

# CAPACITIVE SENSORS

**RECHNER**  
**SENSORS**



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

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# CAPACITIVE SENSORS KAS

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## TECHNOLOGY

Capacitive sensors, our abbreviation **KAS**, contain a transistor oscillator which is actuated when a defined capacitance is exceeded by the approach of metals, non-metals or liquids. The smaller its dielectric permittivity  $\epsilon_r$ , the closer the medium has to be approached. This effect can also be achieved by detecting through non-metal materials, if the dielectric permittivity of the material to be detected is higher (approx. factor 5). 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 similar to mechanical switches

<b>Normally open NO</b>
<b>Normally closed NC</b>
<b>Change-over (Antivalent) (NO + NC)</b>

Electronic circuits, PLCs, relays or contactors can be activated directly by capacitive sensors. The current change in the oscillator is caused without physical 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 sensing distance ( $S_n$ )  $\pm 10\%$ .

The **RECHNER** capacitive sensors with 20-turn spindle potentiometer allow sensitivity adjustment greater or less than the nominal sensing distance. Under the best operating conditions (e.g. constant ambient conditions) a sensing distance up to the maximum specified value can be adjusted. The components of the KAS are mounted in plastic or metal casings and encapsulated with epoxy casting resin.

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). 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 +70 °C, and up to 90 °C for brief periods. High-temperature types for use from -200 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.

**KAS** can be used in machines, systems and vehicles for level monitoring of liquids or bulk material, and also through non-metal windows. Further more as limit switches, contact-less position switches for monitoring and positioning, as pulse generator for counting tasks, distance and speed measurements and for many other applications.

## TECHNOLOGY

### 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.

The following housing materials are used:

Short description	Material	FDA - No.	Contact with food permitted	Traceability according to. EU 1935/2004
PA	Polyamide 6.6, glasfibre reinforced	No	No	No
PC	Polycarbonate	FDA 21 CFR 177.1580	Yes	No
PEEK	Polyetheretherketone	FDA 21 CFR 177.2415	Yes	Yes
POM	Polyoxymethylene	No	No	No
PP	Polypropylene	FDA 21 CFR 177.1520	Yes	No
PPO	Polyphenylenoxide	No	No	No
PTFE	Polytetrafluorethylene	FDA 21 CFR 177.1550	Yes	Yes
PVC	Polyvinylchloride	No	No	No
PVDF	Polyvinylidenfluoride	FDA 21 CFR 177.2510	Yes	No
AL	Aluminium	No	No	No
MS	Brass / chrome or nickel plated	No	No	No
VAA	Stainless steel VA, material No. 1.4301 (AISI 304)	No	No	No
VAb	Stainless steel VA, material No. 1.4305 (AISI 303)	No	No	No
VAc	Stainless steel VA, material No. 1.4404 (AISI 316L)	FDA conform	Yes	No

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**Wiring of the capacitive 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.

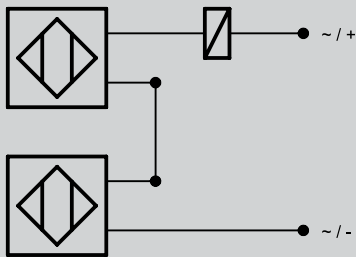
**Units with strong near field power**, e. g. high power walkie-talkies, or noise sources in the lower frequency range, e.g. long, middle or short wave transmitters should not be operated close to the sensors or additional measures have to be taken in order to eliminate incorrect operation.

## TECHNOLOGY

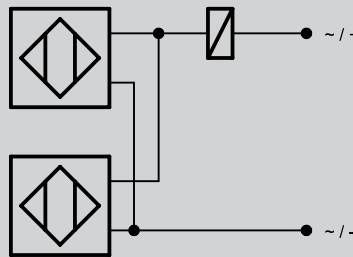
### Series connection or parallel connection

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.

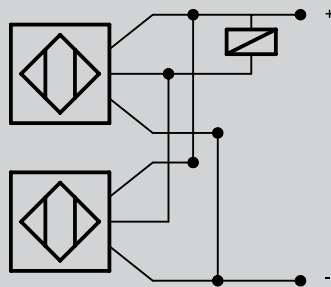
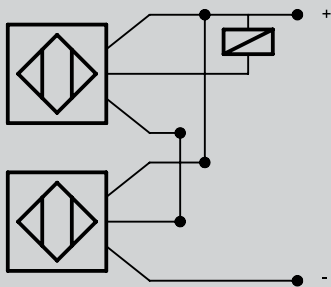
**Series connection**



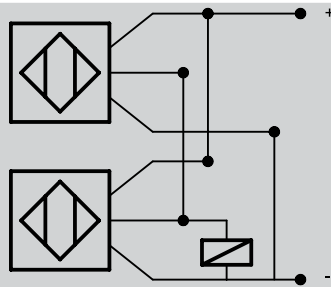
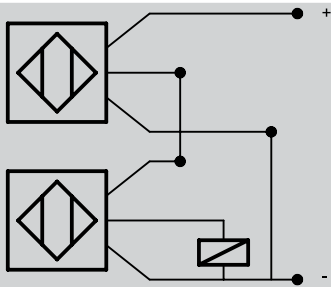
**Parallel connection**



2 wire AC / DC



3 wire DC NPN



3 wire DC PNP

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# ADJUSTMENT

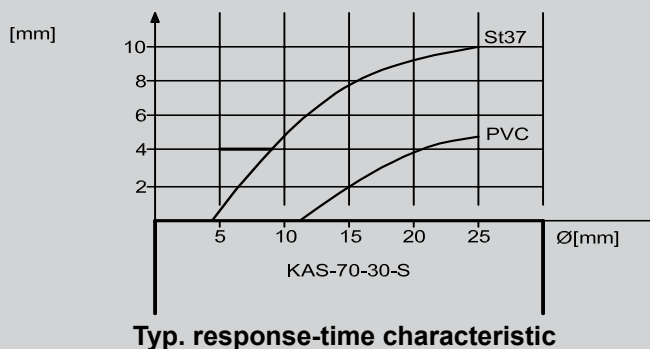
## Capacitive sensors with analog output 4...20 mA/0...10 V or inverted

Analog capacitive 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 80 are designed with a 2-colour LED which facilitates adjustment. Within the operating range of 4...20 mA the LED is yellow. In the undamped state the output current value is > 20 mA and moves with the reduction of the object distance toward 4 mA (value at total damping approx. 2.5 mA). In the case of series 40 for some types the current characteristic is inversely-proportional to the object-distance.

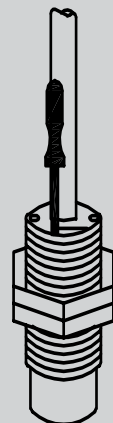
## Nominal sensing distance (Sn) - measurement according to DIN VDE 0660, Part 208

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

### Sensing distance



Adjustment of the sensing distance is made by means of a spindle potentiometer with the screwdriver provided. With plug-gable sensors ≤ M 18 x 1 / Ø 22 the potentiometer is on the side.



For size M 30 x 1.5 / Ø 30:  
First open plastic tab.  
For size > M 30 x 1.5 / Ø 30:  
First remove plastic sealing screw.

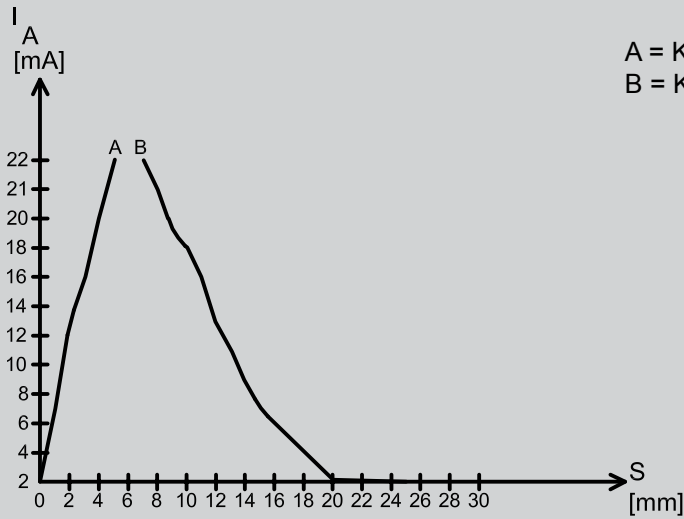
The possible sensing distance for a particular material is dependent on the dielectric permittivity  $\epsilon_r$  and can be worked out by means of the typical reduction factors:

**Sensing distance = Sn x reduction factor.**

Material:	FE 360	St 37	Water	Wheat	Wood	Glass	Oil	PVC	PE	Ceramic
Reduction factor approx.	1	1	1	0.8	0.7	0.6	0.4	0.4	0.37	0.3

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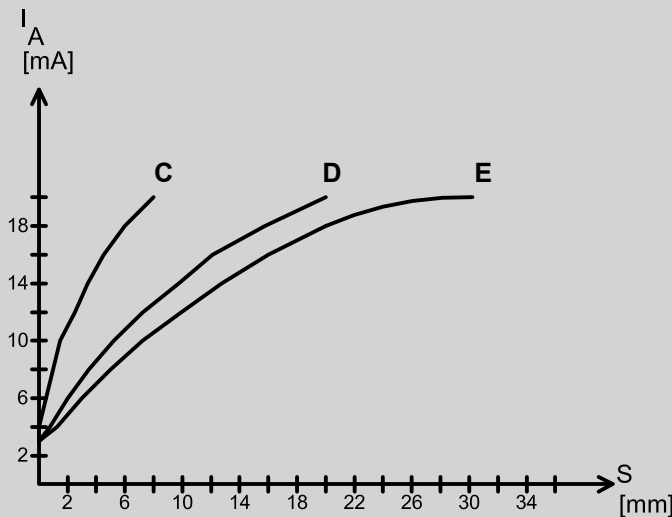
## TYPICAL CURVES



Typ. curve of 2 wire analog sensors

A = KAS-40-A13-IL, ATEX  
B = KAS-40-A24-IL-M30-V2A-StEx, ATEX

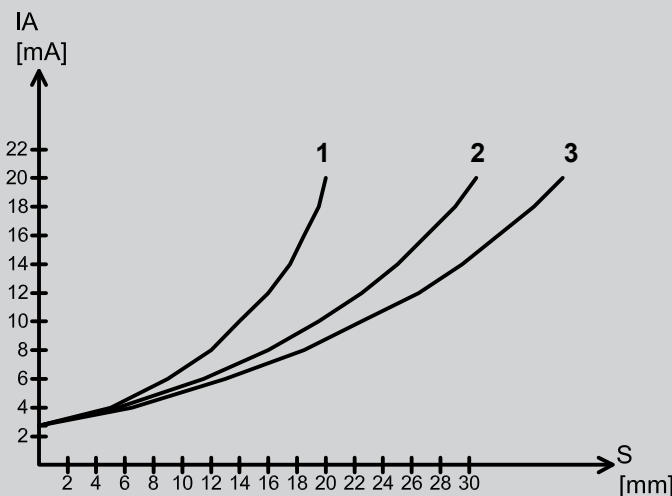
Parameter:  
 $T_u = 25\text{ }^\circ\text{C}$ ,  $U_B = 12\text{ V DC}$   
Actuator  
Steel St 37, 1 mm thick,  
square, side length to  
3 x diameter of the active  
area, earthed.



Typ. curve of 3 wire analogue sensors

C = KAS-80-A13-IL  
D = KAS-80-A14-IL  
E = KAS-80-30-IL(-M32)

Parameter:  
 $T_u = 25\text{ }^\circ\text{C}$ ,  $U_B = 24\text{ V DC}$   
Actuator  
Steel St 37, 1 mm thick,  
square, side length to  
3 x diameter of the active  
area, earthed.



3 wire analogue sensors with different adjustments

KAS-80-34-IL-M32-PTFE/MS  
1 = Adjustment 20 mm  
2 = Adjustment 30 mm  
3 = Adjustment 36 mm

Parameter:  
 $T_u = 25\text{ }^\circ\text{C}$ ,  $U_B = 24\text{ V DC}$   
Actuator  
Steel St 37, 1 mm thick,  
square, side length to  
3 x diameter of the active  
area, earthed.

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# MOUNTING

## Flush mounting or non-flush mounting types

There are two different types of capacitive sensors:



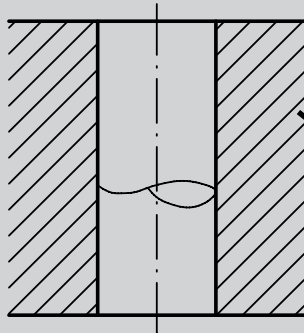
**For flush mounting in metal or other materials.** These sensors can be mounted close together (see Fig. 1 and 3) and are specially designed for contact-less detection of solids or liquids through non-metal containers (max. wall-thickness 4 mm)



**For non-flush mounting in metal or other materials.** When mounting two or more sensors side by side a space / free zone must be provided (see Fig. 2 and 4). These sensors are designed for applications where the detecting material comes into contact with the active area of the sensor (e.g. level monitoring of bulk materials or liquids).

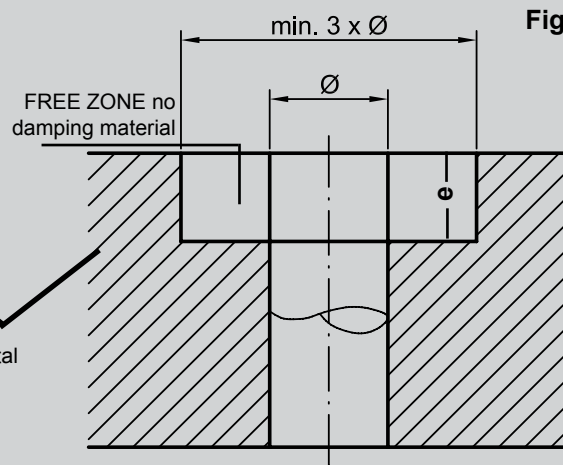
### Mounting

Fig.1



Metal

Fig.2



The dimension „e“ corresponds to the thread-free area of standard sensor types (-A21-...). Otherwise „e“ is  $\geq 25$  mm.

Fig.3

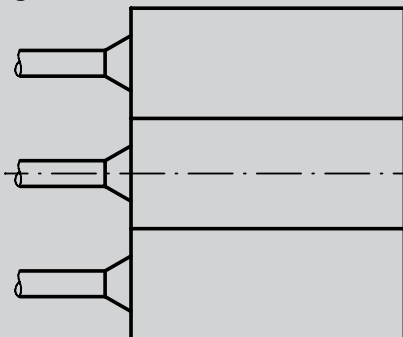
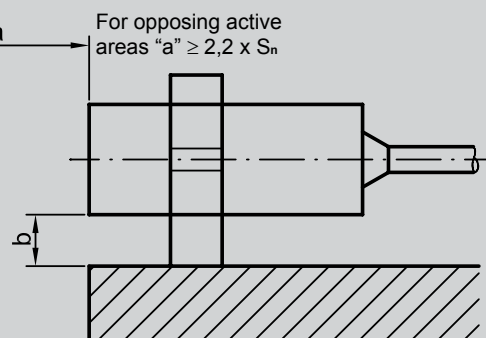


Fig.4



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

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## MOUNTING

### Maximum Torque

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

Housing Material						
Thread	PVC	PPO	PA 6.6	PTFE	Brass	Stainless Steel
M 5 x 0.5	-	-	-	-	-	1.5 Nm
M 8 x 1	-	-	-	-	-	4.5 Nm
M 12 x 1	1.5 Nm	1 Nm	1 Nm	0.2 Nm	15 Nm	15 Nm
M 18 x 1	-	3 Nm	1.7 Nm	0.5 Nm	28 Nm	40 Nm
M 22 x 1.5	12 Nm	10 Nm	6 Nm	1,4 Nm	32 Nm	50 Nm
M 30 x 1.5	-	8 Nm	8 Nm	2.5 Nm	82 Nm	150 Nm
M 32 x 1.5	-	13 Nm	13 Nm	3 Nm	110 Nm	180 Nm
G 1"	-	-	-	2.5 Nm	-	-

### Threaded sensors - maximum screw-in length

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

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## TECHNICAL TERMS

Unless otherwise specified technical data is as follows: +20 °C,  
 $U_B = 8 \text{ V DC}$  for KAS-40;  $U_B = 24 \text{ V DC}$  for KAS-70 and KAS-80 and  $U_B = 230 \text{ V AC}$  for KAS-90.

### Operating sensing distance / $S_a$

Within the operating sensing distance the sensor operates reliably taking into 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.

### 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  $-5 \text{ °C}$ . 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.

### Minimum sensing distance / $S_{min}$

The minimum possible sensing distance, which can be adjusted by potentiometer and which can be used effectively in practical applications with reference to a medium with  $\epsilon_r \geq 80$ .

### Maximum sensing distance / $S_{max}$

The maximum possible sensing distance, which can be adjusted by potentiometer and which can be used effectively in practical applications with reference to a medium with  $\epsilon_r \geq 80$ . The sensors should only be used under constant ambient conditions, such as constant temperature, no humidity, and no deposits on the active face of the sensor.

### Nominal sensing distance / $S_n$

The characteristic value of a proximity sensor, without consideration of production tolerances and variations due to temperature and voltages.

### Real sensing distance / $S_r$

The sensing distance determined at +20 °C and rated voltage. Here the series variance is taken into consideration. Variation max.  $10 \% \pm$  of  $S_n$ .

### Reduction factors

For materials other than metals (e.g. FE 360 or ST 37, Al, Cu) or water, the reduction factors shown in the table on page 6 should be taken into consideration.

### 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  $S_n$ .

## TECHNICAL TERMS

### 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.

### Temperature variation

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

### Degree of protection according to IEC 60529

	1. Digit: Protection against solids		2. Digit: Protection against water	
IP	0	No protection	0	No protection against water
IP	1	Protection against solid foreign bodies $\varnothing > 50$ mm	1	Protection against vertical water drops
IP	2	Protection against solid foreign bodies $\varnothing > 12,5$ mm	2	Protection against diagonal water drops (up to a $15^\circ$ angle)
IP	3	Protection against solid foreign bodies $\varnothing > 2,5$ mm	3	Protection against spray water
IP	4	Protection against solid foreign bodies $\varnothing > 1$ mm	4	Protection against splashing water
IP	5	Protection against harmful dust deposits, dust protected	5	Protection against water jet
IP	6	Protection against contact with voltage-carrying parts. Protection against penetration of dust	6	Protection against strong water jet
			7	Protection against ingress of water when the equipment is immersed in water, up to 1 m depths and for a period of 30 minutes
			8	Protection against ingress of water when the equipment is immersed in water, under conditions determined from the manufacturer.
			9	Protection against ingress of water during high pressure or steam cleaning under defined conditions

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## SERIES

### Capacitive sensors - series 40

The **series 40** contains capacitive 2-wire proximity signal generators according to NAMUR DIN 60947-5-6, also StEx-Versions for use in zone 20 (dust explosion protection). These sensors can be mounted in explosion hazardous areas when they are connected to approved isolating switching amplifiers with intrinsically safe control circuit [EExia] or [EExib], our series N-132. Depending on the isolating switching amplifier selected the NAMUR-sensors of this series can be used up to zone 0 (StEx-Versions also for zone 20). The data specified in the certificate of conformity of the selected isolating switching amplifier must be taken into consideration. The 2-wire analog sensors of this series can also be used in zone 0 if they are connected to an ATEX-certificated amplifier, such as our series N-132.

### Transistor amplifier - series 120

The transistor amplifier of our **series 120** has been designed especially for use with **our capacitive NAMUR mini-sensors (e.g. KAS-40-6/15-N, KAS-40-A11-N, KAS-40-18/5-N)**. All sensors according to NAMUR are connectable (provided that the cable diameter corresponds to the connector), our **series IAS-30...** and **KAS-40...** The sensing distance is adjustable by means of a potentiometer, this also applies to capacitive sensors that have no adjustment on the body. The antivalent outputs (NO and NC function) are overload protected and are available as pnp or npn output. The strong PA 6.6 housing may be mounted with additional units side by side and is equipped with a two- colour LED display that monitors stand-by (green) operating condition (yellow). Sensor and amplifier may be connected by a plug contact (female connector is enclosed).

### Capacitive sensors - series 70

The **series 70** contains capacitive 3-wire or 4-wire proximity sensors with NPN digital output with NO, NC or antivalent function (NO and NC). Electronic circuits, PLC's, relays and our power supplies of series 130 can be activated directly. The sensors are reverse-polarity protected, overload-protected and have electronic short-circuit protection. StEx-versions with ATEX and IECEx certification for applications in zone 20, sensors for ambient temperatures up to +100 °C or for products with very high static charge complete the scope of the standard versions.

### Capacitive sensors - series 80

The **series 80** contains capacitive 3-wire or 4-wire proximity sensors with PNP digital output with NO, NC or antivalent function (NO and NC). Electronic circuits, PLC's, relays and our power supplies of series 130 can be activated directly. The sensors are reverse-polarity protected, overload-protected and have electronic short-circuit protection. StEx-versions with ATEX and IECEx certification for applications in zone 20, sensors for ambient temperatures up to +100 °C or for products with very high static charge complete the scope of the standard versions.

### Capacitive sensors - series 2000

The **series 2000 quattro<sup>+</sup>** contains capacitive 3-wire DC proximity sensors with **four output-functions, NPN-NO** and **PNP-NC** or, after resetting of the coding switch, **NPN-NC** and **PNP-NO**. Electronic circuits, PLC's and relays can be directly activated. Different housing materials are available, such as PA or PPO, PTFE, PTFE / brass or PTFE / VA. This series is completed by a version for medium temperatures up to **+160 °C**.

## SERIES

### Capacitive sensors - series 90

The **series 90** contains capacitive 2-wire AC / DC proximity sensors with thyristor digital output or FET-stage with NO and NC function. AC relays, conductors and solenoid valves can be directly activated. PLCs with AC inputs can also be connected so long as the minimum load current is taken into consideration. The sensors have a protective circuit against high induction voltages.

### Capacitive sensors - series 1000

The **series 1000 duo**<sup>~2</sup> contains capacitive 2-wire a.c.-d.c. proximity sensors with NO and NC-function. The supply voltage range of 20...250 V AC / DC allows for applications in electronic circuits, PLC's as well as for conductors with AC supply voltage. The output functions (NO or NC) can be determined by means of a coding switch.

### Increased requirements to the sensor

For **increased requirements** for the permitted ambient temperature range of our capacitive proximity sensors, we offer the series **up to +100 °C** with integrated electronics as a 3-Wire DC version (see series 70 and 80). The sensors are available with housings made of PTFE, PTFE / VA or PTFE / brass.

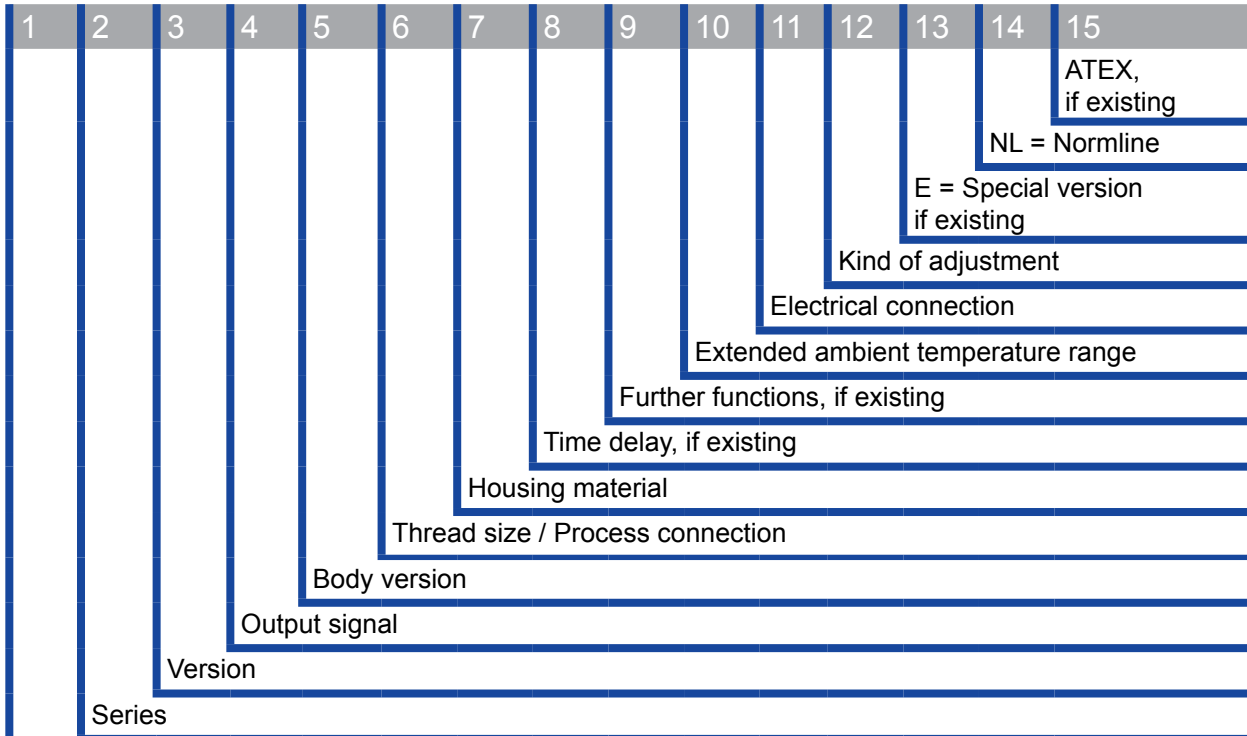
Sensors with quattro<sup>+3</sup> are available for **temperatures up to +160 °C (medium)** (see series 2000). Here too housing materials of PTFE and VA are used as standard.

For extreme ambient or product-temperature conditions, our series 250 (see series 250) or "KXS-Extreme" are available with **high temperature sensors up to +250 °C** and remote electronics (please ask for the KXS catalogue). The sensors of our series 250 are integrated in PTFE or PTFE / VA housings. The FEP-coated sensor cable, in the lengths 2 m and 5 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 a LED. The sensing distance adjustment should be made at operating temperature. Here the maximum specified sensing distance and the temperature drive must be taken into consideration.

## TYPE CODE

Example:

**KAS - 80 - 35 - A - M32 - PTFE/VA - 100C - Z02 - 1**



KAS = Capacitive proximity sensor

KS = Capacitive Sensor / Capacitive probe

KSA = Capacitive evaluation unit

## Position 2

Serie	Output	Supply voltage
40	NAMUR DIN 60947-5-6, ATEX	DC
42	NAMUR DIN 60947-5-6, ohne ATEX	DC
70	NPN	DC
80	PNP	DC
7080	NPN / PNP	DC
83	PNP	DC
90	FET output	AC / DC
95	Relay output	AC / DC
250	High-temperature evaluation unit, probe	Evaluation unit AC / DC, Probe passive
700	Level Master NPN	DC
701	Level Master NPN XS	DC
800	Level Master PNP	DC
801	Level Master PNP XS	DC
1000	Thyristor output	AC / DC
2000	NPN/PNP selectably via change-over switch	DC

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## TYPE CODE

### Position 3

Value	Body size ( $\varnothing$ = mm)	Cylindrical	Mounting version	Special length (mm)
A11	M8 x 1	Yes	Flush	-
A21	M8 x 1	Yes	Non-flush	-
A21/63	M8 x 1	Yes	Non-flush	63
A12	M12 x 1	Yes	Flush	-
A22	M12 x 1	Yes	Non-flush	-
A13	M18 x 1	Yes	Flush	-
A23	M18 x 1	Yes	Non-flush	-
A14	M30 x 1,5	Yes	Flush	-
A14/40	M30 x 1,5	Yes	Flush	40
A24	M30 x 1,5	Yes	Non-flush	-
A24/50	M30 x 1,5	Yes	Non-flush	50
A24/90	M30 x 1,5	Yes	Non-flush	90
6/15	$\varnothing$ 6	Yes	Flush	15
6.3/20	$\varnothing$ 6,3	Yes	Flush	15
6.5/20	$\varnothing$ 6,5	Yes	Non-flush	20
M8/15	M8 x 1	Yes	Flush	15
M8/25	M8 x 1	Yes	Non-flush	26
M10/70	M10 x 1,5	Yes	Non-flush	70
10	$\varnothing$ 11	Yes	Flush	-
14	$\varnothing$ 11	Yes	Non-flush	-
M16	M16 x 1,5	Yes	Non-flush	-
G1/4	G1/4"	Yes	Non-flush	-
G3/8	G3/8"	Yes	Non-flush	-
G1/2	G1/2"	Yes	Non-flush	-
G3/8/35	G3/8"	Yes	Non-flush	35
G3/8/50	G3/8"	Yes	Non-flush	50
G3/8	G3/8"	Yes	Non-flush	150
R3/8/35	R3/8"	Yes	Non-flush	35
18	$\varnothing$ 18	Yes	Flush	-
18/4	$\varnothing$ 18	Yes	Flush	4
M18/50	M18 x 1	Yes	Non-flush	50
M18/150	M18 x 1	Yes	Non-flush	150
20	$\varnothing$ 20	Yes	Flush	-
20	$\varnothing$ 22	Yes	Flush	-
20	M22 x 1,5	Yes	Flush	-
20/5	$\varnothing$ 20	Yes	Flush	5
20/137	$\varnothing$ 20	Yes	Non-flush	137
23	$\varnothing$ 20	Yes	Non-flush	-
23	$\varnothing$ 22	Yes	Non-flush	-
23	M22 x 1,5	Yes	Non-flush	-
23/170	$\varnothing$ 22	Yes	Non-flush	170

### Position 3

Value	Body size ( $\varnothing$ = mm)	Cylindrical	Mounting version	Special length (mm)
26/105	$\varnothing$ 15	Yes	Non-flush	105
26/113	$\varnothing$ 26	Yes	Non-flush	113
26/160	$\varnothing$ 15	Yes	Non-flush	160
26/200	$\varnothing$ 26	Yes	Non-flush	200
26/240	$\varnothing$ 26	Yes	Non-flush	240
26/300	$\varnothing$ 26	Yes	Non-flush	300
26/400	$\varnothing$ 26	Yes	Non-flush	400
26/416	$\varnothing$ 26	Yes	Non-flush	416
26/445	$\varnothing$ 26	Yes	Non-flush	445
30	$\varnothing$ 30	Yes	Flush	-
30/10	$\varnothing$ 30	Yes	Flush	10
30/50	$\varnothing$ 30	Yes	Flush	50
30/40	$\varnothing$ 30	Yes	Flush	40
30EM/15	$\varnothing$ 30	Yes	Flush	-
30/60	$\varnothing$ 30	Yes	Flush	60
35	$\varnothing$ 32	Yes	Non-flush	-
35	M32 x 1,5	Yes	Non-flush	-
35/22	$\varnothing$ 38	Yes	Non-flush	22
35/50	M32 x 1,5	Yes	Non-flush	50
37	$\varnothing$ 34	Yes	Flush	-
38	$\varnothing$ 34	Yes	Non-flush	-
40	$\varnothing$ 40	Yes	Flush	-
41	$\varnothing$ 40	Yes	Non-flush	-
50	$\varnothing$ 50	Yes	Flush	-
53	$\varnothing$ 50	Yes	Non-flush	-
61	$\varnothing$ 64	Yes	Non-flush	-
C20	46 x 74,5	Quader	Non-Flush	-
C30EM/8	34 x 34	Quader	Flush	-
C40/30	120 x 80 x 30	Quader	Flush	-
C41/30	120 x 80 x 30	Quader	Non-flush	-
P50	Paddle	Smart-paddle	Non-flush	-
BB	50 x 50 x 26	Quader	Non-flush	-
B	46,6 x 74,5 x 30	Quader	Non-flush	-
BXL	110 x 70 x 40	Quader	Non-flush	-

All specifications are subject to change without notice. (04/2017)



## TYPE CODE

Position 4	
Value	Output signal
A	Antivalent (NO + NC)
S	Normally open (NO)
Ö	Normally closed (NC)
P	Normally open / Normally closed changeable
N	NAMUR
IL4/UL0	Analogue output 4...20 mA/0...10 V
IL20/UL10	Analogue output 20...4 mA/10...0 V
IL4	Analogue current output 4...20 mA
IL20	Analogue current output 20...4 mA
1CO	Micro controller, 1 Change-over contact
1COR	Micro controller, 1 Change-over contact
X	Passiv

Position 5	
Value	Thread / Process connection
M8	M8 x 1
M12	M12 x 1
M14	M14 x 1
M16	M16 x 1
M18	M18 x 1
M22	M22 x 1,5
M30	M30 x 1,5
M32	M32 x 1,5
G1/2	G1/2"
G3/4	G3/4"
G1	G1"
G11/2	G1 1/2"
NPT1/4	NPT 1/4"
R3/8	R3/8"
PFM22	M22 x 1,5
PFM30	M30 x 1,5
TRI	Triclamp
PFS1	Fit PFS1
PFS2	Fit PFS2
F30	Fit F30

All specifications are subject to change without notice. (04/2017)

## TYPE CODE

### Position 6

Material	Active surface	Housing
Ceramic/VAb	Ceramics	Stainless steel No. 1.4305 (AISI 303)
LCP	Liquid crystal polymer	Liquid crystal polymer
LCP/VAb	Liquid crystal polymer	Stainless steel No. 1.4305 (AISI 303)
PA	Polyamide 6.6. glass-fibre reinforced	Polyamide 6.6. glass-fibre reinforced
PA/MS	Polyamide 6.6. glass-fibre reinforced	Brass nickel
PA/VAb	Polyamide 6.6. glass-fibre reinforced	Stainless steel No. 1.4305 (AISI 303)
PBT/MS	Polybutyleneterephthalate	Brass nickel
PC	Polycarbonate	Polycarbonate
PEEK	Polyetheretherketone FDA 21 CFR 177.2415	Polyetheretherketone FDA 21 CFR 177.2415
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)
POM	Polyoxymethylene	Polyoxymethylene
PP	Polypropylene	Polypropylene
PPO	Polyphenylenoxide	Polyphenylenoxide
PPO/MS	Polyphenylenoxide	Brass nickel
PPO/VAb	Polyphenylenoxide	Stainless steel No. 1.4305 (AISI 303)
PTFE	Polytetrafluoroethylene FDA 21 CFR 177.1550	Polytetrafluoroethylene FDA 21 CFR 177.1550
PTFE/AL	Polytetrafluoroethylene FDA 21 CFR 177.1550	Aluminium
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
PVC/MS	Polyvinylchloride	Brass nickel
PVC/VAb	Polyvinylchloride	Stainless steel No. 1.4305 (AISI 303)
PVDF	Polyvinylidene fluoride	Polyvinylidene fluoride

## TYPE CODE

### Position 7

Value	Time delay
No indication	No time delay
OND	Switch-on delay
OFD	Switch-off delay
TD	Time delay (switch-on delay / switch-off delay)
TDE	Time delay, special version

### Position 8

Value	More properties
EST	Protection against electrostatic discharge
G	For highly adhesive products
HC	Products with a high dielectric constant or conductivity

### Position 9

Value	Advanced temperature range
No indication	No advanced temperature range
90C	90°C
100C	100°C
120C	120°C
150C	150°C
160C	160°C
180C	180°C
250C	250°C

### Position 10

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
Y7	Flange connector M 8 x 1, DC, 3 Pin
Y8	Flange connector M 8 x 1, DC, 4 Pin
Y5C	Coupling plug M 12 x 1, DC, 4 Pin
Y7C	Coupling plug M 8 x 1, DC, 3 Pin
Y8C	Coupling plug M 8 x 1, DC, 4 Pin
YEC	Coupling plug special housing
Y12	Flange connector M 8 x 1 (Metal), DC, 4 Pin
Y20	Connection to evaluation unit / Sensor Y20
Y21	Connection to evaluation unit / Sensor Y21
KL	Terminal connection

### Position 11

Value	Sensitivity adjustment
1	Potentiometer
0	Fix adjusted, no adjustment possible
ET	Easyteach with button
ETM	EasyTeach by Magnet
ETW	EasyTeach by Wire
MaG	Mount and Go, fix adjusted
CMaG	Customer Mount and Go, fix adjusted

### Position 12

Value	Special version
E	Special version
EBC	C-housing (PA) for separate evaluation unit
BS	Blue Sense
Leak	LEAK-Sensor

### Position 13

Value	Device family
NL	NormLine
HP	HighPerformance
No indication	-

### Position 14

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
StEx3G	For ATEX zone 20 With manufacturer declaration for ATEX zone 2 (gas)

## CYLINDRICAL HOUSING

	Pages
Capacitive sensors M 8 to Ø 11 mm	16 - 18
Capacitive sensors M 12	19 - 25
Capacitive sensors M 18	26 - 34
Capacitive sensors Ø 20 mm to M 22	35 - 41
Capacitive sensors Ø 30 mm	42 - 45
Capacitive sensors M 30	46 - 53
Capacitive sensors M 32	54 - 69
Capacitive sensors Ø 34 mm to Ø 64 mm	70 - 74



## Capacitive Sensors

### Series 80 - PNP



Housing M 8 x 1

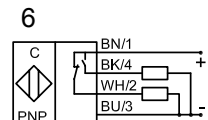
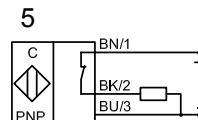
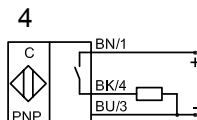
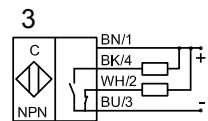
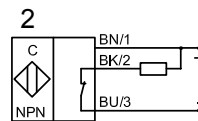
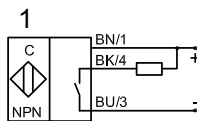
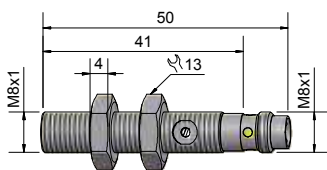
- Housing material: Stainless steel VA
- Sensing distance 0.1...2.5 mm adjustable with 270° potentiometer
- With flange connector M 8 x 1



Certificate:

Technical data	Flush mountable
Operating distance $S_n$	1.5 mm
Operating distance min. / max. adjustable	0.1...2.5 mm
Electrical version	3 pin DC
Output function	Normally open
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-A11-S-M8-PTFE/VAb-Y7-1-HP</b>	
<b>Art.-No.</b>	
<b>KA 0736</b>	
Connection diagram No.	
4	
Operating voltage ( $U_b$ )	10...35 V DC
Output current max. ( $I_o$ )	150 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 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	Flange connector M 8 x 1
Housing material	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	-
<b>Accessories (is delivered with the sensor)</b>	
2 nuts M 8	
For matching connectors please see our selection of accessories.	

