

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-...

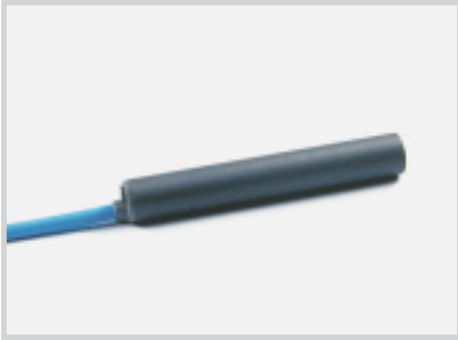
The **series 70** contains capacitive 3-wire or 4-wire proximity sensors with NPN digital output with NO, NC or antivalent function (NO and NC). Electronic circuits, PLC's, relays and our power supplies of series 130 can be activated directly. The sensors are reverse-polarity protected, overload-protected 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 $U_i = 15 \text{ V DC}$			
				Brass (Ms) Stainless steel (VA) Polyamide (PA) Polyvinylchloride (PVC) Polytetrafluorethylene (PTFE)	NAMUR [40]	analogue [40-IL]		
1	-	≤ 6	11	PVC	40		Cable	26
2	≤ 5	≤ 6	M12 x 1 - (A12/A22)	VA, PVC, PTFE	40		Cable	27-30
3	≤ 8/0...8	≤ 10/0...10	M18 x 1 - (A13/A23)	Brass	40, 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	≤ 15/0...20	≤ 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

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Capacitive Sensors Series 40- NAMUR

Housing Ø 11 mm

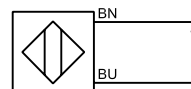
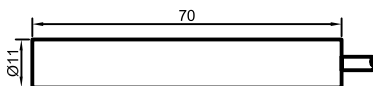
- Ex II 2 G EEx ia IIC T1-T6
- For use in areas where there is a risk of explosion
- Housing material: PVC
- Non-flush mountable
- Sensing distance 1...6 mm adjustable

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



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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

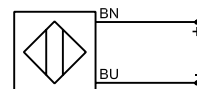
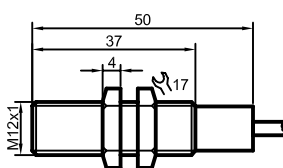
Certificate: **DMT 03 ATEX E 048**



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

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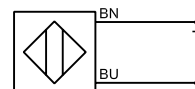
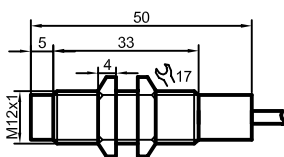
Capacitive Sensors Series 40 - NAMUR

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



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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

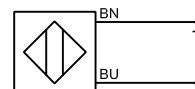
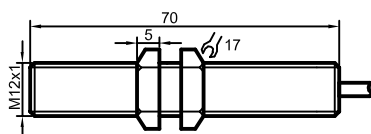
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Technical data

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

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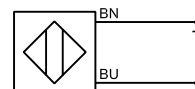
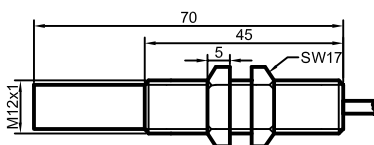
Capacitive Sensors Series 40 - NAMUR

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



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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

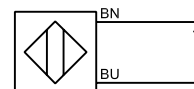
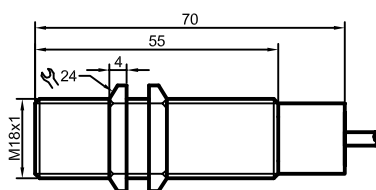
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Technical data

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

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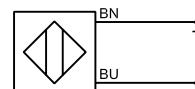
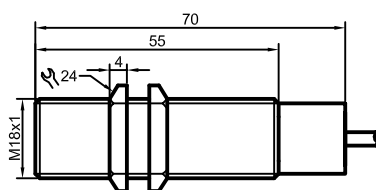
Capacitive Sensors Series 40 IL - Analogue Output

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



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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

