

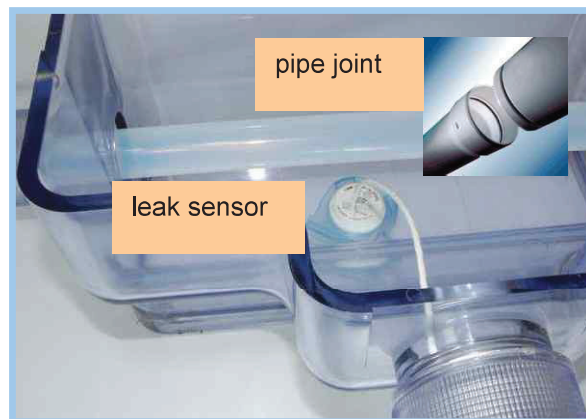
## LIQUID LEAK SENSORS

Capacitive leak sensors detect a wide variety of liquids range from water to chemical liquids.

### Advantages for leak sensors

- Detection for leakage of liquids such as sulfuric acid (for liquids  $\epsilon_r > 1.2$ )
- Adjustable sensing ranges suited to the characteristics of liquids
- Detection of liquid leakage at joints for chemical liquid pipe lines
- Detection of condensation and liquid leakage at semiconductor production installations
- Detection of liquid overflow beside chemical storage tanks

## APPLICATION EXAMPLES



Under pipe joints

Stand-by state (LED: green)	Switching state (LED: red)



## Capacitive Leak Sensor

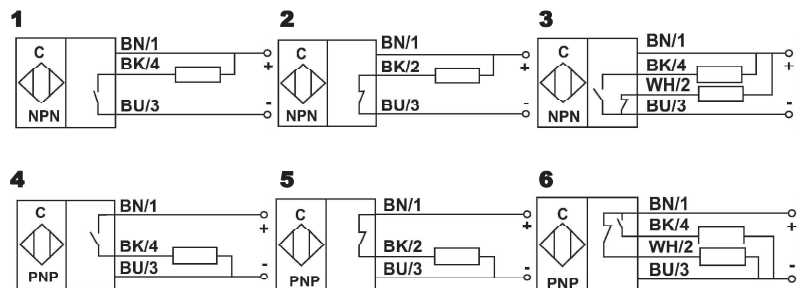
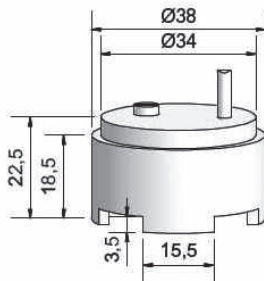
Type: Leak-500-P - PNP

- For plastic board
- Housing material: PTFE
- Ideal for detection of chemically aggressive leak media
- 3/4-wire Teflon cable
- normal open/close output



### Technical data

Type: PNP	Leak-500-P-S-PTFE	Leak-500-P-O-PTFE	Leak-500-P-A-PTFE
Art.-No.:	KA9251	KA9252	KA9351
Connection diagram No.	4	5	6
Detection material	chemical liquids, water	chemical liquids, water	chemical liquids, water
Repeat accuracy	1 %	1 %	1 %
Switching point	3.5 mm ± 5 % (for plastic board ≤ 5 mm), Adjustable	3.5 mm ± 5 % (for plastic board ≤ 5 mm), Adjustable	3.5 mm ± 5 % (for plastic board ≤ 5 mm), Adjustable
Operating voltage	10 ... 35 V DC	10 ... 35 V DC	10 ... 35 V DC
Permitted residual ripple max.	10 %	10 %	10 %
Switching output	Normal open(NO)	Normal close(NC)	Antivalent(NO + NC)
No-Load current	typ. 15 mA	typ. 15 mA	typ. 15 mA
Output max.	250 mA	250 mA	2 x 250 mA
Permitted ambient temperature	-25 ... 70 °C	-25 ... 70 °C	-25 ... 70 °C
LED-display (green/red)	green/red	green/red	green/red
Overload protection	Built-in	Built-in	Built-in
Electric short circuit protection	Built-in	Built-in	Built-in
Reverse polarity protection	Built-in	Built-in	Built-in
Enclosure rating IEC 529	IP 67	IP 67	IP 67
Connection cable	2 m, 3 x 0.14 mm <sup>2</sup> , FEP	2 m, 3 x 0.14 mm <sup>2</sup> , FEP	2 m, 4 x 0.14 mm <sup>2</sup> , FEP
Housing material	PTFE	PTFE	PTFE
Holder material	PVC	PVC	PVC



