

CATALOGUE

***ATEX-Certified
Products***





Registration No.: 1327-01



Testing laboratory accredited according to
DIN EN 45001 Reg.-No. DAT-P-048/95-00

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With publication of this catalogue all former printed catalogues about RECHNER ATEX certified products are invalid.

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DESCRIPTION: INDUCTIVE SENSORS IAS

The series 10 contains inductive 3-wire proximity sensors with digital output **pnp** with NO or NC-function. Electronic circuits, PLC's, relays and our power supplies of series 130 can be directly activated. Analog sensors with 4...20 mA output are also available. The operating range of these analog sensors is adjustable by means of a potentiometer and they can be actuated by analog interfaces with internal resistance $R_i < 300 \text{ ohm}$. The sensors are reverse polarity protected, overload protected and have electronic short-circuit protection.

StEx-Sensors for use in Zone 20 with ATEX-certificate complete this series.


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

StEx-Sensors for use in Zone 20 with ATEX-certificate complete this series.

The series 30 contains inductive 2-wire proximity signal generators according to **NAMUR DIN 60947-5-6**. These sensors can be mounted in explosion hazardous areas when they are connected to approved isolating switching amplifiers with intrinsically safe control circuits. [EExia] or [EExib], our series N-131... Depending on which isolating switching amplifier is used the NAMUR-sensors of this series can be used up to zone 1. The data specified in the certificate of conformity of the isolating switching amplifier used must be taken into consideration.

StEx-Sensors for use in Zone 20 with ATEX-certificate complete this series.

ATEX/StEx SERIES 10/20

I T E M	Sensing distance [mm]		Diameter [mm] or with thread	Housing Material	Electrical Version DC 10...30 V  II 1 D IP 67 T 101°C II 2G EEx m II T4 DMT 01 ATEX E 157 NPN [20], PNP [10] Selection NO [S] and Antivalent [A] see data sheets	Connection	Pages
	Flush	Non-flush		brass stainless steel [VA]			
1	2	-	M12 x 1 - A12	[VA]	10, 20	Cable	6
2	5	-	M18 x 1 - A13	brass	10,20	Cable	7
3	10	-	M30 x 1,5 - A24	brass	10, 20	Cable	8

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Certificate: DMT 01 ATEX E 157



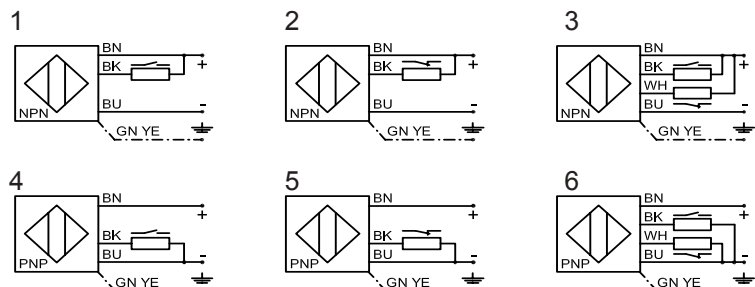
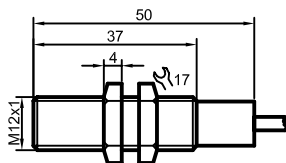
Inductive Sensors Series 20 - NPN-StEx-ATEX Series 10 - PNP-StEx-ATEX

Housing M12 x 1

- Ex II 1/2 D IP 67 T 101°C
- For use in zone 20
- Ex II 2G EEx m II T4
- Housing material: stainless steel VA
- Flush mountable
- Sensing distance S_n 2 mm

Technical data

Operating distance S_n [mm], flush mounting	2, yes
Electrical version	4-wire DC
Output	NO
Type NPN	IAS-20-A12-S-StEx
Art.-No.	IA 0138
Connection diagram No.	1
Type PNP	IAS-10-A12-S-StEx
Art.-No.	IA 0111
Connection diagram No.	4
Operating voltage (U_B)	10...30 V DC
Output current max. (I_o)	150 mA
Load current min.	-
Voltage drop max. (U_d)	≤ 2.5 V
Permitted residual ripple max.	10 %
No-load current (I_o)	typ. 15 mA
Frequency of operating cycles max.	2 kHz
Permitted ambient temperature	-20...+90°C
LED-display	yellow
Protective circuit	built-in
Degree of protection IEC 529	IP 67
Connection cable	2 m 4 x 0.14 mm ²
Housing material	VA No. 1.4305
Active surface	PTFE
Lid	PC



All specifications are subject to change without notice. (07/2004)



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

Housing M18 x 1

- Ex II 1/2 D IP 67 T 101°C
- For use in zone 20
- Ex II 2G EEx m II T4
- Housing material: brass
- Flush mountable
- Sensing distance S_n 5 mm

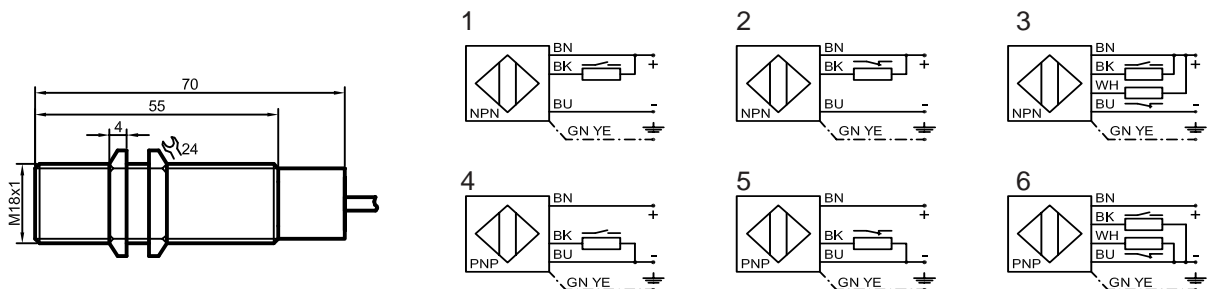
Certificate: DMT 01 ATEX E 157



Technical data

Operating distance S_n [mm], flush mounting	5, yes
Electrical version	5-wire DC
Output	Antivalent
Type NPN	IAS-20-A13-A-StEx
Art.-No.	IA 0136
Connection diagram No.	3
Type PNP	IAS-10-A13-A-StEx
Art.-No.	IA 0110
Connection diagram No.	6
Operating voltage (U_B)	10...30 V DC
Output current max. (I_o)	2 x 200 mA
Load current min.	-
Voltage drop max. (U_d)	≤ 2.5 V
Permitted residual ripple max.	10 %
No-load current (I_o)	typ. 15 mA
Frequency of operating cycles max.	2 kHz
Permitted ambient temperature	-20...+90°C
LED-display	green/yellow
Protective circuit	built-in
Degree of protection IEC 529	IP 67
Connection cable	2 m 5 x 0.14 mm ²
Housing material	brass
Active surface	PTFE
Lid	PC

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

Housing M30 x 1.5

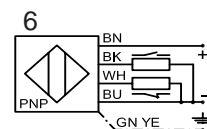
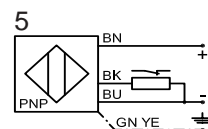
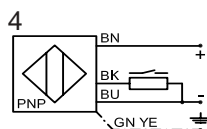
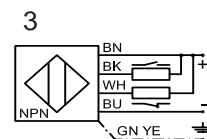
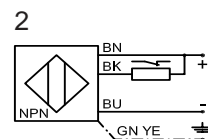
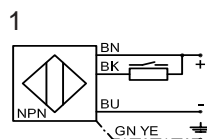
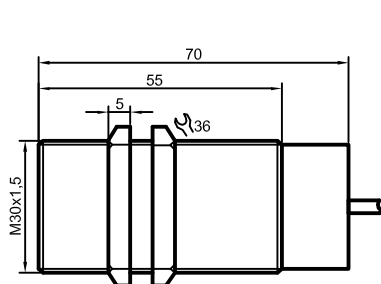
- Ex II 1/2 D IP 67 T 101°C
- For use in zone 20
- Ex II 2G EEx m II T4
- Housing material: brass
- Flush mountable
- Sensing distance S_n 10 mm

Certificate: DMT 01 ATEX E 157



Technical data

Operating distance S_n [mm], flush mounting	10, yes
Electrical version	5-wire DC
Output	Antivalent
Type NPN	IAS-20-A14-A-StEx
Art.-No.	IA 0137
Connection diagram No.	3
Type PNP	IAS-10-A14-A-StEx
Art.-No.	IA 0109
Connection diagram No.	6
Operating voltage (U_B)	10...30 V DC
Output current max. (I_o)	2 x 200 mA
Load current min.	-
Voltage drop max. (U_d)	≤ 2.5 V
Permitted residual ripple max.	10 %
No-load current (I_o)	typ. 15 mA
Frequency of operating cycles max.	1 kHz
Permitted ambient temperature	-20...+90°C
LED-display	green/yellow
Protective circuit	built-in
Degree of protection IEC 529	IP 67
Connection cable	2 m 5 x 0.34 mm ²
Housing material	brass
Active surface	PTFE
Lid	PC



All specifications are subject to change without notice. (05/2004)

ATEX AND ATEX/StEx SERIES 30 (NAMUR)

I T E M	Sensing distance [mm]		Diameter [mm] or with thread	Housing material	Electrical Version $U_i = 15 \text{ V DC NAMUR [30]}$ DMT 03 ATEX E 048	Connection	Pages
	flush	non-flush					
1	0.8	-	4	VA	30	Cable	10
2	0.8	-	M5 x 0.5	VA	30	Cable	11
3	1.5	-	6.5	VA	30	Cable	12
4	1.5	-	M8 x 1	VA	30	Cable	13
5	-	5	11	PA	30	Cable	14
6	2	4	M12 x 1 - A12/A22	Brass	30, 30-StEx	Cable	15-16
7	5	8	M18 x 1 - A13/A23	Brass	30, 30-StEx	Cable	17-18
8	10	15	M30 x 1.5 - A14/A24	Brass	30, 30-StEx	Cable	19-20
9	10	15	M32 x 1.5	Brass, PA	30, 30-StEx	Cable	21-22

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Certificate: DMT 03 ATEX E 048



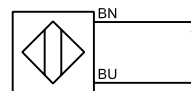
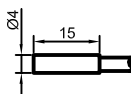
Inductive Sensors Series 30 - NAMUR

Housing Ø 4 mm

- Ex II 2 G EEx ia IIC T1-T6
- For use in areas where there is a risk of explosion
- Housing material: stainless steel VA
- Flush mountable
- Sensing distance $S_n = 0.8 \text{ mm}$

Technical data

Operating distance S_n [mm], flush mounting	0.8, yes
Electrical version	2-wire DC
Output	NAMUR DIN 60947-5-6
Type	IAS-30-04-N
Art.-No.	300 700
Connection diagram No.	see below
Operating voltage (U_b)	$U_1 = 15 \text{ V DC}$
Output current active surface free	> typ. 2 mA
Output current active surface covered	< typ. 1.5 mA
Self-inductance (L)	2mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	500 Hz
Permitted ambient temperature	-25...+70°C
LED-display	-
Degree of protection IEC 529	IP 67
Connection cable	2 m 2 x 0.14 mm ²
Housing material	VA No. 1.4305
Active surface	-
Lid	-



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Inductive Sensors Series 30 - NAMUR

Housing M5 x 0.5

- Ex II 2 G EEx ia IIC T1-T6
- For use in areas where there is a risk of explosion
- Housing material: stainless steel VA
- Flush mountable
- Sensing distance $S_n = 0.8 \text{ mm}$

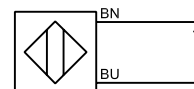
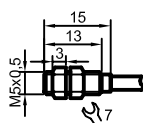
Certificate: DMT 03 ATEX E 048



Technical data

Operating distance S_n [mm], flush mounting	0.8 , yes
Electrical version	2-wire DC
Output	NAMUR DIN 60947-5-6
Type	IAS-30-M5-N
Art.-No.	300 800
Connection diagram No.	see below
Operating voltage (U_B)	$U_i = 15 \text{ V DC}$
Output current active surface free	> typ. 2 mA
Output current active surface covered	< typ. 1.5 mA
Self-inductance (L)	2mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	500 Hz
Permitted ambient temperature	-25...+70°C
LED-display	-
Degree of protection IEC 529	IP 67
Connection cable	2 m 2 x 0.14 mm ²
Housing material	VA No. 1.4305
Active surface	PA
Lid	-