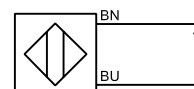
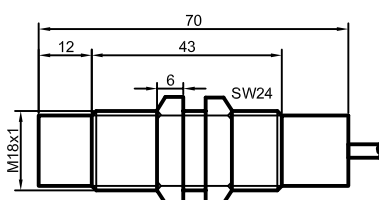
Certificate: DMT 03 ATEX E 048



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

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Certificate: DMT 03 ATEX E 048



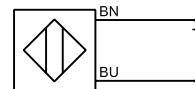
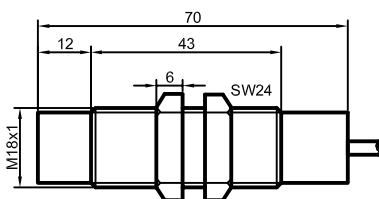
Capacitive Sensors Series 40 IL - Analogue Output

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

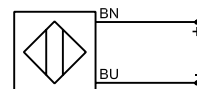
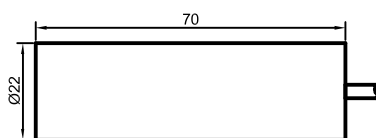
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Technical data

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)





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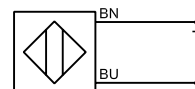
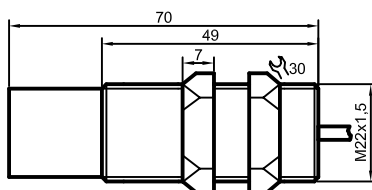
Capacitive Sensors Series 40 - NAMUR

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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Certificate: DMT 03 ATEX E 048



Capacitive Sensors Series 40 - NAMUR

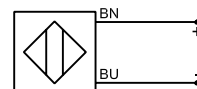
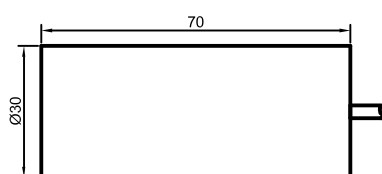
Housing Ø 30 mm

- 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_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)





Certificate: DMT 03 ATEX E 048



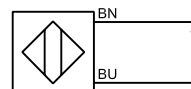
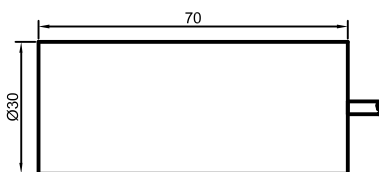
Capacitive Sensors Series 40 - NAMUR

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

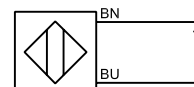
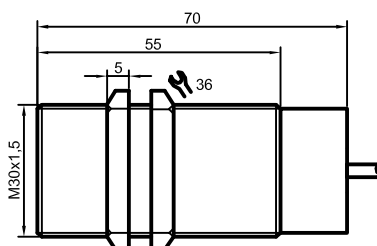
Certificate: DMT 03 ATEX E 048



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)





Certificate: DMT 03 ATEX E 048



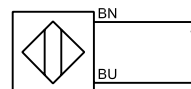
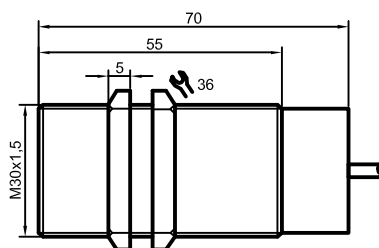
Capacitive Sensors Series 40 IL - Analogue Output

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

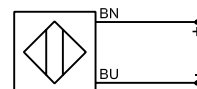
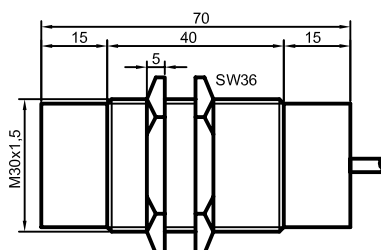
Certificate: DMT 03 ATEX E 048



Technical data

Operating distance S_n [mm], flush mounting	15, no
Operating distance min./max. [mm] adjustable	2...20
Electrical version	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)	$U_i = 15 \text{ V DC}$
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	brass
Active surface	PTFE
Lid	PA

