

## Übersicht Sensorik

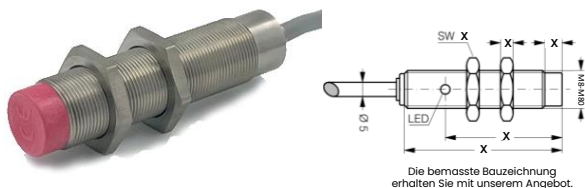
### Spezial-Sensorik der Schlüter Gruppe

Alle Sensoren von Schlüter eignen sich insbesondere für Umgebungen, in denen herkömmliche Sensoren nicht einsetzbar sind. Schlüter Sensoren sind seit Jahrzehnten bewährt, haben eine exzellente Qualität sowie hohe Standzeiten. Kapazitive Sensoren sind als Anwesenheits-Sensoren genauso geeignet wie als Füllstands-Sensoren oder zur Positionserkennung.

Gerne erarbeiten wir **Spezialanfertigungen nach Kundenanforderung** für alle Schlüter Sensoren und Glasfaseroptiken, **auch in kleineren Stückzahlen**.

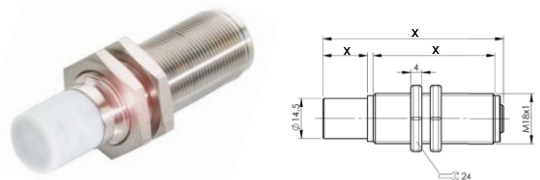
#### Induktive Sensoren

- Je nach Bauweise bis zu +250 °C
- PNP oder NPN, Öffner oder Schliesser
- Druckfeste Versionen



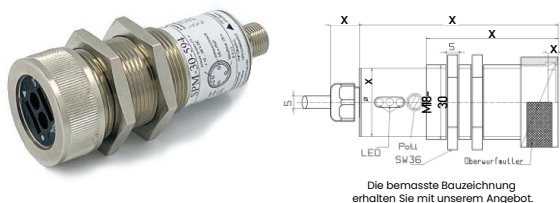
#### Kapazitive Sensoren

- Je nach Bauweise bis zu +250 °C
- Sub-Miniatursensoren ab Ø4 mm
- Analogsensoren
- IP 69k Schutzart



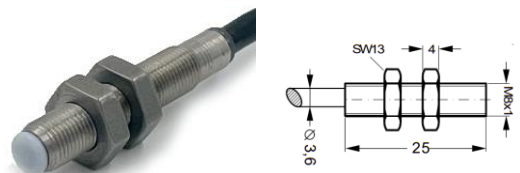
#### Lichtschranken

- Je nach Bauweise bis zu +1.000 °C
- Hohe Reichweiten bis zu > 100 m
- Schnelle Versionen bis 5 kHz
- Glasfaseroptiken und Kunststoff-Lichtleiter auch für Sensoren anderer Hersteller



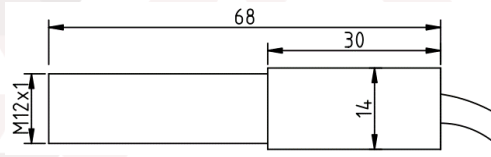

#### Magnetfeldschalter

- Je nach Bauweise bis zu +110 °C
- T-Nut und M8
- Chemisch resistente Versionen
- Dicht gegen Strahlwasser und Flugschnee



# Inductive IP69k Sensors

Sensing Distance: **3mm** –Housing: **M12**

Dimensions are in mm.

Part Numbers:	
<b>PNP / NO</b>	SIMKFHT-912-102
<b>PNP / NC</b>	Contact for Information

Technical Data:	
Mounting:	Flush, PTFE head
Sensing Range in mm:	3 mm
Supply Voltage	10-40 V DC
Output function:	N.O.
Load current:	< 4 mA 200 at 24V DC, 25°C
Switching Frequency:	1 kHz
Short circuit limit:	< 80mA (SCP)
Cable:	2m silicone cable
Operating temperature:	-25°C to +150°C, IP69k
Target size	8 x 8 x 1 mm ST37
Hysteresis:	3 to 20%
LED:	no
Options:	Cable length, Cable type

## Application examples:

- Food industry
- Oil Industry
- Packaging machines
- Industrial ovens
- Chemical industry
- Vacuum technical plants
- Special machinery

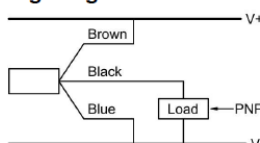
## Advantages:

- Insensitive to rapid temperature changes, from -25°C to +150°C
- Continuous temperature resistant up to +150°C
- Vacuum resistant up to < 1 mBar
- Protection class IP69k, resistant to water jets, steam jets or permanent immersion
- Resistant to most acids, alkalis, solvents and aggressive gases
- Vibration and shock resistant
- Robust stainless-steel housing V4A, front cap PTFE, cable silicone