\* With sealed potentiometer screw



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## Capacitive Sensors

### Series 80 - PNP

Housing M 8 x 1

- Housing material: Stainless steel VA
- Sensing distance 0.5...4 mm adjustable with 270° potentiometer
- With flange connector M 8 x 1



Certificate:



#### Technical data

Non-flush mountable

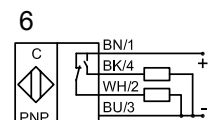
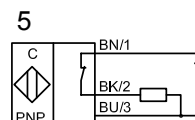
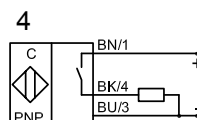
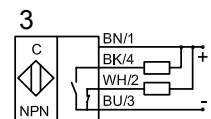
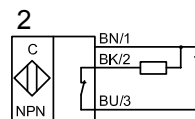
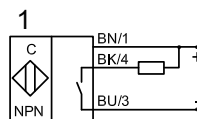
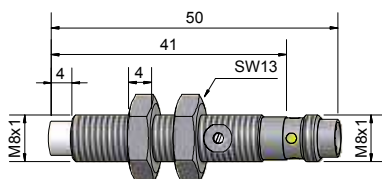
Operating distance $S_n$	2 mm
Operating distance min. / max. adjustable	0.5...4 mm
Electrical version	3 pin DC
Output function	Normally open
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-A21-S-M8-PTFE/VAb-Y7-1-HP</b>	
<b>Art.-No.</b>	
<b>800 130</b>	
Connection diagram No.	
4	
Operating voltage ( $U_B$ )	10...35 V DC
Output current max. ( $I_o$ )	150 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 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	Flange connector M 8 x 1
Housing material	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	-

#### Accessories (is delivered with the sensor)

2 nuts M 8

For matching connectors please see our selection of accessories.

\* With sealed potentiometer screw



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## Capacitive Sensors Series 80 - PNP



Housing Ø 11 mm

- Housing material: Stainless steel VA
- Sensing distance 0.5...5 mm adjustable

Certificate:



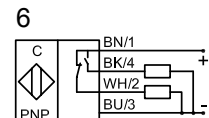
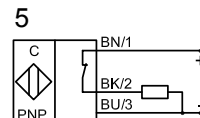
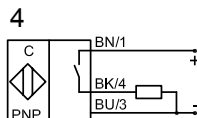
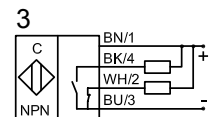
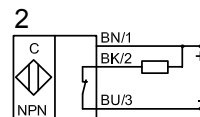
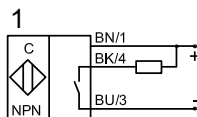
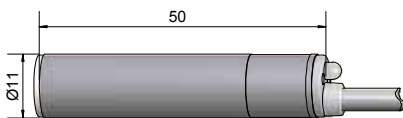
### Technical data

Flush mountable

Operating distance $S_n$	2 mm
Operating distance min. / max. adjustable	0.5...5 mm
Electrical version	4-wire DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-10-A-D11-PTFE/VAb-Z02-1-HP</b>	
<b>Art.-No.</b>	
<b>KA 0045</b>	
Connection diagram No.	
6	
Operating voltage ( $U_b$ )	10...35 V DC
Output current max. ( $I_o$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m, PUR, 4 x 0.14 mm <sup>2</sup>
Housing material	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO

**Assessors** for mounting (is not delivered with the sensor) please see our selection of accessories.

\* With sealed potentiometer screw



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## Capacitive Sensors

Series 70 - NPN  
Series 80 - PNP



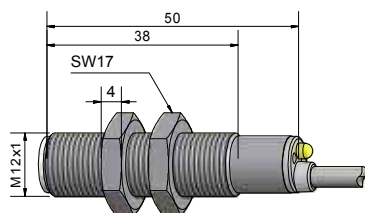
- Housing M 12 x 1
- Housing material: Stainless steel VA
  - Sensing distance 0...6 mm adjustable

Certificate:

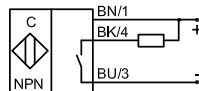


Technical data	Flush mountable	Flush mountable
Operating distance $S_n$	2 mm	2 mm
Operating distance min. / max. adjustable	0...6 mm	0...6 mm
Electrical version	3-wire DC	4-wire DC
Output function	Normally open	Antivalent
<b>Type NPN</b>	<b>KAS-70-A12-A-M12-PTFE/VAb-Z02-1-HP</b>	
<b>Art.-No.</b>	<b>700 150</b>	
Connection diagram No.	3	
<b>Type PNP</b>	<b>KAS-80-A12-S-M12-PTFE/VAb-Z02-1-HP</b>	<b>KAS-80-A12-A-M12-PTFE/VAb-Z02-1-HP</b>
<b>Art.-No.</b>	<b>800 200</b>	<b>800 150</b>
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. ( $U_d$ )	≤ 2.0 V	≤ 2.0 V
Permitted residual ripple max.	10 %	10 %
No-load current ( $I_o$ )	Typ. 15 mA	Typ. 15 mA
Frequency of operating cycles max.	500 Hz	500 Hz
Permitted ambient temperature	-25...+70 °C	-25...+70 °C
LED-display	Green / yellow	Green / yellow
Protective circuit	Built-in	Built-in
Degree of protection IEC 60529	IP 67*	IP 67*
Norm	EN 60947-5-2	EN 60947-5-2
Connection cable	2 m, PUR, 3 x 0.14 mm <sup>2</sup>	2 m, PUR, 4 x 0.14 mm <sup>2</sup>
Housing material	VA No. 1.4305	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO	PA / PPO
Media optimized	Yes	Yes
<b>Accessories</b> (is delivered with the sensor)	2 nuts M 12	2 nuts M 12

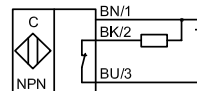
\* With sealed potentiometer screw



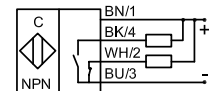
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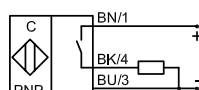
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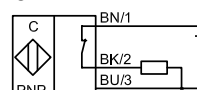
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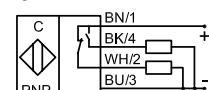
4



5



6



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All specifications are subject to change without notice. (04/2017)





## Capacitive Sensors

Series 70 - NPN

Series 80 - PNP



Housing M 12 x 1

- Housing material: Stainless steel VA
- Sensing distance 0...6 mm adjustable
- With flange connector M 12 x 1

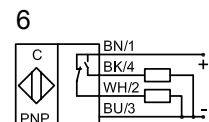
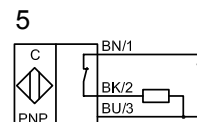
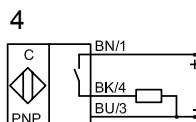
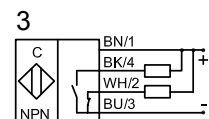
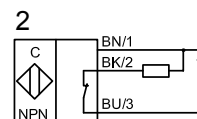
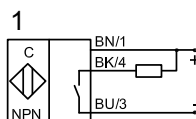
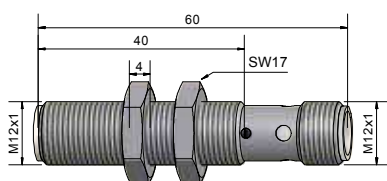
Certificate:



Technical data	Flush mountable
Operating distance $S_n$	2 mm
Operating distance min. / max. adjustable	0...6 mm
Electrical version	4 pin DC
Output function	Antivalent
<b>Type NPN</b>	<b>KAS-70-A12-A-M12-PTFE/VAb-Y5-1-HP</b>
<b>Art.-No.</b>	<b>700 724</b>
Connection diagram No.	3
<b>Type PNP</b>	<b>KAS-80-A12-A-M12-PTFE/VAb-Y5-1-HP</b>
<b>Art.-No.</b>	<b>800 724</b>
Connection diagram No.	6
Operating voltage ( $U_b$ )	10...35 V DC
Output current max. ( $I_o$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 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 60947-5-2
Connection	Flange connector M 12 x 1
Housing material	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	-
Media optimized	Yes
<b>Accessories (is delivered with the sensor)</b>	<b>2 nuts M 12</b>
For matching connectors please see our selection of accessories.	

All specifications are subject to change without notice. (04/2017)

\* With sealed potentiometer screw



Made in Germany



## Capacitive Sensors

### Series 80 - PNP

Housing M 12 x 1

- Housing material: PTFE
- Applicable for detection of chemical aggressive media
- Also suitable for food applications
- Sensing distance 0...6 mm adjustable

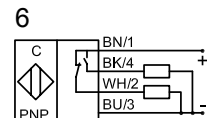
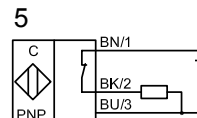
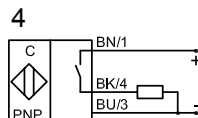
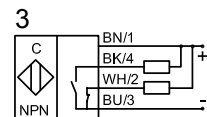
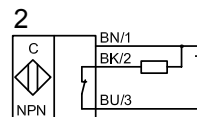
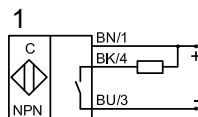
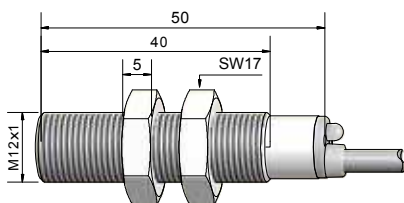


Certificate:



Technical data	Flush mountable
Operating distance $S_n$	2 mm
Operating distance min. / max. adjustable	0...6 mm
Electrical version	4-wire DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-A12-A-M12-PTFE-Z02-1-HP</b>	
<b>Art.-No.</b>	
<b>KA 0142</b>	
Connection diagram No.	
6	
Operating voltage ( $U_B$ )	10...35 V DC
Output current max. ( $I_o$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	500 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m, PUR, 4 x 0.14 mm <sup>2</sup>
Housing material	PTFE (FDA 21 CFR 177.1550)
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
Media optimized	Yes
<b>Accessories</b> (is delivered with the sensor)	
2 nuts M 12	

\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors

Series 70 - NPN

Series 80 - PNP



Housing M 12 x 1

- Housing material: Stainless steel VA
- Sensing distance 0.5...10 mm adjustable

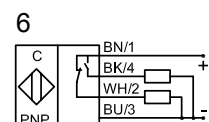
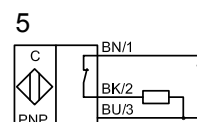
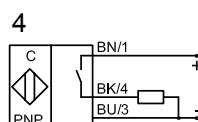
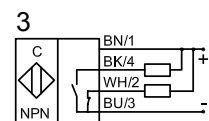
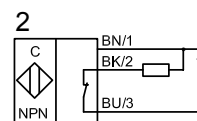
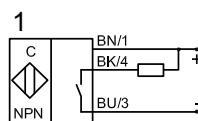
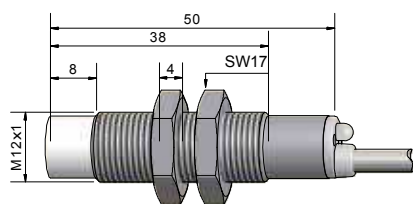
Certificate:



Technical data	Non-flush mountable	Non-flush mountable
Operating distance $S_n$	4 mm	4 mm
Operating distance min. / max. adjustable	0.5...10 mm	0.5...10 mm
Electrical version	3-wire DC	4-wire DC
Output function	Normally open	Antivalent
<b>Type NPN</b>	<b>KAS-70-A22-A-M12-PTFE/VAb-Z02-1-HP</b>	
<b>Art.-No.</b>	<b>700 735</b>	
Connection diagram No.	3	
<b>Type PNP</b>	<b>KAS-80-A22-S-M12-PTFE/VAb-Z02-1-HP</b>	<b>KAS-80-A12-A-M12-PTFE/VAb-Z02-1-HP</b>
<b>Art.-No.</b>	<b>800 750</b>	<b>800 735</b>
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. ( $U_d$ )	≤ 2.0 V	≤ 2.0 V
Permitted residual ripple max.	10 %	10 %
No-load current ( $I_o$ )	Typ. 15 mA	Typ. 15 mA
Frequency of operating cycles max.	50 Hz	50 Hz
Permitted ambient temperature	-25...+70 °C	-25...+70 °C
LED-display	Green / yellow	Green / yellow
Protective circuit	Built-in	Built-in
Degree of protection IEC 529	IP 67*	IP 67*
Norm	EN 60947-5-2	EN 60947-5-2
Connection cable	2 m, PUR, 3 x 0.14 mm <sup>2</sup>	2 m, PUR, 4 x 0.14 mm <sup>2</sup>
Housing material	VA No. 1.4305	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO	PA / PPO
Media optimized	Yes	Yes
<b>Accessories</b> (is delivered with the sensor)	2 nuts M 12	2 nuts M 12

All specifications are subject to change without notice. (04/2017)

\* With sealed potentiometer screw



Made in Germany



## Capacitive Sensors

### Series 80 - PNP

Housing M 12 x 1

- Housing material: Stainless steel VA
- Sensing distance 0.5...10 mm adjustable
- With flange connector M 12 x 1

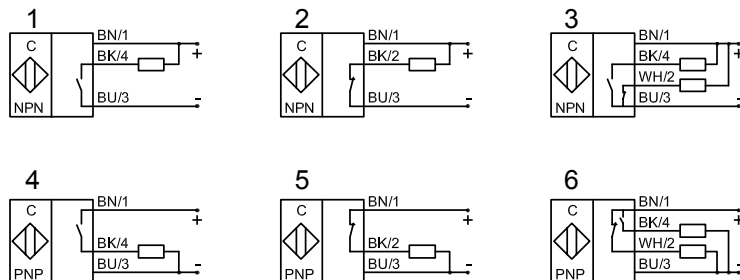
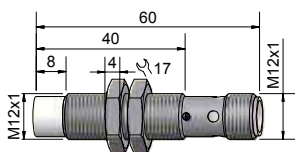


Certificate:



Technical data	Non-flush mountable
Operating distance $S_n$	4 mm
Operating distance min. / max. adjustable	0.5...10 mm
Electrical version	4-pin DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-A12-A-M12-PTFE/VAb-Y5-1-HP</b>	
<b>Art.-No.</b>	
<b>800 736</b>	
Connection diagram No.	
6	
Operating voltage ( $U_B$ )	10...35 V DC
Output current max. ( $I_o$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Yellow
Protective circuit	Built-in
Degree of protection IEC 529	IP 67*
Norm	EN 60947-5-2
Connection	Flange connector M12 x 1
Housing material	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	-
Media optimized	Yes
<b>Accessories</b> (is delivered with the sensor)	
2 nuts M 12	
For matching connectors please see our selection of accessories.	

\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors Series 80 - PNP



Housing M 12 x 1

- Housing material: PTFE
- Ideal for detection of chemically aggressive media
- Also suitable for food applications
- Sensing distance 0.5...10 mm adjustable

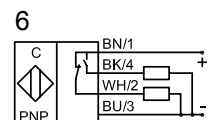
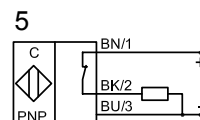
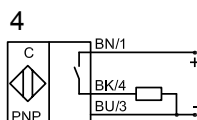
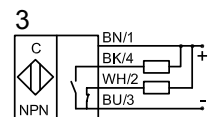
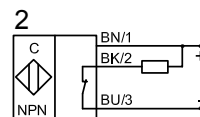
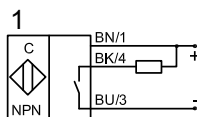
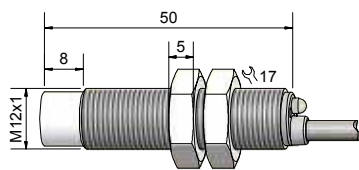
Certificate:



Technical data	Non-flush mountable
Operating distance $S_n$	4 mm
Operating distance min. / max. adjustable	0.5...10 mm
Electrical version	4-wire DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-A22-A-M12-PTFE-Z02-1-HP</b>	
<b>Art.-No.</b>	
<b>800 745</b>	
Connection diagram No.	
6	
Operating voltage ( $U_b$ )	10...35 V DC
Output current max. ( $I_e$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10%
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m, PUR, 4 x 0.14 mm <sup>2</sup>
Housing material	PTFE (FDA 21 CFR 177.1550)
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
Media optimized	Yes
<b>Accessories (is delivered with the sensor)</b>	
2 nuts M 12	

All specifications are subject to change without notice. (04/2017)

\* With sealed potentiometer screw



Made in Germany



## Capacitive Sensors Series 80 - PNP



Housing M 18 x 1

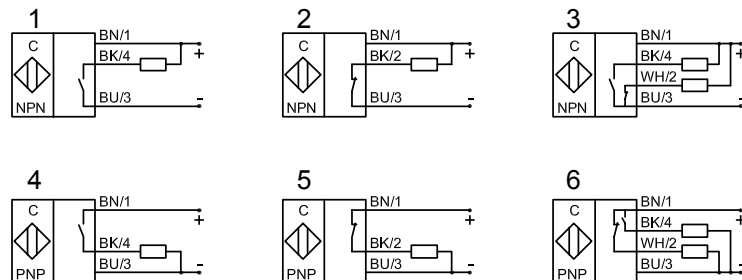
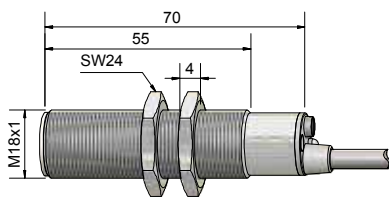
- Housing material: Brass
- Sensing distance 0.5...10 mm adjustable

Certificate:



Technical data	Flush mountable	Flush mountable
Operating distance $S_n$	5 mm	5 mm
Operating distance min. / max. adjustable	0.5...10 mm	0.5...10 mm
Electrical version	3-wire DC	4-wire DC
Output function	Normally open	Antivalent
<b>Type NPN</b>		
<b>Art.-No.</b>		
Connection diagram No.		
<b>Type PNP</b>	<b>KAS-80-A13-S-M18-PTFE/MS-Z02-1-HP</b>	<b>KAS-80-A13-A-M18-PTFE/MS-Z02-1-HP</b>
<b>Art.-No.</b>	<b>801 200</b>	<b>800 800</b>
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. ( $U_d$ )	≤ 2,0 V	≤ 2,0 V
Permitted residual ripple max.	10 %	10 %
No-load current ( $I_o$ )	Typ. 15 mA	Typ. 15 mA
Frequency of operating cycles max.	300 Hz	300 Hz
Permitted ambient temperature	-25...+70 °C	-25...+70 °C
LED-display	Green / yellow	Green / yellow
Protective circuit	Built-in	Built-in
Degree of protection IEC 60529	IP 67*	IP 67*
Norm	EN 60947-5-2	EN 60947-5-2
Connection cable	2 m, PUR, 3 x 0,34 mm <sup>2</sup>	2 m, PVC, 4 x 0,34 mm <sup>2</sup>
Housing material	Brass	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO	PA / PPO
Media optimized	Yes	Yes
<b>Accessories (is delivered with the sensor)</b>		
	2 nuts M 18	2 nuts M 18

\* With sealed potentiometer screw



All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors Series 80 - PNP



Housing M 18 x 1

- Housing material: Brass
- Sensing distance 0.5...10 mm adjustable
- With flange connector M 12 x 1

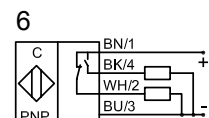
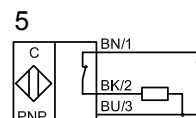
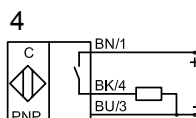
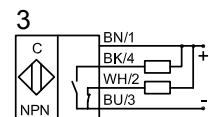
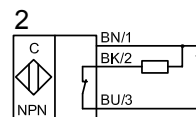
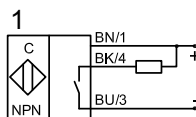
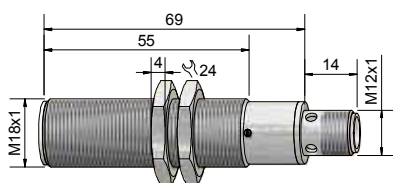
Certificate:



Technical data	Flush mountable
Operating distance $S_n$	5 mm
Operating distance min. / max. adjustable	0.5...10 mm
Electrical version	4-pin DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-A13-A-M18-PTFE/MS-Y5-1-HP</b>	
<b>Art.-No.</b>	
<b>801 981</b>	
Connection diagram No.	
6	
Operating voltage ( $U_b$ )	10...35 V DC
Output current max. ( $I_e$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2,0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	300 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	Flange connector M 12 x 1
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	-
Media optimized	Yes
<b>Accessories (is delivered with the sensor)</b>	
2 nuts M 18	
For matching connectors please see our selection of accessories.	

All specifications are subject to change without notice. (04/2017)

\* With sealed potentiometer screw





## Capacitive Sensors

Series 70 - NPN

Series 80 - PNP



Housing M 18 x 1

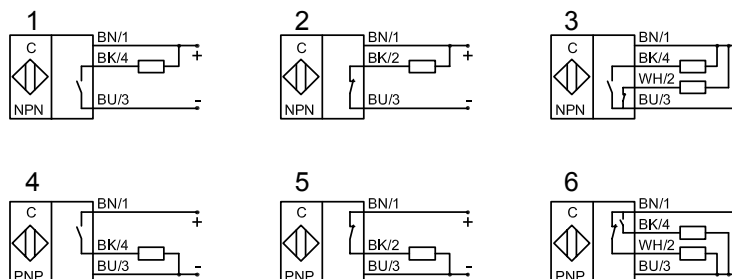
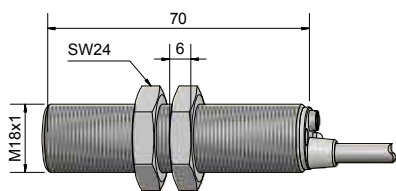
- Housing material: PA / PPO
- Sensing distance 0.5...10 mm adjustable



Certificate:

Technical data	Flush mountable
Operating distance $S_n$	5 mm
Operating distance min. / max. adjustable	0.5...10 mm
Electrical version	4-wire DC
Output function	Antivalent
<b>Type NPN</b>	<b>KAS-70-A13-A-M18-PPO-Z02-1-HP</b>
<b>Art.-No.</b>	<b>701 000</b>
Connection diagram No.	3
<b>Type PNP</b>	<b>KAS-80-A13-A-M18-PPO-Z02-1-HP</b>
<b>Art.-No.</b>	<b>801 000</b>
Connection diagram No.	6
Operating voltage ( $U_B$ )	10...35 V DC
Output current max. ( $I_o$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	300 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m PVC, 4 x 0.34 mm <sup>2</sup>
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PA / PPO
Media optimized	Yes
<b>Accessories</b> (is delivered with the sensor)	2 nuts M 18

\* With sealed potentiometer screw



All specifications are subject to change without notice. (04/2017)





## Capacitive Sensors Serie 90 - AC / DC

Housing M 18 x 1

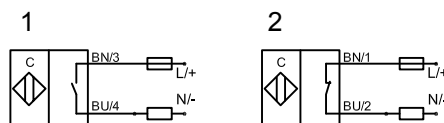
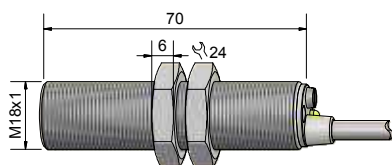
- Housing material: PA / PPO
- Sensing distance 1...10 mm adjustable

Certificate:



Technical data	Flush mountable
Operating distance $S_n$	5 mm
Operating distance min. / max. adjustable	1...10 mm
Electrical version	2-wire AC / DC
Output function	Normally open
<b>Type</b>	<b>KAS-90-A13-S-M18-PPO-Z02-1</b>
<b>Art.-No.</b>	<b>900 100</b>
Connection diagram No.	1
Operating voltage ( $U_b$ )	20...250 V AC / DC
Output current max. ( $I_o$ )	250 mA
Load current min.	5 mA
Voltage drop max. ( $U_d$ )	≤ 6 V
No-load current ( $I_o$ )	Typ. 2.5 mA
Frequency of operating cycles max.	25 Hz
Permitted ambient temperature	-25...+70 °C (ETL = +60 °C)
LED-display	Yellow
Protective circuit	Built-in
Degree of protection IEC 529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m, PUR, 2 x 0.34 mm <sup>2</sup>
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PA / PPO
<b>Accessories</b> (is delivered with the sensor)	2 nuts M 18

\* With sealed potentiometer screw



All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors

### Series 80 - PNP

Housing M 18 x 1

- Housing material: PTFE
- Ideal for detection of chemically aggressive media
- Ideal for use in food applications
- Sensing distance 0.5...10 mm adjustable
- Option: Total chemical resistance is given when ordering the sensor with PTFE cable and PTFE - protection set Art.-No. 196305

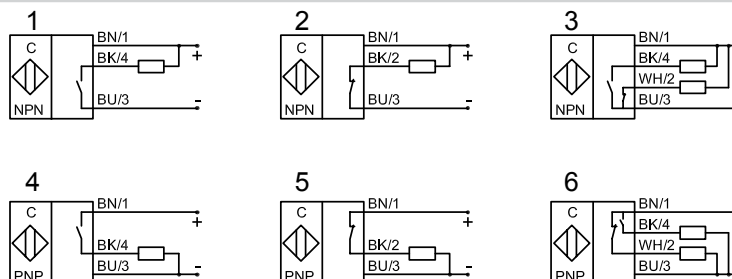
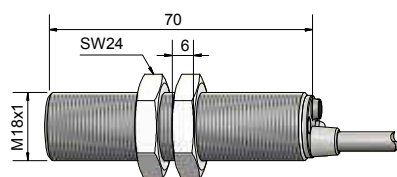


Certificate:



Technical data	Flush mountable
Operating distance $S_n$	5 mm
Operating distance min. / max. adjustable	0.5...10 mm
Electrical version	4-wire DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-A13-A-M18-PTFE-Z02-1-HP</b>	
<b>Art.-No.</b>	
<b>801 020</b>	
Connection diagram No.	
6	
Operating voltage ( $U_B$ )	10...35 V DC
Output current max. ( $I_e$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	300 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m, PVC, 4 x 0.34 mm <sup>2</sup>
Housing material	PTFE (FDA 21 CFR 177.1550)
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
Media optimized	Yes
<b>Accessories</b> (is delivered with the sensor)	
2 nuts M 18	

\* With sealed potentiometer screw



All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors Series 80 - PNP



Housing M 18 x 1

- Housing material: Brass
- Sensing distance 0.5...15 mm adjustable

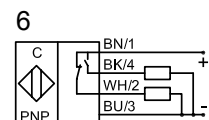
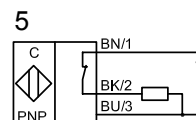
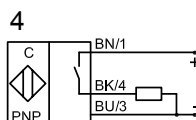
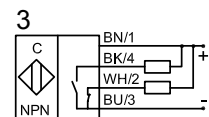
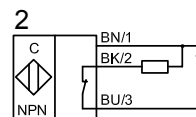
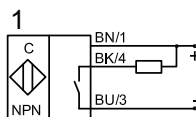
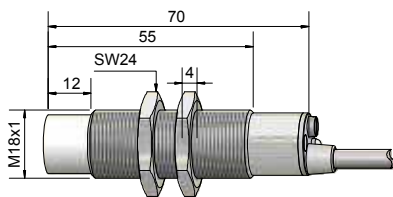
Certificate:



Technical data	Non-flush mountable
Operating distance $S_n$	8 mm
Operating distance min. / max. adjustable	0.5...15 mm
Electrical version	4-wire DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-A23-A-M18-PTFE/MS-Z02-1-HP</b>	
<b>Art.-No.</b>	
<b>803 200</b>	
Connection diagram No.	
6	
Operating voltage ( $U_b$ )	10...35 V DC
Output current max. ( $I_e$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m, PVC, 4 x 0.34 mm <sup>2</sup>
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
Media optimized	Yes
<b>Accessories (is delivered with the sensor)</b>	
2 nuts M 18	

All specifications are subject to change without notice. (04/2017)

\* With sealed potentiometer screw





## Capacitive Sensors Series 80 - PNP



Housing M 18 x 1

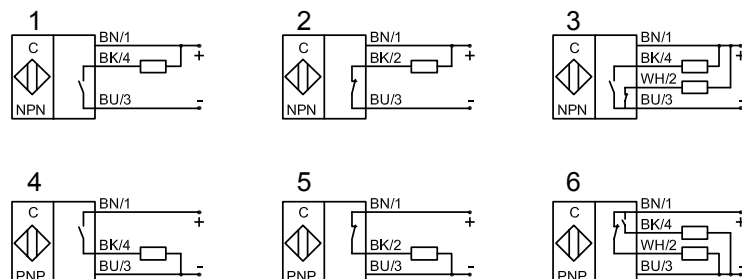
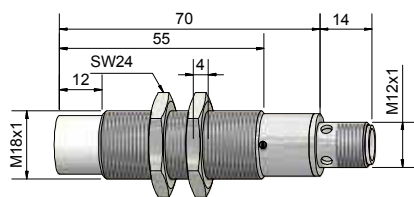
- Housing material: Brass
- Sensing distance 0.5...15 mm adjustable
- With flange connector M 12 x 1



Certificate:

Technical data	Non-flush mountable
Operating distance $S_n$	8 mm
Operating distance min. / max. adjustable	0.5...15 mm
Electrical version	4-pin DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-A23-A-M18-PTFE/MS-Y5-1-HP</b>	
<b>Art.-No.</b>	
<b>804 091</b>	
Connection diagram No.	
6	
Operating voltage ( $U_B$ )	10...35 V DC
Output current max. ( $I_o$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 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	Flange connector M 12 x 1
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	-
Media optimized	Yes
<b>Accessories</b> (is delivered with the sensor)	
2 nuts M 18	
For matching connectors please see our selection of accessories.	

\* With sealed potentiometer screw



All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors Series 90 - AC / DC

Housing M 18 x 1

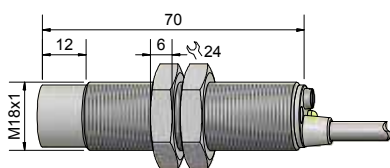
- Housing material: PA / PPO
- Sensing distance 0.5...12 mm adjustable

Certificate:

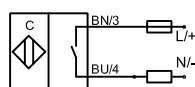


Technical data	Non-flush mountable	Non-flush mountable
Operating distance $S_n$	8 mm	8 mm
Operating distance min. / max. adjustable	0.5...12 mm	0.5...12 mm
Electrical version	2-wire AC / DC	2-wire AC / DC
Output function	Normally open	Normally closed
<b>Type</b>	<b>KAS-90-A23-S-M18-PPO-Z02-1</b>	<b>KAS-90-A23-Ö-M18-PPO-Z02-1</b>
<b>Art.-No.</b>	<b>900 300</b>	<b>900 400</b>
Connection diagram No.	1	2
Operating voltage ( $U_b$ )	20...250 V AC / DC	20...250 V AC / DC
Output current max. ( $I_o$ )	250 mA	250 mA
Load current min.	5 mA	5 mA
Voltage drop max. ( $U_d$ )	≤ 6 V	≤ 6 V
No-load current ( $I_o$ )	Typ. 2.5 mA	Typ. 2.5 mA
Frequency of operating cycles max.	25 Hz	25 Hz
Permitted ambient temperature	-25...+70 °C (ETL = +60 °C)	-25...+70 °C (ETL = +60 °C)
LED-display	Yellow	Yellow
Protective circuit	Built-in	Built-in
Degree of protection IEC 529	IP 67*	IP 67*
Norm	EN 60947-5-2	EN 60947-5-2
Connection cable	2 m, PUR, 2 x 0.34 mm <sup>2</sup>	2 m, PUR, 2 x 0.34 mm <sup>2</sup>
Housing material	PA / PPO	PA / PPO
Active surface	PA / PPO	PA / PPO
Lid	PA / PPO	PA / PPO
<b>Accessories</b> (is delivered with the sensor)	2 nuts M 18	2 nuts M 18

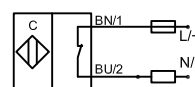
\* With sealed potentiometer screw



1



2





## Capacitive Sensors Series 80 - PNP



Housing M 18 x 1

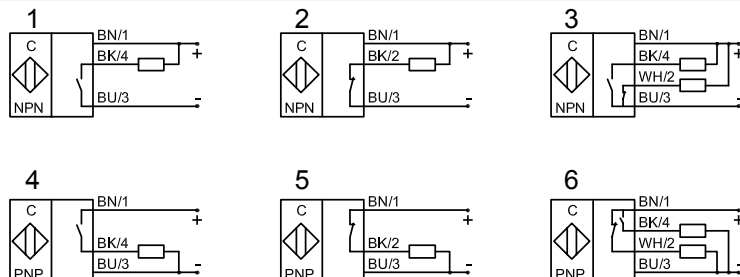
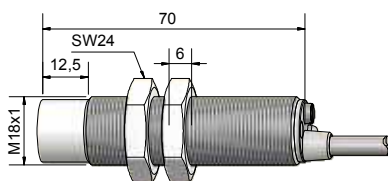
- Housing material: PTFE
- Ideal for detection of chemically aggressive media
- Ideal for use in food applications
- Sensing distance 0.5...15 mm adjustable
- Option: Total chemical resistance is given when ordering the sensor with PTFE cable and PTFE - protection set Art.-No. 196305

Certificate:



Technical data	Non-flush mountable
Operating distance $S_n$	8 mm
Operating distance min. / max. adjustable	0.5...15 mm
Electrical version	4-wire DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-A23-A-M18-PTFE-Z02-1-HP</b>	
<b>Art.-No.</b>	
<b>803 561</b>	
Connection diagram No.	
6	
Operating voltage ( $U_B$ )	10...35 V DC
Output current max. ( $I_e$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m, PVC, 4 x 0.34 mm <sup>2</sup>
Housing material	PTFE (FDA 21 CFR 177.1550)
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
Media optimized	Yes
<b>Accessories</b> (is delivered with the sensor)	
2 nuts M 18	

\* With sealed potentiometer screw



All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors Series 80 - PNP



Housing Ø 20 mm

- Housing material: PA / PPO
- Sensing distance 0.5...20 mm adjustable

Certificate:



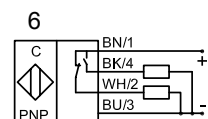
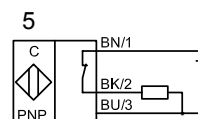
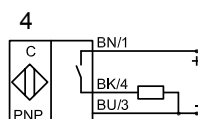
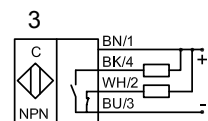
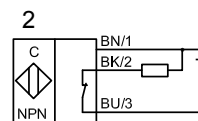
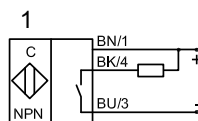
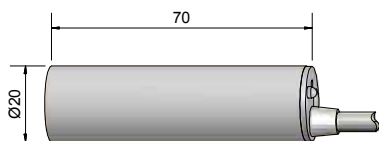
### Technical data

Non-flush mountable

Operating distance $S_n$	12 mm
Operating distance min. / max. adjustable	0.5...20 mm
Electrical version	4-wire DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-23-A-D20-PA-Z02-1-HP</b>	
<b>Art.-No.</b>	
<b>812 800</b>	
Connection diagram No.	
<b>6</b>	
Operating voltage ( $U_b$ )	10...35 V DC
Output current max. ( $I_o$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10%
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m, PVC, 4 x 0.34 mm <sup>2</sup>
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PA / PPO
Media optimized	Yes

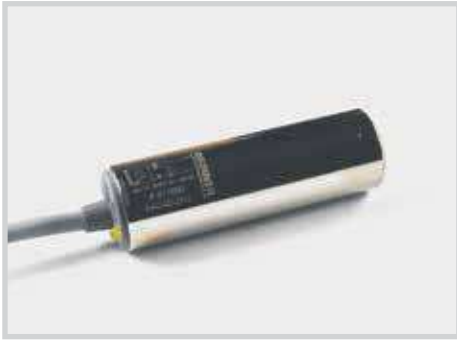
**Assessors** for mounting (is not delivered with the sensor) please see our selection of accessories.

