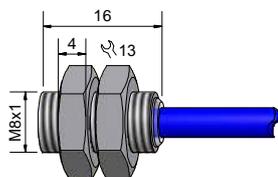
Ex ia IIC T1-T6 Ga

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, $U_i = 15 \text{ V DC}$
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	-20...+70 °C
LED-display	-
Degree of protection IEC 60529	IP 67
Connection cable	2 m PVC, 2 x 0.14 mm ²
Housing material	VA No. 1.4305
Active surface	PVC
Lid	PA / PPO

All specifications are subject to change without notice. (01/2017)



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

Housing Ø 11 mm

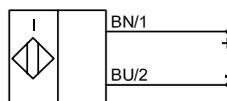
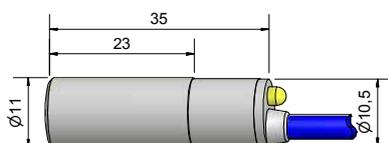
- Housing material: PA / PPO
- For use in areas with the risk of gas explosion, zone 0
- Sensing distance $S_n = 5$ mm

Certificates:



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

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	-20...+70 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67
Connection cable	2 m PVC, 2 x 0.14 mm ²
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PA / PPO



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All specifications are subject to change without notice. (01/2017)



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 $S_n = 2$ mm

Certificates:



DMT 03 ATEX E 048

IECEx BVS 07.0031

II 1G Ex ia IIC T1-T6 Ga

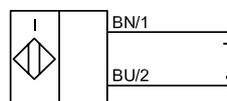
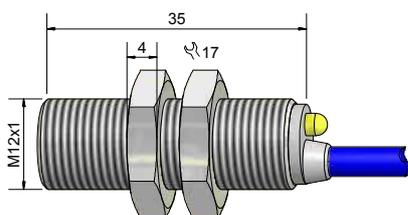
Ex ia IIC T1-T6 Ga

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	-20...+70 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67
Connection cable	2 m PVC, 2 x 0.14 mm ²
Housing material	Brass
Active surface	PA / PPO
Lid	PA / PPO

All specifications are subject to change without notice. (01/2017)



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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 $S_n = 2 \text{ mm}$
- With flange connector M 12 x 1

Certificates:



DMT 03 ATEX E 048

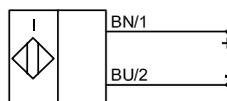
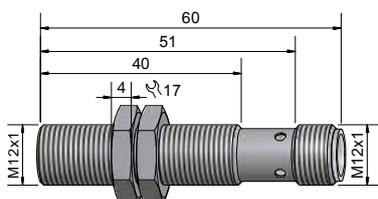
IECEX BVS 07.0031

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, $U_i = 15 \text{ V DC}$
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...+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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All specifications are subject to change without notice. (01/2017)



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 $S_n = 4$ mm

Certificates:



DMT 03 ATEX E 048

IECEX BVS 07.0031

Ex II 1G Ex ia IIC T1-T6 Ga

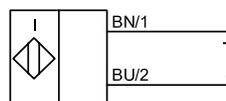
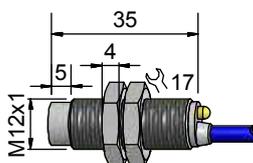
Ex ia IIC T1-T6 Ga

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	-20...+70 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67
Connection cable	2 m PVC, 2 x 0.14 mm ²
Housing material	Brass
Active surface	PA / PPO
Lid	PA / PPO

All specifications are subject to change without notice. (01/2017)



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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 $S_n = 4$ mm
- With flange connector M 12 x 1

Certificates:



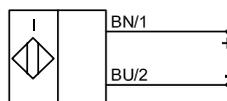
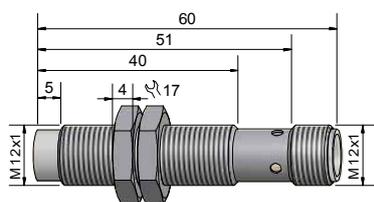
DMT 03 ATEX E 048

IECEX BVS 07.0031

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	-20...+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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All specifications are subject to change without notice. (01/2017)



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 $S_n = 5$ mm

Certificates:



DMT 03 ATEX E 048

IECEx BVS 07.0031

II 1G Ex ia IIC T1-T6 Ga

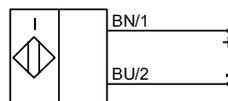
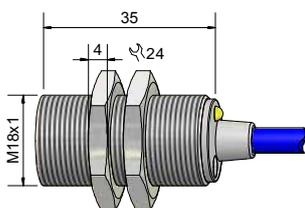
Ex ia IIC T1-T6 Ga