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Inductive Sensors Serie 30 - NAMUR

Housing Ø 6.5 mm

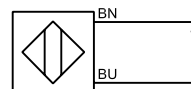
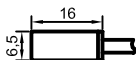
- Ex II 2 G EEx ia IIC T1-T6
- For use in areas where there is a risk of explosion
- Housing material: stainless steel VA
- Flush mountable
- Sensing distance $S_n = 1.5$ mm

Certificate: DMT 03 ATEX E 048



Technical data

Operating distance S_n [mm], flush mounting	1.5 , yes
Electrical version	2-wire DC
Output	NAMUR DIN 60947-5-6
Type	IAS-30-6.5-N
Art.-No.	300 900
Connection diagram No.	see below
Operating voltage (U_b)	$U_1 = 15$ V DC
Output current active surface free	> typ. 2 mA
Output current active surface covered	< typ. 1.5 mA
Self-inductance (L)	2mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	500 Hz
Permitted ambient temperature	-25...+70°C
LED-display	-
Degree of protection IEC 529	IP 67
Connection cable	2 m 2 x 0.14 mm ²
Housing material	VA No. 1.4305
Active surface	PVC
Lid	PC



All specifications are subject to change without notice. (08/2004)



Inductive Sensors Series 30 - NAMUR

Housing M8 x 1

- Ex II 2 G EEx ia IIC T1-T6
- For use in areas where there is a risk of explosion
- Housing material: stainless steel VA
- Flush mountable
- Sensing distance $S_n = 1.5 \text{ mm}$

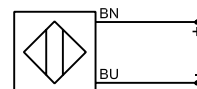
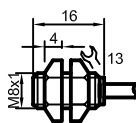
Certificate: : DMT 03 ATEX E 048



Technical data

Operating distance S_n [mm], flush mounting	1.5, yes
Electrical version	2-wire DC
Output	NAMUR DIN 60947-5-6
Type	IAS-30-M8-N
Art.-No.	301 000
Connection diagram No.	see below
Operating voltage (U_B)	$U_i = 15 \text{ V DC}$
Output current active surface free	> typ. 2 mA
Output current active surface covered	< typ. 1.5 mA
Self-inductance (L)	2mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	500 Hz
Permitted ambient temperature	-25...+70°C
LED-display	-
Degree of protection IEC 529	IP 67
Connection cable	2 m 2 x 0.14 mm ²
Housing material	VA No. 1.4305
Active surface	PVC
Lid	PC

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Inductive Sensors Series 30 - NAMUR

Housing Ø 11 mm

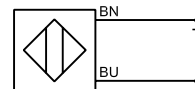
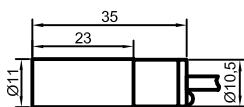
- Ex II 2 G EEx ia IIC T1-T6
- For use in areas where there is a risk of explosion
- Housing material: PA
- Non-flush mountable
- Sensing distance $S_n = 5 \text{ mm}$

Certificate: DMT 03 ATEX E 048



Technical data

Operating distance S_n [mm], flush mounting	5, no
Electrical version	2-wire DC
Output	NAMUR DIN 60947-5-6
Type	IAS-30-14-N
Art.-No.	301 500
Connection diagram No.	see below
Operating voltage (U_b)	$U_1 = 15 \text{ V DC}$
Output current active surface free	> typ. 2 mA
Output current active surface covered	< typ. 1.5 mA
Self-inductance (L)	2mH
Self-capacitance (C)	250 nF
Permitted residual ripple max.	5 %
Frequency of operating cycles max.	1 kHz
Permitted ambient temperature	-25...+70°C
LED-display	yellow
Degree of protection IEC 529	IP 67
Connection cable	2 m 2 x 0.14 mm ²
Housing material	PA
Active surface	PA
Lid	PA



All specifications are subject to change without notice. (07/2004)



Inductive Sensors Series 30 - NAMUR

Housing M12 x 1

- $\text{Ex II 2 G EEx ia IIC T1-T6}$
- $\text{Ex II 1 D IP 67 T 101}^\circ\text{C}$
- For use in areas where there is a risk of explosion
- Flush mountable
- Sensing distance $S_n = 2 \text{ mm}$

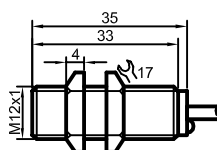
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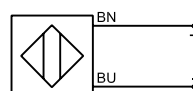
Technical data

Operating distance S_n [mm], flush mounting	2, yes	
Electrical version	2-wire DC	3-wire DC
Output	NAMUR DIN 60947-5-6	
Type	IAS-30-A12-N	IAS-30-A12-N-StEx
Application/Marking	Ex II 2 G EEx ia IIC T1-T6	
		Ex II 1 D IP 67 T 101°C
Art.-No.	300 100	IA 0091
Connection diagram No.	1	2
Operating voltage (U_g)	$U_i = 15 \text{ V DC}$	
Output current active surface free	> typ. 2 mA	
Output current active surface covered	< typ. 1.5 mA	
Self-inductance (L)	2mH	
Self-capacitance (C)	250 nF	
Permitted residual ripple max.	5 %	
Frequency of operating cycles max.	1.5 kHz	
Permitted ambient temperature	-25...+70°C	-20...+90°C
LED-display	yellow	
Degree of protection IEC 529	IP 67	
Connection cable	2 m 2 x 0.14 mm ²	2 m 3 x 0.14 mm ²
Housing material	brass	
Active surface	PA	PTFE
Lid	PA	PC

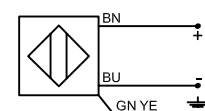
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No. 1



No. 2





Certificate: DMT 03 ATEX E 048



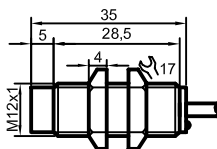
Inductive Sensors Series 30 - NAMUR

Housing M12 x1

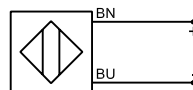
- $\text{Ex II 2 G EEx ia IIC T1-T6}$
- $\text{Ex II 1 D IP 67 T 101}^\circ\text{C}$
- For use in areas where there is a risk of explosion
- Housing material: brass
- Non-flush mountable
- Sensing distance $S_n = 4 \text{ mm}$

Technical data

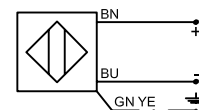
Operating distance S_n [mm], flush mounting	4, no	
Electrical version	2-wire DC	3-wire DC
Output	NAMUR DIN 60947-5-6	
Type	IAS-30-A22-N	IAS-30-A22-N-StEx
Application/Marking	Ex II 2 G EEx ia IIC T1-T6	
		Ex II 1 D IP 67 T 101°C
Art.-No.	300 200	IA 0090
Connection diagram No.	1	2
Operating voltage (U_B)	$U_i = 15 \text{ V DC}$	
Output current active surface free	> typ. 2 mA	
Output current active surface covered	< typ. 1.5 mA	
Self-inductance (L)	2mH	
Self-capacitance (C)	250 nF	
Permitted residual ripple max.	5 %	
Frequency of operating cycles max.	1.5 kHz	
Permitted ambient temperature	-25...+70°C	-20...+90°C
LED-display	yellow	
Degree of protection IEC 529	IP 67	
Connection cable	2 m 2 x 0.14 mm ²	2 m 3 x 0.14 mm ²
Housing material	brass	
Active surface	PA	PTFE
Lid	PA	PC



No. 1



No. 2



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Inductive Sensors Series 30 - NAMUR

Housing M18 x 1

- $\text{Ex II 2 G EEx ia IIC T1-T6}$
- $\text{Ex II 1 D IP 67 T 101}^\circ\text{C}$
- For use in areas where there is a risk of explosion
- Housing material: brass
- Flush mountable
- Sensing distance $S_n = 5 \text{ mm}$

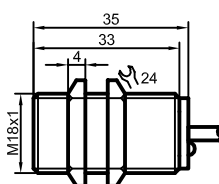
Certificate: DMT 03 ATEX E 048



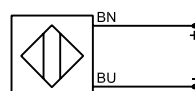
Technical data

Operating distance S_n [mm], flush mounting	5, yes	
Electrical version	2-wire DC	3-wire DC
Output	NAMUR DIN 60947-5-6	
Type	IAS-30-A13-N	IAS-30-A13-N-StEx
Application/Marking	Ex II 2 G EEx ia IIC T1-T6	
		Ex II 1 D IP 67 T 101°C
Art.-No.	300 300	IA 0092
Connection diagram No.	1	2
Operating voltage (U_g)	$U_i = 15 \text{ V DC}$	
Output current active surface free	> typ. 2 mA	
Output current active surface covered	< typ. 1.5 mA	
Self-inductance (L)	2mH	
Self-capacitance (C)	250 nF	
Permitted residual ripple max.	5 %	
Frequency of operating cycles max.	1.5 kHz	
Permitted ambient temperature	-25...+70°C	-20...+90°C
LED-display	yellow	
Degree of protection IEC 529	IP 67	
Connection cable	2 m 2 x 0.34 mm ²	2 m 3 x 0.34 mm ²
Housing material	brass	
Active surface	PA	PTFE
Lid	PA	PC

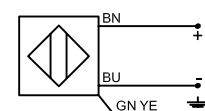
All specifications are subject to change without notice. (07/2004)



No. 1



No. 2





Certificate: DMT 03 ATEX E 048



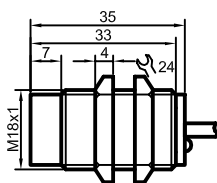
Inductive Sensors Series 30 - NAMUR

Housing M18 x 1

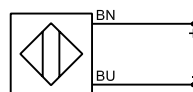
- $\text{Ex II 2 G EEx ia IIC T1-T6}$
- $\text{Ex II 1 D IP 67 T 101}^\circ\text{C}$
- For use in areas where there is a risk of explosion
- Housing material: brass
- Non-flush mountable
- Sensing distance $S_n = 8$ mm

Technical data

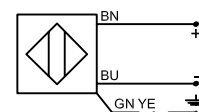
Operating distance S_n [mm], flush mounting	8, no	
Electrical version	2-wire DC	3-wire DC
Output	NAMUR DIN 60947-5-6	
Type	IAS-30-A23-N	IAS-30-A23-N-StEx
Application/Marking	Ex II 2 G EEx ia IIC T1-T6	
		Ex II 1 D IP 67 T 101°C
Art.-No.	300 400	IA 0094
Connection diagram No.	1	2
Operating voltage (U_b)	$U_i = 15$ V DC	
Output current active surface free	> typ. 2 mA	
Output current active surface covered	< typ. 1.5 mA	
Self-inductance (L)	2mH	
Self-capacitance (C)	250 nF	
Permitted residual ripple max.	5 %	
Frequency of operating cycles max.	1.5 kHz	
Permitted ambient temperature	-25...+70°C	-20...+90°C
LED-display	yellow	
Degree of protection IEC 529	IP 67	
Connection cable	2 m 2 x 0.34 mm ²	2 m 3 x 0.34 mm ²
Housing material	brass	
Active surface	PA	PTFE
Lid	PA	PC



No. 1



No. 2



All specifications are subject to change without notice. (07/2004)



Inductive Sensors Series 30 - NAMUR

Housing M30 x 1.5

- Ex II 2 G EEx ia IIC T1-T6
- Ex II 1 D IP 67 T 101°C
- For use in areas where there is a risk of explosion
- Housing material: brass
- Flush mountable
- Sensing distance $S_n = 10 \text{ mm}$

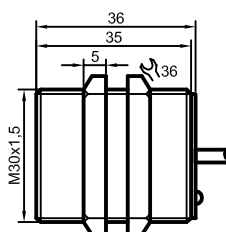
Certificate: DMT 03 ATEX E 048



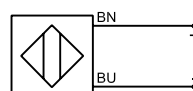
Technical data

Operating distance S_n [mm], flush mounting	10, yes	
Electrical version	2-wire DC	3-wire DC
Output	NAMUR DIN 60947-5-6	
Type	IAS-30-A14-N	IAS-30-A14-N-StEx
Application/Marking	Ex II 2 G EEx ia IIC T1-T6	
		Ex II 1 D IP 67 T 101°C
Art.-No.	300 500	IA 0095
Connection diagram No.	1	2
Operating voltage (U_B)	$U_i = 15 \text{ V DC}$	
Output current active surface free	> typ. 2 mA	
Output current active surface covered	< typ. 1.5 mA	
Self-inductance (L)	2mH	
Self-capacitance (C)	250 nF	
Permitted residual ripple max.	5 %	
Frequency of operating cycles max.	1 kHz	
Permitted ambient temperature	-25...+70°C	-20...+90°C
LED-display	yellow	
Degree of protection IEC 529	IP 67	
Connection cable	2 m 2 x 0.75 mm ²	2 m 3 x 0.75 mm ²
Housing material	brass	
Active surface	PVC	PTFE
Lid	PA	PC