### This sensor has the following specifications:

<ul style="list-style-type: none"> <li>* The EMC (Electromagnetic Compatibility) resistance of the switches: IEC 61000-4-2 Level 2 IEC 61000-4-4 Level 2 IEC 61000-4-3 Level 2 IEC 60255-5 1 kV</li> <li>* Sensing range can vary +/-10 %.</li> <li>* Voltage spikes (300 V for 1 ms, 10 Hz)</li> <li>* All standard cables are 3 x 0.25 mm<sup>2</sup> and a length of 2 m +/-5 %.</li> <li>* Output capacity is 100 nF.</li> <li>* Storage temperature -25 °C to 80 °C</li> <li>* Relative humidity is 100 %.</li> </ul>	<ul style="list-style-type: none"> <li>* Vibration resistant to 1 mm amplitude at 55 Hz.</li> <li>* Shock resistant to 5 g for a period of 11 ms.</li> <li>* Degree of protection (DIN 40 050) is IP69k.</li> <li>* Reverse polarity protection is incorporated on the supply voltage.</li> <li>* Load resistor of 100 kOhm is incorporated.</li> <li>* Leakage current is 4 mA at 24 V supply voltage.</li> <li>* Residual ripple is 15 %.</li> <li>* Voltage drop is approximately 2 V when sensor is on.</li> <li>* Sensing face material is: PTFE.</li> </ul>
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#### Wiring Diagram PNP NO



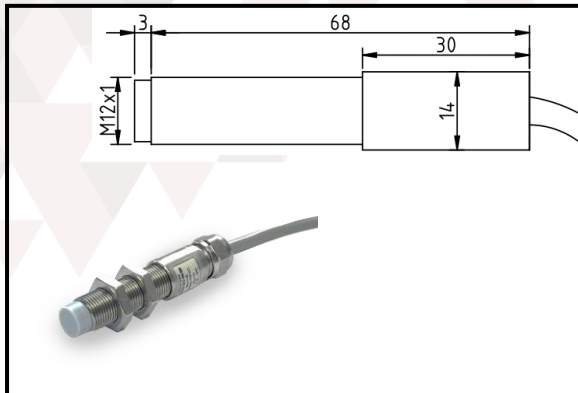
Special types and silicone free versions are available upon request

Design and technical details subject to change



# Inductive IP69k Sensors

Schaltabstand: **4mm** – Gehäuse: **M12**



Dimensions are in mm.

Part Numbers:	
<b>PNP / NO</b>	SIMKFHT-912-104
<b>PNP / NC</b>	Contact for Information

Technical Data:	
Mounting:	Non- Flush, PTFE
Sensing Range in mm:	4 mm
Supply Voltage	10-40 V DC
Output function:	N.O.
Load current:	< 4 mA 200 at 24V DC, 25°C
Switching Frequency:	500 Hz
Short circuit limit:	< 80mA (SCP)
Cable:	2m silicone cable
Operating temperature:	-25°C to +150°C, IP69k
Target size	8 x 8 x 1 mm ST37
Hysteresis:	3 to 20%
LED:	no
Options:	Cable length, Cable type

## Application examples:

- Food industry
- Oil Industry
- Packaging machines
- Industrial ovens
- Chemical industry
- Vacuum technical plants
- Special machinery

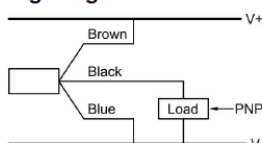
## Advantages:

- Insensitive to rapid temperature changes, from -25°C to +150°C
- Continuous temperature resistant up to +150°C
- Vacuum resistant up to < 1 mBar
- Protection class IP69k, resistant to water jets, steam jets or permanent immersion
- Resistant to most acids, alkalis, solvents and aggressive gases
- Vibration and shock resistant
- Robust stainless-steel housing V4A, front cap PTFE, cable silicone

## This sensor has the following specifications:

* The EMC (Electromagnetic Compatibility) resistance of the switches: IEC 61000-4-2 Level 2 IEC 61000-4-4 Level 2 IEC 61000-4-3 Level 2 IEC 60255-5 1 kV	* Vibration resistant to 1 mm amplitude at 55 Hz.
* Sensing range can vary +/-10 %.	* Shock resistant to 5 g for a period of 11 ms.
* Voltage spikes (300 V for 1 ms, 10 Hz)	* Degree of protection (DIN 40 050) is IP69k.
* All standard cables are 3 x 0.25 mm <sup>2</sup> and a length of 2 m +/-5 %.	* Reverse polarity protection is incorporated on the supply voltage.
* Output capacity is 100 nF.	* Load resistor of 100 kOhm is incorporated.
* Storage temperature -25 °C to 80 °C	* Leakage current is 4 mA at 24 V supply voltage.
* Relative humidity is 100 %.	* Residual ripple is 15 %.
	* Voltage drop is approximately 2 V when sensor is on.
	* Sensing face material is: PTFE.