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## Capacitive Leak Sensor

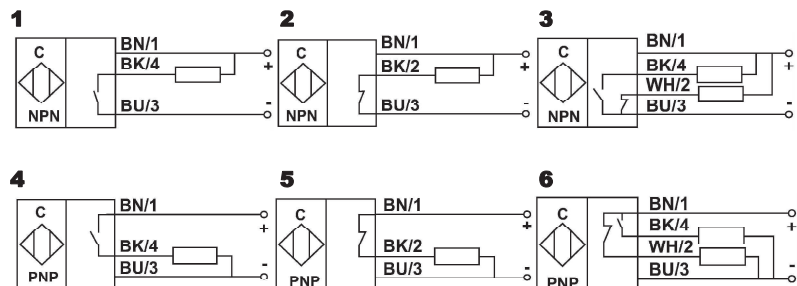
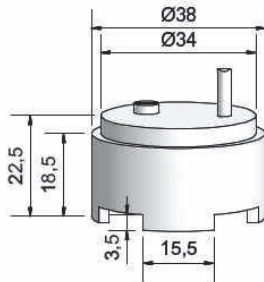
Type: Leak-500-N - NPN

- For plastic board
- Housing material: PTFE
- Ideal for detection of chemically aggressive leak media
- 3/4-wire Teflon cable
- normal open/close output



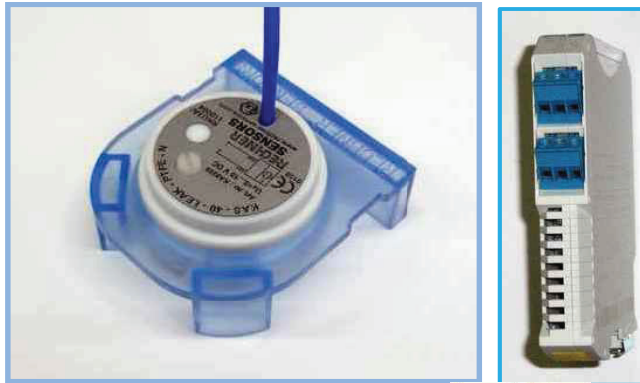
### Technical data

Type: NPN	Leak-500-N-S-PTFE	Leak-500-N-O-PTFE	Leak-500-N-A-PTFE
Art.-No.:	KA9153	KA9154	KA9352
Connection diagram No.	1	2	3
Detection material	chemical liquids, water	chemical liquids, water	chemical liquids, water
Repeat accuracy	1 %	1 %	1 %
Switching point	3.5 mm ± 5 % (for plastic board ≤ 5 mm), Adjustable	3.5 mm ± 5 % (for plastic board ≤ 5 mm), Adjustable	3.5 mm ± 5 % (for plastic board ≤ 5 mm), Adjustable
Operating voltage	10 ... 35 V DC	10 ... 35 V DC	10 ... 35 V DC
Permitted residual ripple max.	10 %	10 %	10 %
Switching output	Normal open(NO)	Normal close(NC)	Antivalent(NO + NC)
No-Load current	typ. 15 mA	typ. 15 mA	typ. 15 mA
Output max.	250 mA	250 mA	2 x 250 mA
Permitted ambient temperature	-25 ... 70 °C	-25 ... 70 °C	-25 ... 70 °C
LED-display (green/red)	green/red	green/red	green/red
Overload protection	Built-in	Built-in	Built-in
Electric short circuit protection	Built-in	Built-in	Built-in
Reverse polarity protection	Built-in	Built-in	Built-in
Enclosure rating IEC 529	IP 67	IP 67	IP 67
Connection cable	2 m, 3 x 0.14 mm <sup>2</sup> , FEP	2 m, 3 x 0.14 mm <sup>2</sup> , FEP	2 m, 4 x 0.14 mm <sup>2</sup> , FEP
Housing material	PTFE	PTFE	PTFE
Holder material	PVC	PVC	PVC



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## Capacitive Leak Sensor Type: **KAS-40-LEAK-PTFE-N**