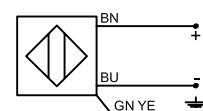
All specifications are subject to change without notice. (07/2004)



No. 1



No. 2





Inductive Sensors Series 30 - NAMUR

Housing M 30 x 1.5

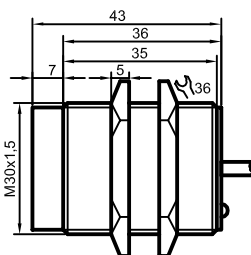
- $\text{Ex II 2 G EEx ia IIC T1-T6}$
- $\text{Ex II 1 D IP 67 T 101}^\circ\text{C}$
- For use in areas where there is a risk of explosion
- Housing material: brass
- Non-flush mountable
- Sensing distance $S_n = 15 \text{ mm}$

Certificate: DMT 03 ATEX E 048

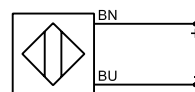


Technical data

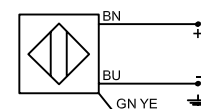
Operating distance S_n [mm], flush mounting	15, no	
Electrical version	2-wire DC	3-wire DC
Output	NAMUR DIN 60947-5-6	
Type	IAS-30-A24-N	IAS-30-A24-N-StEx
Application/Marking	Ex II 2 G EEx ia IIC T1-T6	
		Ex II 1 D IP 67 T 101°C
Art.-No.	300 600	IA 0096
Connection diagram No.	1	2
Operating voltage (U_b)	$U_i = 15 \text{ V DC}$	
Output current active surface free	> typ. 2 mA	
Output current active surface covered	< typ. 1.5 mA	
Self-inductance (L)	2mH	
Self-capacitance (C)	250 nF	
Permitted residual ripple max.	5 %	
Frequency of operating cycles max.	1 kHz	
Permitted ambient temperature	-25...+70°C	-20...+90°C
LED-display	yellow	
Degree of protection IEC 529	IP 67	
Connection cable	2 m 2 x 0.75 mm ²	2 m 3 x 0.75 mm ²
Housing material	brass	
Active surface	PVC	PTFE
Lid	PA	PC



No. 1



No. 2



All specifications are subject to change without notice. (07/2004)



Inductive Sensors Series 30 - NAMUR

Housing M32 x 1.5

- $\text{Ex II 2 G EEx ia IIC T1-T6}$
- $\text{Ex II 1 D IP 67 T 101}^\circ\text{C}$
- For use in areas where there is a risk of explosion
- Housing material: brass
- Flush mountable
- Sensing distance $S_n = 10 \text{ mm}$

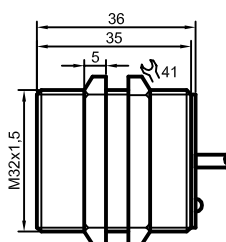
Certificate: DMT 03 ATEX E 048



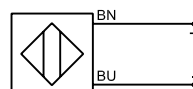
Technical data

Operating distance S_n [mm], flush mounting	10, yes	
Electrical version	2-wire DC	3-wire DC
Output	NAMUR DIN 60947-5-6	
Type	IAS-30-30-N-M32	IAS-30-30-N-M32-StEx
Application/Marking	Ex II 2 G EEx ia IIC T1-T6	
		Ex II 1 D IP 67 T 101°C
Art.-No.	302 400	IA 0097
Connection diagram No.	1	2
Operating voltage (U_B)	$U_i = 15 \text{ V DC}$	
Output current active surface free	> typ. 2 mA	
Output current active surface covered	< typ. 1.5 mA	
Self-inductance (L)	2mH	
Self-capacitance (C)	250 nF	
Permitted residual ripple max.	5 %	
Frequency of operating cycles max.	1 kHz	
Permitted ambient temperature	-25...+70°C	-20...+90°C
LED-display	yellow	
Degree of protection IEC 529	IP 67	
Connection cable	2 m 2 x 0.75 mm ²	2 m 3 x 0.75 mm ²
Housing material	brass	
Active surface	PVC	PTFE
Lid	PVC	PC

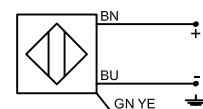
All specifications are subject to change without notice. (07/2004)



No. 1



No. 2





Inductive Sensors Serie 30 - NAMUR

Housing M 32 x 1.5

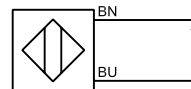
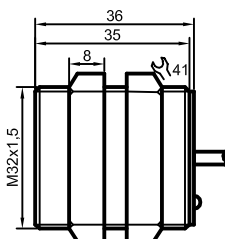
- Ex II 2 G EEx ia IIC T1-T6
- Ex II 1 D IP 67 T 101°C
- For use in areas where there is a risk of explosion
- Housing material: PA
- Non-flush mountable
- Sensing distance $S_n = 15 \text{ mm}$

Certificate: DMT 03 ATEX E 048



Technical data

Operating distance S_n [mm], flush mounting	15, no	
Electrical version	2-wire DC	
Output	NAMUR DIN 60947-5-6	
Type	IAS-30-35-N-M32	IAS-30-35-N-M32-StEx
Application/Marking	Ex II 2 G EEx ia IIC T1-T6	
		Ex II 1 D IP 67 T 101°C
Art.-No.	302 800	IA 0098
Connection diagram No.	see below	
Operating voltage (U_B)	$U_i = 15 \text{ V DC}$	
Output current active surface free	> typ. 2 mA	
Output current active surface covered	< typ. 1.5 mA	
Self-inductance (L)	2mH	
Self-capacitance (C)	250 nF	
Permitted residual ripple max.	5 %	
Frequency of operating cycles max.	1 kHz	
Permitted ambient temperature	-25...+70°C	-20...+90°C
LED-display	yellow	
Degree of protection IEC 529	IP 67	
Connection cable	2 m 2 x 0.75 mm ²	
Housing material	PA	
Active surface	PA	
Lid	PA	PC



All specifications are subject to change without notice. (07/2004)

All specifications are subject to change without notice. (05/2004)

DESCRIPTION: CAPACITIVE SENSORS KAS

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-131. Depending on the isolating switching amplifier selected the NAMUR-sensors of this series can be used up to zone 1 (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 1 if they are connected to a ATEX-certificated amplifier, such as our series N-131-...

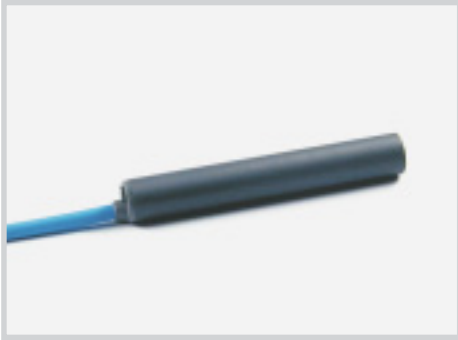
The **series 70** contains capacitive 3-wire or 4-wire proximity sensors with NPN digital output with NO, NC or antivalent function (NO and NC). Electronic circuits, PLC's, relays and our power supplies of series 130 can be activated directly. The sensors are reverse-polarity protected, overload-protected and have electronic short-circuit protection. StEx-versions 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.

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 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.

ATEX SERIES 40 (NAMUR)

ITEM	Sensing Distance mm		Diameter [mm] or with Thread	Housing Material	Electrical Version		Connection	Pages
	Flush	Non-flush			DC $U_i = 15 \text{ V DC}$			
1	-	≤ 6	11	PVC	40		Cable	26
2	≤ 5	≤ 6	M12 x 1 - (A12/A22)	VA, PVC, PTFE	40		Cable	27-30
3	$\leq 8/0...8$	$\leq 10/0...10$	M18 x 1 - (A13/A23)	Brass	40, 40-IL	analogue [40-IL]	Cable	31-34
4	≤ 8	-	22	PA	40		Cable	35
5	-	≤ 10	M22 x 1.5	PA, PTFE	40		Cable	36
6	≤ 15	≤ 20	30	PA	40		Cable	37-38
7	$\leq 15/0...20$	$\leq 20/0...25$	M30 x 1.5 (A14/A24)	Brass	40, 40-IL		Cable	39-42
8	≤ 15	≤ 20	M32 x 1.5	PA, VA, PTFE	40		Cable	43-46
9	-	≤ 20	1"	PTFE	40		Cable	47

All specifications are subject to change without notice. (06/2004)



Capacitive Sensors Series 40- NAMUR

Housing Ø 11 mm

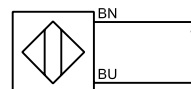
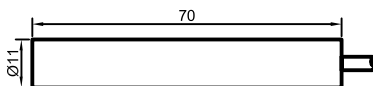
- Ex II 2 G EEx ia IIC T1-T6
- For use in areas where there is a risk of explosion
- Housing material: PVC
- Non-flush mountable
- Sensing distance 1...6 mm adjustable

Certificate: DMT 03 ATEX E 048



Technical data

Operating distance S_n [mm], flush mounting	4, no
Operating distance min./max. [mm] adjustable	1...6
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
Type	KAS-40-14-N
Art.-No.	400 600
Connection diagram No.	see below
Operating voltage (U_B)	$U_B = 15 \text{ V DC}$
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	-25...+70°C
LED-display	-
Degree of protection IEC 529	IP 67
Connection cable	2 m 2 x 0.14 mm ²
Housing material	PVC
Active surface	PVC
Lid	PA



All specifications are subject to change without notice. (05/2004)



Capacitive Sensors Series 40 - NAMUR

Housing M12 x 1

- II 2 G EEx ia IIC T1-T6
- For use in areas where there is a risk of explosion
- Housing material: stainless steel VA
- Flush mountable
- Sensing distance 1...5 mm adjustable

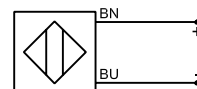
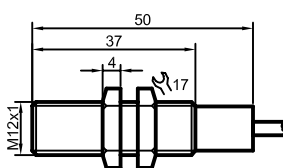
Certificate: **DMT 03 ATEX E 048**



Technical data

Operating distance S_n [mm], flush mounting	2, yes
Operating distance min./max. [mm] adjustable	1...5
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
Type	KAS-40-A12-N
Art.-No.	400 200
Connection diagram No.	see below
Operating voltage (U_B)	$U_i = 15$ 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	-25...+70°C
LED-display	-
Degree of protection IEC 529	IP 67
Connection cable	2 m 2 x 0.14 mm ²
Housing material	VA No. 1.4305
Active surface	PTFE
Lid	PA

All specifications are subject to change without notice. (05/2004)





Certificate: DMT 03 ATEX E 048



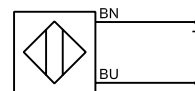
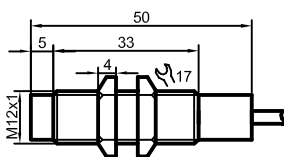
Capacitive Sensors Series 40 - NAMUR

Housing M12 x 1

- Ex II 2 G EEx ia IIC T1-T6
- For use in areas where there is a risk of explosion
- Housing material: stainless steel VA
- Non-flush mountable
- Sensing distance 1...6 mm adjustable

Technical data

Operating distance S_n [mm], flush mounting	4, no
Operating distance min./max. [mm] adjustable	1...6
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
Type	KAS-40-A22-N
Art.-No.	400 250
Connection diagram No.	see below
Operating voltage (U_b)	$U_1 = 15 \text{ V DC}$
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	-25...+70°C
LED-display	-
Degree of protection IEC 529	IP 67
Connection cable	2 m 2 x 0.14 mm ²
Housing material	VA No. 1.4305
Active surface	PTFE
Lid	PA



All specifications are subject to change without notice. (05/2004)



Capacitive Sensors Series 40 - NAMUR

Housing M12 x 1

- II 2 G EEx ia IIC T1-T6
- For use in areas where there is a risk of explosion
- Housing material: PVC
- Non-flush mountable
- Sensing distance 1...6 mm adjustable