\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors Series 80 - PNP



- Housing Ø 22 mm
- Housing material: Brass
  - Sensing distance 0.5...15 mm adjustable

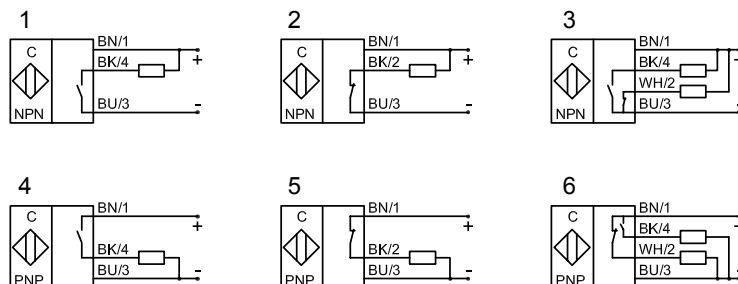
Certificate:



Technical data	Flush mountable	Flush mountable
Operating distance $S_n$	8 mm	8 mm
Operating distance min. / max. adjustable	0.5...15 mm	0.5...15 mm
Electrical version	3-wire DC	4-wire DC
Output function	Normally open	Antivalent
<b>Type NPN</b>		
<b>Art.-No.</b>		
Connection diagram No.		
<b>Type PNP</b>		
	<b>KAS-80-20-S-D22-PTFE/MS-Z02-1-HP</b>	<b>KAS-80-20-A-D22-PTFE/MS-Z02-1-HP</b>
<b>Art.-No.</b>	<b>811 800</b>	<b>811 600</b>
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. ( $U_d$ )	≤ 2.0 V	≤ 2.0 V
Permitted residual ripple max.	10 %	10 %
No-load current ( $I_o$ )	Typ. 15 mA	Typ. 15 mA
Frequency of operating cycles max.	300 Hz	300 Hz
Permitted ambient temperature	-25...+70 °C	-25...+70 °C
LED-display	Green / yellow	Green / yellow
Protective circuit	Built-in	Built-in
Degree of protection IEC 60529	IP 67*	IP 67*
Norm	EN 60947-5-2	EN 60947-5-2
Connection cable	2 m, PUR, 3 x 0.34 mm <sup>2</sup>	2 m, PVC, 4 x 0.34 mm <sup>2</sup>
Housing material	Brass	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO	PA / PPO
Media optimized	Yes	Yes

**Assessors** for mounting (is not delivered with the sensor) please see our selection of accessories.

\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)





## Capacitive Sensors Series 90 - AC / DC

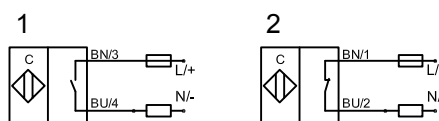
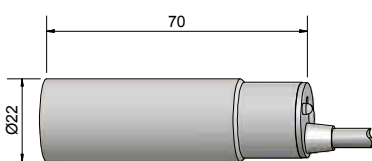
- Housing  $\varnothing$  22 mm
- Housing material: PA / PPO
- Sensing distance 2...8 mm adjustable

Certificate:



Technical data	Flush mountable
Operating distance $S_n$	6 mm
Operating distance min. / max. adjustable	2...8 mm
Electrical version	2-wire AC / DC
Output function	Normally closed
<b>Type</b>	<b>KAS-90-20-Ö-D20-PPO-Z02-1</b>
<b>Art.-No.</b>	<b>901 200</b>
Connection diagram No.	2
Operating voltage ( $U_b$ )	20...250 V AC / DC
Output current max. ( $I_o$ )	250 mA
Load current min.	5 mA
Voltage drop max. ( $U_d$ )	$\leq 6$ V
No-load current ( $I_o$ )	Typ. 2.5 mA
Frequency of operating cycles max.	25 Hz
Permitted ambient temperature	-25...+70 °C (ETL = +60 °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, 2 x 0.34 mm <sup>2</sup>
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PA / PPO
<b>Assessors</b> for mounting (is not delivered with the sensor) please see our selection of accessories.	

\* With sealed potentiometer screw



All specifications are subject to change without notice. (04/2017)

Made in Germany



## Capacitive Sensors Series 80 - PNP



Housing M 22 x 1.5

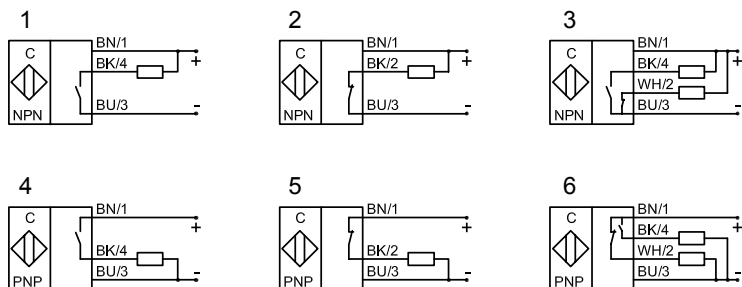
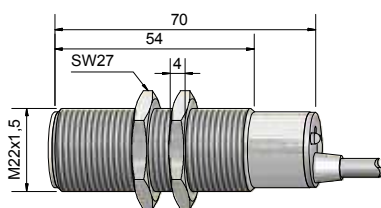
- Housing material: Brass
- Sensing distance 0.5...15 mm adjustable

Certificate:



Technical data	Flush mountable
Operating distance $S_n$	8 mm
Operating distance min. / max. adjustable	0.5...15 mm
Electrical version	4-wire DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-20-A-M22-PTFE/MS-Z02-1-HP</b>	
<b>Art.-No.</b>	
<b>KA 0272</b>	
Connection diagram No.	
<b>6</b>	
Operating voltage ( $U_B$ )	10...35 V DC
Output current max. ( $I_o$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10%
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	300 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	3 m, PVC, 4 x 0.34 mm <sup>2</sup>
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
Media optimized	Yes
<b>Accessories</b> (is delivered with the sensor)	
2 nuts M 22	

\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors

Series 70 - NPN

Series 80 - PNP



Housing M 22 x 1.5

- Housing material: PA / PPO
- Sensing distance 0.5...20 mm adjustable

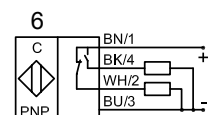
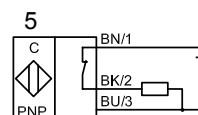
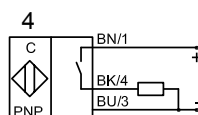
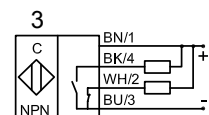
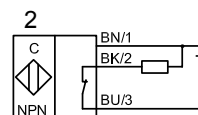
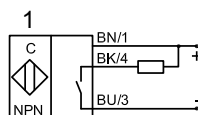
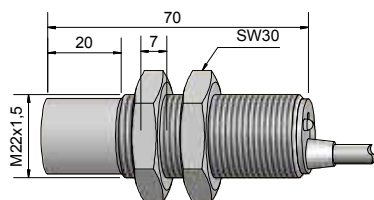
Certificate:



Technical data	Non-flush mountable	Non-flush mountable
Operating distance $S_n$	12 mm	12 mm
Operating distance min. / max. adjustable	0.5...20 mm	0.5...20 mm
Electrical version	3-wire DC	4-wire DC
Output function	Normally open	Antivalent
<b>Type NPN</b>	<b>KAS-70-23-S-M22-PPO-Z02-1-HP</b>	
<b>Art.-No.</b>	<b>713 600</b>	
Connection diagram No.	1	
<b>Type PNP</b>	<b>KAS-80-23-S-M22-PPO-Z02-1-HP</b>	<b>KAS-80-23-A-M22-PPO-Z02-1-HP</b>
<b>Art.-No.</b>	<b>813 600</b>	<b>813 400</b>
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. ( $U_d$ )	≤ 2.0 V	≤ 2.0 V
Permitted residual ripple max.	10 %	10 %
No-load current ( $I_o$ )	Typ. 15 mA	Typ. 15 mA
Frequency of operating cycles max.	50 Hz	50 Hz
Permitted ambient temperature	-25...+70 °C	-25...+70 °C
LED-display	Green / yellow	Green / yellow
Protective circuit	Built-in	Built-in
Degree of protection IEC 60529	IP 67*	IP 67*
Norm	EN 60947-5-2	EN 60947-5-2
Connection cable	2 m, PUR, 3 x 0.34 mm <sup>2</sup>	2 m, PVC, 4 x 0.34 mm <sup>2</sup>
Housing material	PA / PPO	PA / PPO
Active surface	PA / PPO	PA / PPO
Lid	PA / PPO	PA / PPO
Media optimized	Yes	Yes
<b>Accessories</b> (is delivered with the sensor)	2 nuts M 22	2 nuts M 22

All specifications are subject to change without notice. (04/2017)

\* With sealed potentiometer screw



Made in Germany



## Capacitive Sensors

Series 70 - NPN  
Series 80 - PNP



Housing M 22 x 1.5

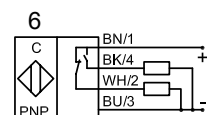
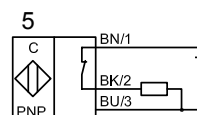
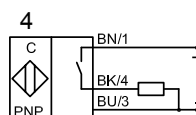
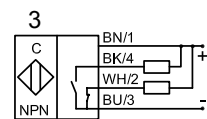
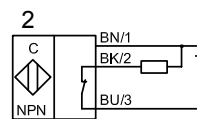
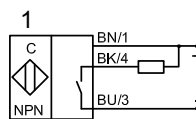
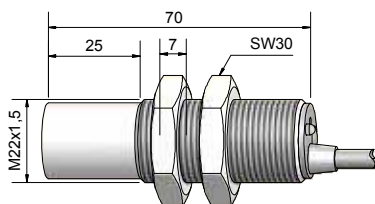
- Housing material: PTFE
- Ideal for detection of chemically aggressive media
- Also suitable for food applications
- Sensing distance 0.5...20 mm adjustable



Certificate:

Technical data	Non-flush mountable
Operating distance $S_n$	12 mm
Operating distance min. / max. adjustable	0.5...20 mm
Electrical version	4-wire DC
Output function	Antivalent
<b>Type NPN</b>	<b>KAS-70-23-A-M22-PTFE-Z02-1-HP</b>
<b>Art.-No.</b>	<b>712 900</b>
Connection diagram No.	3
<b>Type PNP</b>	<b>KAS-80-23-A-M22-PTFE-Z02-1-HP</b>
<b>Art.-No.</b>	<b>812 900</b>
Connection diagram No.	6
Operating voltage ( $U_B$ )	10...35 V DC
Output current max. ( $I_o$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10%
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m, PVC, 4 x 0.34 mm <sup>2</sup>
Housing material	PTFE (FDA 21 CFR 177.1550)
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
Media optimized	Yes
<b>Accessories</b> (is delivered with the sensor)	2 nuts M 22

\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors

Series 70 - NPN

Series 80 - PNP



Housing Ø 30 mm

- Housing material: Brass
- Sensing distance 0.5...30 mm adjustable

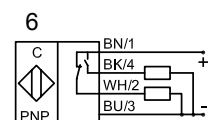
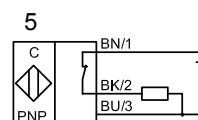
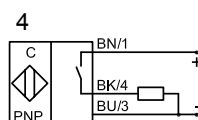
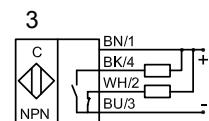
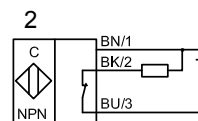
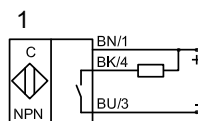
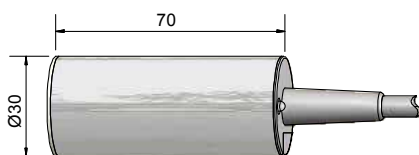
Certificate:



Technical data	Flush mountable
Operating distance $S_n$	20 mm
Operating distance min. / max. adjustable	0.5...30 mm
Electrical version	4-wire DC
Output function	Antivalent
<b>Type NPN</b>	<b>KAS-70-30-A-D30-PTFE/MS-Z02-1-HP</b>
<b>Art.-No.</b>	<b>714 200</b>
Connection diagram No.	3
<b>Type PNP</b>	<b>KAS-80-30-A-D30-PTFE/MS-Z02-1-HP</b>
<b>Art.-No.</b>	<b>814 200</b>
Connection diagram No.	6
Operating voltage ( $U_b$ )	10...35 V DC
Output current max. ( $I_o$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	200 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m, PVC, 4 x 0.5 mm <sup>2</sup>
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
Media optimized	Yes

**Assessors** for mounting (is not delivered with the sensor) please see our selection of accessories.

\* With sealed potentiometer screw



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## Capacitive Sensors Series 80 - PNP



Housing Ø 30 mm

- Housing material: Brass
- Sensing distance 0.5...30 mm adjustable
- With flange connector M 12 x 1



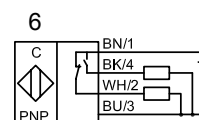
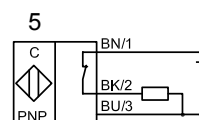
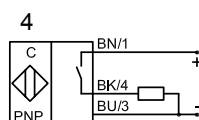
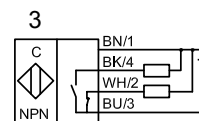
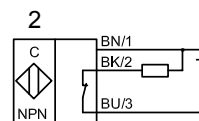
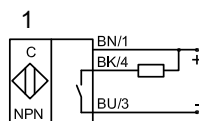
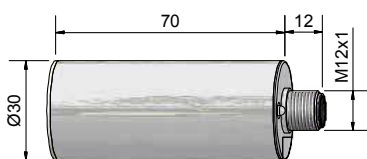
Certificate:

Technical data	Flush mountable
Operating distance $S_n$	20 mm
Operating distance min. / max. adjustable	0.5...30 mm
Electrical version	4-pin DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-30-A-D30-PTFE/MS-Y5-1-HP</b>	
<b>Art.-No.</b>	
<b>814 400</b>	
Connection diagram No.	
6	
Operating voltage ( $U_B$ )	10...35 V DC
Output current max. ( $I_o$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	200 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection	Flange connector M 12 x 1
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
Media optimized	Yes

**Assessors** for mounting (is not delivered with the sensor) please see our selection of accessories.

For matching connectors please see our selection of accessories.

\* With sealed potentiometer screw



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All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors Series 80 - PNP



- Housing Ø 30 mm
- Housing material: PA / PPO
  - Sensing distance 1...40 mm adjustable

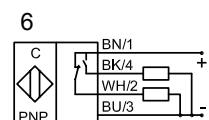
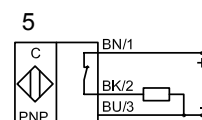
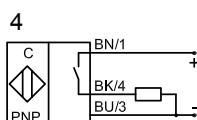
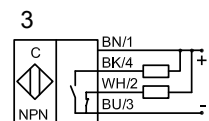
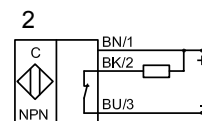
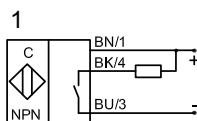
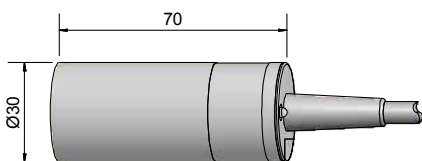
Certificate:



Technical data	Non-flush mountable
Operating distance $S_n$	25 mm
Operating distance min. / max. adjustable	1...40 mm
Electrical version	3-wire DC
Output function	Normally open
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-35-S-PPO-Z02-1-HP</b>	
<b>Art.-No.</b>	
<b>819 400</b>	
Connection diagram No.	
4	
Operating voltage ( $U_b$ )	10...35 V DC
Output current max. ( $I_e$ )	250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m, PVC, 3 x 0.75 mm <sup>2</sup>
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PA / PPO
Media optimized	Yes

**Assessors** for mounting (is not delivered with the sensor) please see our selection of accessories.

\* With sealed potentiometer screw



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All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors Series 80 - PNP



Housing Ø 30 mm

- Housing material: PA / PPO
- Sensing distance 1...40 mm adjustable
- With flange connector M 12 x 1



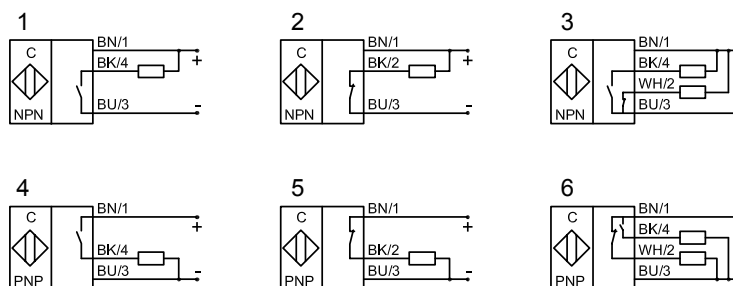
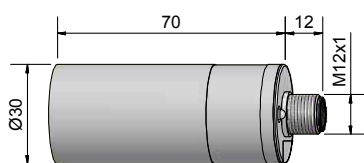
Certificate:

Technical data	Non-flush mountable
Operating distance $S_n$	25 mm
Operating distance min. / max. adjustable	1...40 mm
Electrical version	4-pin DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-35-A-PPO-Y5-1-HP</b>	
<b>Art.-No.</b>	
<b>819 200</b>	
Connection diagram No.	
6	
Operating voltage ( $U_B$ )	10...35 V DC
Output current max. ( $I_o$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection	Flange connector M 12 x 1
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PA / PPO
Media optimized	Yes

**Assessors** for mounting (is not delivered with the sensor) please see our selection of accessories.

For matching connectors please see our selection of accessories.

\* With sealed potentiometer screw



**Made in Germany**

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## Capacitive Sensors Series 80 - PNP



Housing M 30 x 1.5

- Housing material: Brass
- Sensing distance 0,5...25 mm adjustable

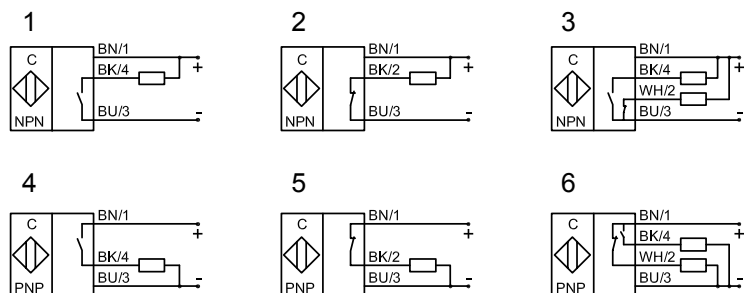
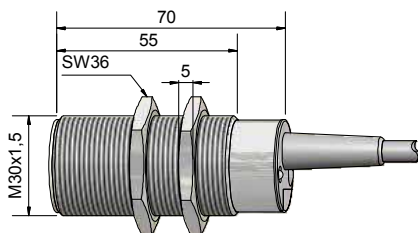
Certificate:



Technical data	Flush mountable	Flush mountable
Operating distance $S_n$	10 mm	10 mm
Operating distance min. / max. adjustable	0.5...25 mm	0.5...25 mm
Electrical version	3-wire DC	4-wire DC
Output function	Normally open	Antivalent
<b>Type NPN</b>		
<b>Art.-No.</b>		
Connection diagram No.		
<b>Type PNP</b>	<b>KAS-80-A14-S-M30-PTFE/MS-Z02-1-HP</b>	<b>KAS-80-A14-A-M30-PTFE/MS-Z02-1-HP</b>
<b>Art.-No.</b>	<b>806 000</b>	<b>805 200</b>
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. ( $U_d$ )	≤ 2.0 V	≤ 2.0 V
Permitted residual ripple max.	10 %	10 %
No-load current ( $I_o$ )	Typ. 15 mA	Typ. 15 mA
Frequency of operating cycles max.	200 Hz	200 Hz
Permitted ambient temperature	-25...+70 °C	-25...+70 °C
LED-display	Green / yellow	Green / yellow
Protective circuit	Built-in	Built-in
Degree of protection IEC 529	IP 67*	IP 67*
Norm	EN 60947-5-2	EN 60947-5-2
Connection cable	2 m, PVC, 3 x 0.75 mm <sup>2</sup>	2 m, PVC, 4 x 0.5 mm <sup>2</sup>
Housing material	Brass	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO	PA / PPO
Media optimized	Yes	Yes
<b>Accessories</b> (is delivered with the sensor)	2 nuts M 30	2 nuts M 30

All specifications are subject to change without notice. (04/2017)

\* With sealed potentiometer screw



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## Capacitive Sensors Series 80 - PNP



Housing M 30 x 1.5

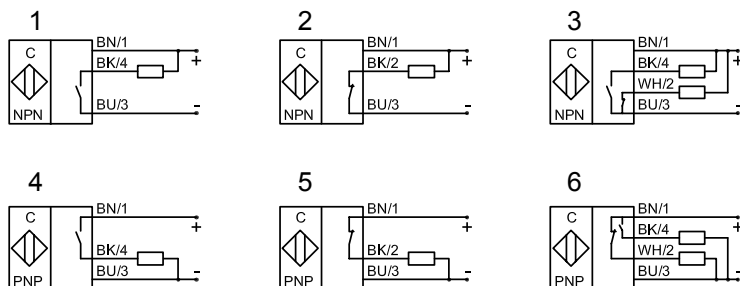
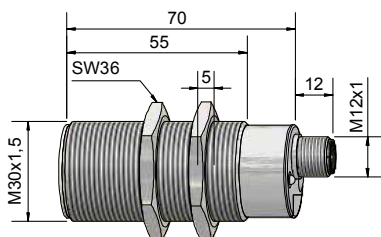
- Housing material: Brass
- Sensing distance 0,5...25 mm adjustable
- With flange connector M 12 x 1

Certificate:



Technical data	Flush mountable
Operating distance $S_n$	10 mm
Operating distance min. / max. adjustable	0.5...25 mm
Electrical version	4-pin DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-A14-A-M30-PTFE/MS-Y5-1-HP</b>	
<b>Art.-No. 805 400</b>	
Connection diagram No. 6	
Operating voltage ( $U_B$ )	10...35 V DC
Output current max. ( $I_o$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	200 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 529	IP 67*
Norm	EN 60947-5-2
Connection	Flange connector M 12 x 1
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
Media optimized	Yes
<b>Accessories</b> (is delivered with the sensor)	
2 nuts M 30	
For matching connectors please see our selection of accessories.	

\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors

Series 70 - NPN  
Series 80 - PNP



Housing M 30 x 1.5

- Housing material: PA / PPO
- Sensing distance 0.5...25 mm adjustable

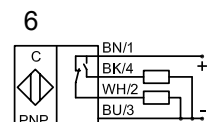
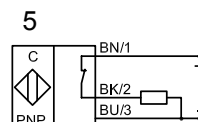
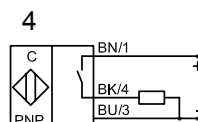
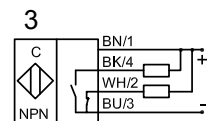
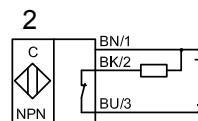
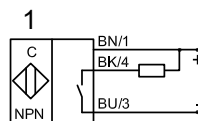
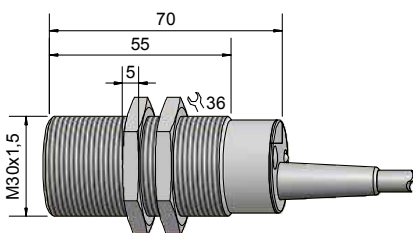


Certificate:

Technical data	Flush mountable
Operating distance $S_n$	10 mm
Operating distance min. / max. adjustable	0.5...25 mm
Electrical version	4-wire DC
Output function	Antivalent
<b>Type NPN</b>	<b>KAS-70-A14-A-M30-PPO-Z02-1-HP</b>
<b>Art.-No.</b>	<b>705 600</b>
Connection diagram No.	3
<b>Type PNP</b>	<b>KAS-80-A14-A-M30-PPO-Z02-1-HP</b>
<b>Art.-No.</b>	<b>805 600</b>
Connection diagram No.	6
Operating voltage ( $U_b$ )	10...35 V DC
Output current max. ( $I_o$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	200 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m, PVC, 4 x 0.5 mm <sup>2</sup>
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PA / PPO
Media optimized	Yes
<b>Accessories</b> (is delivered with the sensor)	2 nuts M 30

All specifications are subject to change without notice. (04/2017)

\* With sealed potentiometer screw



Made in Germany



## Capacitive Sensors Series 80 - PNP



Housing M 30 x 1.5

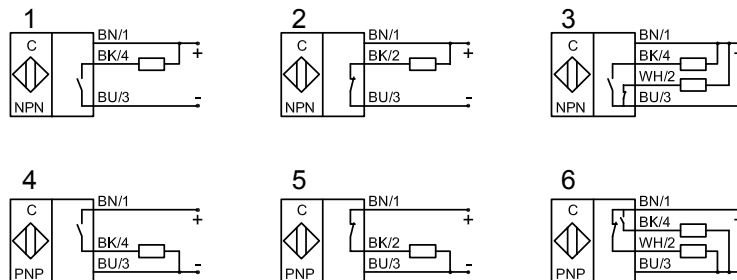
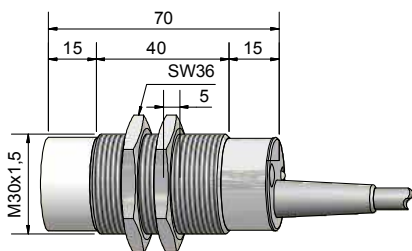
- Housing material: Brass
- Sensing distance 1...30 mm adjustable

Certificate:



Technical data	Non-flush mountable
Operating distance $S_n$	15 mm
Operating distance min. / max. adjustable	1...30 mm
Electrical version	4-wire DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-A24-A-M30-PTFE/MS-Z02-1-HP</b>	
<b>Art.-No.</b>	
<b>808 000</b>	
Connection diagram No.	
6	
Operating voltage ( $U_B$ )	10...35 V DC
Output current max. ( $I_e$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m, PVC, 4 x 0.5 mm <sup>2</sup>
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
Media optimized	Yes
<b>Accessories</b> (is delivered with the sensor)	
2 nuts M 30	

\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors

Series 70 - NPN  
Series 80 - PNP



Housing M 30 x 1.5

- Housing material: Brass
- Sensing distance 1...30 mm adjustable
- With flange connector M 12 x 1

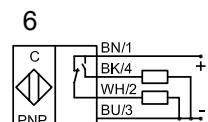
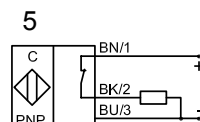
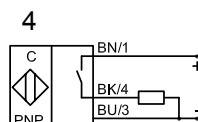
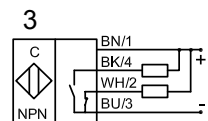
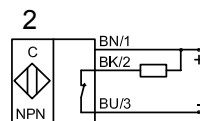
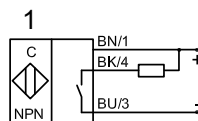
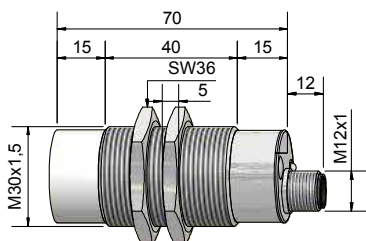


Certificate:

Technical data	Non-flush mountable
Operating distance $S_n$	15 mm
Operating distance min. / max. adjustable	1...30 mm
Electrical version	4- pin DC
Output function	Antivalent
<b>Type NPN</b>	<b>KAS-70-A24-A-M30-PPO/MS-Y5-1-HP</b>
<b>Art.-No.</b>	<b>708 200</b>
Connection diagram No.	3
<b>Type PNP</b>	<b>KAS-80-A24-A-M30-PTFE/MS-Y5-1-HP</b>
<b>Art.-No.</b>	<b>808 200</b>
Connection diagram No.	6
Operating voltage ( $U_b$ )	10...35 V DC
Output current max. ( $I_o$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 529	IP 67*
Norm	EN 60947-5-2
Connection	Flange connector M 12 x 1
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
Media optimized	Yes
<b>Accessories</b> (is delivered with the sensor)	2 nuts M 30
For matching connectors please see our selection of accessories.	

All specifications are subject to change without notice. (04/2017)

\* With sealed potentiometer screw



Made in Germany



## Capacitive Sensors Series 80 - PNP



Housing M 30 x 1.5

- Housing material: PA / PPO
- Sensing distance 1...30 mm adjustable

Certificate:

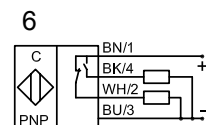
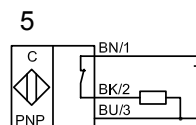
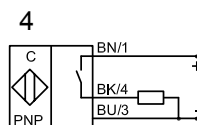
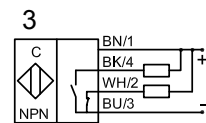
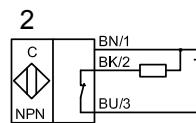
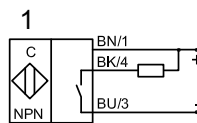
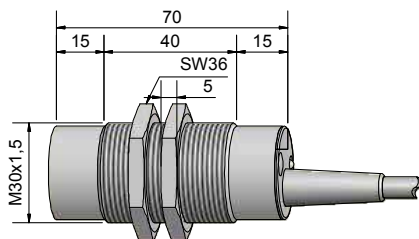


### Technical data

Non-flush mountable

Operating distance $S_n$	15 mm
Operating distance min. / max. adjustable	1...30 mm
Electrical version	4-wire DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-A24-A-M30-PPO-Z02-1-HP</b>	
<b>Art.-No.</b>	
<b>808 400</b>	
Connection diagram No.	
6	
Operating voltage ( $U_B$ )	10...35 V DC
Output current max. ( $I_o$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m, PVC, 4 x 0.5 mm <sup>2</sup>
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PA / PPO
Media optimized	Yes
<b>Accessories</b> (is delivered with the sensor)	
2 nuts M 30	

\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors Series 80 - PNP



Housing M 30 x 1.5

- Housing material: PA / PPO
- Sensing distance 1...30 mm adjustable
- With flange connector M 12 x 1

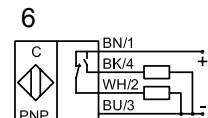
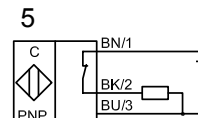
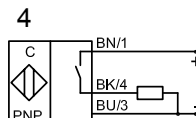
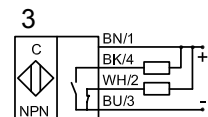
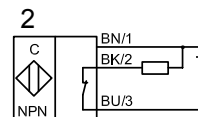
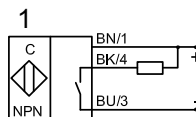
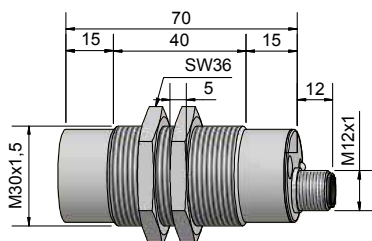
Certificate:



Technical data	Non-flush mountable
Operating distance $S_n$	15 mm
Operating distance min. / max. adjustable	1...30 mm
Electrical version	4- pin DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-A24-A-M30-PPO-Y5-1-HP</b>	
<b>Art.-No.</b>	
<b>808 600</b>	
Connection diagram No.	
6	
Operating voltage ( $U_b$ )	10...35 V DC
Output current max. ( $I_e$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 529	IP 67*
Norm	EN 60947-5-2
Connection	Flange connector M 12 x 1
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PA / PPO
Media optimized	Yes
<b>Accessories (is delivered with the sensor)</b>	
2 nuts M 30	
For matching connectors please see our selection of accessories.	

All specifications are subject to change without notice. (04/2017)

\* With sealed potentiometer screw



Made in Germany





## Capacitive Sensors

Series 70 - NPN

Series 80 - PNP



Housing M 32 x 1.5

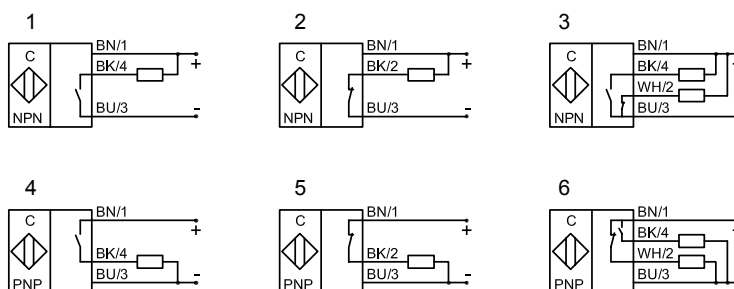
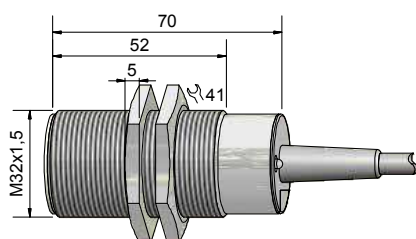
- Housing material: Brass
- Sensing distance 0.5...30 mm adjustable



Certificate:

Technical data	Flush mountable	Flush mountable
Operating distance $S_n$	20 mm	20 mm
Operating distance min. / max. adjustable	0.5...30 mm	0.5...30 mm
Electrical version	3-wire DC	4-wire DC
Output function	Normally open	Antivalent
<b>Type NPN</b>	<b>KAS-70-30-S-M32-PTFE/MS-Z02-1-HP</b>	<b>KAS-70-30-A-M32-PTFE/MS-Z02-1-HP</b>
<b>Art.-No.</b>	<b>716 200</b>	<b>715 800</b>
Connection diagram No.	1	3
<b>Type PNP</b>	<b>KAS-80-30-S-M32-PTFE/MS-Z02-1-HP</b>	<b>KAS-80-30-A-M32-PTFE/MS-Z02-1-HP</b>
<b>Art.-No.</b>	<b>816 200</b>	<b>815 800</b>
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. ( $U_d$ )	≤ 2.0 V	≤ 2.0 V
Permitted residual ripple max.	10%	10%
No-load current ( $I_o$ )	Typ. 15 mA	Typ. 15 mA
Frequency of operating cycles max.	200 Hz	200 Hz
Permitted ambient temperature	-25...+70 °C	-25...+70 °C
LED-display	Green / yellow	Green / yellow
Protective circuit	Built-in	Built-in
Degree of protection IEC 60529	IP 67*	IP 67*
Norm	EN 60947-5-2	EN 60947-5-2
Connection cable	2 m, PVC, 3 x 0.75 mm <sup>2</sup>	2 m, PVC, 4 x 0.5 mm <sup>2</sup>
Housing material	Brass	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO	PA / PPO
Media optimized	Yes	Yes
<b>Accessories</b> (is delivered with the sensor)	2 nuts M 32	2 nuts M 32

\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)





## Capacitive Sensors

Series 70 - NPN

Series 80 - PNP



Housing M 32 x 1.5

- Housing material: Brass
- Sensing distance 0.5...30 mm adjustable
- With flange connector M 12 x 1

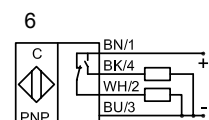
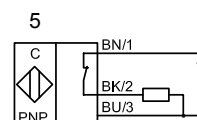
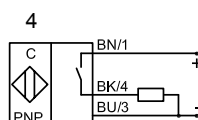
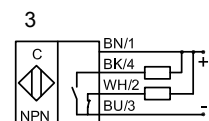
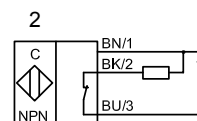
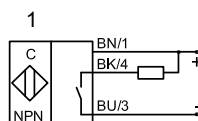
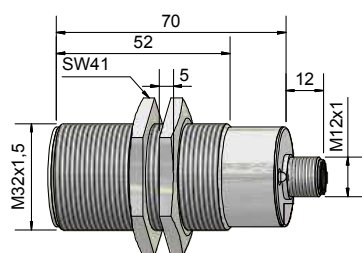
Certificate:



Technical data	Flush mountable
Operating distance $S_n$	20 mm
Operating distance min. / max. adjustable	0.5...30 mm
Electrical version	4-pin DC
Output function	Antivalent
<b>Type NPN</b>	<b>KAS-70-30-A-M32-PTFE/MS-Y5-1-HP</b>
<b>Art.-No.</b>	<b>716 000</b>
Connection diagram No.	3
<b>Type PNP</b>	<b>KAS-80-30-A-M32-PTFE/MS-Y5-1-HP</b>
<b>Art.-No.</b>	<b>816 000</b>
Connection diagram No.	6
Operating voltage ( $U_b$ )	10...35 V DC
Output current max. ( $I_o$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	200 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection	Flange connector M 12 x 1
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
Media optimized	Yes
<b>Accessories (is delivered with the sensor)</b>	<b>2 nuts M 32</b>
For matching connectors please see our selection of accessories.	