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	-20...+70 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67
Connection cable	2 m PUR, 2 x 0.34 mm ²
Housing material	Brass
Active surface	PA / PPO
Lid	PA / PPO

All specifications are subject to change without notice. (01/2017)



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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 $S_n = 5 \text{ mm}$
- With flange connector M 12 x 1

Certificates:



DMT 03 ATEX E 048

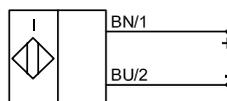
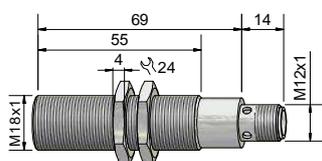
IECEX BVS 07.0031

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, $U_i = 15 \text{ V DC}$
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...+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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All specifications are subject to change without notice. (01/2017)



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 $S_n = 8\text{ mm}$

Certificates:



DMT 03 ATEX E 048

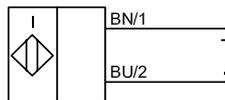
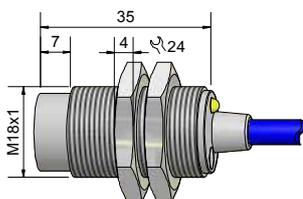
IECEX BVS 07.0031

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, $U_i = 15\text{ V DC}$
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...+70 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67
Connection cable	2 m PUR, 2 x 0.34 mm ²
Housing material	Brass
Active surface	PA / PPO
Lid	PA / PPO

All specifications are subject to change without notice. (01/2017)



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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 $S_n = 8 \text{ mm}$
- With flange connector M 12 x 1

Certificates:



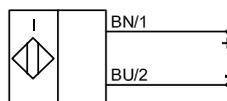
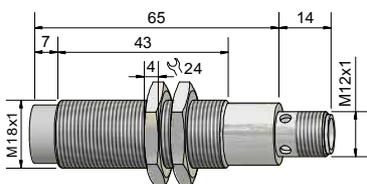
DMT 03 ATEX E 048

IECEX BVS 07.0031

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, $U_i = 15 \text{ V DC}$
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...+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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All specifications are subject to change without notice. (01/2017)



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 $S_n = 10$ mm

Certificates:



DMT 03 ATEX E 048

IECEX BVS 07.0031

II 1G Ex ia IIC T1-T6 Ga

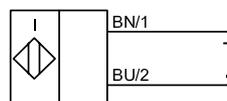
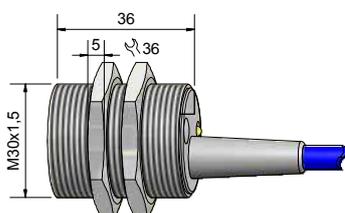
Ex ia IIC T1-T6 Ga

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	-20...+70 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67
Connection cable	2 m PUR, 2 x 0.75 mm ²
Housing material	Brass
Active surface	PVC
Lid	PA / PPO

All specifications are subject to change without notice. (01/2017)



Made in Germany



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 $S_n = 10$ mm
- With flange connector M 12 x 1

Certificates:



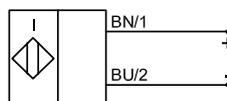
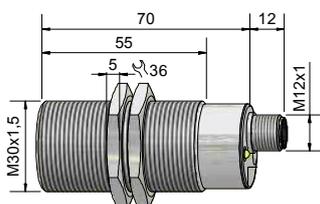
DMT 03 ATEX E 048

IECEX BVS 07.0031

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	-20...+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



Made in Germany

All specifications are subject to change without notice. (01/2017)



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 $S_n = 15$ mm

Certificates:



DMT 03 ATEX E 048

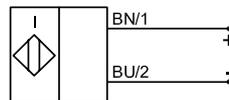
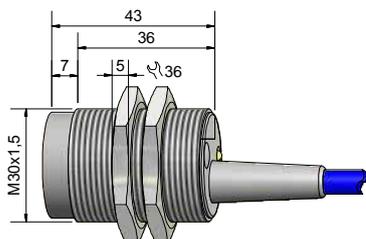
IECEX BVS 07.0031

II 1G Ex ia IIC T1-T6 Ga

Ex ia IIC T1-T6 Ga

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	-20...+70 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67
Connection cable	2 m PUR, 2 x 0.75 mm ²
Housing material	Brass
Active surface	PVC
Lid	PA / PPO

All specifications are subject to change without notice. (01/2017)



Made in Germany



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 $S_n = 15$ mm
- With flange connector M 12 x 1

Certificates:



DMT 03 ATEX E 048

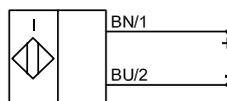
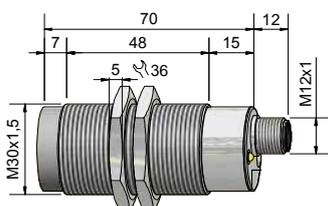
IECEx BVS 07.0031

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	-20...+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



Made in Germany

All specifications are subject to change without notice. (01/2017)

SERIES 30 (NAMUR) • ATEX / IEC Ex

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All specifications are subject to change without notice. (04/2015))



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 $S_n = 2$ mm

Certificates:

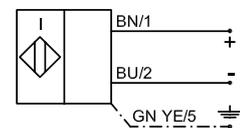
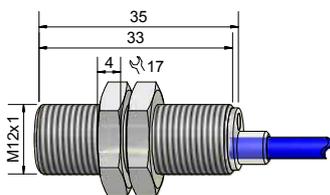


DMT 03 ATEX E 048	IECEx BVS 07.0031
II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga
II 1D Ex ia IIIC T101°C Da	Ex ia IIIC T101°C Da

Technical data

Flush mountable

Operating distance S_n	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 mm ²
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)



All specifications are subject to change without notice. (01/2017)



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 $S_n = 4 \text{ mm}$

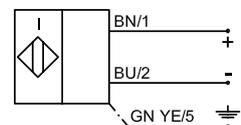
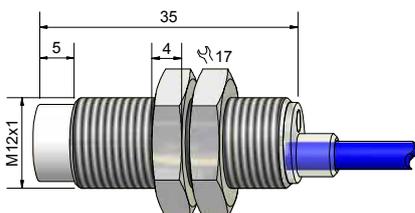
Certificates:    

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

Operating distance S_n	Non-flush mountable 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, $U_i = 15 \text{ V DC}$
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 mm ²
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)

All specifications are subject to change without notice. (04/2015))





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 $S_n = 5$ mm

Certificates:

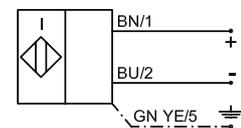
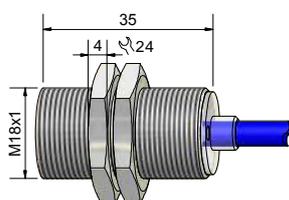


DMT 03 ATEX E 048	IECEX BVS 07.0031
II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga
II 1D Ex ia IIIC T101°C Da	Ex ia IIIC T101°C Da

Technical data

Flush mountable

Operating distance S_n	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 mm ²
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)



All specifications are subject to change without notice. (01/2017)



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 $S_n = 8$ mm

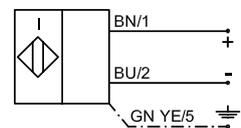
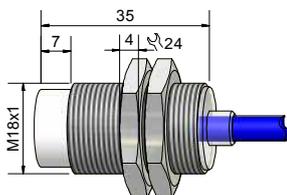
Certificates:    

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 mm ²
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)

All specifications are subject to change without notice. (04/2015))





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 $S_n = 10$ mm

Certificates:

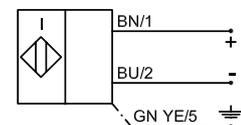
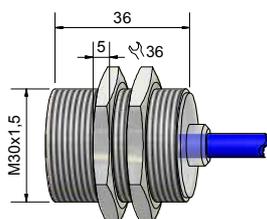


DMT 03 ATEX E 048	IECEx BVS 07.0031
II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga
II 1D Ex ia IIIC T101°C Da	Ex ia IIIC T101°C Da

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 mm ²
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)



All specifications are subject to change without notice. (01/2017)



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

Housing M 30 x 1.5

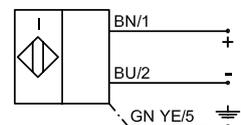
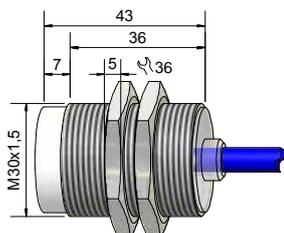
- Housing material: Brass
- For use in areas with the risk of gas explosion, zone 0
- For use in areas with the risk of dust explosion, zone 20
- Sensing distance $S_n = 15$ mm

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-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 mm ²
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)

All specifications are subject to change without notice. (04/2015))





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 $S_n = 15 \text{ mm}$

Certificates:

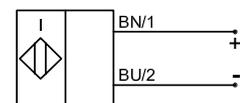
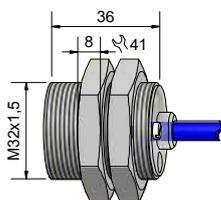