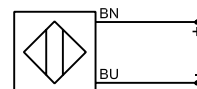
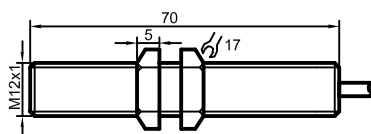
Certificate: DMT 03 ATEX E 048



Technical data

Operating distance S_n [mm], flush mounting	4, no
Operating distance min./max. [mm] adjustable	1...6
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
Type	KAS-40-14-N-M12, 5 m
Art.-No.	400 705
Connection diagram No.	see below
Operating voltage (U_g)	$U_i = 15$ 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	-25...+70°C
LED-display	-
Degree of protection IEC 529	IP 67
Connection cable	5 m 2 x 0.14 mm ²
Housing material	PVC
Active surface	PVC
Lid	PA

All specifications are subject to change without notice. (06/2004)





Certificate: DMT 03 ATEX E 048



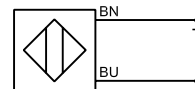
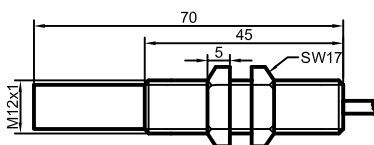
Capacitive Sensors Series 40 - NAMUR

Housing M12 x 1

- Ex II 2 G EEx ia IIC T1-T6
- For use in areas where there is a risk of explosion
- Housing material: PTFE
- Ideal for detection of chemically aggressive media
- Also suitable for food applications
- Non-flush mountable
- Sensing distance 1...6 mm adjustable

Technical data

Operating distance S_n [mm], flush mounting	4, no
Operating distance min./max. [mm] adjustable	1...6
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
Type	KAS-40-14-N-M12-PTFE
Art.-No.	400 900
Connection diagram No.	see below
Operating voltage (U_b)	$U_1 = 15 \text{ V DC}$
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	-25...+70°C
LED-display	-
Degree of protection IEC 529	IP 67
Connection cable	2 m 2 x 0.14 mm ²
Housing material	PTFE
Active surface	PTFE
Lid	PA



All specifications are subject to change without notice. (05/2004)



Capacitive Sensors Series 40 - NAMUR

Housing M18 x 1

- II 2 G EEx ia IIC T1-T6
- For use in areas where there is a risk of explosion
- Housing material: brass
- Flush mountable
- Sensing distance 1...8 mm adjustable

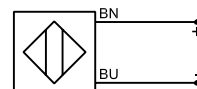
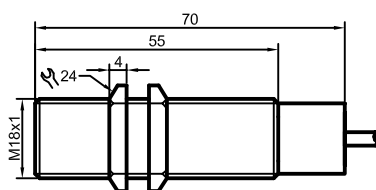
Certificate: DMT 03 ATEX E 048



Technical data

Operating distance S_n [mm], flush mounting	5, yes
Operating distance min./max. [mm] adjustable	1...8
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
Type	KAS-40-A13-N
Art.-No.	400 300
Connection diagram No.	see below
Operating voltage (U_B)	$U_i = 15$ 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	-25...+70°C
LED-display	-
Degree of protection IEC 529	IP 67
Connection cable	2 m 2 x 0.34 mm ²
Housing material	brass
Active surface	PTFE
Lid	PA

All specifications are subject to change without notice. (05/2004)





Certificate: DMT 03 ATEX E 048



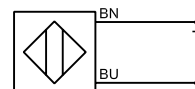
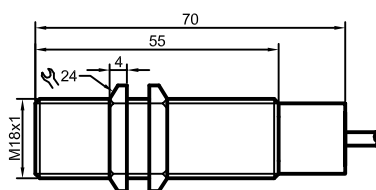
Capacitive Sensors Series 40 IL - Analogue Output

Housing M18 x 1

- Ex II 2 G EEx ia IIC T1-T6
- For use in areas where there is a risk of explosion
- Housing material: brass
- Flush mountable
- Operating range 0...8 mm

Technical data

Operating range [mm], flush mounting	0...8, yes
Linear range [mm]	0...4
Electrical version	2-wire DC
Output function	analogue
Type Analogue	KAS-40-A13-IL
Art.-No.	403 000
Connection diagram No.	see below
Operating voltage (U_B)	$U_i = 15 \text{ V DC}$
Output current active surface free	$\leq 4 \text{ mA}$
Output current active surface covered	$\geq 20 \text{ mA}$
Load resistor (R_L 0...500 Ohm)	dependent on U_B
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 529	IP 67
Connection cable	2 m 2 x 0.34 mm ²
Housing material	brass
Active surface	PTFE
Lid	PA



All specifications are subject to change without notice. (05/2004)



Capacitive Sensors Series 40 - NAMUR

Housing M18 x 1

- II 2 G EEx ia IIC T1-T6
- For use in areas where there is a risk of explosion
- Housing material: brass
- Non-flush mountable
- Sensing distance 2...10 mm adjustable

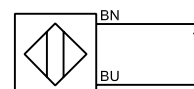
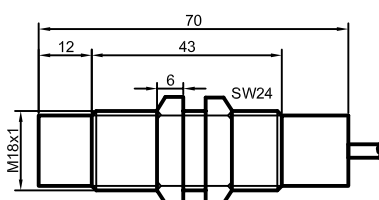
Certificate: DMT 03 ATEX E 048



Technical data

Operating distance S_n [mm], flush mounting	8, no
Operating distance min./max. [mm] adjustable	2...10
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
Type	KAS-40-A23-N
Art.-No.	400 350
Connection diagram No.	see below
Operating voltage (U_B)	$U_i = 15$ 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	-25...+70°C
LED-display	-
Degree of protection IEC 529	IP 67
Connection cable	2 m 2 x 0.34 mm ²
Housing material	brass
Active surface	PTFE
Lid	PA

All specifications are subject to change without notice. (05/2004)





Certificate: DMT 03 ATEX E 048



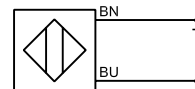
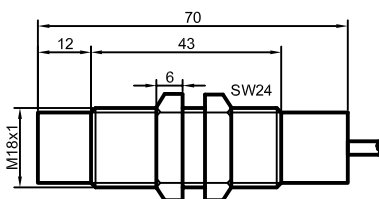
Capacitive Sensors Series 40 IL - Analogue Output

Housing M18 x 1

- Ex II 2 G EEx ia IIC T1-T6
- For use in areas where there is a risk of explosion
- Housing material: brass
- Non-flush mountable
- Sensing distance 0...10 mm adjustable

Technical data

Operating range [mm], flush mounting	0...10, no
Linear range [mm]	1...8
Electrical version	2-wire DC
Output function	analogue
Type Analogue	KAS-40-A23-IL
Art.-No.	403 200
Connection diagram No.	see below
Operating voltage (U_B)	$U_i = 15 \text{ V DC}$
Output current active surface free	$\leq 4 \text{ mA}$
Output current active surface covered	$\geq 20 \text{ mA}$
Load resistor (R_L 0...500 Ohm)	dependent on U_B
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 529	IP 67
Connection cable	2 m 2 x 0.34 mm ²
Housing material	brass
Active surface	PTFE
Lid	PA




All specifications are subject to change without notice. (08/2004)



Capacitive Sensors Series 40 - NAMUR

Housing Ø 22 mm

-  II 2 G EEx ia IIC T1-T6
- For use in areas where there is a risk of explosion
- Housing material: PA
- Flush mountable
- Sensing distance 2...8 mm adjustable

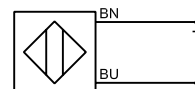
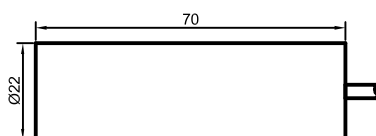
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Technical data

Operating distance Sn [mm], flush mounting	6, yes
Operating distance min./max. [mm] adjustable	2...8
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
Type	KAS-40-20-N
Art.-No.	401 000
Connection diagram No.	see below
Operating voltage (U _B)	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	-25...+70°C
LED-display	-
Degree of protection IEC 529	IP 67
Connection cable	2 m 2 x 0.34 mm ²
Housing material	PA
Active surface	PA
Lid	PA

All specifications are subject to change without notice. (05/2004)





Certificate: DMT 03 ATEX E 048



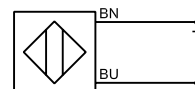
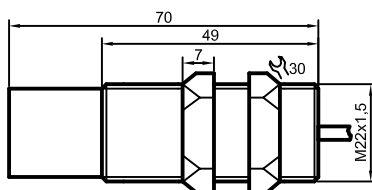
Capacitive Sensors Series 40 - NAMUR

Housing M22 x 1.5

- Ex II 2 G EEx ia IIC T1-T6
- For use in areas where there is a risk of explosion
- Housing material: PTFE
- Ideal for detection of chemically aggressive media
- Also suitable for food applications
- Non-flush mountable
- Sensing distance 3...10 mm adjustable

Technical data

Operating distance S_n [mm], flush mounting	8, no
Operating distance min./max. [mm] adjustable	3...10
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
Type	KAS-40-24-N-M22-PTFE
Art.-No.	401 500
Connection diagram No.	see below
Operating voltage (U_b)	$U_1 = 15 \text{ V DC}$
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	-25...+70°C
LED-display	-
Degree of protection IEC 529	IP 67
Connection cable	2 m, 2 x 0.34 mm ²
Housing material	PTFE
Active surface	PTFE
Lid	PA



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Capacitive Sensors Series 40 - NAMUR

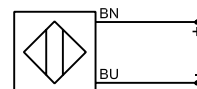
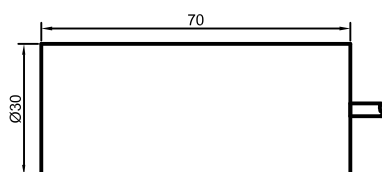
Housing Ø 30 mm

- II 2 G EEx ia IIC T1-T6
- For use in areas where there is a risk of explosion
- Housing material: PA
- Flush mountable
- Sensing distance 3...15 mm adjustable

Technical data

Operating distance S_n [mm], flush mounting	10, yes
Operating distance min./max. [mm] adjustable	3...15
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
Type	KAS-40-30-N
Art.-No.	401 600
Connection diagram No.	see below
Operating voltage (U_E)	$U_i = 15$ 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	-25...+70°C
LED-display	-
Degree of protection IEC 529	IP 67
Connection cable	2 m 2 x 0.75 mm ²
Housing material	PA
Active surface	PA
Lid	PA

All specifications are subject to change without notice. (05/2004)





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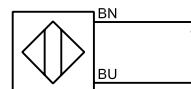
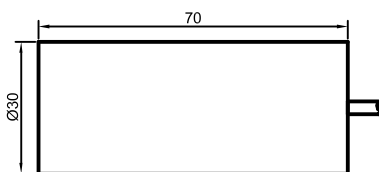
Capacitive Sensors Series 40 - NAMUR

Housing Ø 30 mm

- Ex II 2 G EEx ia IIC T1-T6
- For use in areas where there is a risk of explosion
- Housing material: PA
- Non-flush mountable
- Sensing distance 3...20 mm adjustable

Technical data

Operating distance S_n [mm], flush mounting	15, no
Operating distance min./max. [mm] adjustable	3...20
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
Type	KAS-40-35-N
Art.-No.	402 000
Connection diagram No.	see below
Operating voltage (U_b)	$U_1 = 15 \text{ V DC}$
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	-25...+70°C
LED-display	-
Degree of protection IEC 529	IP 67
Connection cable	2 m 2 x 0.75 mm ²
Housing material	PA
Active surface	PA
Lid	PA



All specifications are subject to change without notice. (05/2004)



Capacitive Sensors Series 40 - NAMUR

Housing M30 x 1.5

- II 2 G EEx ia IIC T1-T6
- For use in areas where there is a risk of explosion
- Housing material: brass
- Flush mountable
- Sensing distance 2...15 mm adjustable

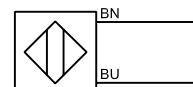
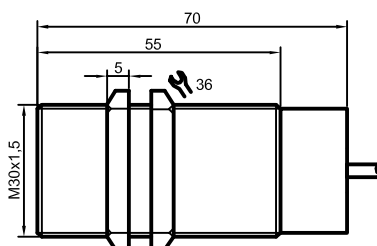
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Technical data