All specifications are subject to change without notice. (04/2017)

\* With sealed potentiometer screw



**Made in Germany**



## Capacitive Sensors Series 2000 - **quattro**<sup>3</sup>

Housing M 32 x 1.5

- Housing material: Brass
- Sensing distance 2...25 mm adjustable
- Multifunction sensor: NPN / PNP;  
NO / NC function switchable

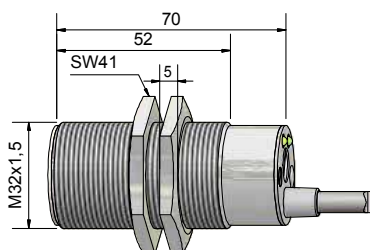
Certificate:



Quattro<sup>Exc</sup>Protect™

Technical data	Flush mountable
Operating distance $S_n$	20 mm
Operating distance min. / max. adjustable	2...25 mm
Electrical version	3-wire DC
Output function	NO / NC switchable
<b>Type NPN / PNP switchable</b>	<b>KAS-2000-30-P-M32-PTFE/MS-Z02-1</b>
<b>Art.-No.</b>	<b>770 600</b>
Operating voltage ( $U_B$ )	10...35 V DC
Output current max. ( $I_e$ )	400 mA
Voltage drop max. ( $U_g$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green & yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m, PVC, 3 x 0.75 mm <sup>2</sup>
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
<b>Accessories</b> (is delivered with the sensor)	2 nuts M 32

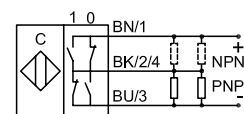
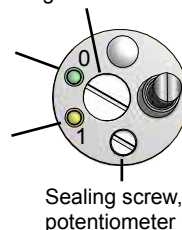
\* With sealed potentiometer screw



Sealing screw, change-over switch

LED green  
standby

LED yellow  
operating state



Made in Germany

All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors Series 2000 - **quattro**<sup>3</sup>

Housing M 32 x 1.5

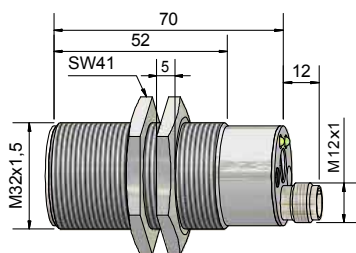
- Housing material: Brass
- Sensing distance 2...25 mm adjustable
- Multifunction sensor: NPN / PNP;  
NO / NC function switchable
- With flange connector M 12 x 1

Certificate:



Technical data	Flush mountable
Operating distance $S_n$	20 mm
Operating distance min. / max. adjustable	2...25 mm
Electrical version	3-pin DC
Output function	NO / NC switchable
<b>Type NPN / PNP switchable</b>	<b>KAS-2000-30-P-M32-PTFE/MS-Y3-1</b>
<b>Art.-No.</b>	<b>770 603</b>
Operating voltage ( $U_B$ )	10...35 V DC
Output current max. ( $I_o$ )	400 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green & yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection	Flange connector M 12 x 1
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
<b>Accessories</b> (is delivered with the sensor)	2 nuts M 32
For matching connectors please see our selection of accessories.	

\* With sealed potentiometer screw

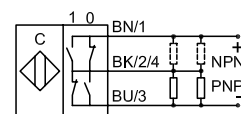


Sealing screw, change-over switch

LED green  
standby

LED yellow  
operating state

Sealing screw,  
potentiometer



All specifications are subject to change without notice. (04/2017)

Made in Germany



## Capacitive Sensors Series 90 - AC / DC

Housing M 32 x 1.5

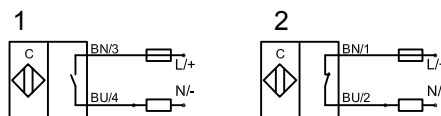
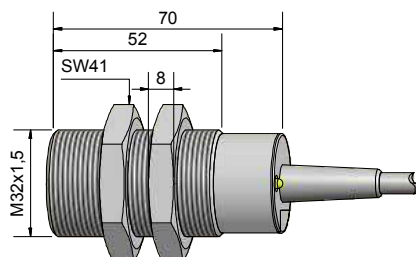
- Housing material: PA / PPO
- Sensing distance 2...20 mm adjustable

Certificate:



Technical data	Flush mountable	Flush mountable
Operating distance $S_n$	15 mm	15 mm
Operating distance min. / max. adjustable	2...20 mm	2...20 mm
Electrical version	2-wire AC / DC	2-wire AC / DC
Output function	Normally open	Normally closed
<b>Type</b>	<b>KAS-90-30-S-M32-PPO-Z02-1</b>	<b>KAS-90-30-Ö-M32-PPO-Z02-1</b>
<b>Art.-No.</b>	<b>901 800</b>	<b>901 900</b>
Connection diagram No.	1	2
Operating voltage ( $U_b$ )	20...250 V AC / DC	20...250 V AC / DC
Output current max. ( $I_e$ )	330 mA (ETL = 250 mA)	330 mA (ETL = 250 mA)
Load current min.	5 mA	5 mA
Voltage drop max. ( $U_o$ )	≤ 6 V	≤ 6 V
No-load current ( $I_o$ )	Typ. 2.5 mA	Typ. 2.5 mA
Frequency of operating cycles max.	25 Hz	25 Hz
Permitted ambient temperature	-25...+70 °C (ETL = +60 °C)	-25...+70 °C (ETL = +60 °C)
LED-display	Yellow	Yellow
Protective circuit	Built-in	Built-in
Degree of protection IEC 60529	IP 67*	IP 67*
Norm	EN 60947-5-2	EN 60947-5-2
Connection cable	2 m, PVC, 2 x 0.75 mm <sup>2</sup>	2 m, PVC, 2 x 0.75 mm <sup>2</sup>
Housing material	PA / PPO	PA / PPO
Active surface	PA / PPO	PA / PPO
Lid	PA / PPO	PA / PPO
<b>Accessories</b> (is delivered with the sensor)	2 nuts M 32	2 nuts M 32

\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors Series 80 - PNP



Housing M 32 x 1.5

- Housing material: PTFE
- Ideal for detection of chemically aggressive media
- Also ideal for food applications
- Sensing distance 0.5...30 mm adjustable
- Option: Total chemical resistance is given when ordering the sensor with PTFE cable and PTFE- protection set Art.-No. 196301

Certificate:



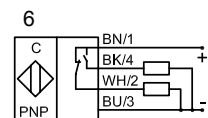
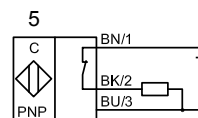
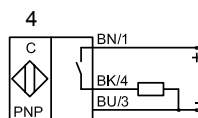
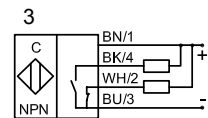
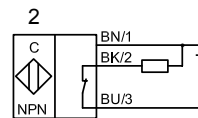
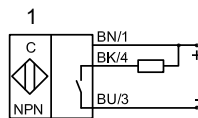
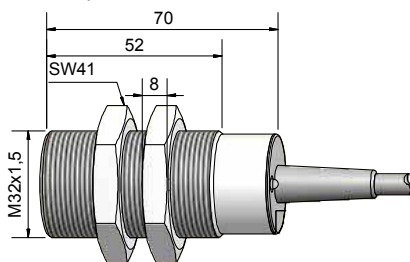
### Technical data

Flush mountable

Operating distance $S_n$	20 mm
Operating distance min. / max. adjustable	0.5...30 mm
Electrical version	4-wire DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-30-A-M32-PTFE-Z02-1-HP</b>	
<b>Art.-No.</b>	
<b>815 830</b>	
Connection diagram No.	
6	
Operating voltage ( $U_b$ )	10...35 V DC
Output current max. ( $I_e$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	200 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m, PVC, 4 x 0.50 mm <sup>2</sup>
Housing material	PTFE (FDA 21 CFR 177.1550)
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
Media optimized	Yes
<b>Accessories (is delivered with the sensor)</b>	
2 nuts M 32	

All specifications are subject to change without notice. (04/2017)

\* With sealed potentiometer screw



Made in Germany



## Capacitive Sensors Series 90 - AC / DC

Housing M 32 x 1.5

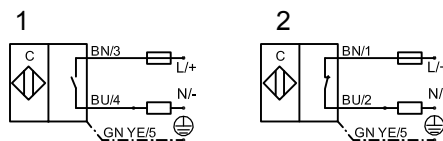
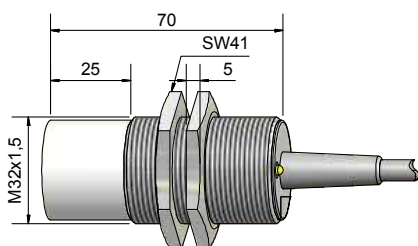
- Housing material: Brass
- Sensing distance 3...25 mm adjustable

Certificate:



Technical data	Non-flush mountable	Non-flush mountable
Operating distance $S_n$	20 mm	20 mm
Operating distance min. / max. adjustable	3...25 mm	3...25 mm
Electrical version	2-wire AC / DC	2-wire AC / DC
Output function	Normally open	Normally closed
<b>Type</b>	<b>KAS-90-35-S-M32-PTFE/MS-Z02-1</b>	<b>KAS-90-35-Ö-M32-PTFE/MS-Z02-1</b>
<b>Art.-No.</b>	<b>903 200</b>	<b>903 300</b>
Connection diagram No.	1	2
Operating voltage ( $U_B$ )	20...250 V AC / DC	20...250 V AC / DC
Output current max. ( $I_e$ )	330 mA (ETL = 250 mA)	330 mA (ETL = 250 mA)
Load current min.	5 mA	5 mA
Voltage drop max. ( $U_o$ )	≤ 6 V	≤ 6 V
No-load current ( $I_o$ )	Typ. 2.5 mA	Typ. 2.5 mA
Frequency of operating cycles max.	25 Hz	25 Hz
Permitted ambient temperature	-25...+70 °C (ETL = +60 °C)	-25...+70 °C (ETL = +60 °C)
LED-display	Yellow	Yellow
Protective circuit	Built-in	Built-in
Degree of protection IEC 60529	IP 67*	IP 67*
Norm	EN 60947-5-2	EN 60947-5-2
Connection cable	2 m, PVC, 3 x 0.75 mm <sup>2</sup>	2 m, PVC, 3 x 0.75 mm <sup>2</sup>
Housing material	Brass	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO	PA / PPO
<b>Accessories</b> (is delivered with the sensor)	2 nuts M 32	2 nuts M 32

\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors

Series 70 - NPN

Series 80 - PNP



Housing M 32 x 1.5

- Housing material: Stainless steel VA
- Sensing distance 1...40 mm adjustable

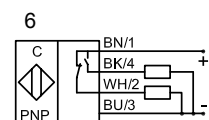
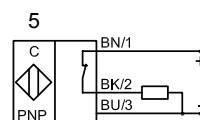
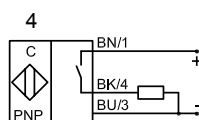
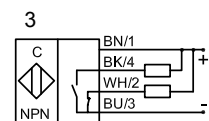
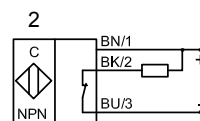
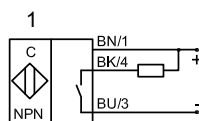
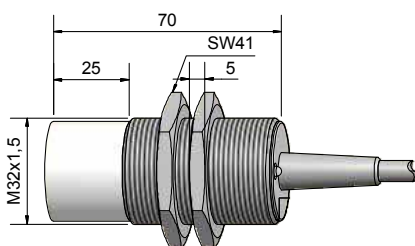
Certificate:



Technical data	Non-flush mountable	Non-flush mountable
Operating distance $S_n$	25 mm	25 mm
Operating distance min. / max. adjustable	1...40 mm	1...40 mm
Electrical version	3-wire DC	4-wire DC
Output function	Normally open	Antivalent
<b>Type NPN</b>	<b>KAS-70-35-S-M32-PTFE/VAb-Z02-1-HP</b>	<b>KAS-70-35-A-M32-PTFE/VAb-Z02-1-HP</b>
<b>Art.-No.</b>	<b>718 600</b>	<b>KA 0041</b>
Connection diagram No.	1	3
<b>Type PNP</b>	<b>KAS-80-35-S-M32-PTFE/VAb-Z02-1-HP</b>	<b>KAS-80-35-A-M32-PTFE/VAb-Z02-1-HP</b>
<b>Art.-No.</b>	<b>818 600</b>	<b>818 540</b>
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. ( $U_d$ )	≤ 2,0 V	≤ 2,0 V
Permitted residual ripple max.	10 %	10 %
No-load current ( $I_o$ )	Typ. 15 mA	Typ. 15 mA
Frequency of operating cycles max.	50 Hz	50 Hz
Permitted ambient temperature	-25...+70 °C	-25...+70 °C
LED-display	Green / yellow	Green / yellow
Protective circuit	Built-in	Built-in
Degree of protection IEC 60529	IP 67*	IP 67*
Norm	EN 60947-5-2	EN 60947-5-2
Connection cable	2 m, PVC, 3 x 0.75 mm <sup>2</sup>	2 m, PVC, 4 x 0.50 mm <sup>2</sup>
Housing material	VA No. 1.4305	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO	PA / PPO
Media optimized	Yes	Yes
<b>Accessories</b> (is delivered with the sensor)	2 nuts M 32	2 nuts M 32

All specifications are subject to change without notice. (04/2017)

\* With sealed potentiometer screw



Made in Germany





## Capacitive Sensors

Series 70 - NPN  
Series 80 - PNP



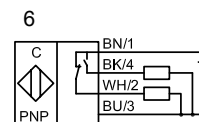
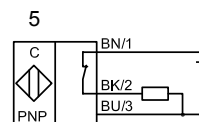
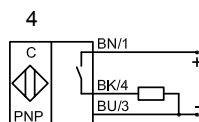
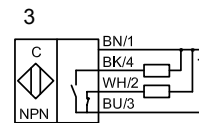
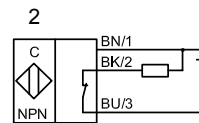
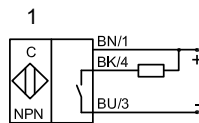
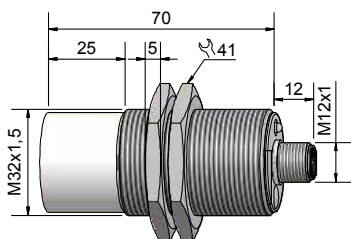
- Housing M 32 x 1.5
- Housing material: Stainless steel VA
  - Sensing distance 1...40 mm adjustable
  - With flange connector M 12 x 1

Certificate:



Technical data	Non-flush mountable
Operating distance $S_n$	25 mm
Operating distance min. / max. adjustable	1...40 mm
Electrical version	4-pin DC
Output function	Antivalent
<b>Type NPN</b>	<b>KAS-70-35-A-M32-PTFE/VAb-Y5-1-HP</b>
<b>Art.-No.</b>	<b>718 555</b>
Connection diagram No.	3
<b>Type PNP</b>	<b>KAS-80-35-A-M32-PTFE/VAb-Y5-1-HP</b>
<b>Art.-No.</b>	<b>818 555</b>
Connection diagram No.	6
Operating voltage ( $U_B$ )	10...35 V DC
Output current max. ( $I_o$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection	Flange connector M 12 x 1
Housing material	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
Media optimized	Yes
<b>Accessories</b> (is delivered with the sensor)	2 nuts M 32
For matching connectors please see our selection of accessories.	

\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)





## Capacitive Sensors Series 2000 - **quattro**<sup>3</sup>

Housing M 32 x 1.5

- Housing material: Stainless steel VA
- Sensing distance 3...30 mm adjustable
- Multifunction sensor: NPN / PNP
- NO / NC function switchable

Certificate:

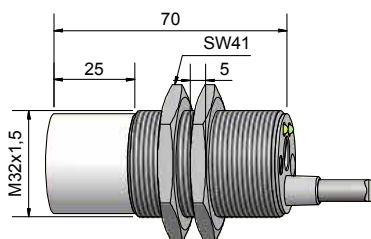


Quattro<sup>3</sup>Protect™

Technical data	Non-flush mountable
Operating distance $S_n$	25 mm
Operating distance min. / max. adjustable	3...30 mm
Electrical version	3-wire DC
Output function	NO / NC switchable
<b>Type NPN / PNP switchable</b>	<b>KAS-2000-35-P-M32-PTFE/VA/ab-Z02-1</b>
<b>Art.-No.</b>	<b>771 000</b>
Operating voltage ( $U_B$ )	10...35 V DC
Output current max. ( $I_o$ )	400 mA
Voltage drop max. ( $U_d$ )	≤ 2,0 V
Permitted residual ripple max.	10%
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green & yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m, PVC, 3 x 0,75 mm <sup>2</sup>
Housing material	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
<b>Accessories</b> (is delivered with the sensor)	2 nuts M 32

\* With sealed potentiometer screw

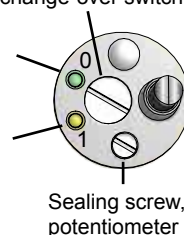
All specifications are subject to change without notice. (04/2017)



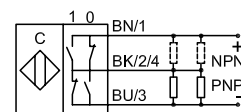
Sealing screw, change-over switch

LED green  
standby

LED yellow  
operating state



Sealing screw,  
potentiometer



Made in Germany



## Capacitive Sensors

Series 70 - NPN  
Series 80 - PNP



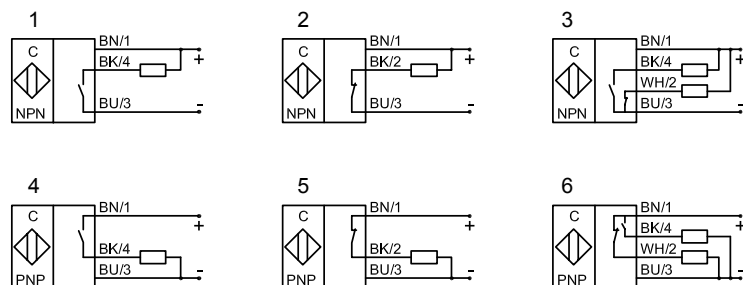
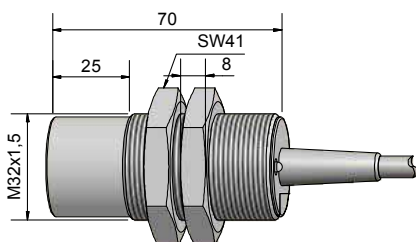
- Housing M 32 x 1.5
- Housing material: PA / PPO
  - Sensing distance 1...40 mm adjustable

Certificate:



Technical data	Non-flush mountable	Non-flush mountable
Operating distance $S_n$	25 mm	25 mm
Operating distance min. / max. adjustable	1...40 mm	1...40 mm
Electrical version	3-wire DC	4-wire DC
Output function	Normally open	Antivalent
<b>Type NPN</b>	<b>KAS-70-35-S-M32-PPO-Z02-1-HP</b>	<b>KAS-70-35-A-M32-PPO-Z02-1-HP</b>
<b>Art.-No.</b>	<b>720 600</b>	<b>720 200</b>
Connection diagram No.	1	3
<b>Type PNP</b>	<b>KAS-80-35-S-M32-PPO-Z02-1-HP</b>	<b>KAS-80-35-A-M32-PPO-Z02-1-HP</b>
<b>Art.-No.</b>	<b>820 600</b>	<b>820 200</b>
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. ( $U_d$ )	≤ 2.0 V	≤ 2.0 V
Permitted residual ripple max.	10 %	10 %
No-load current ( $I_o$ )	Typ. 15 mA	Typ. 15 mA
Frequency of operating cycles max.	50 Hz	50 Hz
Permitted ambient temperature	-25...+70 °C	-25...+70 °C
LED-display	Green / yellow	Green / yellow
Protective circuit	Built-in	Built-in
Degree of protection IEC 60529	IP 67*	IP 67*
Norm	EN 60947-5-2	EN 60947-5-2
Connection cable	2 m, PVC, 3 x 0.75 mm <sup>2</sup>	2 m, PVC, 4 x 0.5 mm <sup>2</sup>
Housing material	PA / PPO	PA / PPO
Active surface	PA / PPO	PA / PPO
Lid	PA / PPO	PA / PPO
Media optimized	Yes	Yes
<b>Accessories</b> (is delivered with the sensor)	2 nuts M 32	2 nuts M 32

\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors

Series 70 - NPN

Series 80 - PNP



Housing M 32 x 1.5

- Housing material: PA / PPO
- Sensing distance 1...40 mm adjustable
- With flange connector M 12 x 1

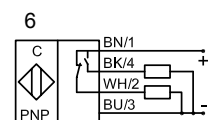
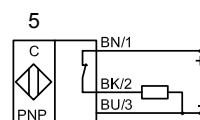
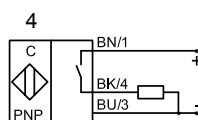
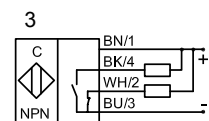
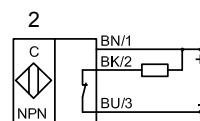
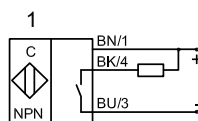
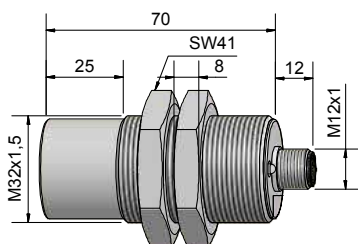
Certificate:



Technical data	Non-flush mountable
Operating distance $S_n$	25 mm
Operating distance min. / max. adjustable	1...40 mm
Electrical version	4-pin DC
Output function	Antivalent
<b>Type NPN</b>	<b>KAS-70-35-A-M32-PPO-Y5-1-HP</b>
<b>Art.-No.</b>	<b>720 400</b>
Connection diagram No.	3
<b>Type PNP</b>	<b>KAS-80-35-A-M32-PPO-Y5-1-HP</b>
<b>Art.-No.</b>	<b>820 400</b>
Connection diagram No.	6
Operating voltage ( $U_b$ )	10...35 V DC
Output current max. ( $I_e$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10%
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection	Flange connector M 12 x 1
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PA / PPO
Media optimized	Yes
<b>Accessories</b> (is delivered with the sensor)	2 nuts M 32
For matching connectors please see our selection of accessories.	

All specifications are subject to change without notice. (04/2017)

\* With sealed potentiometer screw



Made in Germany



## Capacitive Sensors Series 2000 - **quattro**<sup>3</sup>

Housing M 32 x 1.5

- Housing material: PA / PPO
- Sensing distance 3...30 mm adjustable
- Multifunction sensor: NPN / PNP;  
NO / NC function switchable

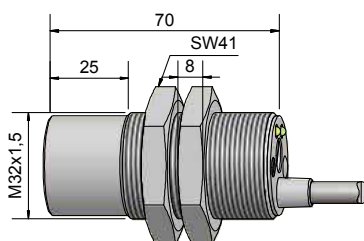
Certificate:



Quattro<sup>3</sup> Protect™

Technical data	Non-flush mountable
Operating distance $S_n$	25 mm
Operating distance min. / max. adjustable	3...30 mm
Electrical version	3-wire DC
Output function	NO / NC switchable
<b>Type NPN / PNP switchable</b>	<b>KAS-2000-35-P-M32-PPO-Z02-1</b>
<b>Art.-No.</b>	<b>770 800</b>
Operating voltage ( $U_B$ )	10...35 V DC
Output current max. ( $I_e$ )	400 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green & yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m, PVC, 3 x 0.75 mm <sup>2</sup>
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PA / PPO
<b>Accessories</b> (is delivered with the sensor)	2 nuts M 32

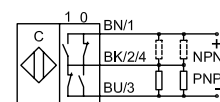
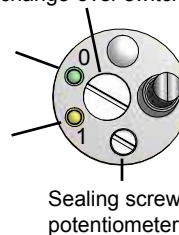
\* With sealed potentiometer screw



Sealing screw, change-over switch

LED green  
standby

LED yellow  
operating state



Made in Germany

All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors Series 90 - AC / DC

Housing M 32 x 1.5

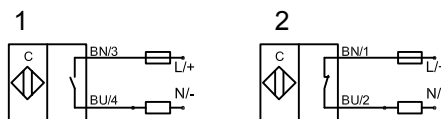
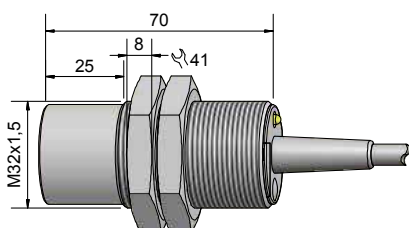
- Housing material: PA / PPO
- Sensing distance 3...25 mm adjustable

Certificate:



Technical data	Non-flush mountable	Non-flush mountable
Operating distance $S_n$	20 mm	20 mm
Operating distance min. / max. adjustable	3...25 mm	3...25 mm
Electrical version	2-wire AC / DC	2-wire AC / DC
Output function	Normally open	Normally closed
<b>Type</b>	<b>KAS-90-35-S-M32-PPO-Z02-1</b>	<b>KAS-90-35-Ö-M32-PPO-Z02-1</b>
<b>Art.-No.</b>	<b>902 400</b>	<b>902 500</b>
Connection diagram No.	1	2
Operating voltage ( $U_b$ )	20...250 V AC/DC	20...250 V AC / DC
Output current max. ( $I_o$ )	330 mA (ETL = 250 mA)	330 mA (ETL = 250 mA)
Load current min.	5 mA	5 mA
Voltage drop max. ( $U_d$ )	≤ 6 V	≤ 6 V
No-load current ( $I_o$ )	Typ. 2.5 mA	Typ. 2.5 mA
Frequency of operating cycles max.	25 Hz	25 Hz
Permitted ambient temperature	-25...+70 °C (ETL = +60 °C)	-25...+70 °C (ETL = +60 °C)
LED-display	Yellow	Yellow
Protective circuit	Built-in	Built-in
Degree of protection IEC 60529	IP 67*	IP 67*
Norm	EN 60947-5-2	EN 60947-5-2
Connection cable	2 m, PVC, 2 x 0.75 mm <sup>2</sup>	2 m, PVC, 2 x 0.75 mm <sup>2</sup>
Housing material	PA / PPO	PA / PPO
Active surface	PA / PPO	PA / PPO
Lid	PA / PPO	PA / PPO
<b>Accessories</b> (is delivered with the sensor)	2 nuts M 32	2 nuts M 32

\* With sealed potentiometer screw



All specifications are subject to change without notice. (04/2017)

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## Capacitive Sensors Series 80 - PNP



Housing M 32 x 1.5

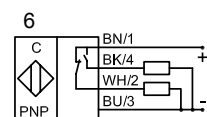
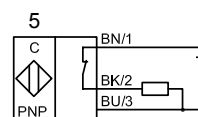
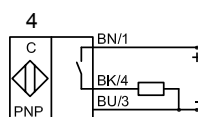
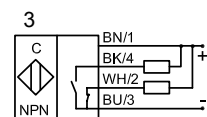
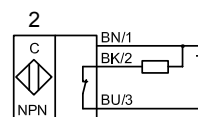
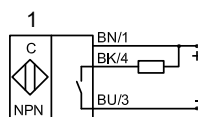
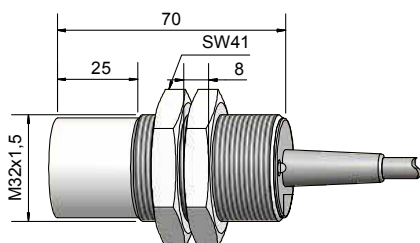
- Housing material: PTFE
- Ideal for detection of chemically aggressive media
- Also suitable for food applications
- Sensing distance 1...40 mm adjustable
- Option: Total chemical resistance is given when ordering the sensor with PTFE cable and PTFE- protection set Art.-No. 196301

Certificate:



Technical data	Non-flush mountable
Operating distance $S_n$	25 mm
Operating distance min. / max. adjustable	1...40 mm
Electrical version	4-wire DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	<b>KAS-80-35-A-M32-PTFE-Z02-1-HP</b>
<b>Art.-No.</b>	<b>820 300</b>
Connection diagram No.	6
Operating voltage ( $U_B$ )	10...35 V DC
Output current max. ( $I_o$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m, PVC, 4 x 0.5 mm <sup>2</sup>
Housing material	PTFE (FDA 21 CFR 177.1550)
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
Media optimized	Yes
<b>Accessories</b> (is delivered with the sensor)	2 nuts M 32

\* With sealed potentiometer screw



Made in Germany

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## Capacitive Sensors Series 80 - PNP



Housing Ø 34 mm

- Housing material: PA / PPO
- Sensing distance 0.5...30 mm adjustable

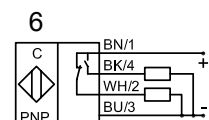
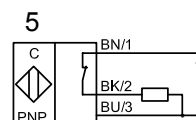
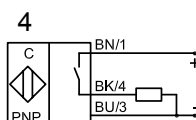
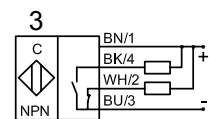
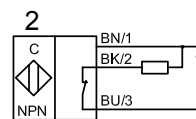
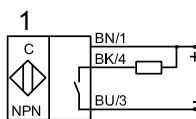
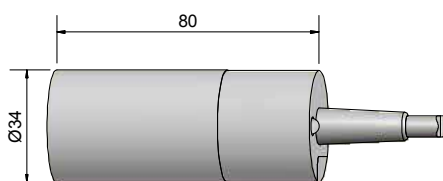
Certificate:



Technical data	Flush mountable
Operating distance $S_n$	20 mm
Operating distance min. / max. adjustable	0.5...30 mm
Electrical version	4-wire DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-37-A-D34-PPO-Z02-1-HP</b>	
<b>Art.-No.</b>	
<b>824 500</b>	
Connection diagram No.	
6	
Operating voltage ( $U_b$ )	10...35 V DC
Output current max. ( $I_e$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_0$ )	Typ. 15 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 67*
Norm	EN 60947-5-2
Connection cable	2 m, PVC, 4 x 0.5 mm <sup>2</sup>
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PA / PPO
Media optimized	Yes

**Assessors** for mounting (is not delivered with the sensor) please see our selection of accessories.

\* With sealed potentiometer screw



**Made in Germany**

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## Capacitive Sensors Series 80 - PNP



Housing Ø 34 mm

- Housing material: PA / PPO
- Sensing distance 1...40 mm adjustable

Certificate:



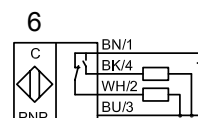
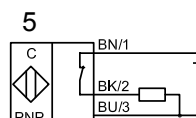
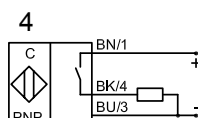
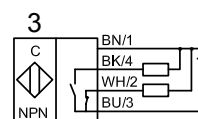
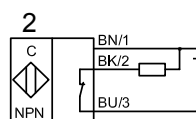
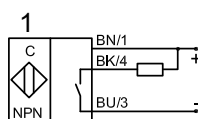
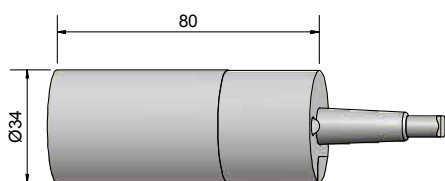
### Technical data

Non-flush mountable

Operating distance $S_n$	25 mm
Operating distance min. / max. adjustable	1...40 mm
Electrical version	4-wire DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	<b>KAS-80-38-A-D34-PPO-Z02-1-HP</b>
<b>Art.-No.</b>	<b>825 300</b>
Connection diagram No.	6
Operating voltage ( $U_B$ )	10...35 V DC
Output current max. ( $I_o$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m, PVC, 4 x 0.5 mm <sup>2</sup>
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PA / PPO
Media optimized	Yes

**Assessors** for mounting (is not delivered with the sensor) please see our selection of accessories.

\* With sealed potentiometer screw



**Made in Germany**

All specifications are subject to change without notice. (04/2017)





## Capacitive Sensors Series 90 - AC / DC

- Housing  $\varnothing$  34 mm
- Housing material: PA / PPO
- Sensing distance 3...30 mm adjustable

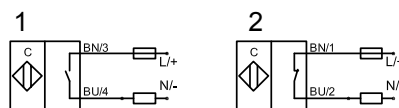
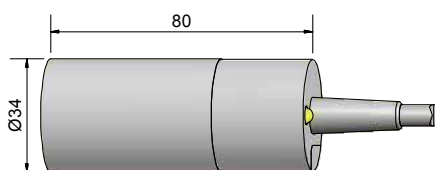
Certificate:



Technical data	Non-flush mountable
Operating distance $S_n$	20 mm
Operating distance min. / max. adjustable	3...30 mm
Electrical version	2-wire AC / DC
Output function	Normally open
<b>Type</b>	<b>KAS-90-38-S-D34-PPO-Z02-1</b>
<b>Art.-No.</b>	<b>904 000</b>
Connection diagram No.	1
Operating voltage ( $U_b$ )	20...250 V AC / DC
Output current max. ( $I_o$ )	330 mA (ETL = 250 mA)
Load current min.	5 mA
Voltage drop max. ( $U_d$ )	$\leq 6$ V
No-load current ( $I_o$ )	Typ. 2.5 mA
Frequency of operating cycles max.	25 Hz
Permitted ambient temperature	-25...+70 °C (ETL = +60 °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, 2 x 0.75 mm <sup>2</sup>
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PA / PPO

**Assessors** for mounting (is not delivered with the sensor) please see our selection of accessories.

\* With sealed potentiometer screw



All specifications are subject to change without notice. (04/2017)

**Made in Germany**



## Capacitive Sensors Series 80 - PNP



Housing Ø 50 mm

- Housing material: PA / PPO
- Sensing distance 1...50 mm adjustable
- With flange connector M 12 x 1

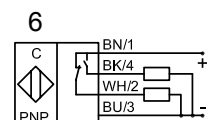
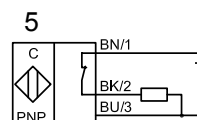
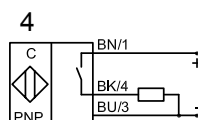
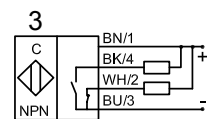
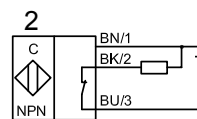
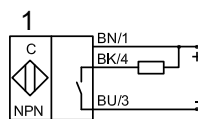
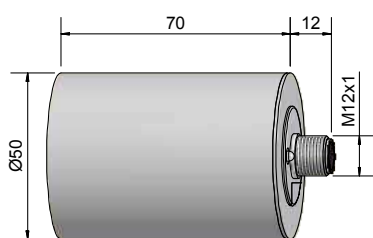


Certificate:

Technical data	Flush mountable
Operating distance $S_n$	30 mm
Operating distance min. / max. adjustable	1...50 mm
Electrical version	4-pin DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-50-A-D50-PPO-Y5-1-HP</b>	
<b>Art.-No.</b>	
<b>825 510</b>	
Connection diagram No.	
6	
Operating voltage ( $U_B$ )	10...35 V DC
Output current max. ( $I_o$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	100 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection	Flange connector M 12 x 1
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PA / PPO
Media optimized	Yes

**Assessors** for mounting (is not delivered with the sensor) please see our selection of accessories.

\* With sealed potentiometer screw



**Made in Germany**

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## Capacitive Sensors Series 80 - PNP



- Housing  $\varnothing$  64 mm
- Housing material: PA / PPO
- Sensing distance 5...70 mm adjustable

Certificate:



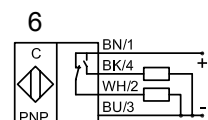
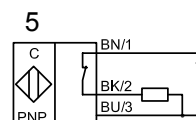
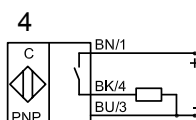
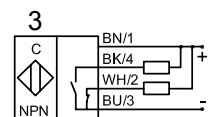
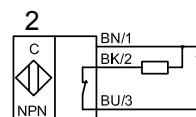
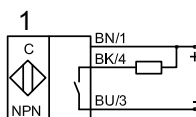
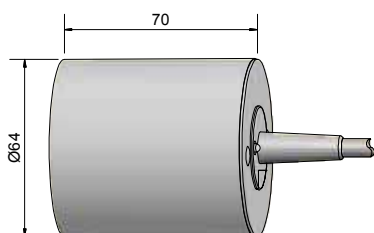
### Technical data

Non-flush mountable

Operating distance $S_n$	40 mm
Operating distance min. / max. adjustable	5...70 mm
Electrical version	4-wire DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-61-A-D64-PPO-Z02-1-HP</b>	
<b>Art.-No.</b>	
<b>828 100</b>	
Connection diagram No.	
6	
Operating voltage ( $U_b$ )	10...35 V DC
Output current max. ( $I_o$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	$\leq 2.0$ V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m, PVC, 4 x 0.5 mm <sup>2</sup>
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PA / PPO
Media optimized	Yes

**Assessors** for mounting (is not delivered with the sensor) please see our selection of accessories.

\* With sealed potentiometer screw



**Made in Germany**

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**SERIES 40 (NAMUR) • 70 / 80 • ATEX / IECEx**

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Capacitive Sensors, Series 40 NAMUR, StEx - ATEX Zone 0, Zone 20, 26 mm / G 1"	82 - 83
Capacitive Sensors, Series 70 / 80, StEx - ATEX Zone 1, Zone 20, M 30	84 - 85
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All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors Series 40 NAMUR- StEx- ATEX

Housing M 30 x 1.5

- For use in areas with the risk of dust explosion, zone 20
- For use in areas with the risk of gas explosion, zone 0
- Sensing distance 2...20 mm adjustable

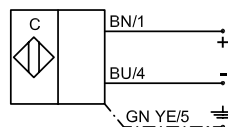
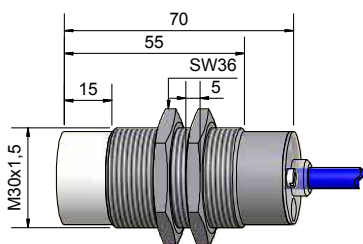
DMT 03 ATEX E 048	IECEX BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga
Ex II 1D Ex ia IIIC T101°C Da	Ex ia IIIC T101°C Da



### Technical data

Operating distance $S_n$	Non-flush mountable 15 mm
Operating distance min. / max. adjustable	2...20 mm
Electrical version	2-wire DC
Output function	NAMUR EN 60947-5-6
<b>Type</b>	<b>KAS-40-A24-N-StEx</b>
<b>Art.-No.</b>	<b>KA 0095</b>
Operating voltage ( $U_B$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 2.5 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5%
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-20...+70 °C
LED-display	-
Degree of protection IEC 60529	IP 67*
Connection cable	3 m, PUR, 3 x 0.75 mm <sup>2</sup>
Housing material	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)
<b>Accessories</b> (is delivered with the unit)	2 pieces nuts M 30

\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors Series 40 NAMUR- StEx- ATEX

Housing M 30 x 1.5

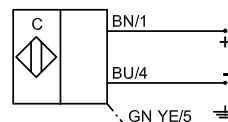
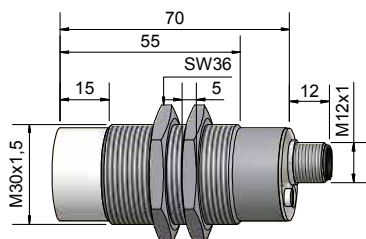
- For use in areas with the risk of dust explosion, zone 20
- For use in areas with the risk of gas explosion, zone 0
- Sensing distance 2...20 mm adjustable
- With flange connector M 12 x 1, 3-pin incl. protective wire pin

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



<b>Technical data</b>	Non-flush mountable
Operating distance $S_n$	15 mm
Operating distance min. / max. adjustable	2...20 mm
Electrical version	2-pin DC
Output function	NAMUR EN 60947-5-6
<b>Type</b>	<b>KAS-40-A24-N-Y10-StEx</b>
<b>Art.-No.</b>	<b>KA 0870</b>
Operating voltage ( $U_b$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 2.5 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5%
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-20...+70 °C
LED-display	-
Degree of protection IEC 60529	IP 67*
Connection	Flange connector M 12 x 1
Housing material	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)
<b>Accessories</b> (is delivered with the unit)	2 pieces nuts M 30, Protective clip
For matching connectors please see our selection of accessories.	