DMT 03 ATEX E 048	IECEx BVS 07.0031
II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga
II 1D Ex ia IIIC T101°C Da	Ex ia IIIC T101°C Da

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, $U_i = 15 \text{ V DC}$
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 mm ²
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PC (FDA 21 CFR 177.1580)



All specifications are subject to change without notice. (01/2017)

INDUCTIVE HIGH-TEMPERATURE SENSORS

	Pages
Inductive Sensors M12	88
Inductive Sensors M 18	89
Inductive Sensors M 32	90 - 91
Evaluation Unit For Inductive High-Temperature Sensors	92

All specifications are subject to change without notice. (01/2017)



Inductive High-Temperature Sensors Series - 250

Housing M 12 x 1 with sealing screw

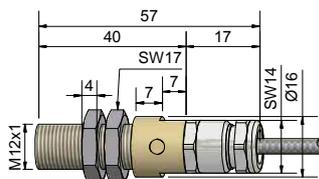
- For connection to the evaluation unit ISA-....-Y10-M12
- Housing material: PEEK
- For an ambient temperature of max. 250 °C

Certificate:



Technical data

Operating distance S_n	Non-flush mountable 4 mm
Sensing distance adjustable at the evaluation unit	-
Type	IS-250-M12-PEEK-250C-Z02-0
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)



Made in Germany

All specifications are subject to change without notice. (01/2017)



Inductive High-Temperature Sensors Series - 250

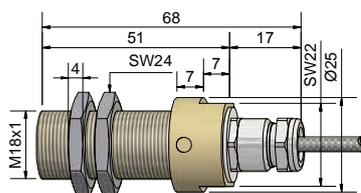
- Housing M 18 x 1 with sealing screw
- For connection to the evaluation unit ISA-...-Y10-M18
 - Housing material: PEEK
 - For an ambient temperature of max. 250 °C

Certificate:



Technical data	Non-flush mountable
Operating distance S_n	8 mm
Sensing distance adjustable at the evaluation unit	-
Type	IS-250-M18-PEEK-250C-Z02-0
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)

All specifications are subject to change without notice. (01/2017)



Made in Germany



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

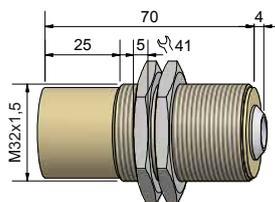
Certificate:



Technical data	Non-flush mountable
Operating distance S_n	15 mm
Sensing distance adjustable at the evaluation unit	-
Type	IS-250-M32-PEEK-250C-Y20-0
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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All specifications are subject to change without notice. (01/2017)



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:

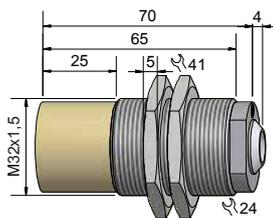


Technical data	Non-flush mountable
Operating distance S_n	15 mm
Sensing distance adjustable at the evaluation unit	-
Type	IS-250-M32-PEEK/VAb-250C-Y20-0
Art.-No.	IA 0124
Permitted ambient temperature	-70...+250 °C
Degree of protection IEC 60529	IP 67
Norm	EN 60947-5-2
Connection for inductive evaluation 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

All specifications are subject to change without notice. (01/2017)



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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

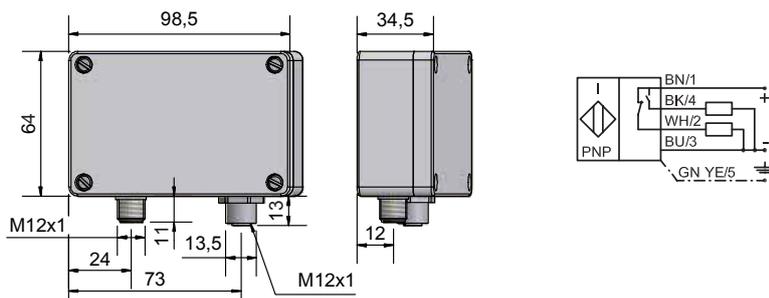
Certificate:



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-BA2-A-AL-122-Y10-1-E for 2 m*	ISA-10-BA2-A-AL-182-Y10-1-E	ISA-10-BA2-A-AL-322-Y10-1-E
Art.-No.	IA 0133	IA 0132	IA 0130
Type PNP		ISA-10-BA2-A-AL-185-Y10-1-E	ISA-10-BA2-A-AL-325-Y10-1-E
Art. No.		IA 0209	IA 0207
Type PNP			ISA-10-BA2-A-AL-3210-Y10-1-E
Art. No.			IA 0208
Operating voltage (U_B)	10...35 V DC	10...35 V DC	10...35 V DC
Output current max. (I_o)	2 x 250 mA	2 x 250 mA	2 x 250 mA
Voltage drop max. (U_o)	≤ 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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All specifications are subject to change without notice. (01/2017)