Operating distance S_n [mm], flush mounting	10, yes
Operating distance min./max. [mm] adjustable	2...15
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
Type	KAS-40-A14-N
Art.-No.	400 400
Connection diagram No.	see below
Operating voltage (U_B)	$U_i = 15$ 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	-25...+70°C
LED-display	-
Degree of protection IEC 529	IP 67
Connection cable	2 m 2 x 0.75 mm ²
Housing material	brass
Active surface	PTFE
Lid	PA

All specifications are subject to change without notice. (05/2004)





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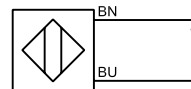
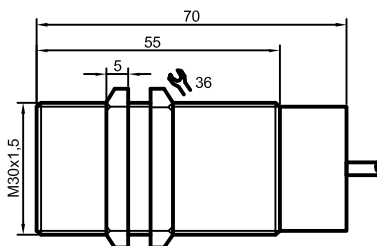
Capacitive Sensors Series 40 IL - Analogue Output

Housing M30 x 1.5

- Ex II 2 G EEx ia IIC T1-T6
- For use in areas where there is a risk of explosion
- Housing material: brass
- Flush mountable
- Operating range 0...20 mm

Technical data

Operating range [mm], flush mounting	0...20, yes
Linear range [mm]	0...12
Electrical version	2-wire DC
Output function	analogue
Type Analogue	KAS-40-A14-IL
Art.-No.	403 400
Connection diagram No.	see below
Operating voltage (U_B)	$U_1 = 15 \text{ V DC}$
Output current active surface free	$\leq 4 \text{ mA}$
Output current active surface covered	$\geq 20 \text{ mA}$
Load resistor (R_L 0...500 Ohm)	dependend on U_B
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 529	IP 67
Connection cable	2 m 2 x 0.75 mm ²
Housing material	brass
Active surface	PTFE
Lid	PA



All specifications are subject to change without notice. (05/2004)



Capacitive Sensors Series 40 - NAMUR

Housing M30 x 1.5

- II 2 G EEx ia IIC T1-T6
- For use in areas where there is a risk of explosion
- Housing material: brass
- Non-flush mountable
- Sensing distance 2...20 mm adjustable

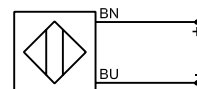
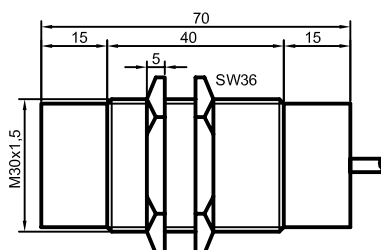
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Technical data

Operating distance S_n [mm], flush mounting	15, no
Operating distance min./max. [mm] adjustable	2...20
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
Type	KAS-40-A24-N
Art.-No.	400 450
Connection diagram No.	see below
Operating voltage (U_B)	$U_i = 15$ 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	-25...+70°C
LED-display	-
Degree of protection IEC 529	IP 67
Connection cable	2 m 2 x 0.75 mm ²
Housing material	brass
Active surface	PTFE
Lid	PA

All specifications are subject to change without notice. (05/2004)





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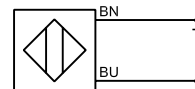
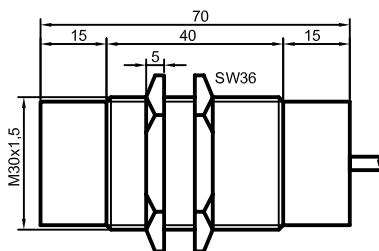
Capacitive Sensors Series 40 - IL - Analogue Output

Housing M30 x 1.5

- Ex II 2 G EEx ia IIC T1-T6
- For use in areas where there is a risk of explosion
- Housing material: brass
- Non-flush mountable
- Operating range 0...25 mm

Technical data

Operating range [mm], flush mounting	0...25, no
Linear range [mm]	2...20
Electrical version	2-wire DC
Output function	analogue
Type Analogue	KAS-40-A24-IL
Art.-No.	403 600
Connection diagram No.	see below
Operating voltage (U_B)	$U_i = 15 \text{ V DC}$
Output current active surface free	$\leq 4 \text{ mA}$
Output current active surface covered	$\geq 20 \text{ mA}$
Load resistor (R_L 0...500 Ohm)	dependent on U_B
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 529	IP 67
Connection cable	2 m 2 x 0.75 mm ²
Housing material	brass
Active surface	PTFE
Lid	PA



All specifications are subject to change without notice. (08/2004)



Capacitive Sensors Series 40 - NAMUR

Housing M32 x 1.5

- II 2 G EEx ia IIC T1-T6
- For use in areas where there is a risk of explosion
- Housing material: PA
- Flush mountable
- Sensing distance 3...15 mm adjustable

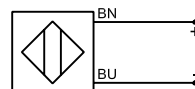
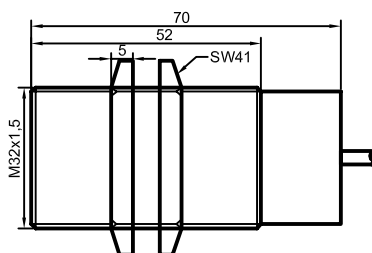
Certificate: DMT 03 ATEX E 048

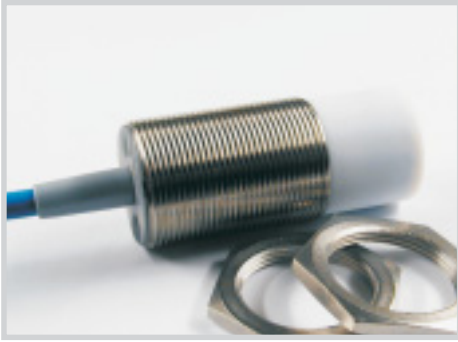


Technical data

Operating distance S_n [mm], flush mounting	12, yes
Operating distance min./max. [mm] adjustable	3...15
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
Type	KAS-40-30-N-M32
Art.-No.	401 700
Connection diagram No.	see below
Operating voltage (U_B)	$U_i = 15$ 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	-25...+70°C
LED-display	-
Degree of protection IEC 529	IP 67
Connection cable	2 m 2 x 0.75 mm ²
Housing material	PA
Active surface	PA
Lid	PA

All specifications are subject to change without notice. (05/2004)





Capacitive Sensors Series 40 - NAMUR

Housing M32 x 1.5

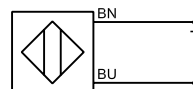
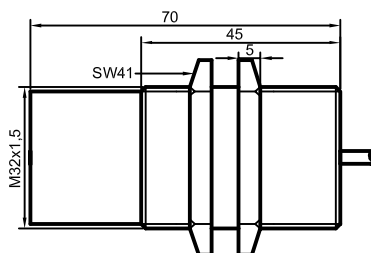
- Ex II 2 G EEx ia IIC T1-T6
- For use in areas where there is a risk of explosion
- Housing material: stainless steel VA
- Non-flush mountable
- Sensing distance 3...20 mm adjustable

Certificate: DMT 03 ATEX E 048



Technical data

Operating distance S_n [mm], flush mounting	18, no
Operating distance min./max. [mm] adjustable	3...20
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
Type	KAS-40-34-N-M32-PTFE/V2A
Art.-No.	402 400
Connection diagram No.	see below
Operating voltage (U_b)	$U_1 = 15 \text{ V DC}$
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	-25...+70°C
LED-display	-
Degree of protection IEC 529	IP 67
Connection cable	2 m 2 x 0.75 mm ²
Housing material	VA No. 1.4305
Active surface	PTFE
Lid	PA



All specifications are subject to change without notice. (05/2004)



Capacitive Sensors Series 40 - NAMUR

Housing M32 x 1.5

- II 2 G EEx ia IIC T1-T6
- For use in areas where there is a risk of explosion
- Housing material: PA
- Non-flush mountable
- Sensing distance 3...20 mm adjustable

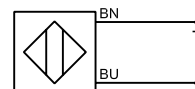
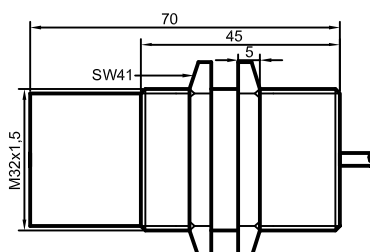
Certificate: DMT 03 ATEX E 048



Technical data

Operating distance S_n [mm], flush mounting	18, no
Operating distance min./max. [mm] adjustable	3...20
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
Type	KAS-40-35-N-M32
Art.-No.	402 100
Connection diagram No.	see below
Operating voltage (U_B)	$U_i = 15$ 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	-25...+70°C
LED-display	-
Degree of protection IEC 529	IP 67
Connection cable	2 m 2 x 0.75 mm ²
Housing material	PA
Active surface	PA
Lid	PA

All specifications are subject to change without notice. (05/2004)





Capacitive Sensors Series 40 - NAMUR

Housing M32 x 1.5

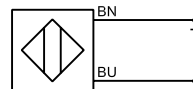
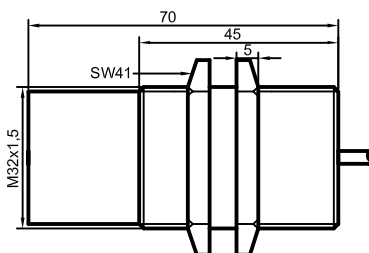
- Ex II 2 G EEx ia IIC T1-T6
- For use in areas where there is a risk of explosion
- Housing material: PTFE
- Ideal for detection of chemically aggressive media
- Also suitable for food applications
- Non-flush mountable
- Sensing distance 3...20 mm adjustable
- Option: Total chemical resistance is given when ordering the sensor with PTFE cable and PTFE- protection set Art.-Nr. 196301

Certificate: DMT 03 ATEX E 048



Technical data

Operating distance S_n [mm], flush mounting	18, no
Operating distance min./max. [mm] adjustable	3...20
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
Type	KAS-40-35-N-M32-PTFE
Art.-No.	402 300
Connection diagram No.	see below
Operating voltage (U_b)	$U_i = 15 \text{ V DC}$
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	-25...+70°C
LED-display	-
Degree of protection IEC 529	IP 67
Connection cable	2 m 2 x 0.75 mm ²
Housing material	PTFE
Active surface	PTFE
Lid	PA



All specifications are subject to change without notice. (05/2004)



Capacitive Sensors Series 40 - NAMUR

Housing 1“

- II 2 G EEx ia IIC T1-T6
- For use in areas where there is a risk of explosion
- Housing material: PTFE
- Ideal for detection of chemically aggressive media
- Also suitable for food applications
- Non-flush mountable
- Sensing distance 3...20 mm adjustable

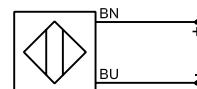
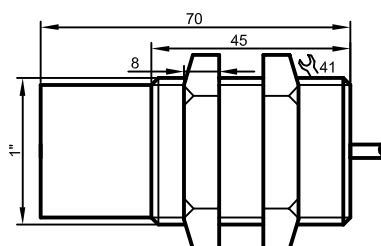
Certificate: DMT 03 ATEX E 048



Technical data

Operating distance S_n [mm], flush mounting	18, no
Operating distance min./max. [mm] adjustable	3...20
Electrical version	2-wire DC
Output function	NAMUR DIN 60947-5-6
Type	KAS-40-35-N-1"-PTFE
Art.-No.	402 250
Connection diagram No.	see below
Operating voltage (U_B)	$U_i = 15$ 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	-25...+70°C
LED-display	-
Degree of protection IEC 529	IP 67
Connection cable	2 m 2 x 0.75 mm ²
Housing material	PTFE
Active surface	PTFE
Lid	PA

All specifications are subject to change without notice. (05/2004)



ATEX/StEx SERIES 40 (NAMUR) • 70/80

I T E M	Sensing distance [mm]		Diameter [mm] or with thread	Housing Material	Electrical Version		Connection	Pages
	Flush	Non-flush			DC	DC		
			10...35 V	$U_i = 15 V$	NPN [70] PNP [80] Selection Normally Open (NO) and Antivalent (A only with 70, 80) see data sheets	NAMUR [40]		
1	-	≤ 20	M30 x 1.5 - A24	VA	40	Cable	50	
2	-	≤ 20	M32 x 1.5	VA	40	Cable	51	
3	-	≤ 25	M30 x 1.5 - A24	VA	70, 80	Cable	52	
4	-	≤ 30	M32 x 1.5	VA, PTFE	70, 80	Cable	53-54	
5	-	≤ 30	1"	VA	80	Cable	55	