\* With sealed potentiometer screw



All specifications are subject to change without notice. (04/2017)

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## Capacitive Sensors Series 40 NAMUR- StEx- ATEX

Housing M 32 x 1.5

- For use in areas with the risk of dust explosion, zone 20
- For use in areas with the risk of gas explosion, zone 0
- Sensing distance 3...20 mm adjustable

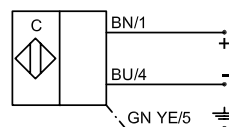
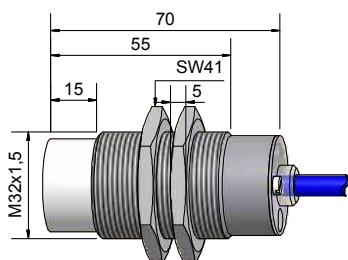
DMT 03 ATEX E 048	IECEX BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga
Ex II 1D Ex ia IIIC T101°C Da	Ex ia IIIC T101°C Da



### Technical data

Operating distance $S_n$	Non-flush mountable 18 mm
Operating distance min. / max. adjustable	3...20 mm
Electrical version	2-wire DC
Output function	NAMUR EN 60947-5-6
<b>Type</b>	<b>KAS-40-34-N-M32-StEx</b>
<b>Art.-No.</b>	<b>KA 0094</b>
Operating voltage ( $U_B$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 2.5 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5%
Frequency of operating cycles max	50 Hz
Permitted ambient temperature	-20...+70 °C
LED-display	-
Degree of protection IEC 60529	IP 67*
Connection cable	3 m, PUR, 3 x 0.75 mm <sup>2</sup>
Housing material	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)
<b>Accessories</b> (is delivered with the unit)	2 pieces nuts M 32

\* With sealed potentiometer screw



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## Capacitive Sensors Series 40 NAMUR- StEx- ATEX

Housing M 32 x 1.5

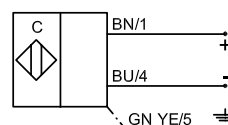
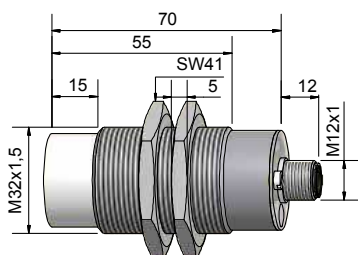
- For use in areas with the risk of dust explosion, zone 20
- For use in areas with the risk of gas explosion, zone 0
- Sensing distance 3...20 mm adjustable
- With flange connector M 12 x 1, 3-pin incl. protective wire pin

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



<b>Technical data</b>	Non-flush mountable
Operating distance $S_n$	18 mm
Operating distance min. / max. adjustable	3...20 mm
Electrical version	2-pin DC
Output function	NAMUR EN 60947-5-6
<b>Type</b>	<b>KAS-40-34-N-M32-Y10-StEx</b>
<b>Art.-No.</b>	<b>KA 0871</b>
Operating voltage ( $U_b$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 2.5 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max	50 Hz
Permitted ambient temperature	-20...+70 °C
LED-display	-
Degree of protection IEC 60529	IP 67*
Connection	Flange connector M 12 x 1
Housing material	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)
<b>Accessories</b> (is delivered with the unit)	2 pieces nuts M 32, Protective clip
For matching connectors please see our selection of accessories.	

\* With sealed potentiometer screw



All specifications are subject to change without notice. (04/2017)

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## Capacitive Sensors Serie 40 - NAMUR - StEx - ATEX

Housing Ø 26 mm / G 1" / 40 mm

- For use in areas with the risk of dust explosion, zone 20
- For use in areas with the risk of gas explosion, zone 0
- Housing material: PTFE
- Sensing distance 0...15 mm adjustable
- Special version with flange. Sealing can be made with a gasket or PTFE-tape (not supplied with the sensor)

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

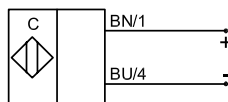
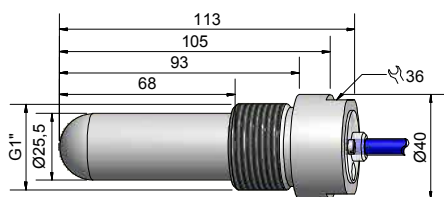


### Technical data

Non-flush mountable

Operating distance $S_n$	5 mm
Operating distance min. / max. adjustable	0...15 mm
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
<b>Type</b>	<b>KAS-40-26-N-K-G1"-PTFE-StEx</b>
<b>Art. No.</b>	<b>KA 0933</b>
Operating voltage ( $U_B$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 3 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	0...+70 °C / CIP 121 °C (zero-current)
LED-display	Yellow
Degree of protection IEC 60529	IP 67*
Connection cable	2 m, PUR, 2 x 0.75 mm <sup>2</sup>
Housing material	PTFE (FDA 21 CFR 177.1550)
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)

\* With sealed potentiometer screw



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## Capacitive Sensors Serie 40 - NAMUR - StEx - ATEX

Housing Ø 26 mm / G 1" / 40 mm

- For use in areas with the risk of dust explosion, zone 20
- For use in areas with the risk of gas explosion, zone 0
- Housing material: PTFE
- Sensing distance 0...15 mm adjustable
- With flange, sealing can be made with a gasket or PTFE-tape (not supplied with the sensor).
- With flange connector M 12 x 1

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



### Technical data

Non-flush mountable

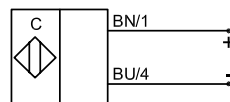
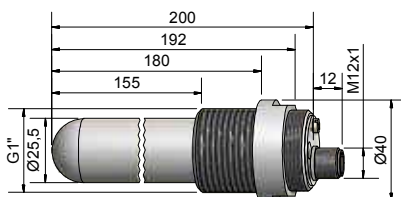
Operating distance $S_n$	5 mm
Operating distance min. / max. adjustable	0...15 mm
Electrical version	2-pin DC
Output function	NAMUR DIN 60947-5-6
<b>Type</b>	<b>KAS-40-26-N-K-G1"-200-PTFE-Y5-StEx</b>
<b>Art. No.</b>	<b>KA 1231</b>
Operating voltage ( $U_b$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ 1.5 mA
Output current active surface covered	> typ. 3 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	0...+70 °C / CIP 121 °C (zero-current)
LED-display	Yellow
Degree of protection IEC 60529	IP 67*
Connection	Flange connector M 12 x 1
Housing material	PTFE (FDA 21 CFR 177.1550)
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)

**Accessories** (is delivered with the unit)

Protective clip

For matching connectors please see our selection of accessories.

\* With sealed potentiometer screw



All specifications are subject to change without notice. (04/2017)

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## Capacitive Sensors

Series 70 - NPN - StEx- ATEX      Series 80 - PNP - StEx - ATEX

Housing M 30 x 1.5

- 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 3...25 mm adjustable

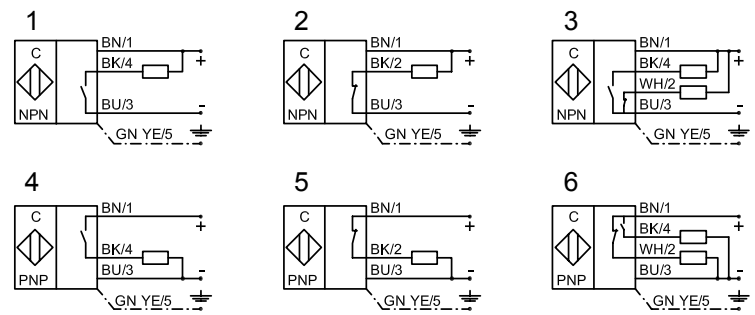
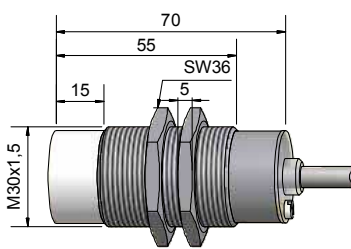
DMT 01 ATEX E 157	IECEX BVS 07.0015
II 2 G Ex mb IIC T4 Gb	Ex mb IIC T4 Gb
II 1/2 D Ex ta/tb IIIC T101°C Da/Db	Ex ta/tb IIIC T101°C Da/Db



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Technical data	Non-flush mountable
Operating distance $S_n$	15 mm
Operating distance min. / max. adjustable	3...25 mm
Electrical version	4-wire DC
Output function	Antivalent
<b>Type NPN</b>	<b>KAS-70-A24-A-StEx</b>
<b>Art.-No.</b>	<b>KA 0085</b>
Connection diagram No.	3
<b>Type PNP</b>	<b>KAS-80-A24-A-StEx</b>
<b>Art.-No.</b>	<b>KA 0084</b>
Connection diagram No.	6
Operating voltage ( $U_B$ )	10...30 V DC
Output current max. ( $I_e$ )	2 x 150 mA
Voltage drop max. ( $U_o$ )	≤ 2.0 V
Permitted residual ripple max.	5 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-20...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	3 m, PVC, 5 x 0.34 mm <sup>2</sup>
Housing material	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)
Media optimized	Yes
<b>Accessories</b> (is delivered with the unit)	2 pieces nuts M 30

\* With sealed potentiometer screw



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All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors

Series 70 - NPN - StEx- ATEX      Series 80 - PNP - StEx - ATEX

Housing M 30 x 1.5

- For use in areas with the risk of dust explosion, zone 20
- Sensing distance 3...25 mm adjustable
- With flange connector M 12 x 1, 5-pin incl. protective wire pin

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



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### Technical data

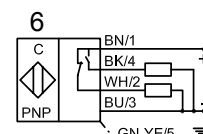
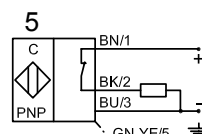
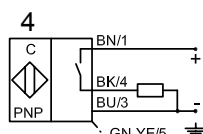
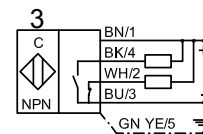
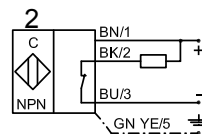
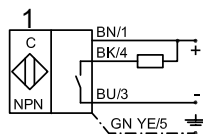
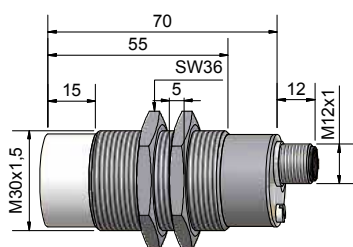
	Non-flush mountable
Operating distance $S_n$	15 mm
Operating distance min. / max. adjustable	3...25 mm
Electrical version	4-pin DC
Output function	Antivalent
<b>Type NPN</b>	<b>KAS-70-A24-A-Y10-StEx</b>
<b>Art.-No.</b>	<b>KA 0863</b>
Connection diagram No.	3
<b>Type PNP</b>	<b>KAS-80-A24-A-Y10-StEx</b>
<b>Art.-No.</b>	<b>KA 0864</b>
Connection diagram No.	6
Operating voltage ( $U_b$ )	10...30 V DC
Output current max. ( $I_o$ )	2 x 150 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	5 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-20...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection	Flange connector M 12 x 1
Housing material	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)
Media optimized	Yes

**Accessories** (is delivered with the unit)

2 pieces nuts M 30, Protective clip

For matching connectors please see our selection of accessories.

\* With sealed potentiometer screw



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## Capacitive Sensors

Series 70 - NPN - StEx- ATEX      Series 80 - PNP - StEx - ATEX

Housing M 32 x 1.5

- 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 3...30 mm adjustable

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

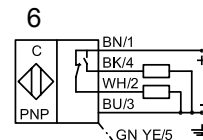
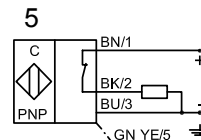
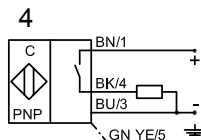
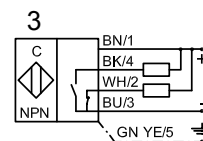
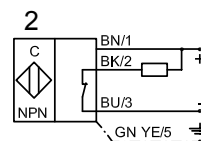
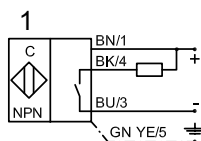
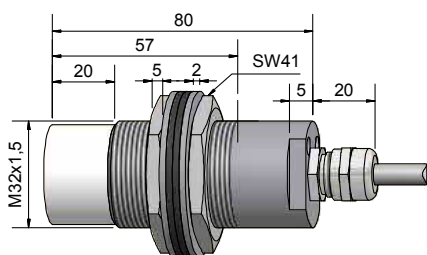


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Technical data	Non-flush mountable	Non-flush mountable
Operating distance $S_n$	20 mm	20 mm
Operating distance min./max. adjustable	3...30 mm	3...30 mm
Electrical version	3-wire DC	4-wire DC
Output function	Normally open	Antivalent
<b>Type NPN</b>	<b>KAS-70-35-S-M32-StEx</b>	<b>KAS-70-35-A-M32-StEx</b>
<b>Art.-No.</b>	<b>KA 0090</b>	<b>KA 0089</b>
Connection diagram No.	1	3
<b>Type PNP</b>	<b>KAS-80-35-S-M32-StEx</b>	<b>KAS-80-35-A-M32-StEx</b>
<b>Art.-No.</b>	<b>KA 0087</b>	<b>KA 0086</b>
Connection diagram No.	4	6
Operating voltage ( $U_b$ )	10...30 V DC	10...30 V DC
Output current max. ( $I_o$ )	150 mA	2 x 150 mA
Voltage drop max. ( $U_o$ )	≤ 2.0 V	≤ 2.0 V
Permitted residual ripple max.	10 %	10 %
No-load current ( $I_o$ )	Typ. 15 mA	Typ. 15 mA
Frequency of operating cycles max.	50 Hz	50 Hz
Permitted ambient temperature	-20...+90 °C	-20...+90 °C
LED-display	Yellow	Green / yellow
Protective circuit	Built-in	Built-in
Degree of protection IEC 60529	IP 67*	IP 67*
Norm	EN 60947-5-2	EN 60947-5-2
Connection cable	3 m PVC, 4 x 0.75 mm <sup>2</sup>	3 m, PVC, 5 x 0.34 mm <sup>2</sup>
Housing material	VA No. 1.4305	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)	PTFE (FDA 21 CFR 177.1550)
Lid	VA No. 1.4305	VA No. 1.4305
Media optimized	Yes	

**Accessories** (is delivered with the unit)      2 pieces nuts M 32, 2 pieces grommets, 2 pieces o-rings

\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors Series 80 - PNP - StEx - ATEX

Housing M 32 x 1.5

- 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 3...30 mm adjustable

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



Quattro<sup>EC</sup>Protect™

### Technical data

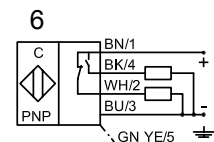
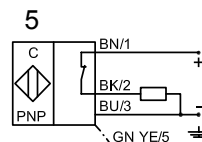
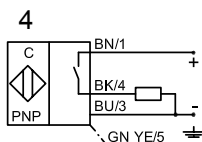
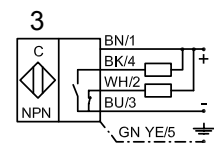
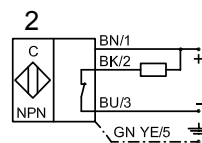
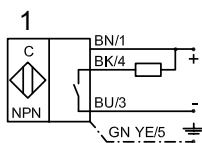
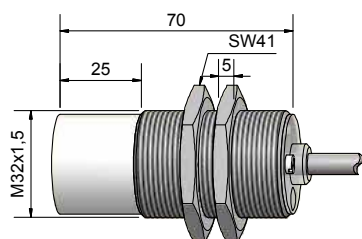
Non-flush mountable

Operating distance $S_n$	20 mm
Operating distance min. / max. adjustable	3...30 mm
Electrical version	4-wire DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-34-A-M32-StEx</b>	
<b>Art.-No. KA 0356</b>	
Connection diagram No.	6
Operating voltage ( $U_b$ )	10...30 V DC
Output current max. ( $I_o$ )	2 x 150 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-20...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	3 m, PVC, 5 x 0.34 mm <sup>2</sup>
Housing material	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)
Media optimized	Yes

**Accessories** (is delivered with the unit)

2 pieces nuts M 32

\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)





## Capacitive Sensors Series 80 - PNP - StEx - ATEX

Housing M 32 x 1.5

- For use in areas with the risk of dust explosion, zone 20
- Sensing distance 3...30 mm adjustable
- With flange connector M 12 x 1, 5-pin incl. protective wire pin

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



Quattro<sup>Exc</sup>Protect™

### Technical data

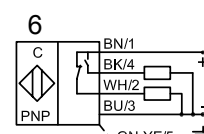
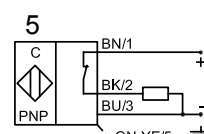
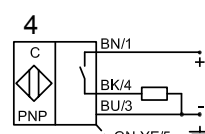
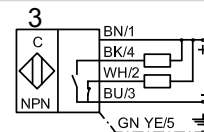
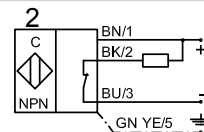
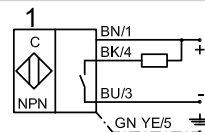
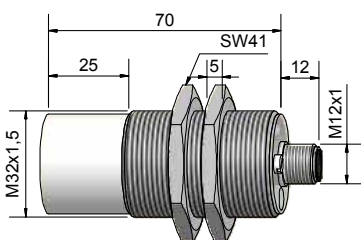
Non-flush mountable

Operating distance $S_n$	20 mm
Operating distance min./max. adjustable	3...30 mm
Electrical version	4-pin DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-34-A-M32-Y10-StEx</b>	
<b>Art.-No.</b>	
<b>KA 0819</b>	
Connection diagram No.	
6	
Operating voltage ( $U_b$ )	10...30 V DC
Output current max. ( $I_o$ )	2 x 150 mA
Voltage drop max. ( $U_o$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-20...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection	Flange connector M 12 x 1
Housing material	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)
Media optimized	Yes

**Accessories** (is delivered with the unit) 2 pieces nuts M 32, Protective clip

For matching connectors please see our selection of accessories.

\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)





## Capacitive Sensors Series 80 - PNP - StEx - ATEX

Housing M 32 x 1.5

- For use in areas with the risk of dust explosion, zone 20
- For use in areas with the risk of gas explosion, zone 1
- Housing material: PTFE
- Sensing distance 3...30 mm adjustable

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



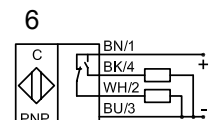
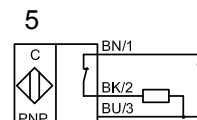
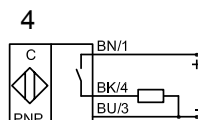
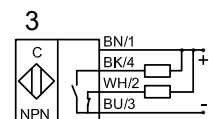
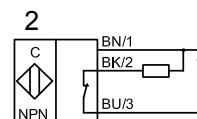
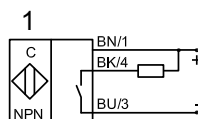
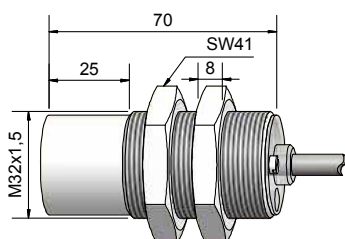
Quattro<sup>ETC</sup>Protect™

### Technical data

Non-flush mountable

Operating distance $S_n$	20 mm
Operating distance min. / max. adjustable	3...30 mm
Electrical version	4-wire DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-35-A-K-M32-PTFE-StEx</b>	
<b>Art.-No.</b>	
<b>KA 0093</b>	
Connection diagram No.	6
Operating voltage ( $U_B$ )	10...30 V DC
Output current max. ( $I_o$ )	2 x 150 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	5 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-20...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	3 m, PVC, 4 x 0.5 mm <sup>2</sup>
Housing material	PTFE (FDA 21 CFR 177.1550)
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)
Media optimized	Yes
<b>Accessories (is delivered with the unit)</b>	<b>2 pieces nuts M 32</b>

\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors Series 80 - PNP - StEx - ATEX

Housing M 32 x 1.5

- For use in areas with the risk of dust explosion, zone 20
- Housing material: PTFE
- Sensing distance 3...30 mm adjustable
- 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



QuattroExcProtect™

### Technical data

Non-flush mountable

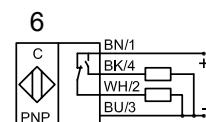
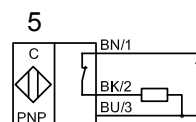
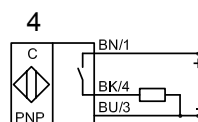
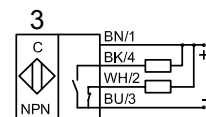
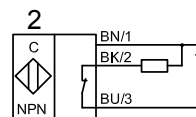
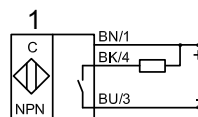
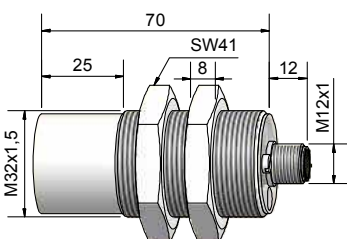
Operating distance $S_n$	20 mm
Operating distance min. / max. adjustable	3...30 mm
Electrical version	4-pin DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-35-A-K-M32-PTFE-Y5-StEx</b>	
<b>Art.-No. KA 0867</b>	
Connection diagram No. 6	
Operating voltage ( $U_B$ )	10...30 V DC
Output current max. ( $I_o$ )	2 x 150 mA
Voltage drop max. ( $U_o$ )	≤ 2.0 V
Permitted residual ripple max.	5 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-20...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection	Flange connector M 12 x 1
Housing material	PTFE (FDA 21 CFR 177.1550)
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)
Media optimized	Yes

**Accessories** (is delivered with the unit)

2 pieces nuts M 32, Protective clip

For matching connectors please see our selection of accessories.

\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors Series 80 - PNP - StEx - ATEX

Housing G 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 3...30 mm adjustable

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



Quattro<sup>Exc</sup>Protect™

### Technical data

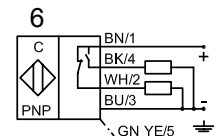
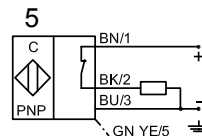
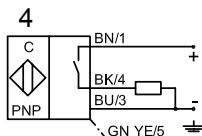
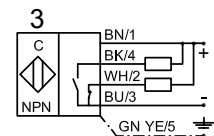
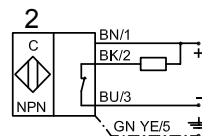
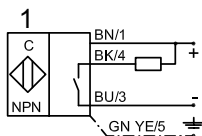
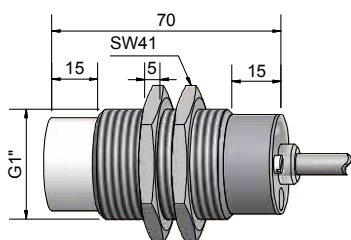
Non-flush mountable

Operating distance $S_n$	20 mm
Operating distance min. / max. adjustable	3...30 mm
Electrical version	4-wire DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>Art.-No.</b>	
<b>KAS-80-34-A-G1"-StEx</b>	
<b>KA 0092</b>	
Connection diagram No.	6
Operating voltage ( $U_B$ )	10...30 V DC
Output current max. ( $I_B$ )	2 x 150 mA
Voltage drop max. ( $U_D$ )	≤ 2.0 V
Permitted residual ripple max.	5 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-20...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	3 m, PVC, 5 x 0.34 mm <sup>2</sup>
Housing material	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)
Media optimized	Yes

**Accessories** (is delivered with the unit)

2 pieces nuts G 1"

\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors Series 80 - PNP - StEx - ATEX

Housing G 1"

- For use in areas with the risk of dust explosion, zone 20
- Sensing distance 3...30 mm adjustable
- With flange connector M 12 x 1, 5-pin incl. protective wire pin

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

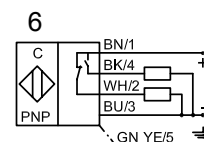
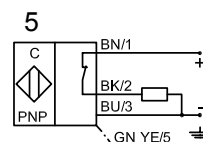
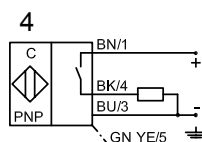
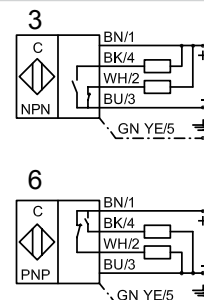
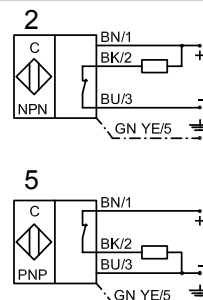
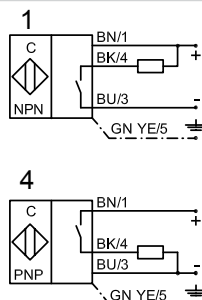
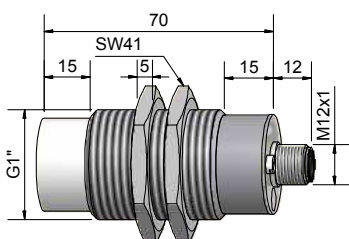
Non-flush mountable

Operating distance $S_n$	20 mm
Operating distance min. / max. adjustable	3...30 mm
Electrical version	4-pin DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-34-A-G1"-Y10-StEx</b>	
<b>Art.-No. KA 0868</b>	
Connection diagram No. 6	
Operating voltage ( $U_B$ )	10...30 V DC
Output current max. ( $I_e$ )	2 x 150 mA
Voltage drop max. ( $U_o$ )	≤ 2.0 V
Permitted residual ripple max.	5 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-20...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection	Flange connector M 12 x 1
Housing material	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)
Media optimized	Yes

**Accessories** (is delivered with the unit) 2 pieces nuts G 1", Protective clip

For matching connectors please see our selection of accessories.

\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors Series 80 - PNP

Housing Tri-Clamp

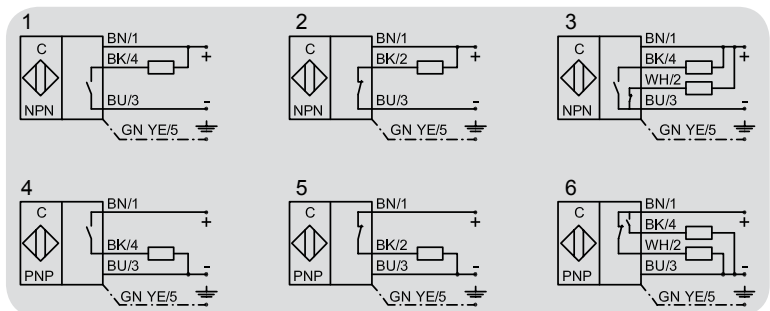
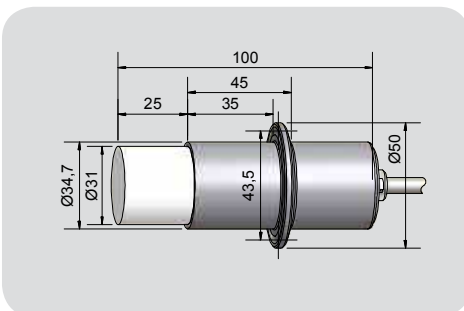
- For use in areas with the risk of dust explosion, zone 20
- For use in areas with the risk of gas explosion, zone 1
- Housing material: Stainless steel VA No. 1.4404 / AISI 316L
- Sensing distance 3...30 mm adjustable

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



<b>Technical data</b>	Non-flush mountable
Operating distance $S_n$	20 mm
Operating distance min. / max. adjustable	3...30 mm
Electrical version	4-wire DC
Output function	Antivalent (NO + NC)
<b>Type PNP</b>	<b>KAS-80-35/100-A-Tri-PTFE/VA-StEx</b>
<b>Art.-No.</b>	<b>KA 0377</b>
Connection diagram No.	6
Operating voltage ( $U_b$ )	10...35 V DC
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
Operating current ( $I_b$ )	2 x 0...150 mA
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+90 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67
Norm	EN 60947-5-2
Connection cable	3 m, PVC, 5 x 0,34 mm <sup>2</sup>
Housing material	Stainless steel VA No. 1.4404 / AISI 316L
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)
Media optimized	Yes
<b>Accessories</b> (not delivered with the sensor): Stainless steel welding nipple DN 25 # 190751, Sealing gasket # 190752, Triclamp mounting clamp # 190750 please see our selection of accessories.	

\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors Series 80 - PNP

### Housing Tri-Clamp

- For use in areas with the risk of dust explosion, zone 20
- Housing material: Stainless steel VA No. 1.4404 / AISI 316L
- Sensing distance 3...30 mm adjustable
- With flange connector M 12 x 1, 5-pin incl. protective wire pin

DMT 01 ATEX E 157

IECEX BVS 07.0015

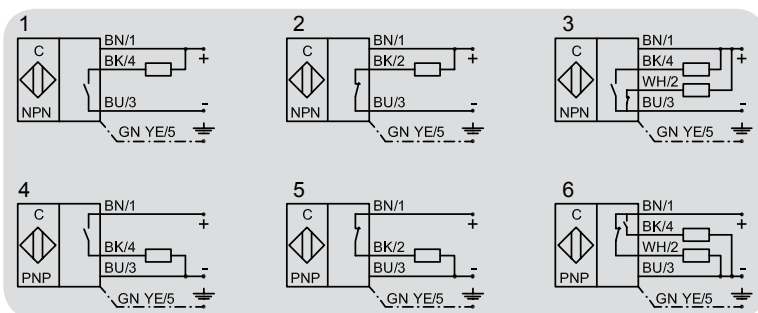
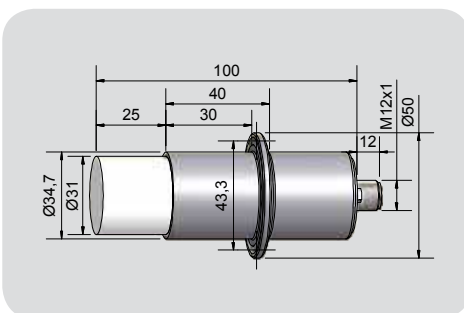
Ex II 1/2 D Ex ta/tb IIIC T101°C Da/Db

Ex ta/tb IIIC T101°C Da/Db



<b>Technical data</b>	Non-flush mountable
Operating distance $S_n$	20 mm
Operating distance min. / max. adjustable	3...30 mm
Electrical version	4-pin DC
Output function	Antivalent (NO + NC)
<b>Type PNP</b>	<b>KAS-80-35/100-A-Tri-PTFE/VA-Y10-StEx</b>
<b>Art.-No.</b>	<b>KA 0869</b>
Connection diagram No.	6
Operating voltage ( $U_B$ )	10...35 V DC
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
Operating current ( $I_L$ )	2 x 0...150 mA
No-load current ( $I_0$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+90 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection	Flange connector M 12 x 1
Housing material	Stainless steel VA No. 1.4404 / AISI 316L
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)
Media optimized	Yes
<b>Accessories</b> (delivered with the sensor)	Protective clip
<b>Accessories</b> (not delivered with the sensor): Stainless steel welding nipple DN 25 # 190751, Sealing gasket # 190752, Triclamp mounting clamp # 190750 and matching connectors please see our selection of accessories.	

\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)



## Capacitive sensors Series 70 - NPN - StEx - ATEX

Series 80 - PNP - StEx - ATEX

Housing Ø 26 mm / G 1" / 40 mm

- For use in areas with the risk of dust explosion, zone 20
- For use in areas with the risk of gas explosion, zone 1
- Housing material PTFE
- Sensing distance 0...20 mm adjustable
- Suitable for food and pharmaceutical applications
- With flange, sealing can be made with a gasket or PTFE-tape (not supplied with the sensor).