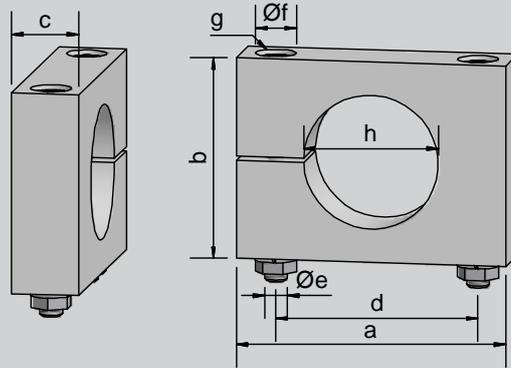
FEMALE CONNECTORS

Sensor Type	Female connector		Article No.	LED Green/ yellow	IP	Connection [mm ²]	Cable- length [m]	Sensor + Length [mm]	Version Connector
	No.	Fig.							
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 0,25	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

All specifications are subject to change without notice. (01/2017)

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

All specifications are subject to change without notice. (01/2017)

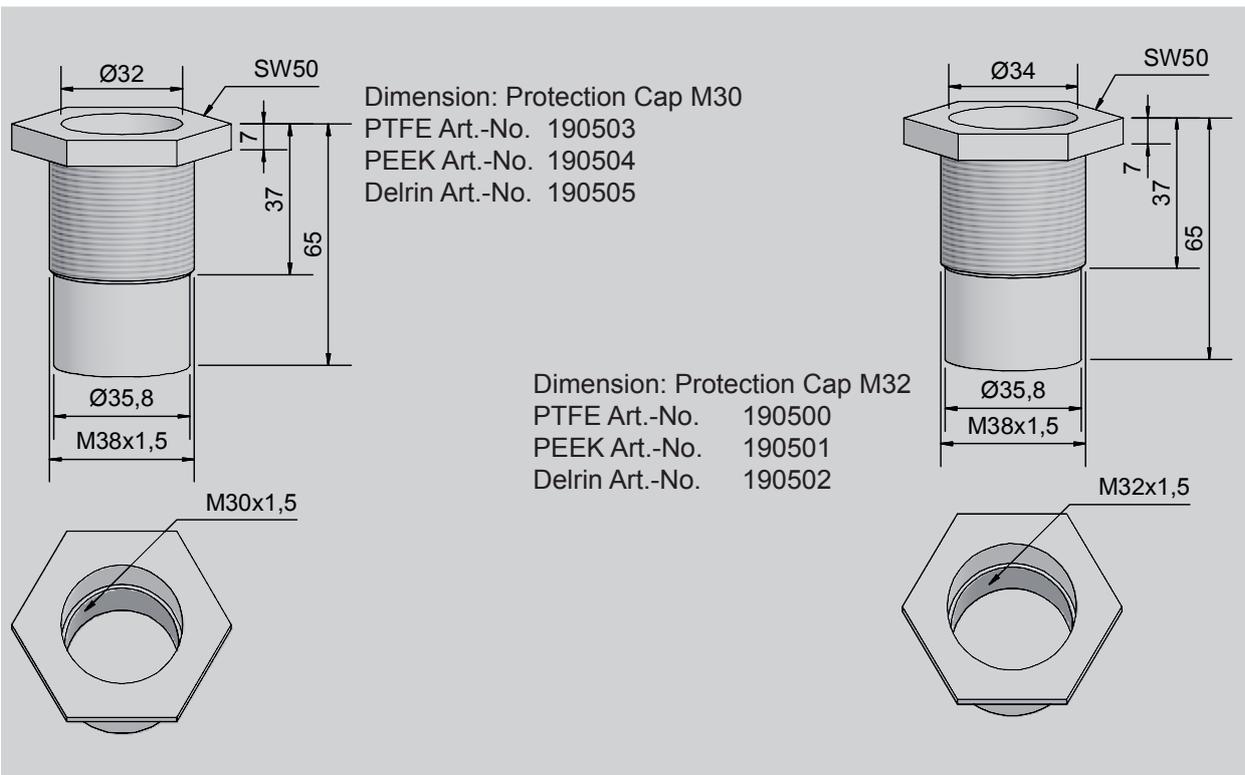
PROTECTION CAPS AND PROTECTION SETS

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.



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.

All specifications are subject to change without notice. (01/2017)

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).