All specifications are subject to change without notice. (06/2004)



Capacitive Sensors Series 40 NAMUR- StEx- ATEX

Housing M30 x 1.5

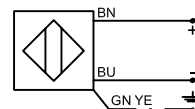
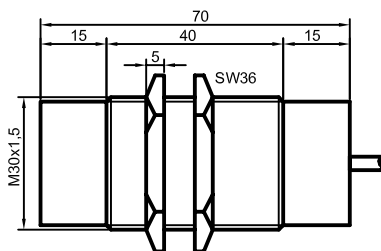
- Ex II 1 D IP 67 T 101 °C
- For use in zone 20
- Ex II 2 G EEx ia IIC T1 - T6
- For use in areas where there is a risk of explosion
- Housing material: stainless steel VA
- Non-flush mountable
- Sensing distance 2...20 mm adjustable

Certificate: **DMT 01 ATEX E 157**
DMT 03 ATEX E 048



Technical data

Operating distance S_n [mm], flush mounting	15, no
Operating distance min./max. [mm] adjustable	2...20
Electrical version	3-wire DC
Output function	NAMUR DIN 60947-5-6
Type	KAS-40-A24-N-StEx-N
Art.-No.	KA 0095
Connection diagram No.	see below
Operating voltage (U_b)	$U_1 = 15 \text{ V DC}$
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	-25...+70°C
LED-display	-
Degree of protection IEC 529	IP 67
Connection cable	3 m 3 x 0.75 mm ²
Housing material	VA No. 1.4305
Active surface	PTFE
Lid	PC





**Capacitive Sensors
Series 40 NAMUR- StEx- ATEX**

Housing M32 x 1.5

- Ex II 1 D IP 67 T 101°C
- For use in zone 20
- Ex II 2 G EEx ia IIC T1 - T6
- For use in areas where there is a risk of explosion
- Housing material: stainless steel VA
- Non-flush mountable
- Sensing distance 3...20 mm adjustable

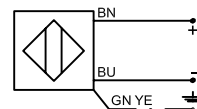
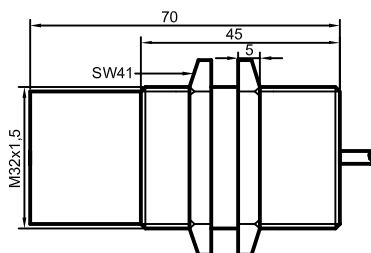
Certificate: **DMT 01 ATEX E 157**
DMT 03 ATEX E 048



Technical data

Operating distance S_n [mm], flush mounting	18, no
Operating distance min./max. [mm] adjustable	3...20
Electrical version	3-wire DC
Output function	NAMUR DIN 60947-5-6
Type	KAS-40-34-N-M32-StEx-N
Art.-No.	KA 0094
Connection diagram No.	see below
Operating voltage (U_B)	$U_i = 15 \text{ V DC}$
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	-25...+70°C
LED-display	-
Degree of protection IEC 529	IP 67
Connection cable	3 m 3 x 0.75 mm ²
Housing material	VA No. 1.4305
Active surface	PTFE
Lid	PC

All specifications are subject to change without notice. (05/2004)





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

Housing M30 x 1.5

- Ex II 1/2 D IP 67 T 101°C
- For use in zone 20
- Housing material: stainless steel VA
- Non-flush mountable
- Sensing distance 3...25 mm adjustable

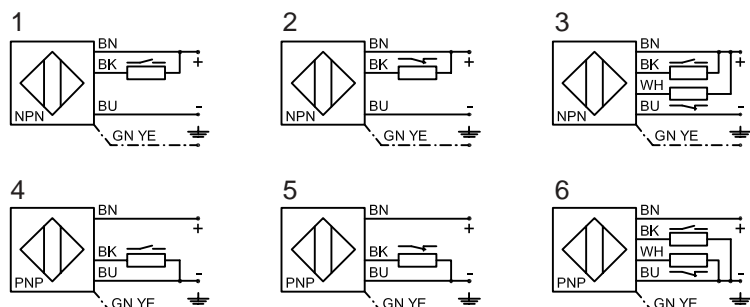
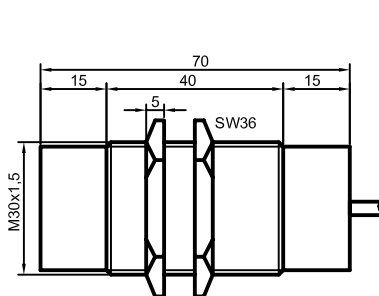
Certificate: **DMT 01 ATEX E 157**

Technical data

Operating distance S_n [mm], flush mounting	15, no
Operating distance min./max. [mm] adjustable	3...25
Electrical version	5-wire DC
Output	antivalent
Type NPN	KAS-70-A24-A-StEx-N
Art.-No.	KA 0085
Connection diagram No.	3

Type PNP	KAS-80-A24-A-StEx-N
Art.-No.	KA 0084
Connection diagram No.	6

Operating voltage (U_B)	10...30 V DC
Output current max. (I_o)	2 x 200 mA
Load current min.	-
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 529	IP 67
Connection cable	3 m, 5 x 0.34 mm ²
Housing material	VA No. 1.4305
Active surface	PTFE
Lid	PC



All specifications are subject to change without notice. (05/2004)



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

Housing M32 x 1.5

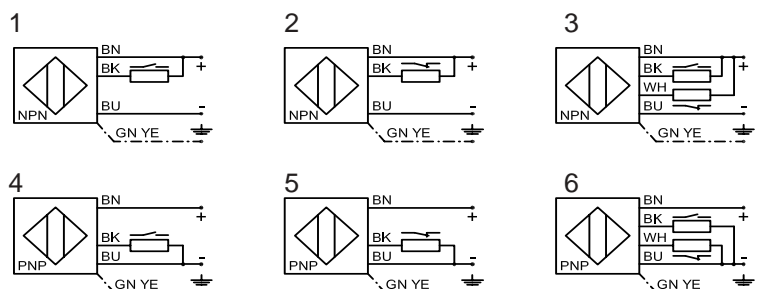
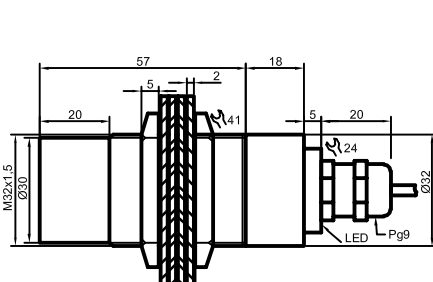
- Ex II 1/2 D IP 67 T 101°C
- For use in zone 20
- Ex II 2 G EEx m II T4
- Housing material: stainless steel VA
- Non-flush mountable
- Sensing distance 3...30 mm adjustable

Certificate: **DMT 01 ATEX E 157**

Technical data

Operating distance S_n [mm], flush mounting	20, no	20, no
Operating distance min./max. [mm] adjustable	3...30	3...30
Electrical version	4-wire DC	5-wire DC
Output	NO	antivalent
Type NPN	KAS-70-35-S-M32-StEx-N	KAS-70-35-A-M32-StEx-N
Art.-No.	KA 0090	KA 0089
Connection diagram No.	1	3

Type PNP	KAS-80-35-S-M32-StEx-N	KAS-80-35-A-M32-StEx-N
Art.-No.	KA 0087	KA 0086
Connection diagram No.	4	6
Operating voltage (U_B)	10...30 V DC	10...30 V DC
Output current max. (I_o)	200 mA	2 x 200 mA
Load current min.	-	-
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	-20...+ 90°C	-20...+ 90°C
LED-display	yellow	green/yellow
Protective circuit	built in	built-in
Degree of protection IEC 529	IP 67	IP 67
Connection cable	3 m, 4 x 0.75 mm	3 m, 5 x 0.34 mm ²
Housing material	VA No. 1.4305	VA No. 1.4305
Active surface	PTFE	PTFE
Lid	VA No. 1.4305	VA No. 1.4305



All specifications are subject to change without notice. (05/2004)



Capacitive Sensors

Series 80 - PNP - StEx - ATEX

Housing M32 x 1.5

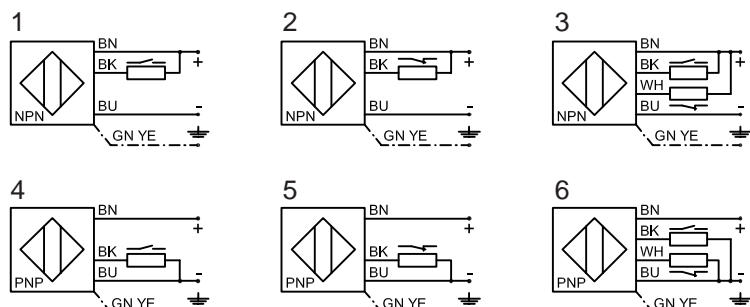
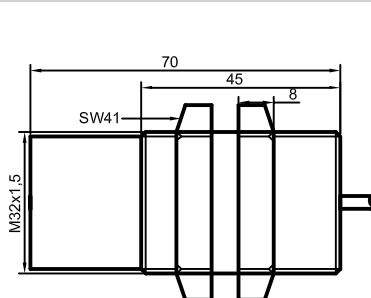
- Ex II 1/2 D IP 67 T 101°C
- For use in zone 20
- Housing material: PTFE
- Non-flush mountable
- Sensing distance 3...30 mm adjustable

Certificate: **DMT 01 ATEX E 157**

Technical data

Operating distance S_n [mm], flush mounting	20, no
Operating distance min./max. [mm] adjustable	3...30
Electrical version	5-wire DC
Output	antivalent
Type NPN	
Art.-No.	
Connection diagram No.	

Type PNP	KAS-80-35-A-K-M32-PTFE-StEx-N
Art.-No.	KA 0093
Connection diagram No.	6
Operating voltage (U_B)	10...30 V DC
Output current max. (I_o)	2 x 200 mA
Load current min.	-
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 529	IP 67
Connection cable	3 m, 5 x 0.34 mm ²
Housing material	PTFE
Active surface	PTFE
Lid	PC



All specifications are subject to change without notice. (05/2004)



Capacitive Sensors

Series 80 - PNP - StEx - ATEX

Housing 1"

- Ex II 1/2 D IP 67 T 101°C
- For use in zone 20
- Housing material: stainless steel VA
- Non-flush mountable
- Sensing distance 3...30 mm adjustable

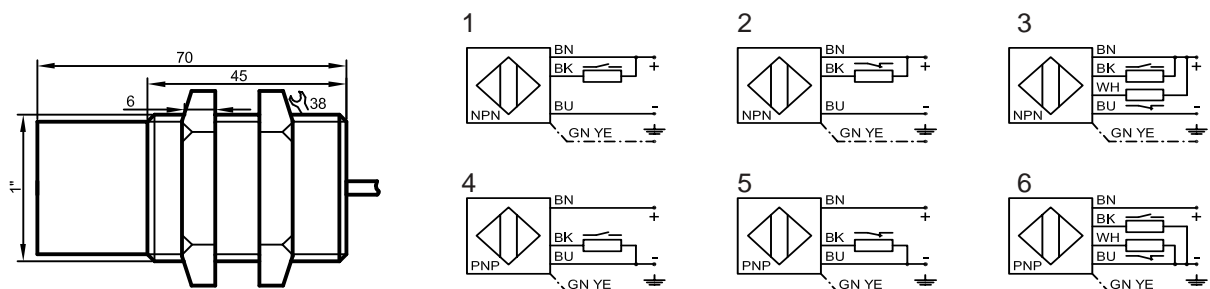
Certificate: DMT 01 ATEX E 157

Technical data

Operating distance S_n [mm], flush mounting	20, no
Operating distance min./max. [mm] adjustable	3...30
Electrical version	5-wire DC
Output	antivalent
Type NPN	
Art.-No.	
Connection diagram No.	

Type PNP	KAS-80-34-A-G1"-StEx-N
Art.-No.	KA 0092
Connection diagram No.	6
Operating voltage (U_B)	10...30 V DC
Output current max. (I_o)	2 x 200 mA
Load current min.	-
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 529	IP 67
Connection cable	3 m, 5 x 0.34 mm ²
Housing material	VA No. 1.4305
Active surface	PTFE
Lid	PC

All specifications are subject to change without notice. (05/2004)





SERIES N-131...