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



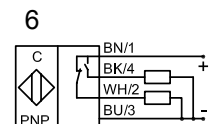
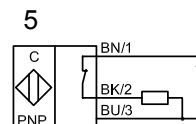
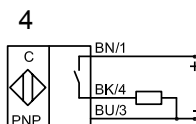
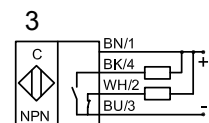
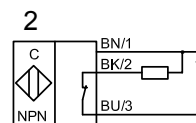
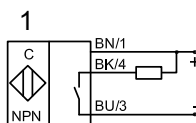
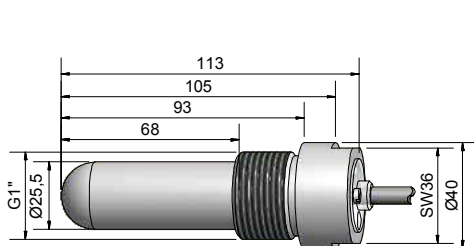
Quattro<sup>ETC</sup>Protect™

### Technical data

Non-flush mountable

Operating distance $S_n$	5 mm
Operating distance min. / max. adjustable	0...20 mm
Electrical version	4-wire DC
Output function	Antivalent
<b>Type NPN</b>	<b>KAS-70-26-A-K-G1"-PTFE-StEx</b>
<b>Art.-No.</b>	<b>KA 0824</b>
Connection diagram No.	3
<b>Type PNP</b>	<b>KAS-80-26-A-K-G1"-PTFE-StEx</b>
<b>Art.-No.</b>	<b>KA 0264</b>
Connection diagram No.	6
Operating voltage ( $U_b$ )	10...30 V DC
Output current max. ( $I_o$ )	2 x 150 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-20...+90 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m, PVC, 4 x 0.5 mm <sup>2</sup>
Housing material	PTFE (FDA 21 CFR 177.1550)
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)
Media optimized	Yes

\* With sealed potentiometer screw



Made in Germany





## Capacitive sensors Series 80 - PNP - StEx - ATEX

Housing Ø 26 mm / G 1" / 40 mm

- For use in areas with the risk of dust explosion, zone 20
- Housing material PTFE
- Sensing distance 0...20 mm adjustable
- Suitable for food and pharmaceutical applications
- Special version with flange. Sealing can be made with a gasket or PTFE-tape (not supplied with the sensor)
- 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



Quattro<sup>EX</sup>Protect™

### Technical data

Non-flush mountable

Operating distance $S_n$	5 mm
Operating distance min. / max. adjustable	0...20 mm
Electrical version	4-pin DC
Output function	Antivalent

### Type NPN

#### Art.-No.

Connection diagram No.

### Type PNP

**KAS-80-26-A-K-G1"-PTFE-Y5-StEx**

#### Art.-No.

**KA 0655**

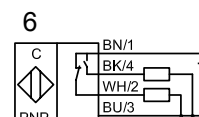
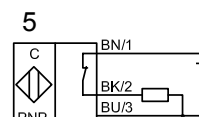
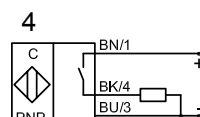
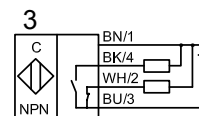
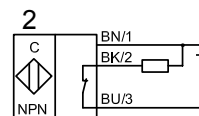
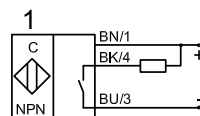
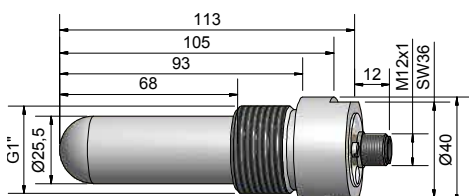
Connection diagram No.	6
Operating voltage ( $U_B$ )	10...30 V DC
Output current max. ( $I_e$ )	2 x 150 mA
Voltage drop max. ( $U_o$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-20...+90 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection	Flange connector M 12 x 1
Housing material	PTFE (FDA 21 CFR 177.1550)
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)
Media optimized	Yes

### Accessories (is delivered with the unit)

Protective clip

For matching connectors please see our selection of accessories.

\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)



**SENSORS / ATEX WITH MANUFACTURER DECLARATION**

Pages:

Capacitive sensors, ATEX Zone 2, Zone 22, M 18	98 - 99
Capacitive sensors, ATEX Zone 2, Zone 22, M 32	100 - 101

All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors

### Series 80 - PNP

Housing M 18 x 1

- Housing material: PTFE
- Ideal of detection of chemically aggressive media
- Suitable for food applications
- Sensing distance 0,5...10 mm adjustable
- II 3G EEx nA II T6 X, for use in zone 2
- II 3D IP67 T101° C X, for use in zone 22
- With flange connector M 12 x 1



Certificate:

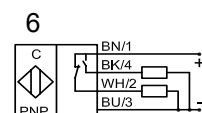
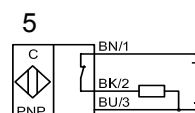
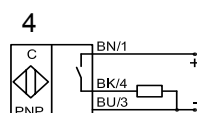
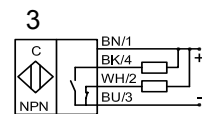
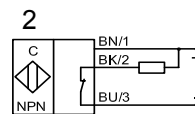
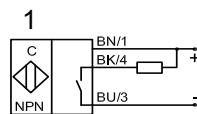
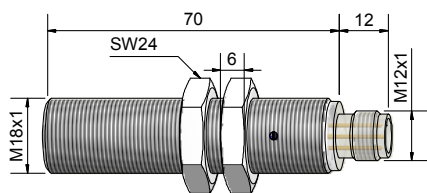


Technical data	Flush mountable
Operating distance $S_n$	5 mm
Operating distance min. / max. adjustable	0.5...10 mm
Electrical version	4-pin DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-A13-A-K-PTFE-Y3-3G-3D</b>	
<b>Art.-No.</b>	
<b>KA 0799</b>	
Connection diagram No.	
6	
Operating voltage ( $U_B$ )	10...30 V DC
Output current max. ( $I_o$ )	2 x 200 mA
Voltage drop max. ( $U_o$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	300 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	Flange connector M 12 x 1
Housing material	PTFE (FDA 21 CFR 177.1550)
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	-
Media optimized	Yes

**Accessories** (is delivered with the unit) 2 pieces nuts M 18, Protective clip

For matching connectors please see our selection of accessories.

\* With sealed potentiometer screw



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All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors

### Series 80 - PNP

Housing M 18 x 1

- Housing material: Brass
- Sensing distance 0.5...15 mm adjustable
- II 3G EEx nA II T6 X, for use in zone 2
- II 3D IP67 T101° C X, for use in zone 22
- With flange connector M 12 x 1

Certificate:

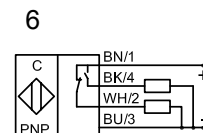
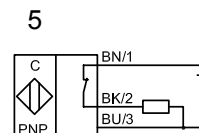
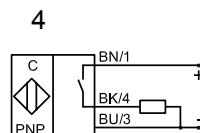
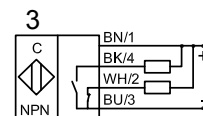
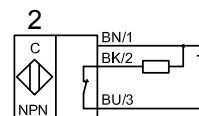
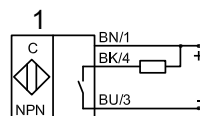
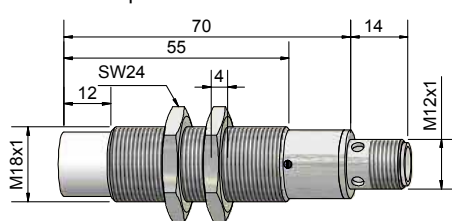


Technical data	Non-flush mountable
Operating distance $S_n$	8 mm
Operating distance min. / max. adjustable	0.5...15 mm
Electrical version	4-pin DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-A23-A-Y5-3G-3D</b>	
<b>Art.-No.</b>	
<b>KA 0527</b>	
Connection diagram No.	6
Operating voltage ( $U_b$ )	10...30 V DC
Output current max. ( $I_e$ )	2 x 200 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10%
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 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	Flange connector M 12 x 1
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	-
Media optimized	Yes

**Accessories** (is delivered with the unit) 2 pieces nuts M 18, Protective clip

For matching connectors please see our selection of accessories.

\* With sealed potentiometer screw



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## Capacitive Sensors

### Series 80 - PNP

Housing M 32 x 1.5

- Housing material: Stainless steel
- Sensing distance 1...40 mm adjustable
- II 3G EEx nA II T6 X, for use in zone 2
- II 3D IP67 T101° C X, for use in zone 22
- With flange connector M 12 x 1



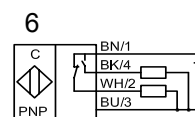
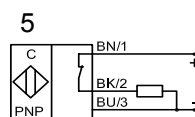
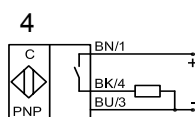
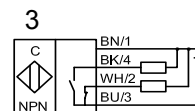
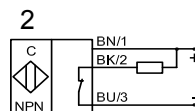
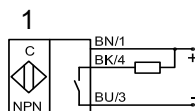
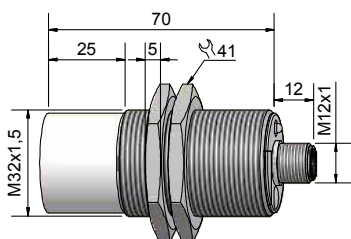
Certificate:



Technical data	Non-flush mountable
Operating distance $S_n$	25 mm
Operating distance min. / max. adjustable	1...40 mm
Electrical version	4-pin DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	<b>KAS-80-34-A-M32-PTFE/V2A-Y5-3G-3D</b>
<b>Art.-No.</b>	<b>KA 0849</b>
Connection diagram No.	6
Operating voltage ( $U_B$ )	10...30 V DC
Output current max. ( $I_o$ )	2 x 200 mA
Voltage drop max. ( $U_o$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection	Flange connector M 12 x 1
Housing material	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
Media optimized	Yes

**Accessories** (is delivered with the unit) 2 pieces nuts M 32, Protective clip  
 For matching connectors please see our selection of accessories.

\* With sealed potentiometer screw



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All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors

### Series 80 - PNP

Housing M 32 x 1.5

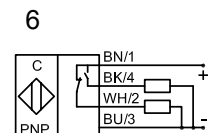
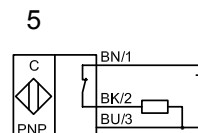
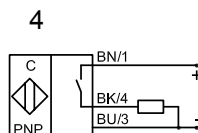
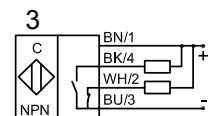
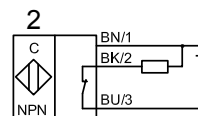
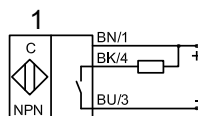
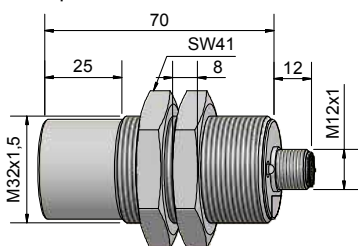
- Housing material PPO
- Sensing distance 1...40 mm adjustable
- II 3G EEx nA II T6 X, for use in zone 2
- II 3D IP67 T101° C X, for use in zone 22
- With flange connector M 12 x 1

Certificate:



Technical data	Non-flush mountable
Operating distance $S_n$	25 mm
Operating distance min. / max. adjustable	1...40 mm
Electrical version	4-pin DC
Output function	Antivalent
<b>Type NPN</b>	
<b>Art.-No.</b>	
Connection diagram No.	
<b>Type PNP</b>	
<b>KAS-80-35-A-M32-Y5-3G-3D</b>	
<b>Art.-No.</b>	
<b>KA 0610</b>	
Connection diagram No.	
6	
Operating voltage ( $U_b$ )	10...30 V DC
Output current max. ( $I_e$ )	2 x 200 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection	Flange connector M 12 x 1
Housing material	PPO
Active surface	PPO
Lid	PA / PPO
Media optimized	Yes
<b>Accessories</b> (is delivered with the unit)	2 pieces nuts M 32, Protective clip
For matching connectors please see our selection of accessories.	

\* With sealed potentiometer screw



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**NAMUR MINI ATEX SENSORS FOR EVALUATION UNIT N-132...**

Pages:

Capacitive sensors MINI, NAMUR, ATEX Zone 0, M 8	104
Capacitive sensors MINI, NAMUR, ATEX Zone 0, Ø 22 mm	105 - 106

All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors Series 40 - NAMUR EN 60947-5-6

Housing M 8 x 1

- For use in areas with the risk of gas explosion, zone 0
- Housing material: Brass
- Sensing distance  $S_n = 0.5$  mm

Certificate:



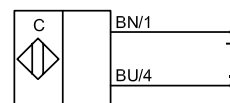
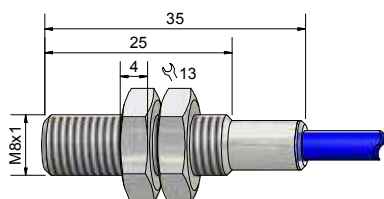
DMT 03 ATEX E 048	IECEx BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga



### Technical data

Flush mountable

Operating distance $S_n$	0.5 mm
Electrical version	2-wire DC
Output function	NAMUR EN 60947-5-6
<b>Type</b>	<b>KAS-40-A11-N</b>
<b>Art. No.</b>	<b>400 100</b>
Operating voltage ( $U_B$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 2.5 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	50 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 <sup>2</sup>
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PC (FDA 21 CFR 177.1580)
<b>Accessories</b> (is delivered with the unit)	2 pieces nuts M 8



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All specifications are subject to change without notice. (04/2017)





## Capacitive Sensors Series 40 - NAMUR EN 60947-5-6

Housing  $\varnothing$  22 mm

- For use in areas with the risk of gas explosion, zone 0
- Housing material: Stainless steel
- Sensing distance 1...10 mm adjustable

Certificate:



DMT 03 ATEX E 048

IECEX BVS 07.0031

Ex II 1G Ex ia IIC T1-T6 Ga

Ex ia IIC T1-T6 Ga

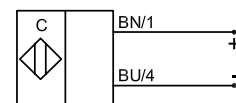
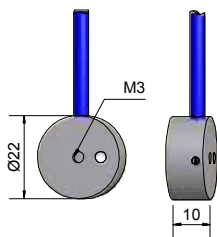


### Technical data

Flush mountable

Operating distance $S_n$	6 mm
Operating distance min. / max. adjustable	1...10 mm
Electrical version	2-wire DC
Output function	NAMUR EN 60947-5-6
<b>Type</b>	<b>KAS-40-22/10-N</b>
<b>Art.-No.</b>	<b>406 120</b>
Operating voltage ( $U_b$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 2.5 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5%
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	-
Degree of protection IEC 60529	IP 67*
Connection cable	2 m, PVC, 2 x 0.14 mm <sup>2</sup>
Housing material	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	-

\* With sealed potentiometer screw



All specifications are subject to change without notice. (04/2017)

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## Capacitive Sensors Series 40 - NAMUR EN 60947-5-6

Housing Ø 22 mm

- For use in areas with the risk of gas explosion, zone 0
- Housing material: PTFE
- Sensing distance 2...10 mm adjustable

Certificate:



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

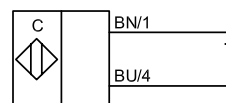
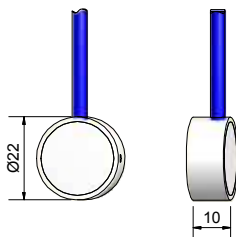


### Technical data

Flush mountable

Operating distance $S_n$	6 mm
Operating distance min. / max. adjustable	2...10 mm
Electrical version	2-wire DC
Output function	NAMUR EN 60947-5-6
<b>Type</b>	<b>KAS-40-22/10-N-PTFE</b>
<b>Art.-No.</b>	<b>406 110</b>
Operating voltage ( $U_B$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 2.5 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5%
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	-
Degree of protection IEC 60529	IP 67*
Connection cable	2 m, PVC, 2 x 0.14 mm <sup>2</sup>
Housing material	PTFE (FDA 21 CFR 177.1550)
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	-

\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)

**ATEX SERIES 40 (NAMUR) • ATEX / IECEx**

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All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors Series 40 - NAMUR EN 60947-5-6



Housing M 12 x 1

- For use in areas with the risk of gas explosion, zone 0
- Housing material: Stainless steel VA
- Sensing distance 1...4 mm adjustable

Certificate:

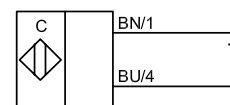
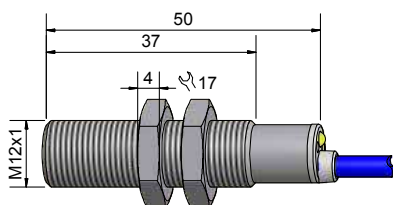


DMT 03 ATEX E 048	IECEx BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga



Technical data	Flush mountable
Operating distance $S_n$	2 mm
Operating distance min. / max. adjustable	1...4 mm
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
<b>Type</b>	<b>KAS-40-A12-N</b>
<b>Art. No.</b>	<b>400 200</b>
Operating voltage ( $U_B$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 2.5 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	50 Hz
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 <sup>2</sup>
Housing material	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
<b>Accessories</b> (is delivered with the unit)	2 pieces nuts M 12

\* With sealed potentiometer screw



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## Capacitive Sensors Serie 40 - NAMUR EN 60947-5-6



Housing M 12 x 1

- For use in areas with the risk of gas explosion, zone 0
- Housing material: Stainless steel VA
- Sensing distance 1...5 mm adjustable
- With flange connector M 12 x 1

Certificate:



DMT 03 ATEX E 048

IECEX BVS 07.0031

Ex II 1G Ex ia IIC T1-T6 Ga

Ex ia IIC T1-T6 Ga

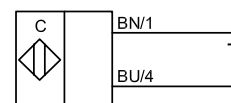
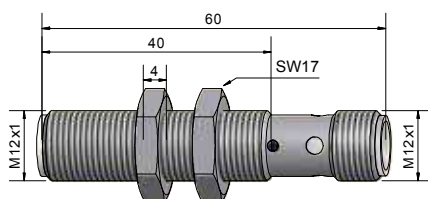


### Technical data

Flush mountable

Operating distance $S_n$	2 mm
Operating distance min. / max. adjustable	1...5 mm
Electrical version	2-pin DC
Output function	NAMUR DIN 60947-5-6
<b>Type</b>	<b>KAS-40-A12-N-Y5</b>
<b>Art. No.</b>	<b>KA 0561</b>
Operating voltage ( $U_B$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 2.5 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	50 Hz
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	PTFE (FDA 21 CFR 177.1550)
Lid	-
<b>Accessories</b> (is delivered with the unit)	2 pieces nuts M 12, Protective clip
For matching connectors please see our selection of accessories.	

\* With sealed potentiometer screw



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## Capacitive Sensors Series 40 - NAMUR EN 60947-5-6



Housing M 12 x 1

- For use in areas with the risk of gas explosion, zone 0
- Housing material: Stainless steel VA
- Sensing distance 1...6 mm adjustable

Certificate:



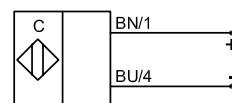
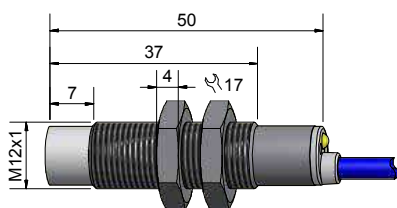
DMT 03 ATEX E 048	IECEX BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga



### Technical data

Operating distance $S_n$	Non-flush mountable 4 mm
Operating distance min. / max. adjustable	1...6 mm
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
<b>Type</b>	<b>KAS-40-A22-N</b>
<b>Art. No.</b>	<b>400 250</b>
Operating voltage ( $U_B$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 2.5 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	50 Hz
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 <sup>2</sup>
Housing material	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
<b>Accessories</b> (is delivered with the unit)	2 pieces nuts M 12

\* With sealed potentiometer screw



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## Capacitive Sensors Series 40 - NAMUR EN 60947-5-6



Housing M 12 x 1

- For use in areas with the risk of gas explosion, zone 0
- Housing material: Stainless steel VA
- Sensing distance 1...6 mm adjustable
- With flange connector M 12 x 1

Certificate:



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

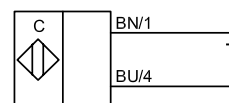
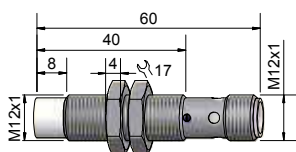
Non-flush mounting

Operating distance $S_n$	4 mm
Operating distance min./max. adjustable	1...6 mm
Electrical version	2-pin DC
Output function	NAMUR DIN 60947-5-6
<b>Type</b>	<b>KAS-40-A22-N-Y5</b>
<b>Art. No.</b>	<b>KA 0562</b>
Operating voltage ( $U_B$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 2.5 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	50 Hz
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	PTFE (FDA 21 CFR 177.1550)
Lid	-

**Accessories** (is delivered with the unit) 2 pieces nuts M 12, Protective clip

For matching connectors please see our selection of accessories.

\* With sealed potentiometer screw



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## Capacitive Sensors Series 40 - NAMUR EN 60947-5-6



Housing M 12 x 1

- For use in areas with the risk of gas explosion, zone 0
- Housing material: PVC
- Sensing distance 1...6 mm adjustable

Certificate:



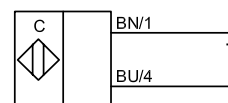
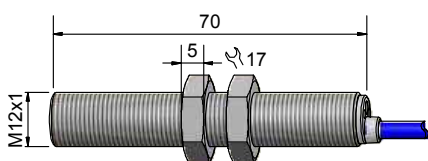
DMT 03 ATEX E 048	IECEX BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga



### Technical data

	Non-flush mountable
Operating distance $S_n$	4 mm
Operating distance min. / max. adjustable	1...6 mm
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
<b>Type</b>	<b>KAS-40-14-N-M12</b>
<b>Art. No.</b>	<b>400 705</b>
Operating voltage ( $U_B$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 2.5 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-20...+70 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67*
Connection cable	5 m, PVC, 2 x 0.14 mm <sup>2</sup>
Housing material	PVC
Active surface	PVC
Lid	PA / PPO
<b>Accessories</b> (is delivered with the unit)	2 pieces nuts M 12

\* With sealed potentiometer screw



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## Capacitive Sensors Series 40 - NAMUR EN 60947-5-6



Housing M 12 x 1

- For use in areas with the risk of gas explosion, zone 0
- Housing material: PTFE
- Ideal for detection of chemically aggressive media
- Suitable for food applications
- Sensing distance 1...6 mm adjustable

Certificate:



DMT 03 ATEX E 048

IECEX BVS 07.0031

Ex II 1G Ex ia IIC T1-T6 Ga

Ex ia IIC T1-T6 Ga

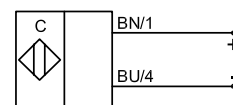
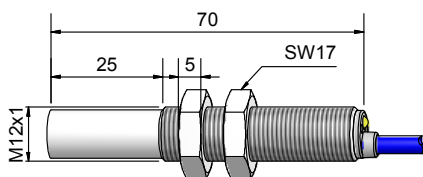


### Technical data

Non-flush mountable

Operating distance $S_n$	4 mm
Operating distance min./max. adjustable	1...6 mm
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
<b>Type</b>	<b>KAS-40-14-N-M12-PTFE</b>
<b>Art. No.</b>	<b>400 900</b>
Operating voltage ( $U_B$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 2.5 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-20...+70 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67*
Connection cable	2 m, PVC, 2 x 0.34 mm <sup>2</sup>
Housing material	PTFE (FDA 21 CFR 177.1550)
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
<b>Accessories</b> (is delivered with the unit)	2 pieces nuts M 12

\* With sealed potentiometer screw



All specifications are subject to change without notice. (04/2017)

**Made in Germany**



## Capacitive Sensors Series 40 - NAMUR EN 60947-5-6



Housing M 18 x 1

- For use in areas with the risk of gas explosion, zone 0
- Housing material: Brass
- Sensing distance 1...8 mm adjustable

Certificate:

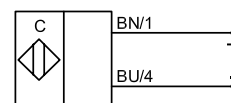
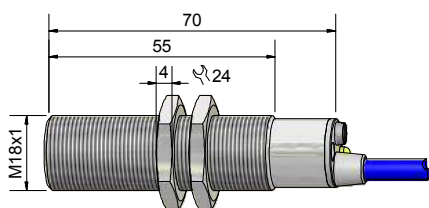


DMT 03 ATEX E 048	IECEx BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga



<b>Technical data</b>	Flush mountable
Operating distance $S_n$	5 mm
Operating distance min. / max. adjustable	1...8 mm
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
<b>Type</b>	<b>KAS-40-A13-N</b>
<b>Art. No.</b>	<b>400 300</b>
Operating voltage ( $U_B$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 2.5 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	50 Hz
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 <sup>2</sup>
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
<b>Accessories</b> (is delivered with the unit)	2 pieces nuts M 18

\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors Series 40 - NAMUR EN 60947-5-6

Housing M 18 x 1

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

Certificate:



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

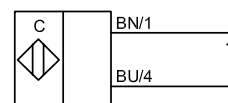
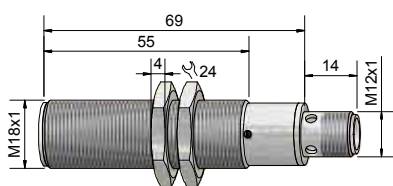
Flush mounting

Operating distance $S_n$	5 mm
Operating distance min. / max. adjustable	1...8 mm
Electrical version	2-pin DC
Output function	NAMUR DIN 60947-5-6
<b>Type</b>	<b>KAS-40-A13-N-Y5</b>
<b>Art. No.</b>	<b>KA 0559</b>
Operating voltage ( $U_B$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 2.5 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	50 Hz
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	PTFE (FDA 21 CFR 177.1550)
Lid	-

**Accessories** (is delivered with the unit) 2 pieces nuts M 18, Protective clip

For matching connectors please see our selection of accessories.

\* With sealed potentiometer screw



All specifications are subject to change without notice. (04/2017)

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## Capacitive Sensors Series 40 - NAMUR EN 60947-5-6



Housing M 18 x 1

- For use in areas with the risk of gas explosion, zone 0
- Housing material: Brass
- Sensing distance 2...10 mm adjustable

Certificate:



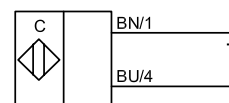
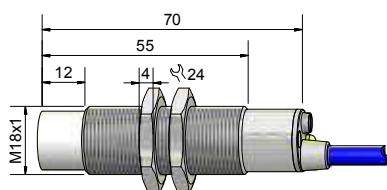
DMT 03 ATEX E 048	IECEx BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga



### Technical data

	Non-flush mountable
Operating distance $S_n$	8 mm
Operating distance min. / max. adjustable	2...10 mm
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
<b>Type</b>	<b>KAS-40-A23-N</b>
<b>Art. No.</b>	<b>400 350</b>
Operating voltage ( $U_B$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 2.5 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	50 Hz
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 <sup>2</sup>
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
<b>Accessories</b> (is delivered with the unit)	2 pieces nuts M 18

\* With sealed potentiometer screw



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## Capacitive Sensors Series 40 - NAMUR EN 60947-5-6

Housing M 18 x 1

- For use in areas with the risk of gas explosion, zone 0
- Housing material: Brass
- Sensing distance 2...10 mm adjustable
- With flange connector M 12 x 1

Certificate:



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

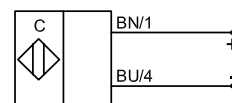
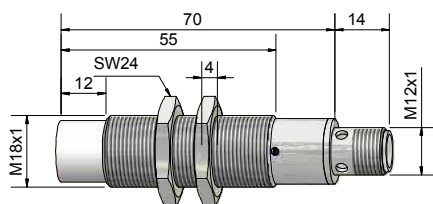
Operating distance $S_n$	8 mm
Operating distance min. / max. adjustable	2...10 mm
Electrical version	2-pin DC
Output function	NAMUR DIN 60947-5-6
<b>Type</b>	<b>KAS-40-A23-N-Y5</b>
<b>Art. No.</b>	<b>KA 0560</b>
Operating voltage ( $U_B$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 2.5 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	50 Hz
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	PTFE (FDA 21 CFR 177.1550)
Lid	-

**Accessories** (is delivered with the unit)

2 pieces nuts M 18, Protective clip

For matching connectors please see our selection of accessories.

\* With sealed potentiometer screw



All specifications are subject to change without notice. (04/2017)

**Made in Germany**



## Capacitive Sensors Series 40 - NAMUR EN 60947-5-6



Housing Ø 22 mm

- For use in areas with the risk of gas explosion, zone 0
- Housing material: PA / PPO
- Sensing distance 2...8 mm adjustable

Certificate:



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



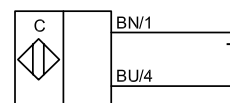
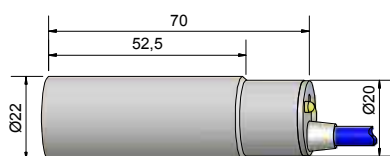
### Technical data

Flush mountable

Operating distance $S_n$	6 mm
Operating distance min. / max. adjustable	2...8 mm
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
<b>Type</b>	<b>KAS-40-20-N</b>
<b>Art. No.</b>	<b>401 000</b>
Operating voltage ( $U_B$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 2.5 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	50 Hz
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 <sup>2</sup>
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PA / PPO

**Assessors** for mounting (is not delivered with the sensor) please see our selection of accessories.

\* With sealed potentiometer screw



**Made in Germany**

All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors Series 40 - NAMUR EN 60947-5-6

Housing M 22 x 1.5

- For use in areas with the risk of gas explosion, zone 0
- Housing material: PTFE
- Ideal for detection of chemically aggressive media
- Suitable for food applications
- Sensing distance 3...10 mm adjustable

Certificate:



DMT 03 ATEX E 048

IECEX BVS 07.0031

Ex II 1G Ex ia IIC T1-T6 Ga

Ex ia IIC T1-T6 Ga

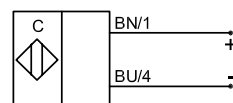
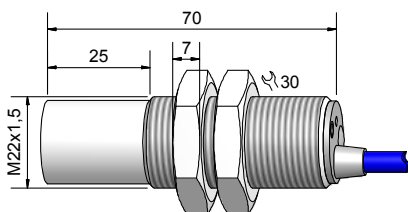


### Technical data

Non-flush mountable

Operating distance $S_n$	8 mm
Operating distance min. / max. adjustable	3...10 mm
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
<b>Type</b>	<b>KAS-40-24-N-M22-PTFE</b>
<b>Art. No.</b>	<b>401 500</b>
Operating voltage ( $U_B$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 2.5 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-20...+70 °C
LED-display	-
Degree of protection IEC 60529	IP 67*
Connection cable	2 m, PUR, 2 x 0.34 mm <sup>2</sup>
Housing material	PTFE (FDA 21 CFR 177.1550)
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
<b>Accessories</b> (is delivered with the unit)	2 pieces nuts M 22

\* With sealed potentiometer screw



All specifications are subject to change without notice. (04/2017)

**Made in Germany**



## Capacitive Sensors Series 40 - NAMUR EN 60947-5-6



Housing Ø 30 mm

- For use in areas with the risk of gas explosion, zone 0
- Housing material: PA / PPO
- Sensing distance 3...20 mm adjustable

Certificate:



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



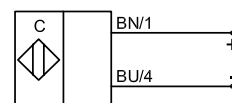
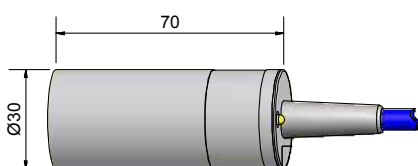
### Technical data

Non-flush mountable

Operating distance $S_n$	15 mm
Operating distance min. / max. adjustable	3...20 mm
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
<b>Type</b>	<b>KAS-40-35-N</b>
<b>Art. No.</b>	<b>402 000</b>
Operating voltage ( $U_B$ )	5 - 15 V DC, $U_I = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 2.5 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	50 Hz
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 <sup>2</sup>
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PA / PPO

**Assessors** for mounting (is not delivered with the sensor) please see our selection of accessories.

\* With sealed potentiometer screw



**Made in Germany**

All specifications are subject to change without notice. (04/2017)





## Capacitive Sensors Series 40 - NAMUR EN 60947-5-6

Housing M 30 x 1.5

- For use in areas with the risk of gas explosion, zone 0
- Housing material: Brass
- Sensing distance 2...15 mm adjustable

Certificate:



DMT 03 ATEX E 048

IECEX BVS 07.0031

Ex II 1G Ex ia IIC T1-T6 Ga

Ex ia IIC T1-T6 Ga

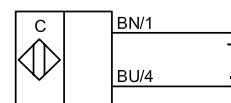
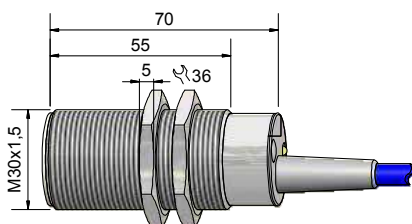


### Technical data

Flush mountable

Operating distance $S_n$	10 mm
Operating distance min. / max. adjustable	2...15 mm
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
<b>Type</b>	<b>KAS-40-A14-N</b>
<b>Art. No.</b>	<b>400 400</b>
Operating voltage ( $U_B$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 2.5 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	50 Hz
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 <sup>2</sup>
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
<b>Accessories</b> (is delivered with the unit)	2 pieces nuts M 30

\* With sealed potentiometer screw



All specifications are subject to change without notice. (04/2017)

**Made in Germany**



## Capacitive Sensors Serie 40 - NAMUR EN 60947-5-6



Housing M 30 x 1.5

- For use in areas with the risk of gas explosion, zone 0
- Housing material: Brass
- Sensing distance 2...15 mm adjustable
- With flange connector M 12 x 1

Certificate:



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

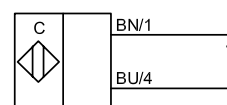
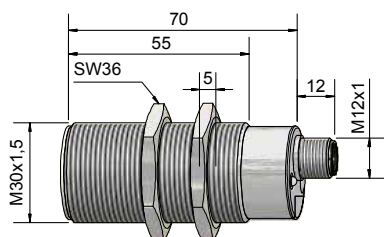
Flush mounting

Operating distance $S_n$	10 mm
Operating distance min. / max. adjustable	2...15 mm
Electrical version	2-pin DC
Output function	NAMUR DIN 60947-5-6
<b>Type</b>	<b>KAS-40-A14-N-Y5</b>
<b>Art. No.</b>	<b>KA 0557</b>
Operating voltage ( $U_B$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 2.5 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	50 Hz
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	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO

**Accessories** (is delivered with the unit) 2 pieces nuts M 30, Protective clip

For matching connectors please see our selection of accessories.

\* With sealed potentiometer screw



**Made in Germany**

All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors Series 40 - NAMUR EN 60947-5-6



Housing M 30 x 1.5

- For use in areas with the risk of gas explosion, zone 0
- Housing material: Brass
- Sensing distance 2...20 mm adjustable

Certificate:



DMT 03 ATEX E 048

IECEX BVS 07.0031

Ex II 1G Ex ia IIC T1-T6 Ga

Ex ia IIC T1-T6 Ga

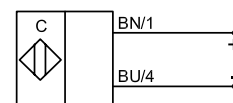
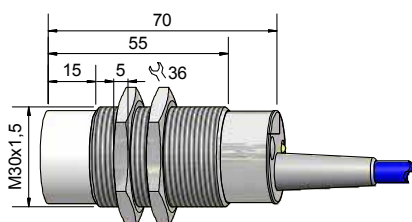


### Technical data

Non-flush mountable

Operating distance $S_n$	15 mm
Operating distance min. / max. adjustable	2...20 mm
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
<b>Type</b>	<b>KAS-40-A24-N</b>
<b>Art. No.</b>	<b>400 450</b>
Operating voltage ( $U_B$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 2.5 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	50 Hz
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 <sup>2</sup>
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
<b>Accessories</b> (is delivered with the unit)	2 pieces nuts M 30

\* With sealed potentiometer screw



All specifications are subject to change without notice. (04/2017)

**Made in Germany**



## Capacitive Sensors Serie 40 - NAMUR EN 60947-5-6



Housing M 30 x 1.5

- For use in areas with the risk of gas explosion, zone 0
- Housing material: Brass
- Operating range 2...20 mm
- With flange connector M 12 x 1

Certificate:



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



### Technical data

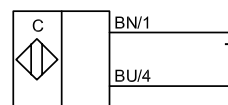
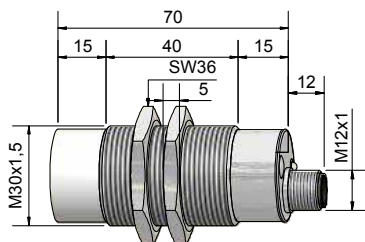
	Non-flush mountable
Operating distance $S_n$	15 mm
Operating distance min. / max. adjustable	2...20 mm
Electrical version	2-pin DC
Output function	NAMUR DIN 60947-5-6
<b>Type</b>	<b>KAS-40-A24-N-Y5</b>
<b>Art. No.</b>	<b>KA 0558</b>
Operating voltage ( $U_B$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 2.5 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	50 Hz
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	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO

**Accessories** (is delivered with the unit)

2 pieces nuts M 30, Protective clip

For matching connectors please see our selection of accessories.