### • Series 40 – NAMUR EN 60947-5-6

II 2 G EEx ia IIC T1-T6

- For metal board
- Housing material: PTFE
- Ideal for detection of chemically aggressive leak media

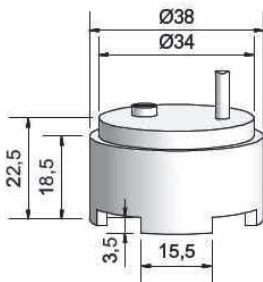
### • 2-wire Teflon cable

DMT 09 ATEX E 048	IECEx BVS 07.0031
II 2 G EEx ia IIC T1-T6	Ex ia IIC T1-T6

## Technical data

Type	KAS-40-LEAK-PTFE-N
Art.-No.	KA9255
Detection material	For chemical liquids, water
Repeat accuracy	< 0.1 %
Switching point	3.5 mm $\pm$ 5 % (for metal board), adjustable
Operating voltage	5 ... 15 V DC
Permitted residual ripple max.	5 %
Input current active area free	< 15 mA
active area damped	typ. 17.5 mA
Internal resistance active area free	typ. 5 k $\Omega$
active area damped	typ. 1 k $\Omega$
Frequency of operating cycles	1 kHz
Self-inductance (L)	ca. 0 $\mu$ H
Self-capacitance (C)	210 nF
LED-display, red	red: switching state
Permitted ambient temperature	-25 ... 70 $^{\circ}$ C
Enclosure rating IEC 529	IP 67
Connection cable	0.5 m, 2 x 0.14 mm <sup>2</sup> , FEP
Housing material	PTFE
Holder material	PVC

## Dimension



## Connection (NAMUR)





## Capacitive Leak Sensor

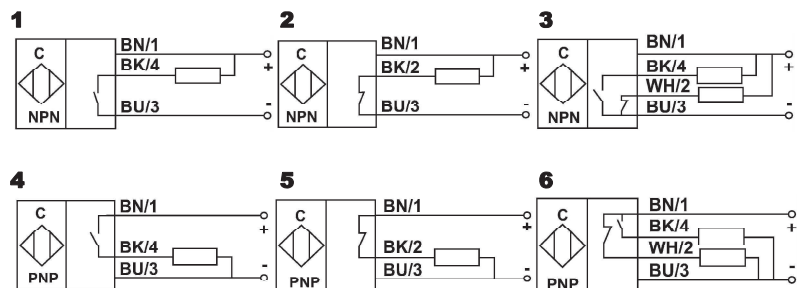
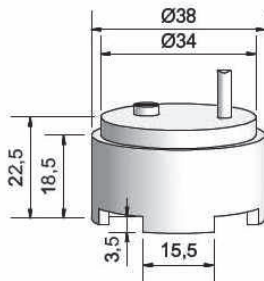
Type: **Leak-500-P-S-PVC**

- Housing material: PVC
- Ideal for detection of chemically aggressive leak media
- IC output
- 3-wire PVC cable
- PNP normal open/close output



### Technical data

Type: PNP	Leak-500-P-S-PVC	Leak-500-P-O-PVC
Art.-No.:	KA9256	KA9257
Connection diagram No.	See below	See below
Detection material	For chemical liquids, water	For chemical liquids, water
Repeat accuracy	1 %	1 %
Switching point	3.5 mm ± 5 % (for plastic board ≤ 5 mm), adjustable	3.5 mm ± 5 % (for plastic board ≤ 5 mm), adjustable
Operating voltage	10 ... 35 V DC	10 ... 35 V DC
Permitted residual ripple max.	10 %	10 %
Switching output	PNP	PNP
No-Load current	typ. 15 mA	typ. 15 mA
Output max.	250 mA	250 mA
Permitted ambient temperature	-25 ... 70 °C	-25 ... 70 °C
LED-display (green/red)	green: Us / red: switching state	green: Us / red: switching state
Overload protection	Built-in	Built-in
Electric short circuit protection	Built-in	Built-in
Reverse polarity protection	Built-in	Built-in
Enclosure rating IEC 529	IP 67	IP 67
Connection cable	2 m, 3 x 0.14 mm <sup>2</sup> , PVC	2 m, 3 x 0.14 mm <sup>2</sup> , PVC
Housing material	PVC	PVC
Holder material	PVC	PVC