The *Series N-131...* isolating switching amplifiers transmit switching operations from an intrinsically safe control circuit to a non-intrinsically safe active current circuit. The control units are designed according to NAMUR-DIN 19234 or EN 60947-5-6 intrinsically safe and according to EN 50014 and EN 50020 [EExia] II C. The conformity is certified in Germany by TÜV-NORD.

Power pack, switching amplifier, electronic evaluation unit and output relay are all integrated in the 22 mm sized housing. The units are EMV-approved according to IEC 801-2 to 5. Quick mounting is possible on profile according to DIN 46 277. LED displays are integrated in the front plate for stand-by (green), state of output (yellow) and wire-break/shortcircuit of the sensor cable (red).

The isolating switching amplifiers can be actuated by NAMUR sensors, e.g. our series IAS-30... and KAS-40..., or by mechanical contacts.



Certificate: TÜV 02 ATEX 1869



Isolating Switching Amplifier N-131/1-01 230 V AC • Ex II(1) G D [EEx ia] IIC

To connect **one NAMUR-Sensor** or potential-free mechanical contact. NAMUR sensors have to be connected to terminal 5 (+) with the brown wire and 7 (-) with the blue wire.

Mechanical contacts also have to be connected to terminals 5 and 7. A wire-bridge has to be connected between terminals 5 and 6, for switching off the wire-break/short-circuit control or a resistor connection has to be made (in series to the contact 2,7 k Ω and parallel to the contact 10 k Ω).

The NO/NC-programming of the output relay is possible by means of coding switches in the front plate:

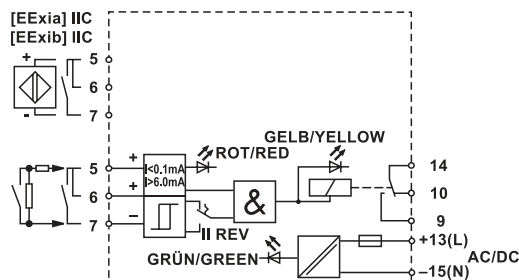
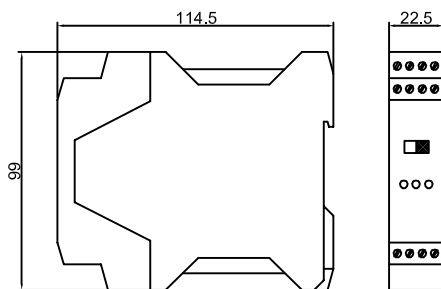
Switch position I = NO (factory set),

Switch position II = NC if a KAS-40-... is connected

The functions are reversed with connection of an IAS-30-...

Technical data

Operating voltage (U _B)	230 V AC \pm 10% 48...62 Hz
Output function	1 x change-over contact potential-free
Contact rating each relay AC max.	250 V AC/ 5 A/ 100 VA
Contact rating each relay DC max.	24 V DC/ 8 A/ 50 W
Type	N-131/1-01
Art.-No.	N00005
Connection diagram No.	see below
No-load current (I ₀)	typ. 15 mA
No-load voltage max. (U ₀)	10.5 V DC
Short-circuit current max. (I _K)	26 mA
Outer inductance max. (L ₀)	[EExia] IIC 45 mH/ IIB 160 mH
Outer capacitance max. (C ₀)	[EExia] IIC 2.41 μ F/ IIB 16.8 μ F
Actuating signal	NAMUR DIN 19234 or EN 60947-5-6
Permitted ambient temperature	-20...+60°C
Display	red/yellow and green
Degree of protection IEC 529	housing: IP 30 terminals: IP 20
Connection	screw terminals



N-131/1-01
SWITCH AMPLIFIER
SCHALTERSTÄRKER

All specifications are subject to change without notice. (08/2004)



Isolating Switching Amplifier N-131/1-02 115 V AC • Ex II(1) G D [EEx ia] IIC

To connect **one NAMUR-Sensor** or potential-free mechanical contact. NAMUR sensors have to be connected to terminal 5 (+) with the brown wire and 7 (-) with the blue wire.

Mechanical contacts also have to be connected to terminals 5 and 7. A wire-bridge has to be connected between terminals 5 and 6, for switching off the wire-break/short-circuit control or a resistor connection has to be made (in series to the contact 2,7 k Ω and parallel to the contact 10 k Ω).

The NO/NC-programming of the output relay is possible by means of coding switches in the front plate:

Switch position I = NO (factory set),

Switch position II = NC if a KAS-40-... is connected

The functions are reversed with connection of an IAS-30-...

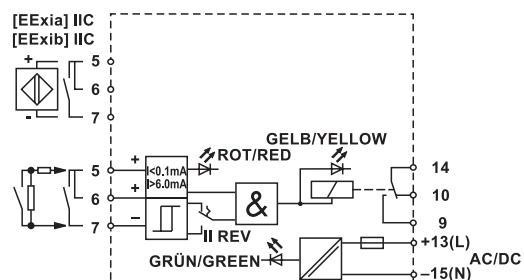
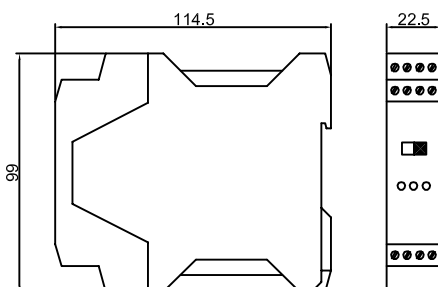
Certificate: TÜV 02 ATEX 1869



Technical data

Operating voltage (U_B)	115 V AC \pm 10% 48...62 Hz
Output function	1 x change-over contact potential-free
Contact rating each relay AC max.	250 V AC / 5 A / 100 VA
Contact rating each relay DC max.	24 V DC / 8 A / 50 W
Type	N-131/1-02
Art.-No.	N00006
Connection diagram No.	see below
No-load current (I_b)	typ. 15 mA
No-load voltage max. (U_o)	10,5 V DC
Short-circuit current max. (I_k)	26 mA
Outer inductance max. (L_o)	[EExia] IIC 45 mH/ IIB 160 mH
Outer capacitance max. (C_o)	[EExia] IIC 2.41 μ F/ IIB 16.8 μ F
Actuating signal	NAMUR DIN 19234 or EN 60947-5-6
Permitted ambient temperature	-20...+60°C
Display	red/yellow and green
Degree of protection IEC 529	housing: IP 30 terminals: IP 20
Connection	screw terminals

All specifications are subject to change without notice. (08/2004)



N-131/1-02
SWITCH AMPLIFIER
SCHALTERSTÄRKER



Certificate: TÜV 02 ATEX 1869



Isolating Switching Amplifier N-131/1-10 20...30 V DC • Ex II(1) G D [EEx ia] IIC

To connect **one NAMUR-Sensor** or potential-free mechanical contact. NAMUR sensors have to be connected to terminal 5 (+) with the brown wire and 7 (-) with the blue wire.

Mechanical contacts also have to be connected to terminals 5 and 7. A wire-bridge has to be connected between terminals 5 and 6, for switching off the wire-break/short-circuit control or a resistor connection has to be made (in series to the contact 2,7 k Ω and parallel to the contact 10 k Ω).

The NO/NC-programming of the output relay is possible by means of coding switches in the front plate:

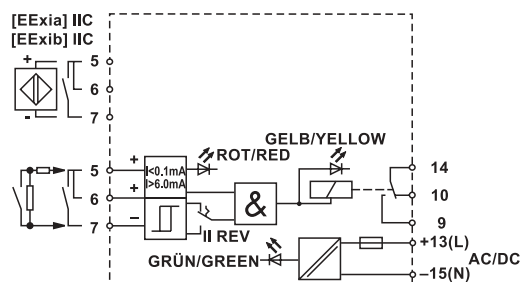
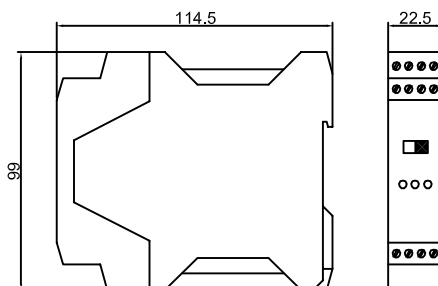
Switch position I = NO (factory set),

Switch position II = NC if a KAS-40-... is connected

The functions are reversed with connection of an IAS-30-...

Technical data

Operating voltage (U_B)	20...30 V DC
Output function	1 x change-over contact potential-free
Contact rating each relay AC max.	250 V AC/ 5 A/ 100 VA
Contact rating each relay DC max.	24 V DC/ 8 A/ 50 W
Type	N-131/1-10
Art.-No.	N00007
Connection diagram No.	see below
No-load current (I_0)	typ. 15 mA
No-load voltage max. (U_0)	10.5 V DC
Short-circuit current max. (I_k)	26 mA
Outer inductance max. (L_0)	[EExia] IIC 45 mH/ IIB 160 mH
Outer capacitance max. (C_0)	[EExia] IIC 2.41 μ F/ IIB 16.8 μ F
Actuating signal	NAMUR DIN 19234 or EN 60947-5-6
Permitted ambient temperature	-20...+60°C
Display	red/yellow and green
Degree of protection IEC 529	housing: IP 30 terminals: IP 20
Connection	screw terminals



N-131/1-10
SWITCH AMPLIFIER
SCHALTERSTÄRKER

All specifications are subject to change without notice. (08/2004)



Isolating Switching Amplifier N-131/2-01 230 V AC • Ex II(1) G D [EEx ia] IIC

To connect **two NAMUR-Sensors** or potential-free mechanical contacts. NAMUR sensors have to be connected to terminals 1 or 5 (+) with the brown wire and 3 or 7 (-) with the blue wire.

Mechanical contacts also have to be connected to terminals 1, 3 (channel 2) or 5, 7 (Channel 1). A wire-bridge has to be connected between terminals 1, 2 (channel 2) or 5, 6 (channel 1), for switching off the wire-break/short-circuit control or a resistor connection has to be made (in series to the contact 2,7 k Ω and parallel to the contact 10 k Ω).

The NO/NC-programming of the output relay is possible by means of coding switches in the front plate:

Switch position I = NO (factory set).

Switch position II = NC if a KAS-40-... is connected

The functions are reversed with connection of an IAS-30-...

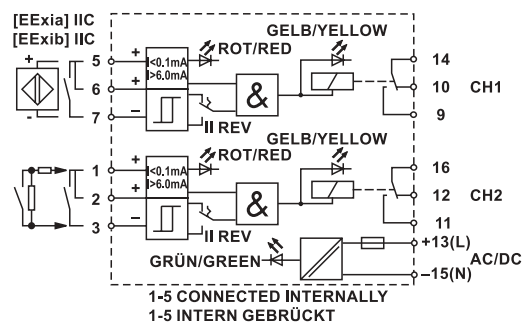
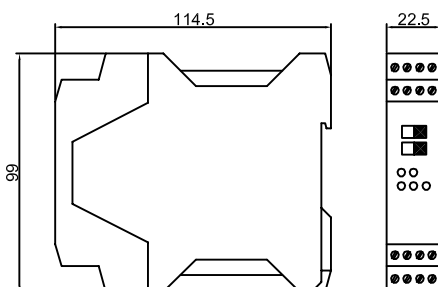
Certificate TÜV 02 ATEX 1869



Technical data

Operating voltage (U_b)	230 V AC \pm 10% 48...62 Hz
Output function	2 x change-over contacts potential-free
Contact rating each relay AC max.	250 V AC/ 5 A/ 100 VA
Contact rating each relay DC max.	24 V DC/ 8 A/ 50 W
Type	N-131/2-01
Art.-No.	N00001
Connection diagram No.	see below
No-load current (I_b)	typ. 15 mA
No-load voltage max. (U_o)	10.5 V DC
Short-circuit current max. (I_k)	26 mA
Outer inductance max. (L_o)	[EExia] IIC 45 mH/ IIB 160 mH
Outer capacitance max. (C_o)	[EExia] IIC 2.41 μ F/ IIB 16.8 μ F
Actuating signal	NAMUR DIN 19234 or EN 60947-5-6
Permitted ambient temperature	-20...+60°C
Display	red/yellow and green
Degree of protection IEC 529	housing: IP 30 terminals: IP 20
Connection	screw terminals

All specifications are subject to change without notice. (08/2004)



N-131/2-01
SWITCH AMPLIFIER
SCHALTERSTÄRKER



Certificate: TÜV 02 ATEX 1869



Isolating Switching Amplifier N-131/2-02 115 V AC • Ex II(1) G D [Ex ia] IIC

To connect **two NAMUR-Sensors** or potential-free mechanical contacts. NAMUR sensors have to be connected to terminals 1 or 5 (+) with the brown wire and 3 or 7 (-) with the blue wire.