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.

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 Zone 1 occasional Zone 2 rare and short term for dusts: (EN 1127-1) Zone 20 constant or long term or frequent Zone 21 occasional Zone 22 short term or accumulation or layers of dust 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	for gases and dusts } Division 1 } Division 2 NFPA 497 M CSA Nr. C22-1
Certification Authorities	PTB Physikalisch-Technische Bundesanstalt DEKRA EXAM formerly DMT, BVS BASEEFA British Approvals Service for Elec- trical 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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100310	IAS-10-M8-Ö-PVC/VAb-Y7-0	24	196305	Sealing set M18 / PTFE	95
100500	IAS-10-A11-S-M8-PVC/VAb-Z02-0	22	208400	IAS-20-A14-S-M30-PVC/Ms-Z02-0	42
101200	IAS-10-A21-S-M8-PVC/VAb-Z02-0	25	214010	IAS-20-M5-S-PA/VAb-Z02-0	17
103001	IAS-10-A22-S-M12-PBT/Ms-Y5-0	31	300100	IAS-30-A12-N, ATEX	67
105750	IAS-10-A13-IL-M18-PTFE/Ms-Z02-1	35	300200	IAS-30-A22-N, ATEX	70
108350	IAS-10-A23-IL-M18-PTFE/Ms-Z02-1	39	300300	IAS-30-A13-N, ATEX	73
108380	IAS-10-A14-A-M30-PVC/Ms-Z02-0	42	300400	IAS-30-A23-N, ATEX	76
108400	IAS-10-A14-S-M30-PVC/Ms-Z02-0	42	300500	IAS-30-A14-N, ATEX	79
110950	IAS-10-A14-IL-M30-PTFE/Ms-Z02-1	43	300600	IAS-30-A24-N, ATEX	82
110980	IAS-10-A24-A-M30-PVC/Ms-Z02-0	45	300700	IAS-30-04-N, ATEX	62
111000	IAS-10-A24-S-M30-PVC/Ms-Z02-0	45	300800	IAS-30-M5-N, ATEX	63
113550	IAS-10-A24-IL-M30-PTFE/Ms-Z02-1	47	301000	IAS-30-M8-N, ATEX	65
113610	IAS-10-04-S	16	301500	IAS-30-14-N, ATEX	66
114010	IAS-10-M5-S-PA/VAb-Z02-0	17	601000	IAS-60-A13-S-M18-PA/Ms-Z02-0	37
114400	IAS-10-M5-S-PA/VAb-Y7-0	18	601200	IAS-60-A13-Ö-M18-PA/Ms-Z02-0	37
114510	IAS-10-6.5-S-PVC/VAb-Z02-0	20	604100	IAS-60-A13-S-M18-PA/Ms-Z02-0	40
115300	IAS-10-14-S-PA-Z02-0	26	604300	IAS-60-A13-Ö-M18-PA/Ms-Z02-0	40
116900	IAS-10-23-S-M22-PPO-Z02-0-E	41	607300	IAS-60-A14-S-M30-PVC/Ms-Z02-0	44
119480	IAS-10-40-A-PPO--Z02-0	49	610500	IAS-60-A24-S-M30-PVC/Ms-Z02-0	48
121180	IAS-10-C20-A	54	IA0090	IAS-30-A22-N-StEx, ATEX	71
190030	Mounting block PA No. 138 40D	94	IA0091	IAS-30-A12-N-StEx, ATEX	68
190050	Mounting block PA No. 139 50D	94	IA0092	IAS-30-A13-N-StEx, ATEX	74
190100	Mounting block PA No. 140 64D	94	IA0094	IAS-30-A23-N-StEx, ATEX	77