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## Capacitive Leak Sensor

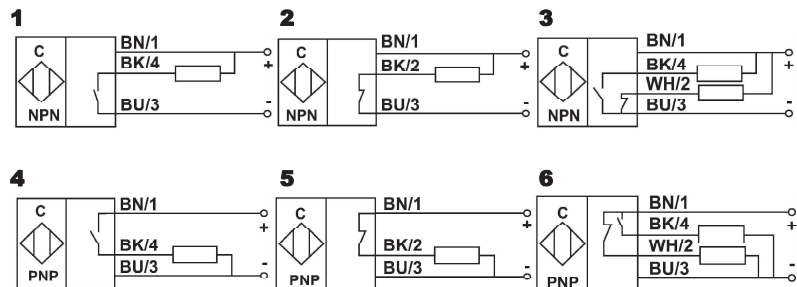
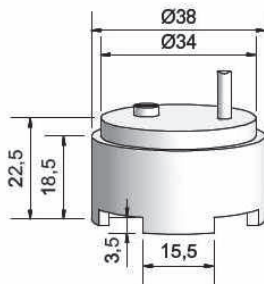
Type: **Leak-500-N-S-PVC**

- Housing material: PVC
- Ideal for detection of chemically aggressive leak media
- IC output
- 3-wire PVC cable
- NPN normal open/close output



### Technical data

Type: NPN	Leak-500-N-S-PVC	Leak-500-N-O-PVC
Art.-No.:	KA9258	KA9259
Connection diagram No.	See below	See below
Detection material	For chemical liquids, water	For chemical liquids, water
Repeat accuracy	1 %	1 %
Switching point	3.5 mm ± 5 % (for plastic board ≤ 5 mm), adjustable	3.5 mm ± 5 % (for plastic board ≤ 5 mm), adjustable
Operating voltage	10 ... 35 V DC	10 ... 35 V DC
Permitted residual ripple max.	10 %	10 %
Switching output	NPN	NPN
No-Load current	typ. 15 mA	typ. 15 mA
Output max.	250 mA	250 mA
Permitted ambient temperature	-25 ... 70 °C	-25 ... 70 °C
LED-display (green/red)	green: Us / red: switching state	green: Us / red: switching state
Overload protection	Built-in	Built-in
Electric short circuit protection	Built-in	Built-in
Reverse polarity protection	Built-in	Built-in
Enclosure rating IEC 529	IP 67	IP 67
Connection cable	2 m, 3 x 0.14 mm <sup>2</sup> , PVC	2 m, 3 x 0.14 mm <sup>2</sup> , PVC
Housing material	PVC	PVC
Holder material	PVC	PVC



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## Overview of Leak Sensors

Type	Cable length	Article No.
LEAK-500-P-S-PTFE	2 m	KA9251
LEAK-500-P-O-PTFE	2	KA9252
LEAK-500-P-A-PTFE	2	KA9351
LEAK-500-N-S-PTFE	2	KA9153
LEAK-500-N-O-PTFE	2	KA9154
LEAK-500-N-A-PTFE	2	KA9352
LEAK-500-P-S-PTFE (5m)	5	KA9241
LEAK-500-P-O-PTFE (5m)	5	KA9242
LEAK-500-P-A-PTFE (5m)	5	KA9341
LEAK-500-N-S-PTFE (5m)	5	KA9143
LEAK-500-N-O-PTFE (5m)	5	KA9144
LEAK-500-N-A-PTFE (5m)	5	KA9342
LEAK-500-P-S-PTFE (15m)	15	KA9231
LEAK-500-P-O-PTFE (15m)	15	KA9232
LEAK-500-P-A-PTFE (15m)	15	KA9331
LEAK-500-N-S-PTFE (15m)	15	KA9133
LEAK-500-N-O-PTFE (15m)	15	KA9134
LEAK-500-N-A-PTFE (15m)	15	KA9332
KAS-40-LEAK-PTFE-N	2	KA9255
KAS-40-LEAK-PTFE-N (5m)	5	KA9245
KAS-40-LEAK-PTFE-N (15m)	15	KA9235
LEAK-500-P-S-PVC	2	KA9256
LEAK-500-P-O-PVC	2	KA9257
LEAK-500-P-A-PVC	2	KA9353
LEAK-500-N-S-PVC	2	KA9258
LEAK-500-N-S-PVC	2	KA9259
LEAK-500-N-S-PVC	2	KA9354

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