Mechanical contacts also have to be connected to terminals 1, 3 (channel 2) or 5, 7 (channel 1). A wire-bridge has to be connected between terminals 1, 2 (channel 2) or 5, 6 (channel 1), for switching off the wire-break/short-circuit control or a resistor connection has to be made (in series to the contact 2,7 k Ω and parallel to the contact 10 k Ω).

The NO/NC-programming of the output relay is possible by means of coding switches in the front plate:

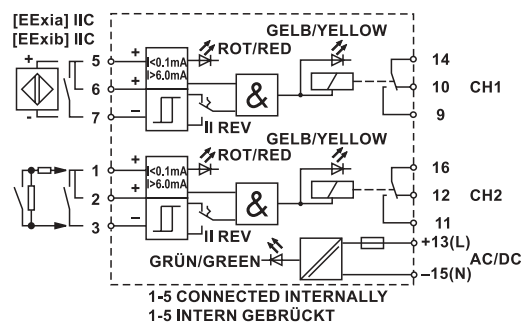
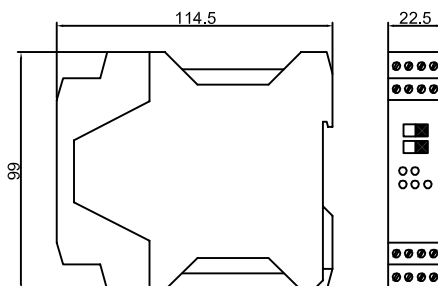
Switch position I = NO (factory set),

Switch position II = NC if a KAS-40-... is connected

The functions are reversed with connection of an IAS-30-...

Technical data

Operating voltage (U_B)	115 V AC \pm 10% 48...62 Hz
Output function	2 x change-over contacts potential-free
Contact rating each relay AC max.	250 V AC/ 5 A/ 100 VA
Contact rating each relay DC max.	24 V DC/ 8 A/ 50 W
Type	N-131/2-02
Art.-No.	N00002
Connection diagram No.	see below
No-load current (I_0)	typ. 15 mA
No-load voltage max. (U_0)	10.5 V DC
Short-circuit current max. (I_k)	26 mA
Outer inductance max. (L_0)	[EExia] IIC 45 mH/ IIB 160 mH
Outer capacitance max. (C_0)	[EExia] IIC 2.41 μ F/ IIB 16.8 μ F
Actuating signal	NAMUR DIN 19234 or EN 60947-5-6
Permitted ambient temperature	-20...+60°C
Display	red/yellow and green
Degree of protection IEC 529	housing: IP 30 terminals: IP 20
Connection	screw terminals



N-131/2-02
SWITCH AMPLIFIER
SCHALTERVERSTÄRKER

All specifications are subject to change without notice. (08/2004)



Isolating Switching Amplifier N-131/2-10 20...30 V DC • Ex II(1) G D [EEx ia] IIC

To connect **two NAMUR-Sensors** or potential-free mechanical contacts. NAMUR sensors have to be connected to terminals 1 or 5 (+) with the brown wire and 3 or 7 (-) with the blue wire.

Mechanical contacts also have to be connected to terminals 1, 3 (channel 2) or 5, 7 (channel 1). A wire-bridge has to be connected between terminals 1, 2 (channel 2) or 5, 6 (channel 1), for switching off the wire-break/short-circuit control or a resistor connection has to be made (in series to the contact 2,7 k Ω and parallel to the contact 10 k Ω).

The NO/NC-programming of the output relay is possible by means of coding switches in the front plate:

Switch position I = NO (factory set).

Switch position II = NC if a KAS-40-... is connected

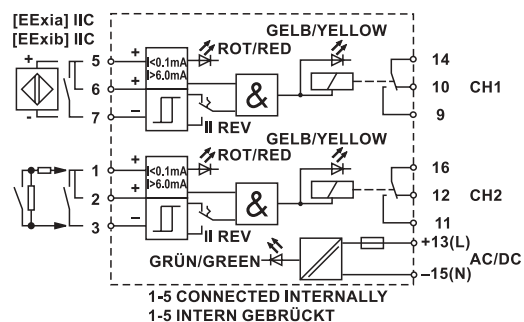
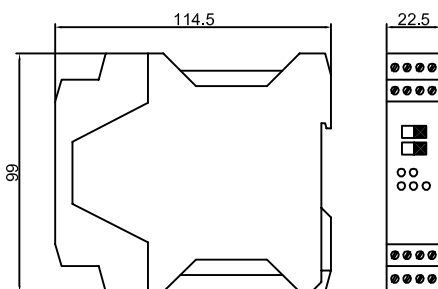
The functions are reversed with connection of an IAS-30-...

Certificate: TÜV 02 ATEX 1869



Technical data

Operating voltage (U_B)	20...30 V DC
Output function	2 x change-over contacts potential-free
Contact rating each relay AC max.	250 V AC/ 5 A/ 100 VA
Contact rating each relay DC max.	24 V DC/ 8 A/ 50 W
Type	N-131/2-10
Art.-No.	N00003
Connection diagram No.	see below
No-load current (I_0)	typ. 15 mA
No-load voltage max. (U_0)	10.5 V DC
Short-circuit current max. (I_k)	26 mA
Outer inductance max. (L_0)	[EExia] IIC 45 mH/ IIB 160 mH
Outer capacitance max. (C_0)	[EExia] IIC 2.41 μ F/ IIB 16.8 μ F
Actuating signal	NAMUR DIN 19234 or EN 60947-5-6
Permitted ambient temperature	-20...+60°C
Display	red/yellow and green
Degree of protection IEC 529	housing: IP 30 terminals: IP 20
Connection	screw terminals



N-131/2-10
SWITCH AMPLIFIER
SCHALTERSTÄRKER

All specifications are subject to change without notice. (08/2004)



Certificate: TÜV 02 ATEX 1869



Isolating Switching Amplifier • PNP Output N-131/2-E-10 20...30 V DC • Ex II(1) G D [Ex ia] IIC

To connect **two NAMUR-Sensors** or potential-free mechanical contacts. NAMUR sensors have to be connected to terminals 1 or 5 (+) with the brown wire and 3 or 7 (-) with the blue wire. Mechanical contacts also have to be connected to terminals 1, 3 (channel 2) or 5, 7 Channel 1). A wire-bridge has to be connected between terminals 1, 2 (channel 2) or 5, 6 (channel 1), for switching off the wire-break/short-circuit control or a resistor connection has to be made (in series to the contact 2,7 k Ω and parallel to the contact 10 k Ω). The active electrical outputs are connected to terminal 9 (channel 1) and 11 (channel 2). The terminals 14 and 16 are internally bridged to terminal 13 (+24V),

The NO/NC-programming of the output relay is possible by means of coding switches in the front plate:

Switch position I = NO (factory set),

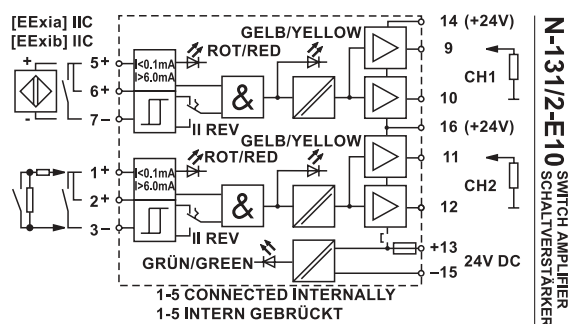
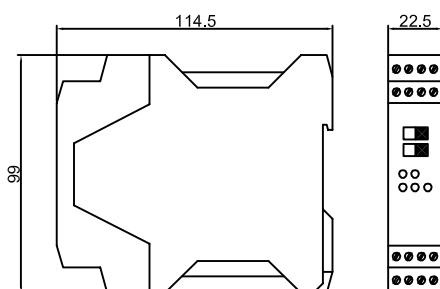
Switch position II = NC if a *KAS-40...* is connected

The functions are reversed with connection of an IAS-30...

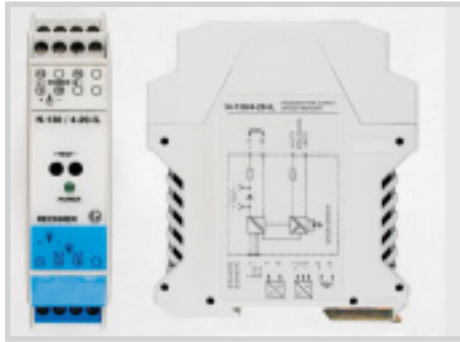
• Because of the PNP output, suitable for switching frequency **up to 1 kHz**.

Technical data

Operating voltage (U_B)	20 - 30 V DC
Output function	2 x transistor output pnp
Operating voltage max.	35 V DC
Operating current max.	100 mA
Switching capacity max.	3,5 W
Type	N-131/2-E-10
Art.-No.	N00004
Connection diagram No.	see below
No-load current (I_0)	typ. 15 mA
No-load voltage max. (U_0)	10.5 V DC
Short-circuit current max. (I_k)	26 mA
Outer inductance max. (L_0)	[EEExia] IIC 45 mH/ IIB 160 mH
Outer capacitance max. (C_0)	[EEExia] IIC 2.41 μ F/ IIB 16.8 μ F
Actuating signal	NAMUR DIN 19234 or EN 60947-5-6
Permitted ambient temperature	-20...+60°C
Display	red/yellow and green
Degree of protection IEC 529	housing: IP 30 terminals: IP 20
Connection	screw terminals



All specifications are subject to change without notice. (08/2004)



Transmitter Power Supply
N-130/4-20-IL - Analogue Output 4...20 mA
⊕ Ex II (1) G [EEx ia] IIC

- For connection of ATEX certified 2-wire analogue sensors e. g. our KAS-40...IL with 4...20 mA output signal
- Safe galvanic separation between input/output and auxiliary energy (power)
- At the panel socket "Test" it is possible to loop in an ammeter

Certificate: TÜV 99 ATEX 1435



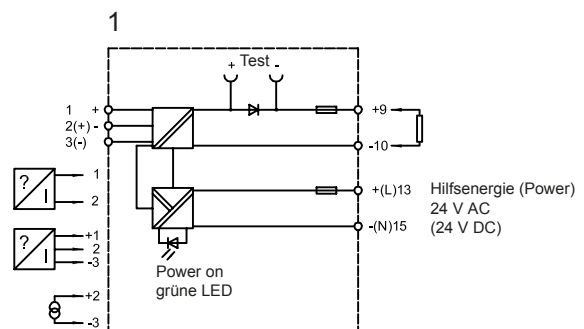
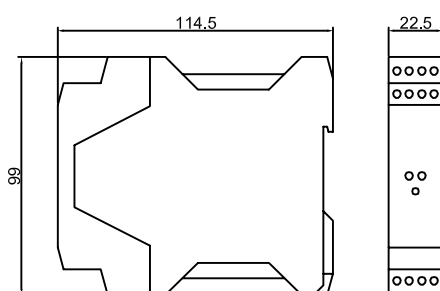
Technical data

Maximum input voltage	$U_0 = 28 \text{ V}$
Maximum input (power)	$I_0 = 93 \text{ mA}$ ($P_0 = 650 \text{ mW}$)
Type	N-130/4-20-IL
Art.-No.	513780
Connection diagram No.	1
Power supply	20 - 26.4 V AC / 20 - 30 V DC
Power consumption	3.1 VA / 2.2 W
Output signal range	0/4...20 mA
Load	1000 Ω
Test socket: max. R_i of the measuring instrument	$R_i = 15 \Omega$
Output ripple	< 0.5 %
Non-linearity	< 0.1 %
Temperature coefficient	< 0.1 % / 10 K
Step response	2.2 ms (10 - 90 %)
Digital bandwidth	0 - 12 kHz
Adjustability: Zero and Span	+/- 5 %
Permissible operating temperature	-20°C...+60 °C
Mounting category to IEC 654	B_x
Climatic category to DIN 40 040	HSF

Galvanic isolation

**input-output
input (output)-power supply**

All specifications are subject to change without notice. (08/2004)



All specifications are subject to change without notice. (05/2004)

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