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





Certificate: DMT 03 ATEX E 048



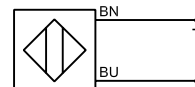
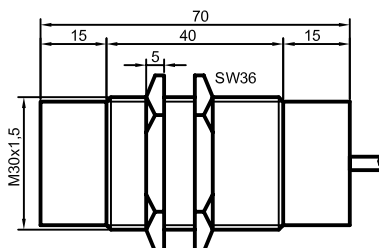
Capacitive Sensors Series 40 - IL - Analogue Output

Housing 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

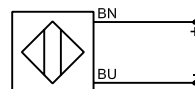
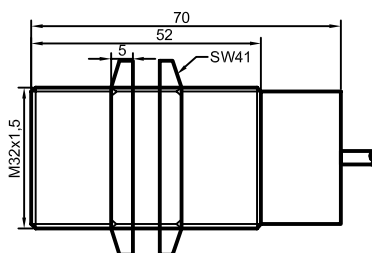
Certificate: DMT 03 ATEX E 048



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)





Certificate: DMT 03 ATEX E 048



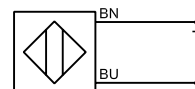
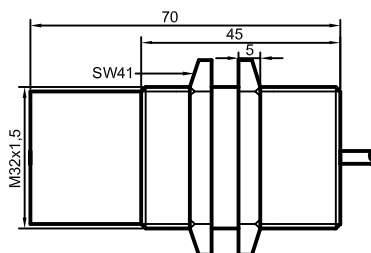
Capacitive Sensors Series 40 - NAMUR

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

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

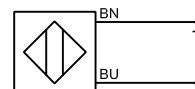
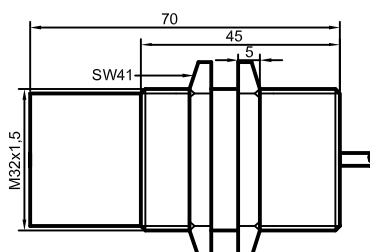
Certificate: DMT 03 ATEX E 048



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

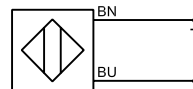
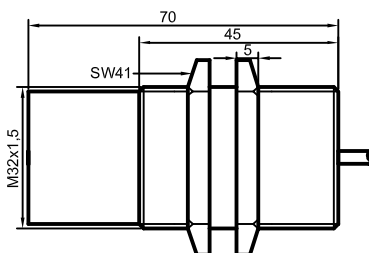
- Ex II 2 G EEx ia IIC T1-T6
- For use in areas where there is a risk of explosion
- Housing material: PTFE
- Ideal for detection of chemically aggressive media
- Also suitable for food applications
- Non-flush mountable
- Sensing distance 3...20 mm adjustable
- Option: Total chemical resistance is given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

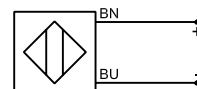
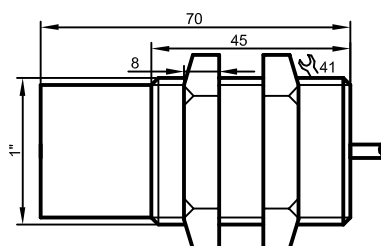
Certificate: DMT 03 ATEX E 048



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				
				Stainless steel [VA] Polytetrafluorethylene [PTFE]	NPN [70] PNP [80]	NAMUR [40]		
					Selection Normally Open (NO) and Antivalent (A only with 70, 80) see data sheets			
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

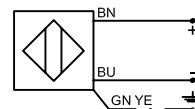
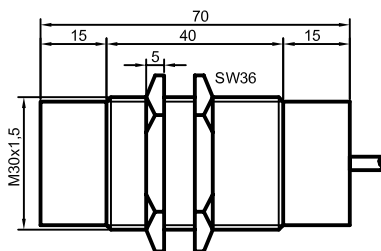
- Ex II 1 D IP 67 T 101 °C
- For use in zone 20
- Ex II 2 G EEx ia IIC T1 - T6
- For use in areas where there is a risk of explosion
- Housing material: stainless steel VA
- Non-flush mountable
- Sensing distance 2...20 mm adjustable

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

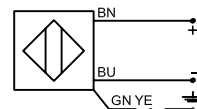
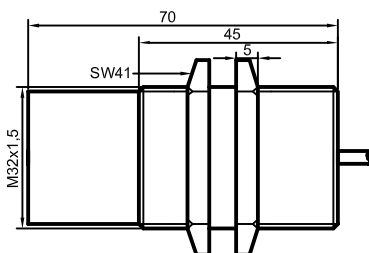
Certificate: **DMT 01 ATEX E 157**
DMT 03 ATEX E 048