190150	Mounting block PA No. 131 10D	94	IA0095	IAS-30-A14-N-StEx, ATEX	80
190200	Mounting block PA No. 132 11D	94	IA0096	IAS-30-A24-N-StEx, ATEX	83
190250	Mounting block PA No. 133 20D	94	IA0098	IAS-30-35-N-M32-StEx, ATEX	86
190300	Mounting block PA No. 134 22D	94	IA0109	IAS-20-A14-A-StEx, ATEX	58
190350	Mounting block PA No. 135 30D	94	IA0110	IAS-10-A13-A-StEx, ATEX	57
190400	Mounting block PA No. 136 32D	94	IA0111	IAS-10-A12-S-StEx, ATEX	56
190450	Mounting block PA No. 137 34D	94	IA0117	IS-250-M12-PEEK-250C-Z02-0	88
190500	Protection cover M32 PTFE	95	IA0118	IS-250-M18-PEEK-250C-Z02-0	89
190501	Protection cover M32 PEEK	95	IA0122	IS-250-M32-PEEK-250C-Y20-0	90
190502	Protection cover M32 Delrin	95	IA0124	IS-250-M32-PEEK/VAb-250C-Y20-0	91
190503	Protection cover M30 PTFE	95	IA0130	ISA-10-250-A-Y5-M30/M32 for 2 m	92
190504	Protection cover M30 PEEK	95	IA0132	ISA-10-250-A-Y5-M18 for 2 m	92
190505	Protection cover M30 Delrin	95	IA0133	ISA-10-250-A-Y5-M12	92
191500	Female connector No. 9	93	IA0136	IAS-20-A13-A-StEx, ATEX	57
191550	Female connector No. 9A	93	IA0137	IAS-20-A14-A-StEx, ATEX	58
191910	Female connector No. 16a	93	IA0138	IAS-20-A12-S-StEx, ATEX	56
192000	Female connector No. 18	93	IA0146	IAS-20-A11-S-M8-PA/VAb-Z02-0	21
192150	Female connector No. 21	93	IA0175	IAS-10-A12-S-Y5-SN4	29
192200	Female connector No. 22	93	IA0176	IAS-10-A13-S-M18-PBTP/Ms-Y5-0	34
192900	Female connector No. 36	93	IA0184	IAS-10-A12-S-SN4	28
193000	Female connector No. 38	93	IA0185	IAS-10-A13-S-M18-PBT/Ms-Z02-0-S	33
193210	Female connector No. 45	93	IA0186	IAS-30-A14-N-Y5, ATEX	81
193220	Female connector No. 46	93	IA0187	IAS-30-A24-N-Y5, ATEX	84
193230	Female connector No. 47	93	IA0188	IAS-30-A13-N-Y5, ATEX	75
193312	Female connector IS-HT, 2 m, screened	94	IA0189	IAS-30-A23-N-Y5, ATEX	78
193313	Female connector IS-HT, 5 m, screened	94	IA0190	IAS-30-A12-N-Y5, ATEX	69
193314	Female connector IS-HT, 10 m, screened	94	IA0191	IAS-30-A22-N-Y5, ATEX	72
193345	Female connector No. 49a	93	IA0207	ISA-10-250-A-Y5-M30/M32 for 5 m	92
193350	Female connector No. 50	93	IA0208	ISA-10-250-A-Y5-M30/M32 for 10 m	92
193385	Female connector No. 57a	93	IA0209	ISA-10-250-A-Y5-M18 for 5 m	92
193386	Female connector No. 58a	93	IA0231	IAS-10-A14-A-Y10-StEx, ATEX	59
196301	Sealing set M32 / PTFE	95	IA0246	IAS-20-A12-S	27