\* With sealed potentiometer screw



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All specifications are subject to change without notice. (04/2017)



**Capacitive Sensors with analogue output**  
**Series 40 - NAMUR EN 60947-5-6**  
**Output current 20...4 mA**



Housing M 30 x 1.5

- For use in areas with the risk of gas explosion, zone 1
- Housing material: Brass
- Operating range 0...25 mm

Certificate:



DMT 03 ATEX E 048

IECEX BVS 07.0031

Ex II 1G Ex ia IIC T1-T6 Ga

Ex ia IIC T1-T6 Ga

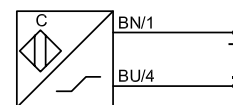
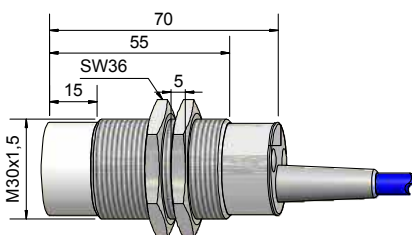


**Technical data**

Non-flush mountable

Operating range	0...25 mm
Linear range	2...20 mm
Electrical version	2-wire DC
Output function	Analogue
<b>Type Analogue</b>	<b>KAS-40-A24-IL</b>
<b>Art. No.</b>	<b>403 600</b>
Operating voltage (U <sub>B</sub> )	10 - 15 V DC, U <sub>i</sub> = 15 V DC
Power consumption active surface free	≤ 4 mA
Power consumption active surface covered	≥ 20 mA
Load resistor	R <sub>L</sub> 0...500 Ohm
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	0...+60 °C
LED-display	Yellow
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-6
Connection cable	2 m, PUR, 2 x 0.75 mm <sup>2</sup>
Housing material	Brass
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
<b>Accessories</b> (is delivered with the unit)	2 pieces nuts M 30

\* With sealed potentiometer screw



All specifications are subject to change without notice. (04/2017)

**Made in Germany**



## Capacitive Sensors Series 40 - NAMUR EN 60947-5-6



Housing M 32 x 1.5

- For use in areas with the risk of gas explosion, zone 0
- Housing material: PA / PPO
- Sensing distance 3...15 mm adjustable

Certificate:



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



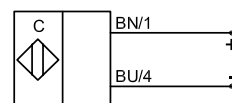
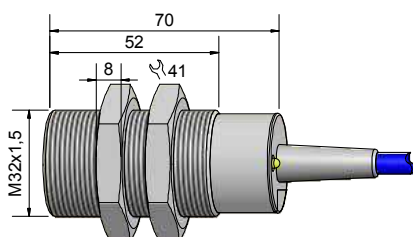
### Technical data

Flush mountable

Operating distance $S_n$	12 mm
Operating distance min. / max. adjustable	3...15 mm
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
<b>Type</b>	<b>KAS-40-30-N-M32</b>
<b>Art. No.</b>	<b>401 700</b>
Operating voltage ( $U_B$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 2.5 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	50 Hz
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 <sup>2</sup>
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PA / PPO

<b>Accessories</b> (is delivered with the unit)	2 pieces nuts M 32
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\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors Series 40 - NAMUR EN 60947-5-6



Housing M 32 x 1.5

- For use in areas with the risk of gas explosion, zone 0
- Housing material: Stainless steel VA
- Sensing distance 3...20 mm adjustable

Certificate:



DMT 03 ATEX E 048

IECEX BVS 07.0031

Ex II 1G Ex ia IIC T1-T6 Ga

Ex ia IIC T1-T6 Ga

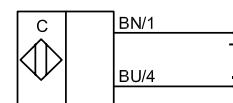
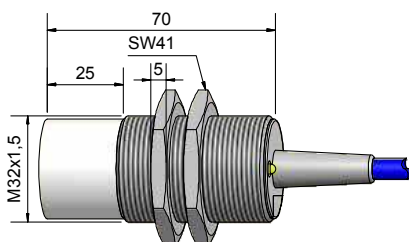


### Technical data

Non-flush mountable

Operating distance $S_n$	18 mm
Operating distance min. / max. adjustable	3...20 mm
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
<b>Type</b>	<b>KAS-40-34-N-M32-PTFE/V2A</b>
<b>Art. No.</b>	<b>402 400</b>
Operating voltage ( $U_B$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 2.5 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	50 Hz
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 <sup>2</sup>
Housing material	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
<b>Accessories</b> (is delivered with the unit)	2 pieces nuts M 32

\* With sealed potentiometer screw



All specifications are subject to change without notice. (04/2017)

**Made in Germany**



## Capacitive Sensors Series 40 - NAMUR EN 60947-5-6



Housing M 32 x 1.5

- For use in areas with the risk of gas explosion, zone 0
- Housing material: PA / PPO
- Sensing distance 3...20 mm adjustable

Certificate:



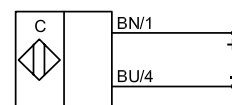
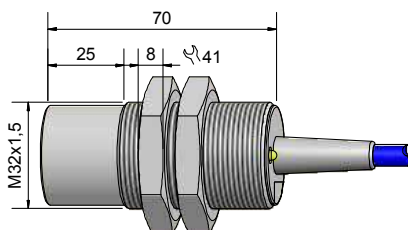
DMT 03 ATEX E 048	IECEX BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga



### Technical data

	Non-flush mountable
Operating distance $S_n$	18 mm
Operating distance min. / max. adjustable	3...20 mm
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
<b>Type</b>	<b>KAS-40-35-N-M32</b>
<b>Art. No.</b>	<b>402 100</b>
Operating voltage ( $U_B$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 2.5 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	50 Hz
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 <sup>2</sup>
Housing material	PA / PPO
Active surface	PA / PPO
Lid	PA / PPO
<b>Accessories</b> (is delivered with the unit)	2 pieces nuts M 32

\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)





## Capacitive Sensors Series 40 - NAMUR EN 60947-5-6



Housing M 32 x 1.5

- For use in areas with the risk of gas explosion, zone 0
- Housing material: PTFE
- Ideal for detection of chemically aggressive media
- Suitable for food applications
- Sensing distance 3...20 mm adjustable
- Option: Total chemical resistance is given when ordering the sensor with PTFE cable and PTFE- protection set Art.-No. 196301

Certificate:



DMT 03 ATEX E 048

IECEx BVS 07.0031

Ex II 1G Ex ia IIC T1-T6 Ga

Ex ia IIC T1-T6 Ga

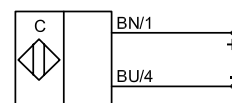
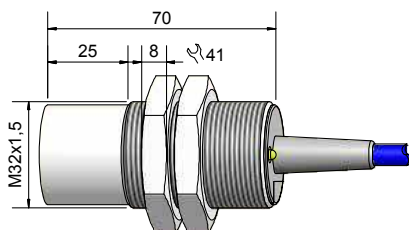


### Technical data

Non-flush mountable

Operating distance $S_n$	18 mm
Operating distance min. / max. adjustable	3...20 mm
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
<b>Type</b>	<b>KAS-40-35-N-M32-PTFE</b>
<b>Art. No.</b>	<b>402 300</b>
Operating voltage ( $U_B$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 2.5 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	50 Hz
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 <sup>2</sup>
Housing material	PTFE (FDA 21 CFR 177.1550)
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
<b>Accessories</b> (is delivered with the unit)	2 pieces nuts M 32

\* With sealed potentiometer screw



All specifications are subject to change without notice. (04/2017)

**Made in Germany**



## Capacitive Sensors Serie 40 - NAMUR EN 60947-5-6

Housing  $\varnothing$  26 mm / G1" / 40 mm

- For use in areas with the risk of gas explosion, zone 0
- Housing material: PTFE
- Sensing distance 0...15 mm adjustable
- Special version with flange. Sealing can be made with a gasket or PTFE-tape (not supplied with the sensor)



Certificate:

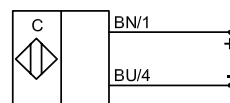
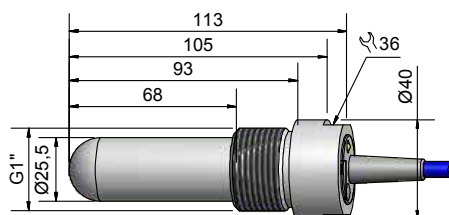


DMT 03 ATEX E 048	IECEx BVS 07.0031
Ex II 1G Ex ia IIC T1-T6 Ga	Ex ia IIC T1-T6 Ga



Technical data	Non-flush mountable
Operating distance $S_n$	5 mm
Operating distance min. / max. adjustable	0...15 mm
Electrical version	2-wire DC
Output	NAMUR DIN 60947-5-6
<b>Type</b>	<b>KAS-40-26-N-PTFE-1"</b>
<b>Art. No.</b>	<b>KA 0740</b>
Operating voltage ( $U_B$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 3 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	0...+70 °C / CIP 121 °C (zero-current)
LED-display	Yellow
Degree of protection IEC 60529	IP 67*
Connection cable	2 m, PUR, 2 x 0.75 mm <sup>2</sup>
Housing material	PTFE (FDA 21 CFR 177.1550)
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO

\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors Series 40 - NAMUR EN 60947-5-6



Housing Ø 26 mm / G1" / 40 mm

- For use in areas with the risk of gas explosion, zone 0
- Housing material: PTFE
- Sensing distance 0...15 mm adjustable
- Special version with flange. Sealing can be made with a gasket or PTFE-tape (not supplied with the sensor)

Certificate:



DMT 03 ATEX E 048

IECEX BVS 07.0031

Ex II 1G Ex ia IIC T1-T6 Ga

Ex ia IIC T1-T6 Ga

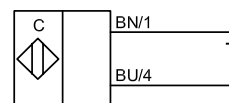
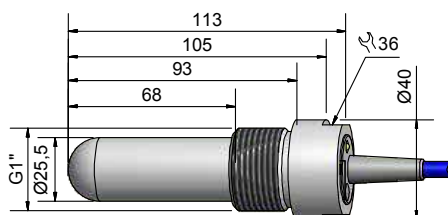


### Technical data

Non-flush mountable

Operating distance $S_n$	5 mm
Operating distance min. / max. adjustable	0...15 mm
Electrical version	2-wire DC
Output	NAMUR DIN 60947-5-6
<b>Type</b>	<b>KAS-40-26-N-PTFE-1"-100°C</b>
<b>Art. No.</b>	<b>KA 1230</b>
Operating voltage ( $U_B$ )	5 - 15 V DC, $U_i = 15$ V DC
Output current active surface free	< typ. 1.5 mA
Output current active surface covered	> typ. 3 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	0...+100 °C / CIP 121 °C (zero-current)
LED-display	Yellow
Degree of protection IEC 60529	IP 67*
Connection cable	2 m, PUR, 2 x 0.75 mm <sup>2</sup>
Housing material	PTFE (FDA 21 CFR 177.1550)
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO

\* With sealed potentiometer screw



All specifications are subject to change without notice. (04/2017)

**Made in Germany**



## NAMUR MINI SENSORS WITH EVALUATION UNIT

	Pages
Capacitive sensors Ø 6.5 mm	134
Capacitive sensors M 8	135 - 136
Capacitive sensors Ø 10 mm	137
Capacitive sensors Ø 18 mm	138
Evaluation unit TS-	139



All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors Series 40 - NAMUR

Housing Ø 6.5 mm

- Housing material: Stainless steel VA
- Sensing distance 0.5...3 mm adjustable, if used in connection with the switching amplifier TS-120...

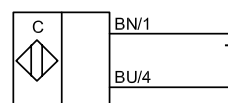
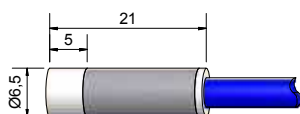
Certificate:



### Technical data

Non-flush mountable

Operating distance $S_n$	2 mm
Operating distance min. / max. adjustable	0.5...3 mm
Electrical version	2-wire DC
Output function	NAMUR EN 60947-5-6
<b>Type</b>	<b>KAS-42-6.5/20-N-D6.5-PTFE/VAb-Z02-0</b>
<b>Art.-No.</b>	<b>400 480</b>
Operating voltage ( $U_B$ )	5...10 V DC
Output current active surface free	< Typ. 1.5 mA
Output current active surface covered	> Typ. 2.5 mA
Self-inductance (L)	390 mH
Self-capacitance (C)	210 nF
Permitted residual ripple max.	5%
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	-
Degree of protection IEC 60529	IP 67
Connection cable	2 m, PVC, 2 x 0.14 mm <sup>2</sup>
Housing material	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PTFE (FDA 21 CFR 177.1550)



Made in Germany

All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors Series 40 - NAMUR

Housing M 8 x 1

- Housing material: Stainless steel VA
- Sensing distance 0.2...2 mm adjustable, if used in connection with the switching amplifier TS-120...

Certificate:



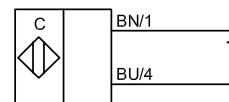
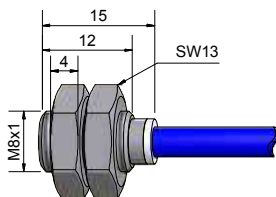
### Technical data

Flush mountable

Operating distance $S_n$	1.5 mm
Operating distance min. / max. adjustable	0.2...2 mm
Electrical version	2-wire DC
Output function	NAMUR EN 60947-5-2
<b>Type</b>	<b>KAS-42-M8/15-N-M8-PTFE/VAb-Z02-0</b>
<b>Art.-No.</b>	<b>405 150</b>
Operating voltage ( $U_B$ )	5...10 V DC
Output current active surface free	< Typ. 1.5 mA
Output current active surface covered	> Typ. 2.5 mA
Self-inductance (L)	390 mH
Self-capacitance (C)	210 nF
Permitted residual ripple max.	5%
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	-
Degree of protection IEC 60529	IP 67
Connection cable	2 m, PUR, 2 x 0.14 mm <sup>2</sup>
Housing material	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PTFE (FDA 21 CFR 177.1550)

**Accessories** (is delivered with the unit)

2 pieces nuts M 8



All specifications are subject to change without notice. (04/2017)

**Made in Germany**



## Capacitive Sensors Series 40 - NAMUR

Housing M 8 x 1

- Housing material: Stainless steel VA
- Sensing distance 0.5...3 mm adjustable, if used in connection with the switching amplifier TS-120...

Certificate:



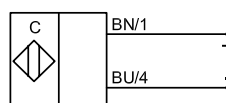
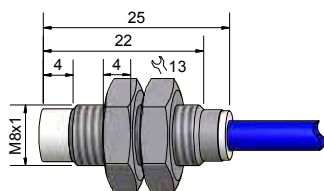
### Technical data

Non-flush mountable

Operating distance $S_n$	2 mm
Operating distance min. / max. adjustable	0.5...3 mm
Electrical version	2-wire DC
Output function	NAMUR EN 60947-5-6
<b>Type</b>	<b>KAS-42-M8/25-N-PTFE/VAb-Z02-0</b>
<b>Art. No.</b>	<b>400 490</b>
Operating voltage ( $U_B$ )	5...10 V DC
Output current active surface free	< Typ 1.5 mA
Output current active surface covered	> Typ. 2.5 mA
Self-inductance (L)	390 mH
Self-capacitance (C)	210 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	-
Degree of protection IEC 60529	IP 67
Connection cable	2 m, PUR, 2 x 0.14 mm <sup>2</sup>
Housing material	VA No. 1.3405
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PTFE (FDA 21 CFR 177.1550)

**Accessories** (is delivered with the unit)

2 pieces nuts M 8



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All specifications are subject to change without notice. (04/2017)





## Capacitive Sensors Series 40 - NAMUR

Housing  $\varnothing$  10 mm

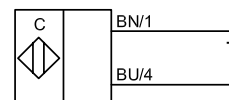
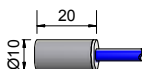
- Housing material: Stainless steel VA
- Sensing distance 1...4 mm adjustable, if used in connection with the switching amplifier TS-120...

Certificate:

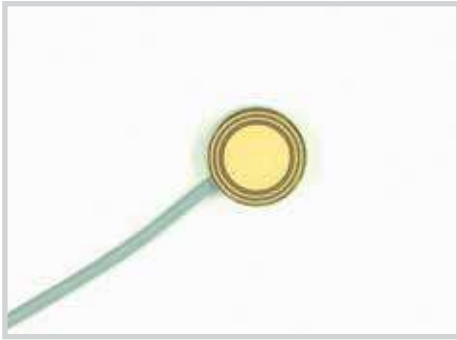


Technical data	Flush mountable
Operating distance $S_n$	2 mm
Operating distance min./max. adjustable	1...4 mm
Electrical version	2-wire DC
Output function	NAMUR EN 60947-5-6
<b>Type</b>	<b>KAS-42-10/20-N-D10-PTFE/VAb-Z02-0</b>
<b>Art.-No.</b>	<b>KA 0313</b>
Operating voltage ( $U_B$ )	5...10 V DC
Output current active surface free	< Typ. 1.5 mA
Output current active surface covered	> Typ. 2.5 mA
Self-inductance (L)	390 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	-
Degree of protection IEC 60529	IP 67
Connection cable	2 m, PVC, 2 x 0.14 mm <sup>2</sup>
Housing material	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PTFE (FDA 21 CFR 177.1550)

All specifications are subject to change without notice. (04/2017)



**Made in Germany**



## Capacitive Sensors Series 40 - NAMUR

Housing Ø 18 mm

- Housing material: Stainless steel VA
- Sensing distance 1...8 mm adjustable, if used in connection with the switching amplifier TS-120...

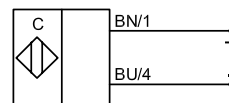
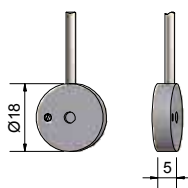
Certificate:



### Technical data

Flush mountable

Operating distance $S_n$	5 mm
Operating distance min. / max. adjustable	1...8 mm
Electrical version	2-wire DC
Output function	NAMUR EN 60947-5-6
<b>Type</b>	<b>KAS-42-18/5-N-D18-PTFE/VAb-Z02-0</b>
<b>Art.-No.</b>	<b>KA 0308</b>
Operating voltage ( $U_B$ )	$U_i = 15$ V DC
Output current active surface free	< Typ. 1.5 mA
Output current active surface covered	> Typ. 2.5 mA
Self-inductance (L)	0.2 mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+70 °C
LED-display	-
Degree of protection IEC 60529	IP 67
Connection cable	2 m, PUR, 2 x 0.14 mm <sup>2</sup>
Housing material	VA No. 1.4305
Active surface	Epoxy
Lid	-



Made in Germany

All specifications are subject to change without notice. (04/2017)



Certificate:



## Transistor Amplifier

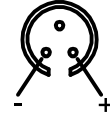
Series - NPN

Series - PNP

- For connection to NAMUR - Sensors of Series 30 and 40
- Not permitted for use in Ex area

Sensor operating voltage  $U_s \leq 6 \text{ V DC}$

Operating current  $I_s = 1 \dots 3 \text{ mA}$

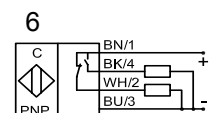
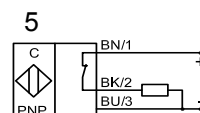
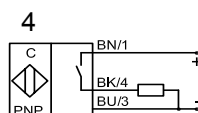
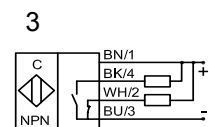
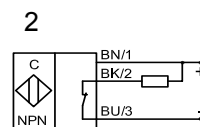
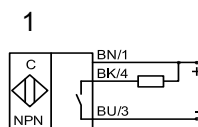
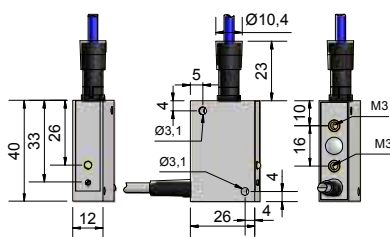


Plug pin connection  
View: soldering side

### Technical data

Electrical version	4-wire DC
Output	Antivalent (NO + NC)
<b>Type NPN</b>	<b>TS-120-NPN-A-M30-PPO/MS-Z02-0</b>
<b>Art.-No.</b>	<b>500 150</b>
Connection diagram No.	3
<b>Type PNP</b>	<b>TS-120-PNP-A-M30-PPO/MS-Z02-0</b>
<b>Art.-No.</b>	<b>500 350</b>
Connection diagram No.	6
Operating voltage ( $U_b$ )	10...35 V DC
Output current max. ( $I_o$ )	2 x 250 mA
Voltage drop max. ( $U_o$ )	$\leq 2.0 \text{ V}$
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 10 mA
Frequency of operating cycles max.	2 kHz (dependent on Sensor)
Permitted ambient temperature	-25...+70 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 65
Norm	EN 60947-5-2
Connection cable	2 m, PVC, 4 x 0.14 mm <sup>2</sup>
Housing material	PA 6.6
<b>Accessories</b> (is delivered with the unit)	Female connector

All specifications are subject to change without notice. (04/2017)



**Made in Germany**



## HIGH TEMPERATURE SENSORS

	Pages
Sensors M 12 - M 22 useable from -25...+100 °C	142
Sensors M 30 - M 32 useable from -25...+100 °C	143 - 144
Sensors useable from -60...+160 °C	145

All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors

Series 70 - NPN

Series 80 - PNP

Housing M 22 x 1.5

- Housing material: PTFE
- Useable for an ambient temperature up to +100 °C
- Sensing distance 0.5...20 mm adjustable
- Ideal for detection of chemically aggressive media
- Suitable for food applications

Certificate:



### Technical data

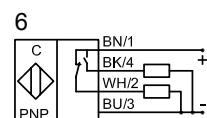
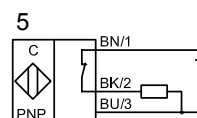
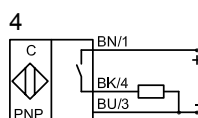
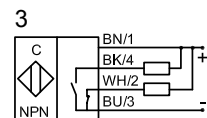
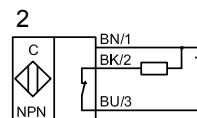
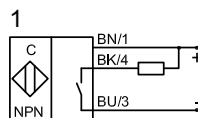
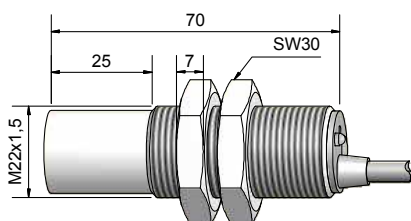
Non-flush mountable

Operating distance $S_n$	12 mm
Operating distance min. / max. adjustable	0.5...20 mm
Electrical version	4-wire DC
Output function	Antivalent
<b>Type NPN</b>	<b>KAS-70-23-A-M22-PTFE-100C-Z02-1-HP</b>
<b>Art.-No.</b>	<b>712 910</b>
Connection diagram No.	3
<b>Type PNP</b>	<b>KAS-80-23-A-M22-PTFE-100C-Z02-1-HP</b>
<b>Art.-No.</b>	<b>812 910</b>
Connection diagram No.	6
Operating voltage ( $U_b$ )	10...35 V DC
Output current max. ( $I_o$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+100 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m, PVC, 4 x 0.34 mm <sup>2</sup>
Housing material	PTFE (FDA 21 CFR 177.1550)
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO

### Accessories (is delivered with the unit)

2 pieces nuts M 22

\* With sealed potentiometer screw



Made in Germany

All specifications are subject to change without notice. (04/2017)



## Capacitive Sensors

Series 70 - NPN  
Series 80 - PNP

Housing M 32 x 1.5

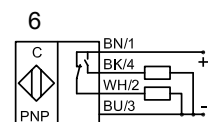
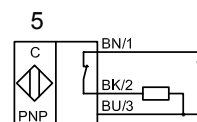
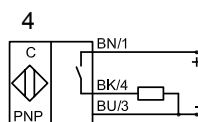
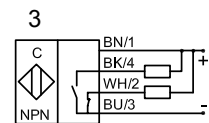
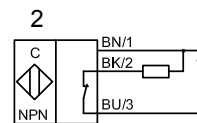
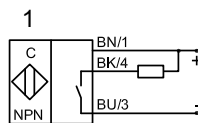
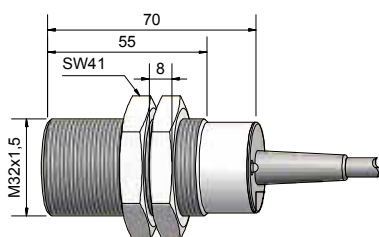
- Housing material: PTFE
- Useable for an ambient temperature up to +100 °C
- Sensing distance 0.5...30 mm adjustable
- Ideal for detection of chemically aggressive media
- Suitable for food applications

Certificate:



Technical data	Flush mountable
Operating distance $S_n$	20 mm
Operating distance min. / max. adjustable	0.5...30 mm
Electrical version	4-wire DC
Output function	Antivalent
<b>Type NPN</b>	<b>KAS-70-30-A-M32-PTFE-100C-Z02-1-HP</b>
<b>Art.-No.</b>	<b>715 831</b>
Connection diagram No.	3
<b>Type PNP</b>	<b>KAS-80-30-A-M32-PTFE-100C-Z02-1-HP</b>
<b>Art.-No.</b>	<b>815 831</b>
Connection diagram No.	6
Operating voltage ( $U_b$ )	10...35 V DC
Output current max. ( $I_e$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	200 Hz
Permitted ambient temperature	-25...+100 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m, PVC, 4 x 0.5 mm <sup>2</sup>
Housing material	PTFE (FDA 21 CFR 177.1550)
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
Media optimized	Yes
<b>Accessories</b> (is delivered with the unit)	2 pieces nuts M 32

\* With sealed potentiometer screw



Made in Germany



## Capacitive Sensors

Series 70 - NPN  
Series 80 - PNP



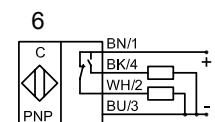
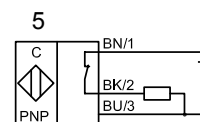
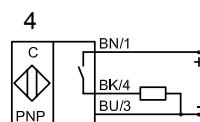
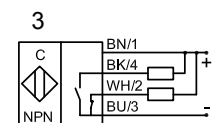
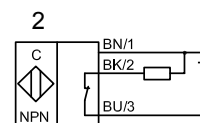
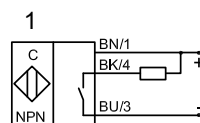
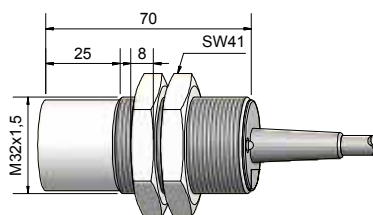
- Housing M 32 x 1.5
- Housing material: PTFE
  - Useable for an ambient temperature up to +100 °C
  - Sensing distance 1...40 mm adjustable
  - Ideal for detection of chemically aggressive media
  - Suitable for food applications

Certificate:



Technical data	Non-flush mountable
Operating distance $S_n$	25 mm
Operating distance min./max. adjustable	1...40 mm
Electrical version	4-wire DC
Output function	Antivalent
<b>Type NPN</b>	<b>KAS-70-35-A-M32-PTFE-100C-Z02-1-HP</b>
<b>Art.-No.</b>	<b>719 255</b>
Connection diagram No.	3
<b>Type PNP</b>	<b>KAS-80-35-A-M32-PTFE-100C-Z02-1-HP</b>
<b>Art.-No.</b>	<b>819 255</b>
Connection diagram No.	6
Operating voltage ( $U_B$ )	10...35 V DC
Output current max. ( $I_o$ )	2 x 250 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-25...+100 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m, PVC, 4 x 0.5 mm <sup>2</sup>
Housing material	PTFE (FDA 21 CFR 177.1550)
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
Media optimized	Yes
<b>Accessories</b> (is delivered with the unit)	2 pieces nuts M 32

\* With sealed potentiometer screw



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## Capacitive Sensors | 3 Series 2000 -quattro

Housing M 32 x 1.5

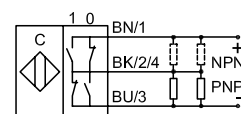
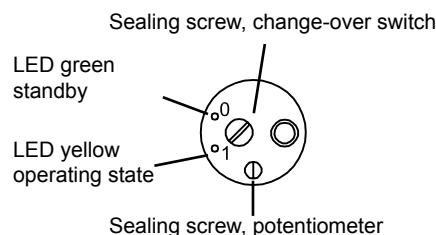
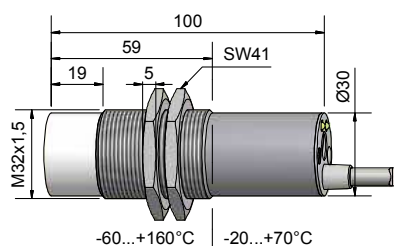
- Housing material: Stainless steel VA
- For level control with a product temperature up to +160 °C
- Sensing distance 2...20 mm adjustable
- Multifunction sensor: NPN / PNP;  
NO / NC function switchable

Certificate:



Technical data	Non-flush mountable
Operating distance $S_n$	15 mm
Operating distance min./max. adjustable	2...20 mm
Electrical version	3-wire DC
Output	NO / NC function switchable
<b>Type NPN / PNP switchable</b>	<b>KAS-2000-35-P-M32-PTFE/VAb-160C-Z02-1</b>
<b>Art.-No.</b>	<b>771 100</b>
Operating voltage ( $U_B$ )	10...35 V DC
Output current max. ( $I_o$ )	400 mA
Voltage drop max. ( $U_d$ )	≤ 2.0 V
Permitted residual ripple max.	10 %
No-load current ( $I_o$ )	Typ. 15 mA
Frequency of operating cycles max.	50 Hz
Permitted ambient temperature	-60...+160 °C / -20...+70 °C
LED-display	Green & yellow
Protective circuit	Built-in
Degree of protection IEC 60529	IP 67*
Norm	EN 60947-5-2
Connection cable	2 m, PUR, 3 x 0.75 mm <sup>2</sup>
Housing material	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)
Lid	PA / PPO
<b>Accessories (is delivered with the unit)</b>	<b>2 pieces nuts M 32</b>

\* With sealed potentiometer screw



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## HIGH TEMPERATURE SENSORS SERIES KS-KSA

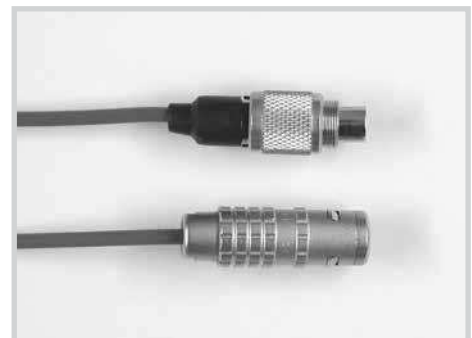
	Pages
Accessories	147
Sensors M 18	148 - 149
Evaluation unit DC for sensors M 18	150
Sensors M 32	151 - 152
Evaluation unit DC for sensors M 32	153
Evaluation unit DC and sensors fix connected	154
Evaluation unit AC	155

For further high temperature sensors, please see our catalogue of our „KXS-Extreme“ series. These sensors can be used for applications with an ambient temperature up to +250 °C or +800 °C.

## PLUG-IN CONNECTORS

For high temperature sensors with flange connector the following connection cables for connection of the evaluation unit KSA-250 and KSA-...-250-...-BB are available:

- Art.-No. 193300**    **Plug-in connector with 2 m cable**  
**Art.-No. 193301**    **Plug-in connector with 5 m cable**





## Capacitive high temperature sensors Series 250-M18/...

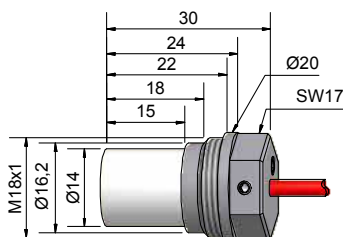
Housing M 18 x 1

- For connection to capacitive evaluation units KSA-...-14-...-BB
- Housing material: Stainless steel VA
- Useable for an ambient temperature -200...+250 °C
- Sensing distance 0...5 mm adjustable at the evaluation unit

Certificate:



Technical data	Non-flush mountable
Operating distance $S_n$	3 mm
Operating distance adjustable	0...5 mm
<b>Type</b>	<b>KS-250-M18/30-X-M18-PTFE/VAab-250C-X0E/Y26-0</b>
<b>Art.-No.</b>	<b>561 600</b>
Permitted ambient temperature	-200...+250 °C
Enclosure rating IEC 60529	IP 67
Norm	EN 60947-5-2
Connection cable with plug-in connector	0.8 m FEP, Triax
Housing material	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)



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## Capacitive high temperature sensors Series 250-M18/...