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

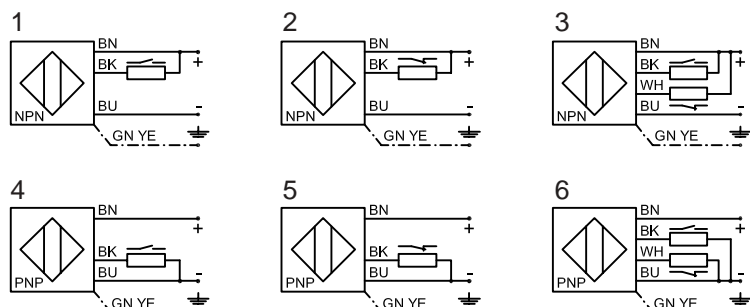
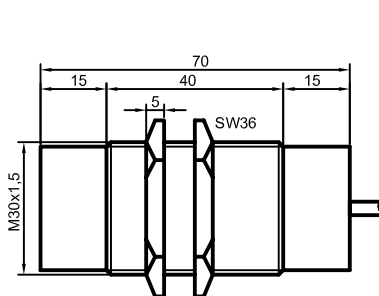
- Ex II 1/2 D IP 67 T 101°C
- For use in zone 20
- Housing material: stainless steel VA
- Non-flush mountable
- Sensing distance 3...25 mm adjustable

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

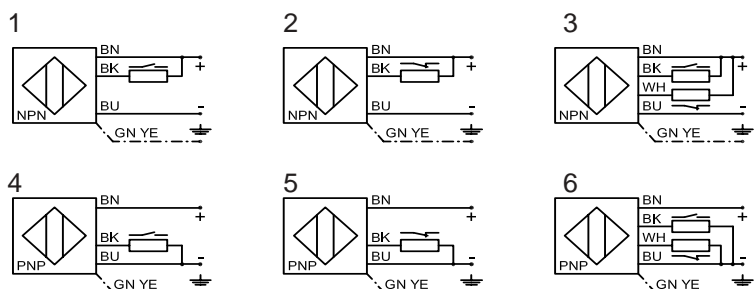
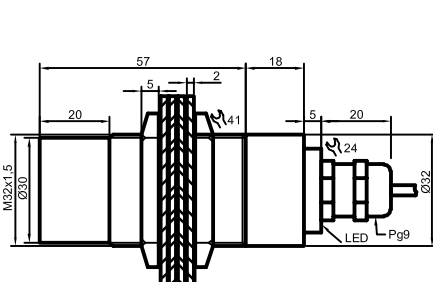
Certificate: **DMT 01 ATEX E 157**

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

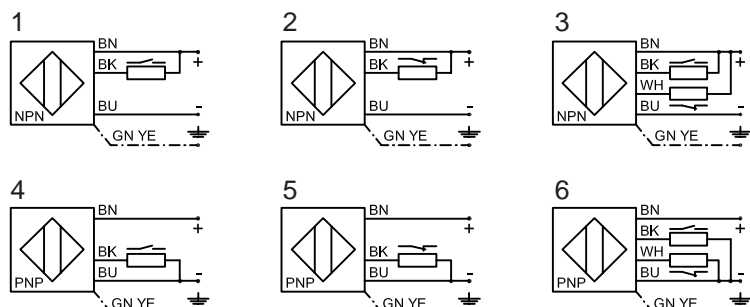
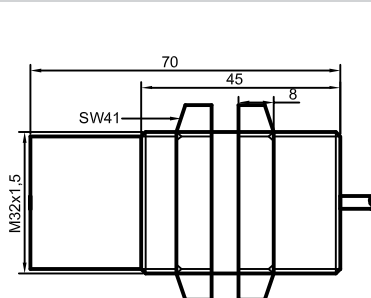
- Ex II 1/2 D IP 67 T 101°C
- For use in zone 20
- Housing material: PTFE
- Non-flush mountable
- Sensing distance 3...30 mm adjustable

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

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