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IA0249	IAS-20-A22-S-M12-PBT/Ms-Z02-0	30
IA0250	IAS-20-A13-S-M18-PBT/Ms-Z02-0	32
IA0251	IAS-10-A13-S-M18-PBT/Ms-Z02-0	32
IA0252	IAS-20-A23-S-M18-PBT/Ms-Z02-0	38
IA0253	IAS-10-A23-S-M18-PBT/Ms-Z02-0	38
IA0254	IAS-10-6.5/15-S-PA/VAb-Z02-0	19
IA0273	IAS-10-M8-S-PVC/VAb-Z02-0	23
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Female connector IS-HT, 10 m, screened	193314	94	IAS-20-A13-S-M18-PBT/Ms-Z02-0	IA0250	32
Female connector No. 16a	191910	93	IAS-20-A14-A-StEx, ATEX	IA0137	58
Female connector No. 18	192000	93	IAS-20-A14-S-M30-PVC/Ms-Z02-0	208400	42
Female connector No. 21	192150	93	IAS-20-A22-S-M12-PBT/Ms-Z02-0	IA0249	30
Female connector No. 22	192200	93	IAS-20-A23-S-M18-PBT/Ms-Z02-0	IA0252	38
Female connector No. 36	192900	93	IAS-20-M5-S-PA/VAb-Z02-0	214010	17
Female connector No. 38	193000	93	IAS-30-04-N	300700	62
Female connector No. 45	193210	93	IAS-30-14-N, ATEX	301500	66
Female connector No. 46	193220	93	IAS-30-35-N-M32-StEx, ATEX	IA0098	86
Female connector No. 47	193230	93	IAS-30-A12-N, ATEX	300100	67
Female connector No. 49a	193345	93	IAS-30-A12-N-StEx, ATEX	IA0091	68
Female connector No. 50	193350	93	IAS-30-A12-N-Y5, ATEX	IA0190	69
Female connector No. 57a	193385	93	IAS-30-A13-N, ATEX	300300	73
Female connector No. 58a	193386	93	IAS-30-A13-N-StEx, ATEX	IA0092	74
Female connector No. 9	191500	93	IAS-30-A13-N-Y5, ATEX	IA0188	75
Female connector No. 9A	191550	93	IAS-30-A14-N, ATEX	300500	79
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IAS-10-14-S-PA-Z02-0	115300	26	IAS-30-A14-N-Y5, ATEX	IA0186	81
IAS-10-23-S-M22-PPO-Z02-0-E	116900	41	IAS-30-A22-N, ATEX	300200	70
IAS-10-40-A-PPO-Z02-0	119480	49	IAS-30-A22-N-StEx, ATEX	IA0090	71
IAS-10-6.5/15-S-PA/VAb-Z02-0	IA0254	19	IAS-30-A22-N-Y5, ATEX	IA0191	72
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IAS-10-A13-A-StEx, ATEX	IA0110	57	IAS-30-M5-N	300800	63
IAS-10-A13-IL-M18-PTFE/Ms-Z02-1	105750	35	IAS-30-M8-N	301000	65
IAS-10-A13-S-M18-PBT/Ms-Z02-0	IA0251	32	IAS-60-A13-Ö-M18-PA/Ms-Z02-0	601200	37
IAS-10-A13-S-M18-PBT/Ms-Z02-0-S	IA0185	33	IAS-60-A13-S-M18-PA/Ms-Z02-0	601000	37
IAS-10-A13-S-M18-PBTP/Ms-Y5-0	IA0176	34	IAS-60-A14-S-M30-PVC/Ms-Z02-0	607300	44
IAS-10-A14-A	108380	42	IAS-60-A13-Ö-M18-PA/Ms-Z02-0	604300	40
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IAS-10-A14-A-Y10-StEx, ATEX	IA0231	59	IAS-60-A24-S-M30-PVC/Ms-Z02-0	610500	48
IAS-10-A14-IL-M30-PTFE/Ms-Z02-1	110950	43	IS-250-M12-PEEK-250C-Z02-0	IA0117	88
IAS-10-A14-S-M30-PVC/Ms-Z02-0	108400	42	IS-250-M18-PEEK-250C-Z02-0	IA0118	89
IAS-10-A21-S-M8-PVC/VAb-Z02-0	101200	25	IS-250-M32-PEEK/VAb-250C-Y20-0	IA0124	91
IAS-10-A22-S-M12-PBT/Ms-Z02-0	IA0248	30	IS-250-M32-PEEK-250C-Y20-0	IA0122	90
IAS-10-A22-S-M12-PBT/Ms-Y5-0	103001	31	ISA-10-250-A-Y5-M12	IA0133	92
IAS-10-A23-IL-M18-PTFE/Ms-Z02-1	108350	39	ISA-10-250-A-Y5-M18 for 2 m	IA0132	92
IAS-10-A23-S-M18-PBT/Ms-Z02-0	IA0253	38	ISA-10-250-A-Y5-M18 for 5 m	IA0209	92
IAS-10-A24-A-M30-PVC/Ms-Z02-0	110980	45	ISA-10-250-A-Y5-M30/M32 for 10 m	IA0208	92
IAS-10-A24-IL-M30-PTFE/Ms-Z02-1	113550	47	ISA-10-250-A-Y5-M30/M32 for 2 m	IA0130	92
IAS-10-A24-S-M30-PVC/Ms-Z02-0	111000	45	ISA-10-250-A-Y5-M30/M32 for 5 m	IA0207	92
IAS-10-C20-A	121180	54	Mounting block PA No. 131 10D	190150	94
IAS-10-M5-S-PA/VAb-Z02-0	114010	17	Mounting block PA No. 132 11D	190200	94
IAS-10-M5-S-PA/VAb-Y7-0	114400	18	Mounting block PA No. 133 20D	190250	94
IAS-10-M8-Ö-PVC/VAb-Z02-0	IA0275	23	Mounting block PA No. 134 22D	190300	94
IAS-10-M8-Ö-PVC/VAb-Y7-0	100310	24	Mounting block PA No. 135 30D	190350	94
IAS-10-M8-S-PVC/VAb-Z02-0	IA0273	23	Mounting block PA No. 136 32D	190400	94
IAS-10-M8-S-PVC/VAb-Y7-0	100200	24	Mounting block PA No. 137 34D	190450	94
IAS-20-A11-S-M8-PA/VAb-Z02-0	IA0146	21	Mounting block PA No. 138 40D	190030	94
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