Housing M 18 x 1

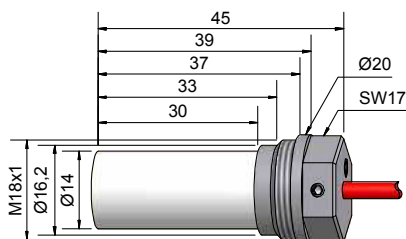
- For connection to capacitive evaluation units KSA-...-14-...-BB
- Housing material: Stainless steel VA
- Useable for an ambient temperature -200...+250 °C
- Sensing distance 0...5 mm adjustable at the evaluation unit

Certificate:



Technical data	Non-flush mountable
Operating distance $S_n$	3 mm
Operating distance adjustable	0...5 mm
<b>Type</b>	<b>KS-250-M18/45-X-M18-PTFE/VAb-250C-X0E/Y26-0</b>
<b>Art.-No.</b>	<b>561 650</b>
Permitted ambient temperature	-200...+250° C
Enclosure rating IEC 60529	IP 67
Norm	EN 60947-5-2
Connection cable with plug-in connector	0.8 m FEP, Triax
Housing material	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)

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## Capacitive Evaluation Unit

Series 70-14-...-BB - NPN  
Series 80-14-...-BB - PNP

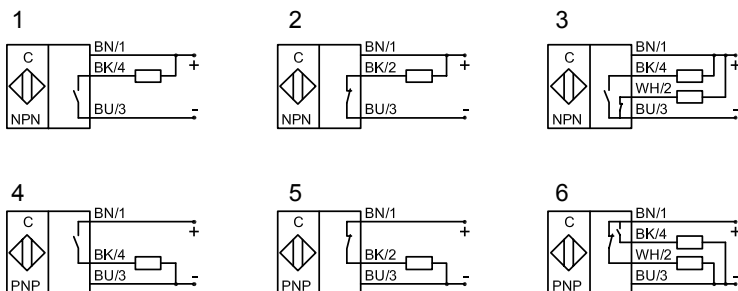
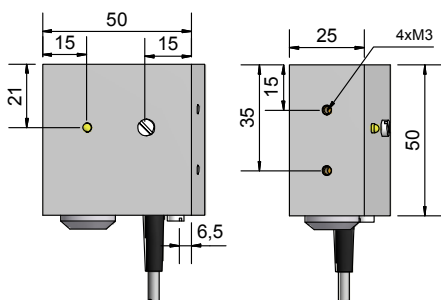
- Housing 50 x 50 x 25 mm
- For capacitive sensors KS-250-M18/...
  - Hysteresis adjustable

Certificate:



### Technical data

Electrical version	3-wire DC	3-wire DC
Output function	Normally open	Normally closed
<b>Type NPN</b>	<b>KSA-70-BB-S-50x50x25-PA-Z02/Y26-1</b>	
<b>Art.-No.</b>	<b>563 100</b>	
Connection diagram No.	1	
<b>Type PNP</b>	<b>KSA-80-BB-Ö-50x50x25-PA-Z02/Y26-1</b>	
<b>Art.-No.</b>	<b>563 700</b>	
Connection diagram No.	5	
Operating voltage ( $U_B$ )	10...35 V DC	10...35 V DC
Output current max. ( $I_o$ )	400 mA	400 mA
Voltage drop max. ( $U_d$ )	$\leq 2.5$ V	$\leq 2.5$ V
Permitted residual ripple max.	10 %	10 %
No-load current ( $I_o$ )	Typ. 10 mA	Typ. 10 mA
Frequency of operating cycles max.	50 Hz	50 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 60947-5-2	EN 60947-5-2
Connection cable	2 m PVC, 3 x 0.14 mm <sup>2</sup>	2 m PVC, 3 x 0.14 mm <sup>2</sup>
Housing material	PA	PA



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## Capacitive high temperature sensors Series 250

Housing M 32 x 1.5

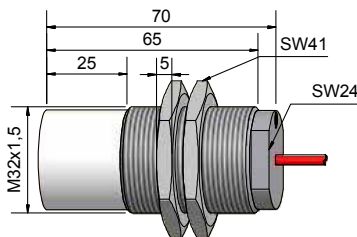
- For connection to capacitive evaluation units KSA-250 and KSA-...-250-...-A-...
- Housing material: Stainless steel VA No. 1.4305
- Useable for an ambient temperature -200...+250 °C
- Sensing distance 3...20 mm adjustable at the evaluation unit

Certificate:



Technical data	Non-flush mountable	Non-flush mountable
Operating distance $S_n$	12 mm	12 mm
Operating distance adjustable	3...20 mm	3...15 mm
<b>Type</b>	<b>KS-250-M32/70-X-M32-PTFE/Ab-250C-X02/Y24-0</b>	<b>KS-250-M32/70-X-M32-PTFE/Ab-250C-X05/Y24-0</b>
<b>Art.-No.</b>	<b>562 500</b>	<b>562 510</b>
Permitted ambient temperature	-200...+250 °C	-200...+250 °C
Enclosure rating IEC 60529	IP 67	IP 67
Norm	EN 60947-5-2	EN 60947-5-2
Connection cable with plug-in connector	2 m FEP, Triax	5 m FEP, Triax
Housing material	VA No. 1.4305	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)	PTFE (FDA 21 CFR 177.1550)
<b>Accessories</b> (is delivered with the unit)	2 pieces nuts M 32	2 pieces nuts M 32

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## Capacitive high temperature sensors Series KS-250

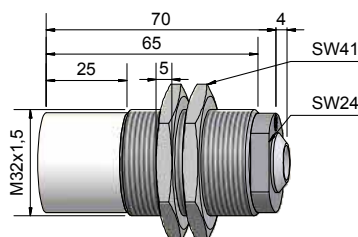
Housing M 32 x 1.5

- For connection to capacitive evaluation units KSA-250 and KSA-....-250-....-A-...
- Housing material: Stainless steel VA
- Useable for an ambient temperature -200...+250 °C
- Sensing distance 3...20 mm adjustable at the evaluation unit
- Connection cable and plug-in connector is supplied with the sensor

Certificate:



Technical data	Non-flush mountable	Non-flush mountable
Operating distance $S_n$	12 mm	12 mm
Operating distance adjustable	3...20 mm	3...15 mm
Type	KS-250-M32/70-X-M32-PTFE/VA6-250C-Y25X02Y240	KS-250-M32/70-X-M32-PTFE/VA6-250C-Y25X05Y240
Art.-No.	562 700	562 710
Permitted ambient temperature	-200...+250 °C	-200...+250 °C
Enclosure rating IEC 60529	IP 67	IP 67
Norm	EN 60947-5-2	EN 60947-5-2
Connection cable with plug-in connector	Triax socket and plug-in connector with 2 m FEP, Triax	Triax socket and plug-in connector with 5 m FEP, Triax
Housing material	VA No. 1.4305	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)	PTFE (FDA 21 CFR 177.1550)
<b>Accessories</b> (is delivered with the unit)	2 pieces nuts M 32	2 pieces nuts M 32
Connection cable available as spare part, for matching connection cable please see our selection of accessories.		



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## Capacitive Evaluation Unit

Series 70-250 - NPN  
Series 80-250 - PNP

Housing 75 x 47 x 30 mm  
• For capacitive sensors KS-250-M32(-Y)

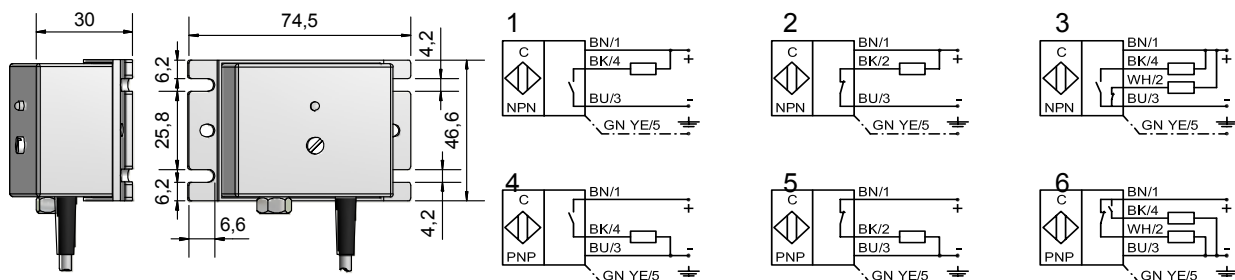
Certificate:



### Technical data

Electrical version	5-wire DC	5-wire DC
Output function	Antivalent	Antivalent
<b>Type NPN</b>	<b>KSA-70-B-A-75,5x46,6x30-PA-Z02/Y24-1</b>	<b>KSA-70-B-A-75,5x46,6x30-PA-Z02/Y24-1</b>
<b>Art.-No.</b>	<b>AK 0003</b>	<b>AK 0007</b>
<b>Type PNP</b>	<b>KSA-70-B-A-75,5x46,6x30-PA-Z02/Y24-1</b>	<b>KSA-70-B-A-75,5x46,6x30-PA-Z02/Y24-1</b>
<b>Art.-No.</b>	<b>AK 0004</b>	<b>AK 0008</b>
Connection diagram No.	3	3
<b>Type PNP</b>	<b>KSA-80-B-A-75,5x46,6x30-PA-Z02/Y24-1</b>	<b>KSA-80-B-A-75,5x46,6x30-PA-Z02/Y24-1</b>
<b>Art.-No.</b>	<b>AK 0005</b>	<b>AK 0009</b>
<b>Type PNP</b>	<b>KSA-80-B-A-75,5x46,6x30-PA-Z02/Y24-1</b>	<b>KSA-80-B-A-75,5x46,6x30-PA-Z02/Y24-1</b>
<b>Art.-No.</b>	<b>AK 0006</b>	<b>AK 0010</b>
Connection diagram No.	6	6
Operating voltage ( $U_B$ )	10...35 V DC	10...35 V DC
Output current max. ( $I_o$ )	2 x 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.	50 Hz	50 Hz
Permitted ambient temperature	-25...+70 °C	-25...+70 °C
LED-display	Green / yellow	Green / yellow
Protective circuit	Built-in	Built-in
Degree of protection IEC 60529	IP 65	IP 65
Norm	EN 60947-5-2	EN 60947-5-2
Connection cable	2 m PVC, 5 x 0.14 mm <sup>2</sup>	2 m PVC, 5 x 0.14 mm <sup>2</sup>
Housing material	PA	PA

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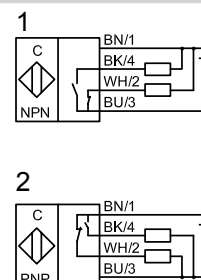
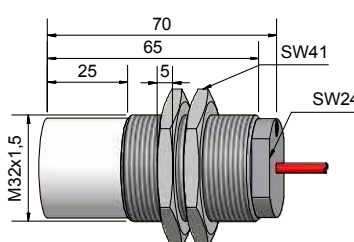
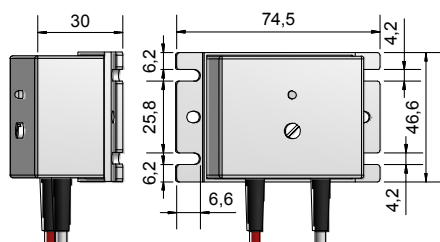
## Capacitive high temperature sensor with evaluation unit Series 70-250 - NPN Series 80-250 - PNP

- Housing Sensor M 32 x 1,5 / evaluation unit 75 x 47 x 30 mm
- Evaluation unit and sensor firmly connected via FEP cable with 2 m in length.
  - Sensing distance 2...20 mm adjustable
  - Sensor useable for an ambient temperature -200...+250 °C

Certificate:



Technical data	Non-flush mountable
Operating distance $S_n$	12 mm
Operating distance adjustable	3...20 mm
Electrical version	4-wire DC
Output function	Antivalent
<b>Type NPN</b>	<b>KS-250-M32 2,0 m &amp; KSA-70-250-A</b>
<b>Art.-No.</b>	<b>AKK 002</b>
Connection diagram No.	1
<b>Type PNP</b>	<b>KS-250-M32 2,0 m &amp; KSA-80-250-A</b>
<b>Art.-No.</b>	<b>AKK 001</b>
Connection diagram No.	2
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.	50 Hz
Permitted ambient temperature (evaluation unit)	-25...+70 °C
Permitted ambient temperature (sensor)	-200...+250 °C
LED-display	Green / yellow
Protective circuit	Built-in
Degree of protection IEC 60529 (evaluation unit)	IP 65
Degree of protection IEC 60529 (sensor)	IP 67
Norm	EN 60947-5-2
Connection cable	2 m PUR, 4 x 0.14 mm <sup>2</sup>
Housing material (evaluation unit)	PA
Housing material (sensor)	VA No. 1.4305
Active surface	PTFE (FDA 21 CFR 177.1550)
<b>Accessories</b> (is delivered with the unit)	2 pieces nuts M 32



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## Capacitive Evaluation Unit Series 250 - 115V / 230V AC

- Housing 40 x 70 x 110 mm
- For capacitive sensors KS-250-M22...M32

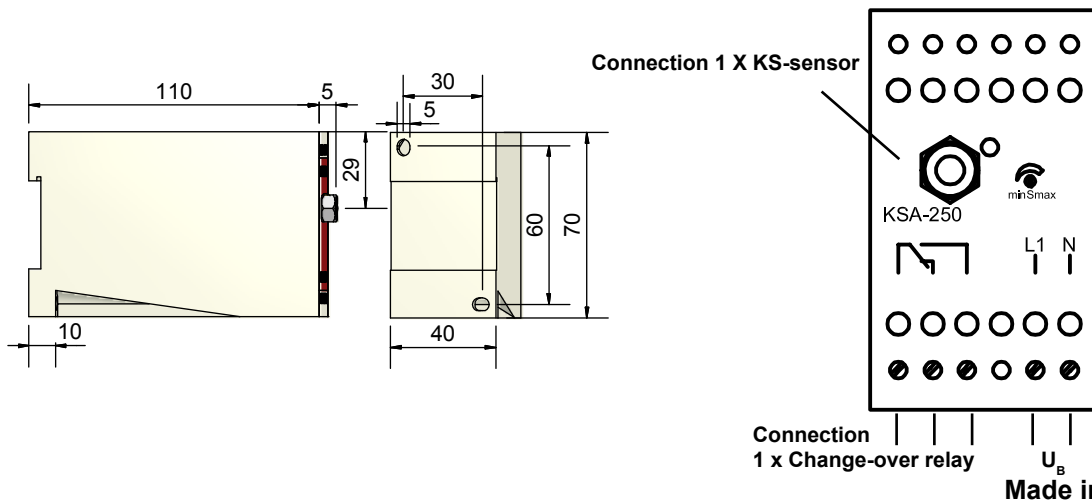
Certificate:
















### Technical data

Output function	1 x change-over contact	1 x change-over contact
Type	KSA-250-BXL-1CO-40x70x110-ABS-KL/Y24-1	KSA-250-BXL-1CO-40x70x110-ABS-KL/Y24-1
Art.-No.	560 101	560 100
Type	KSA-250-BXL-1CO-40x70x110-ABS-KL/Y24-1	KSA-250-BXL-1CO-40x70x110-ABS-KL/Y24-1
Art.-No.	560 106	560 102
Operating voltage ( $U_B$ )	90...130 V AC	200...250 V AC
Contact rating each relay max.	250 V / 6 A / 500 VA	250 V / 6 A / 500 VA
Power consumption	Typ. 3.5 VA	Typ. 3.5 VA
Permitted ambient temperature	-20...+60 °C	-20...+60 °C
LED-display	Yellow	Yellow
Protective circuit	Built-in	Built-in
Degree of protection IEC 60529	IP 20	IP 20
Norm	EN 60947-5-2	EN 60947-5-2
Connection	Screw terminals and Triax-socket	Screw terminals and Triax-socket
Housing material	ABS	ABS

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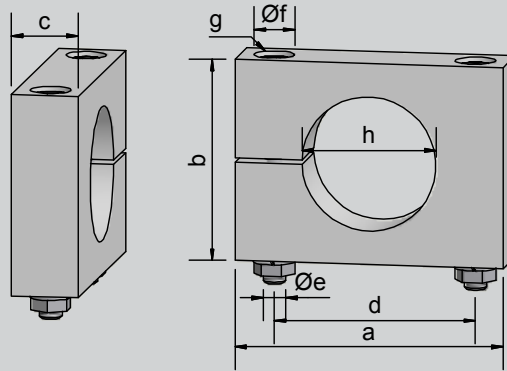
## FEMALE CONNECTORS

Sensor	Female connector		Article No.	LED	IP	Connection	Cable-length	Sensor + Length	Version	
	Type	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		16a		191910	-	67	4 x 0.34	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 0.5	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

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# 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

All specifications are subject to change without notice. (04/2017)

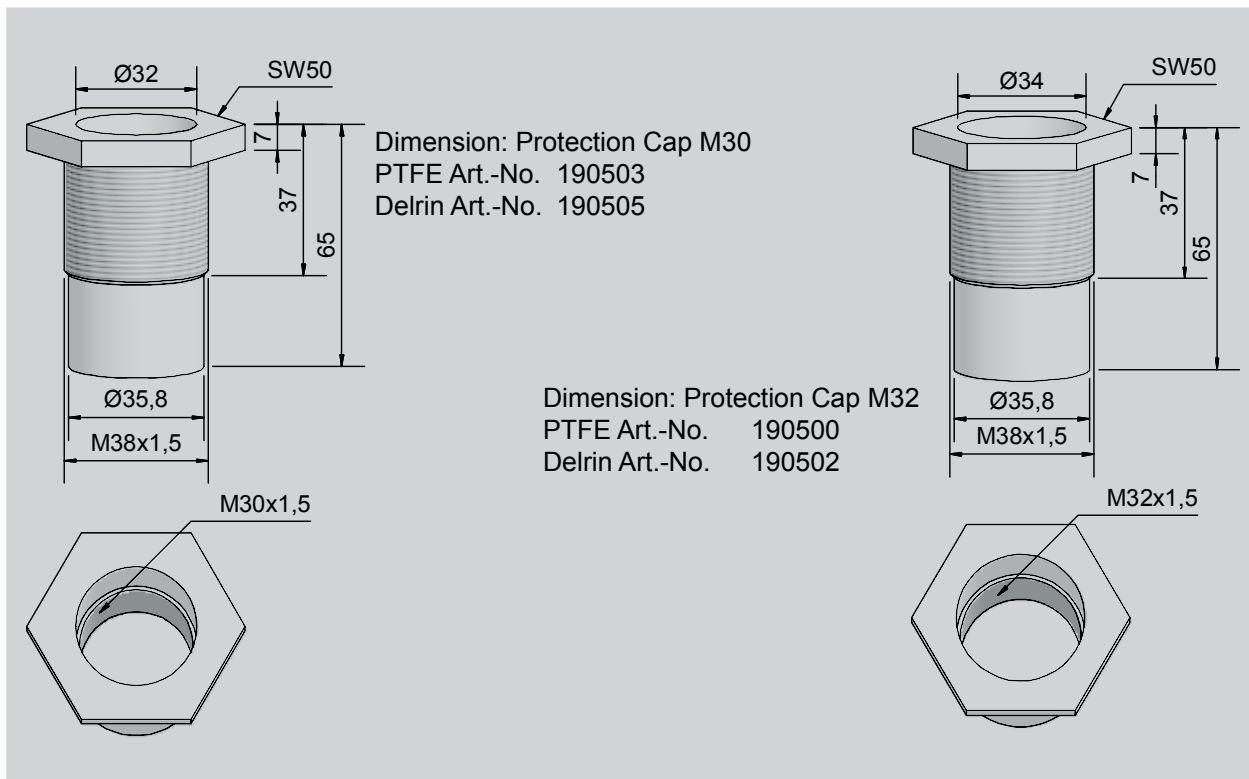
# PROTECTION CAPS AND PROTECTION SETS

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 face of the sensor. Where there is damage due to abrasion one only has to change the protection cap and the sensor remains on 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 M 32 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. (04/2017)



Sensor holder for tube mounting

- Housing material PP or PTFE
- Sensor holder for optimal tube mounting, e. g. for level control on bypass tubes
- Mechanically very solid
- Suitable for sensors in M18 x 1 (H-M18...) or M30 x 1.5 (H-M30...) body

Art.-No.	Description	Material	Connection
196310	H-M30-1"-PP	PP	1" Tube
196311	H-M30-3/4"-PP	PP	3/4" Tube
196312	H-M30-1/2"-PP	PP	1/2" Tube
196313	H-M18-1/2"-PP	PP	1/2" Tube
196314	H-M18-6.5-PP	PP	D. 6.5 Tube
196315	H-M18-5.0-PP	PP	D. 5.0 Tube
196316	H-M30-1"-PTFE	PTFE	1" Tube
196317	H-M30-3/4"-PTFE	PTFE	3/4" Tube
196318	H-M30-1/2"-PTFE	PTFE	1/2" Tube
196319	H-M18-1/2"-PTFE	PTFE	1/2" Tube
196320	H-M18-6.5-PTFE	PTFE	D. 6.5 Tube
196321	H-M18-5.0-PTFE	PTFE	D. 5.0 Tube
196325	H-M32-3/4"-PP	PP	3/4" Tube



Holder for Sensor M30 - tube 3/4", PTFE



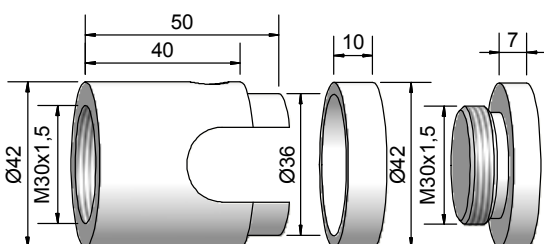
Holder for Sensor M30 - tube D 5.0, Nylon



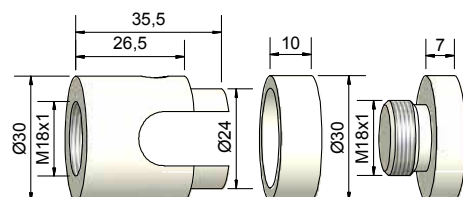
Holder for Sensor M18 - tube D.6.5, Nylon

## Dimensions

H-M30-3/4"(1/2")...



H-M18-6.5(5.0)...



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## 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.

*2014/30/EU*

EMC Directive (EN 60 947-5-2)

*2014/35/EU*

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

*Directive 2014/34/EU*

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 1 occasional 2 rare and short term  for dusts: (EN 1127-1) Zone 20 constant or long term or frequent 21 occasional 22 short term or accumulation or layers of dust  Note (see IEC 79-10): constant or long term > 1000 h/year, occasionally represents 10...1000 h/year, rare or short term < 10h/year	for gases and dusts } Division 1 } Division 2
Safety data	For the ratings of combustible gases and vapours as a basis for classification according to ignition energy, ignition temperature and flash point, see:  Redeker, Nabert, Schön/Safety Ratings of Combustible Gases and Vapours	NFPA 497 M CSA Nr. C22-1
Certification Authorities	PTB Physikalisch-Technische Bundesanstalt DEKRA EXAM formerly DMT, BVS BASEEFA British Approvals Service for 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...

All specifications are subject to change without notice. (04/2017)

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190030	Mounting block PA No. 138 40D	157	401 700	KAS-40-30-N-M32	126
190050	Mounting block PA No. 139 50D	157	402 000	KAS-40-35-N	120
190100	Mounting block PA No. 140 64D	157	402 100	KAS-40-35-N-M32	128
190150	Mounting block PA No. 131 10D	157	402 300	KAS-40-35-N-M32-PTFE	129
190200	Mounting block PA No. 132 11D	157	402 400	KAS-40-34-N-M32-PTFE/V2A	127
190250	Mounting block PA No. 133 20D	157	403 600	KAS-40-A24-IL	125
190300	Mounting block PA No. 134 22D	157	405 150	KAS-42-M8/15-N-M8-PTFE/VAb-Z02-0	135
190350	Mounting block PA No. 135 30D	157	406 110	KAS-40-22/10-N-PTFE	106
190400	Mounting block PA No. 136 32D	157	406 120	KAS-40-22/10-N	105
190450	Mounting block PA No. 137 34D	157	500 150	TS-120-NPN-A-M30-PPO/MS-Z02-0	139
190500	Protection cap M32 PTFE	158	500 350	TS-120-PNP-A-M30-PPO/MS-Z02-0	139
190502	Protection cap M32 Delrin	158	560 100	KSA-250-BXL-1CO-40x70x110-ABS-KL/Y24-1	155
190503	Protection cap M30 PTFE	158	560 101	KSA-250-BXL-1CO-40x70x110-ABS-KL/Y24-1	155
190504	Protection cap M30 PEEK	158	560 102	KSA-250-BXL-1CO-40x70x110-ABS-KL/Y24-1	155
190505	Protection cap M30 Delrin	158	560 106	KSA-250-BXL-1CO-40x70x110-ABS-KL/Y24-1	155
191500	Female connector No. 9 M12 angled	156	561 600	KS-250-M18/30-X-M18-PTFE/VAb-250C-X0E/Y26-0	148
191550	Female connector No. 9A M12 angled	156	561 650	KS-250-M18/45-X-M18-PTFE/VAb-250C-X0E/Y26-0	149
191910	Female connector No. 16a M12 angled	156	562 500	KS-250-M32/70-X-M32-PTFE/VAb-250C-X02/Y24-0	151
192000	Female connector No.. 18 straight	156	562 510	KS-250-M32/70-X-M32-PTFE/VAb-250C-X05/Y24-0	151
192150	Female connector No. 21 M12 angled	156	562 700	KS-250-M32/70-PTFE/VAb-Y20-1	152
192200	Female connector No. 22 angled	156	562 710	KS-250-M32/70-X-M32-PTFE/VAb-250C-Y25/X05/Y24-0	152
192900	Female connector No. 36 straight	156	563 100	KSA-70-BB-S-50x50x25-PA-Z02/Y26-1	150
193000	Female connector No. 38 angled	156	563 700	KSA-80-BB-Ö-50x50x25-PA-Z02/Y26-1	150
193210	Female connector No. 45 straight	156	700 150	KAS-70-A12-A-M12-PTFE/VAb-Z02-1-HP	24
193220	Female connector No. 46 angled	156	700 724	KAS-70-A12-A-M12-PTFE/VAb-Y5-1-HP	25
193230	Female connector No. 47 angled	156	700 735	KAS-70-A22-A-M12-PTFE/VAb-Z02-1-HP	27
193300	Plug-in connector with 2 m cable KS-250-M	147	701 000	KAS-70-A13-A-M18-PPO-Z02-1-HP	32
193301	Plug-in connector with 5 m cable KS-250-M	147	705 600	KAS-70-A14-A-M30-PPO-Z02-1-HP	51
193345	Female connector No. 49a M12 angled	156	708 200	KAS-70-A24-A-M30-PPO/MS-Y5-1-HP	53
193350	Female connector No. 50 angled	156	712 900	KAS-70-23-A-M22-PTFE-Z02-1-HP	44
193385	Female connector No. 57a M12 angled	156	712 910	KAS-70-23-A-M22-PTFE-100C-Z02-1-HP	142
193386	Female connector No. 58a M 12 angled	156	713 600	KAS-70-23-S-M22-PPO-Z02-1-HP	43
196301	Sealing set M32/PTFE	158	714 200	KAS-70-30-A-D30-PTFE/MS-Z02-1-HP	45
196302	Sealing set M30/PTFE	158	715 800	KAS-70-30-A-M32-PTFE/MS-Z02-1-HP	56
196305	Sealing set M18/PTFE	158	715 831	KAS-70-30-A-M32-PTFE-100C-Z02-1-HP	143
196310	H-M30-1"-PP 161	159	716 000	KAS-70-30-A-M32-PTFE/MS-Y5-1-HP	57
196311	H-M30-3/4"-PP 161	159	716 200	KAS-70-30-S-M32-PTFE/MS-Z02-1-HP	56
196312	H-M30-1/2"-PP 161	159	718 555	KAS-70-35-A-M32-PTFE/VAb-Y5-1-HP	64
196313	H-M18-1/2"-PP 161	159	718 600	KAS-70-35-S-M32-PTFE/VAb-Z02-1-HP	63
196314	H-M18-6.5-PP 161	159	719 255	KAS-70-35-A-M32-PTFE-100C-Z02-1-HP	144
196315	H-M18-5.0-PP 161	159	720 200	KAS-70-35-A-M32-PPO-Z02-1-HP	66
196316	H-M30-1"-PTFE 161	159	720 400	KAS-70-35-A-M32-PPO-Y5-1-HP	67
196317	H-M30-3/4"-PTFE 161	159	720 600	KAS-70-35-S-M32-PPO-Z02-1-HP	66
196318	H-M30-1/2"-PTFE 161	159	770 600	KAS-2000-30-P-M32-PTFE/MS-Z02-1	58
196319	H-M18-1/2"-PTFE 161	159	770 603	KAS-2000-30-P-M32-PTFE/MS-Y3-1	59
196320	H-M18-6.5-PTFE 161	159	770 800	KAS-2000-35-P-M32-PPO-Z02-1	68
196321	H-M18-5.0-PTFE 161	159	771 000	KAS-2000-35-P-M32-PTFE/VAb-Z02-1	65
196325	H-M32-3/4"-PP 161	159	771 100	KAS-2000-35-P-M32-PTFE/VAb-160C-Z02-1	145
400 100	KAS-40-A11-N	104	800 130	KAS-80-A21-S-M8-PTFE/VAb-Y7-1-HP	22
400 200	KAS-40-A12-N	108	800 150	KAS-80-A12-A-M12-PTFE/VAb-Z02-1-HP	24
400 250	KAS-40-A22-N	110	800 200	KAS-80-A12-S-M12-PTFE/VAb-Z02-1-HP	24
400 300	KAS-40-A13-N	114	800 724	KAS-80-A12-A-M12-PTFE/VAb-Y5-1-HP	25
400 350	KAS-40-A23-N	116	800 735	KAS-80-A12-A-M12-PTFE/VAb-Z02-1-HP	27
400 400	KAS-40-A14-N	121	800 736	KAS-80-A12-A-M12-PTFE/VAb-Y5-1-HP	28
400 450	KAS-40-A24-N	123	800 745	KAS-80-A22-A-M12-PTFE-Z02-1-HP	29
400 480	KAS-42-6.5/20-N-D6.5-PTFE/VAb-Z02-0	134	800 750	KAS-80-A22-S-M12-PTFE/VAb-Z02-1-HP	27
400 490	KAS-42-M8/25-N-PTFE/VAb-Z02-0	136	800 800	KAS-80-A13-A-M18-PTFE/MS-Z02-1-HP	30
400 705	KAS-40-14-N-M12	112	801 000	KAS-80-A13-A-M18-PPO-Z02-1-HP	32
400 900	KAS-40-14-N-M12-PTFE	113	801 020	KAS-80-A13-A-M18-PTFE-Z02-1-HP	34
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803 561	KAS-80-A23-A-M18-PTFE-Z02-1-HP	38	KA 0084	KAS-80-A24-A-StEx	84
804 091	KAS-80-A23-A-M18-PTFE/MS-Y5-1-HP	36	KA 0085	KAS-70-A24-A-StEx	84
805 200	KAS-80-A14-A-M30-PTFE/MS-Z02-1-HP	49	KA 0086	KAS-80-35-A-M32-StEx	86
805 400	KAS-80-A14-A-M30-PTFE/MS-Y5-1-HP	50	KA 0087	KAS-80-35-S-M32-StEx	86
805 600	KAS-80-A14-A-M30-PPO-Z02-1-HP	51	KA 0089	KAS-70-35-A-M32-StEx	86
806 000	KAS-80-A14-S-M30-PTFE/MS-Z02-1-HP	49	KA 0090	KAS-70-35-S-M32-StEx	86
808 000	KAS-80-A24-A-M30-PTFE/MS-Z02-1-HP	52	KA 0092	KAS-80-34-A-G1"-StEx	91
808 200	KAS-80-A24-A-M30-PTFE/MS-Y5-1-HP	53	KA 0093	KAS-80-35-A-K-M32-PTFE-StEx	89
808 400	KAS-80-A24-A-M30-PPO-Z02-1-HP	54	KA 0094	KAS-40-34-N-M32-StEx	80
808 600	KAS-80-A24-A-M30-PPO-Y5-1-HP	55	KA 0095	KAS-40-A24-N-StEx	78
811 600	KAS-80-20-A-D22-PTFE/MS-Z02-1-HP	40	KA 0142	KAS-80-A12-A-M12-PTFE-Z02-1-HP	26
811 800	KAS-80-20-S-D22-PTFE/MS-Z02-1-HP	40	KA 0264	KAS-80-26-A-K-G1"-PTFE-StEx	95
812 800	KAS-80-23-A-D20-PA-Z02-1-HP	39	KA 0272	KAS-80-20-A-M22-PTFE/MS-Z02-1-HP	42
812 900	KAS-80-23-A-M22-PTFE-Z02-1-HP	44	KA 0308	KAS-42-18/5-N-D18-PTFE/VAb-Z02-0	138
812 910	KAS-80-23-A-M22-PTFE-100C-Z02-1-HP	142	KA 0313	KAS-42-10/20-N-D10-PTFE/VAb-Z02-0	137
813 400	KAS-80-23-A-M22-PPO-Z02-1-HP	43	KA 0356	KAS-80-34-A-M32-StEx	87
813 600	KAS-80-23-S-M22-PPO-Z02-1-HP	43	KA 0377	KAS-80-35/100-A-Tri-PTFE/VA-StEx	93
814 200	KAS-80-30-A-D30-PTFE/MS-Z02-1-HP	45	KA 0527	KAS-80-A23-A-Y5-3G-3D	99
814 400	KAS-80-30-A-D30-PTFE/MS-Y5-1-HP	46	KA 0557	KAS-40-A14-N-Y5	122
815 800	KAS-80-30-A-M32-PTFE/MS-Z02-1-HP	56	KA 0558	KAS-40-A24-N-Y5	124
815 830	KAS-80-30-A-M32-PTFE-Z02-1-HP	61	KA 0559	KAS-40-A13-N-Y5	115
815 831	KAS-80-30-A-M32-PTFE-100C-Z02-1-HP	143	KA 0560	KAS-40-A23-N-Y5	117
816 000	KAS-80-30-A-M32-PTFE/MS-Y5-1-HP	57	KA 0561	KAS-40-A12-N-Y5	109
816 200	KAS-80-30-S-M32-PTFE/MS-Z02-1-HP	56	KA 0562	KAS-40-A22-N-Y5	111
818 540	KAS-80-35-A-M32-PTFE/VAb-Z02-1-HP	63	KA 0610	KAS-80-35-A-M32-Y5-3G-3D	101
818 555	KAS-80-35-A-M32-PTFE/VAb-Y5-1-HP	64	KA 0655	KAS-80-26-A-K-G1"-PTFE-Y5-StEx	96
818 600	KAS-80-35-S-M32-PTFE/VAb-Z02-1-HP	63	KA 0736	KAS-80-A11-S-M8-PTFE/VAb-Y7-1-HP	21
819 200	KAS-80-35-A-PPO-Y5-1-HP	48	KA 0740	KAS-40-26-N-PTFE-1"	130
819 255	KAS-80-35-A-M32-PTFE-100C-Z02-1-HP	144	KA 0799	KAS-80-A13-A-K-PTFE-Y3-3G-3D	98
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820 200	KAS-80-35-A-M32-PPO-Z02-1-HP	66	KA 0824	KAS-70-26-A-K-G1"-PTFE-StEx	95
820 300	KAS-80-35-A-M32-PTFE-Z02-1-HP	70	KA 0849	KAS-80-34-A-M32-PTFE/V2A-Y5-3G-3D	100
820 400	KAS-80-35-A-M32-PPO-Y5-1-HP	67	KA 0863	KAS-70-A24-A-Y10-StEx	85
820 600	KAS-80-35-S-M32-PPO-Z02-1-HP	66	KA 0864	KAS-80-A24-A-Y10-StEx	85
824 500	KAS-80-37-A-D34-PPO-Z02-1-HP	71	KA 0867	KAS-80-35-A-K-M32-PTFE-Y5-StEx	90
825 300	KAS-80-38-A-D34-PPO-Z02-1-HP	72	KA 0868	KAS-80-34-A-G1"-Y10-StEx	92
825 510	KAS-80-50-A-D50-PPO-Y5-1-HP	74	KA 0869	KAS-80-35/100-A-Tri-PTFE/VA-Y10-StEx	94
828 100	KAS-80-61-A-D64-PPO-Z02-1-HP	75	KA 0870	KAS-40-A24-N-Y10-StEx	79
900 100	KAS-90-A13-S-M18-PPO-Z02-1	33	KA 0871	KAS-40-34-N-M32-Y10-StEx	81
900 300	KAS-90-A23-S-M18-PPO-Z02-1	37	KA 0933	KAS-40-26-N-K-G1"-PTFE-StEx	82
900 400	KAS-90-A23-Ö-M18-PPO-Z02-1	37	KA 1230	KAS-40-26-N-PTFE-1"-100°C	131
901 200	KAS-90-20-Ö-D20-PPO-Z02-1	41	KA 1231	KAS-40-26-N-K-G1"-200-PTFE-Y5-StEx	83
901 800	KAS-90-30-S-M32-PPO-Z02-1	60	KA1230	KAS-40-26-N-PTFE-1"-100°C	131
901 900	KAS-90-30-Ö-M32-PPO-Z02-1	60	KA1231	KAS-40-26-N-K-G1"-200-PTFE-Y5-StEx	83
902 400	KAS-90-35-S-M32-PPO-Z02-1	69			
902 500	KAS-90-35-Ö-M32-PPO-Z02-1	69			
903 200	KAS-90-35-S-M32-PTFE/MS-Z02-1	62			
903 300	KAS-90-35-Ö-M32-PTFE/MS-Z02-1	62			
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192150	Female connector No. 21 M12 angled	156	KA 0560	KAS-40-A23-N-Y5	117
192200	Female connector No. 22 angled	156	403 600	KAS-40-A24-IL	125
192900	Female connector No. 36 straight	156	400 450	KAS-40-A24-N	123
193000	Female connector No. 38 angled	156	KA 0095	KAS-40-A24-N-StEx	78
193210	Female connector No. 45 straight	156	KA 0870	KAS-40-A24-N-Y10-StEx	79
193220	Female connector No. 46 angled	156	KA 0558	KAS-40-A24-N-Y5	124
193230	Female connector No. 47 angled	156	KA 0313	KAS-42-10/20-N-D10-PTFE/VAb-Z02-0	137
193345	Female connector No. 49a M12 angled	156	KA 0308	KAS-42-18/5-N-D18-PTFE/VAb-Z02-0	138
193350	Female connector No. 50 angled	156	400 480	KAS-42-6.5/20-N-D6.5-PTFE/VAb-Z02-0	134
193385	Female connector No. 57a M12 angled	156	405 150	KAS-42-M8/15-N-M8-PTFE/VAb-Z02-0	135
193386	Female connector No. 58a M 12 angled	156	400 490	KAS-42-M8/25-N-PTFE/VAb-Z02-0	136
191500	Female connector No. 9 M12 angled	156	712 910	KAS-70-23-A-M22-PTFE-100C-Z02-1-HP	142
191550	Female connector No. 9A M12 angled	156	712 900	KAS-70-23-A-M22-PTFE-Z02-1-HP	44
192000	Female connector No. 18 straight	156	713 600	KAS-70-23-S-M22-PPO-Z02-1-HP	43
196313	H-M18-1/2"-PP 161	159	KA 0824	KAS-70-26-A-K-G1"-PTFE-StEx	95
196319	H-M18-1/2"-PTFE 161	159	715 831	KAS-70-30-A-M32-PTFE-100C-Z02-1-HP	143
196315	H-M18-5.0-PP 161	159	716 000	KAS-70-30-A-M32-PTFE/MS-Y5-1-HP	57
196321	H-M18-5.0-PTFE 161	159	715 800	KAS-70-30-A-M32-PTFE/MS-Z02-1-HP	56
196314	H-M18-6.5-PP 161	159	714 200	KAS-70-30-A-PTFE/MS-Z02-1-HP	45
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