### Wiring Diagram PNP NO



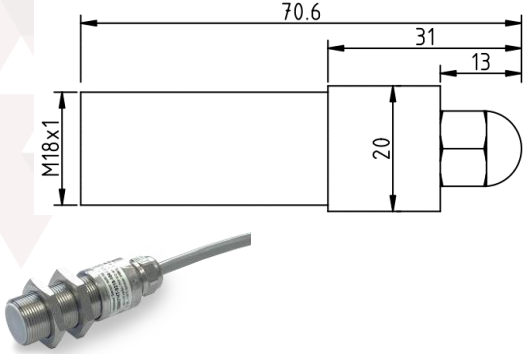
Special types and silicone free versions are available upon request

Design and technical details subject to change



# Inductive IP69k Sensors

Schaltabstand: **5mm** – Gehäuse: **M18**



Dimensions are in mm.

Part Numbers:	
<b>PNP / NO</b>	SIMKFHT-918-102
<b>PNP / NC</b>	Contact for Information

Technical Data:	
Mounting:	Flush, PTFE
Sensing Range in mm:	5 mm
Supply Voltage	10-40 V DC
Output function:	N.O.
Load current:	< 4 mA 200 at 24V DC, 25°C
Switching Frequency:	150 Hz
Short circuit limit:	< 80mA (SCP)
Cable:	2m silicone cable
Operating temperature:	-25°C to +150°C, IP69k
Target size	8 x 8 x 1 mm ST37
Hysteresis:	3 to 20%
LED:	no
Options:	Cable length, Cable type

## Application examples:

- Food industry
- Oil Industry
- Packaging machines
- Industrial ovens
- Chemical industry
- Vacuum technical plants
- Special machinery

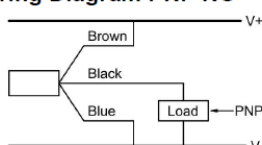
## Advantages:

- Insensitive to rapid temperature changes, from -25°C to +150°C
- Continuous temperature resistant up to +150°C
- Vacuum resistant up to < 1 mBar
- Protection class IP69k, resistant to water jets, steam jets or permanent immersion
- Resistant to most acids, alkalis, solvents and aggressive gases
- Vibration and shock resistant
- Robust stainless-steel housing V4A, front cap PTFE, cable silicone

### This sensor has the following specifications:

<ul style="list-style-type: none"> <li>* The EMC (Electromagnetic Compatibility) resistance of the switches: IEC 61000-4-2 Level 2 IEC 61000-4-4 Level 2 IEC 61000-4-3 Level 2 IEC 60255-5 1 kV</li> <li>* Sensing range can vary +/-10 %.</li> <li>* Voltage spikes (300 V for 1 ms, 10 Hz)</li> <li>* All standard cables are 3 x 0.25 mm<sup>2</sup> and a length of 2 m +/-5 %.</li> <li>* Output capacity is 100 nF.</li> <li>* Storage temperature -25 °C to 80 °C</li> <li>* Relative humidity is 100 %.</li> </ul>	<ul style="list-style-type: none"> <li>* Vibration resistant to 1 mm amplitude at 55 Hz.</li> <li>* Shock resistant to 5 g for a period of 11 ms.</li> <li>* Degree of protection (DIN 40 050) is IP69k.</li> <li>* Reverse polarity protection is incorporated on the supply voltage.</li> <li>* Load resistor of 100 kOhm is incorporated.</li> <li>* Leakage current is 4 mA at 24 V supply voltage.</li> <li>* Residual ripple is 15 %.</li> <li>* Voltage drop is approximately 2 V when sensor is on.</li> <li>* Sensing face material is: PTFE.</li> </ul>
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#### Wiring Diagram PNP NO



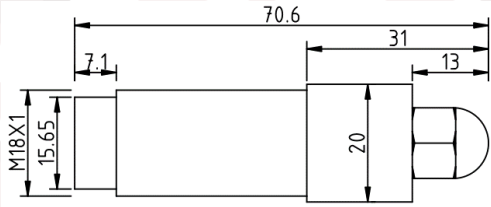
Special types and silicone free versions are available upon request

Design and technical details subject to change



# Inductive IP69k Sensors

Schaltabstand: **7mm** – Gehäuse: **M18**



Dimensions are in mm.

Part Numbers:	
<b>PNP / NO</b>	SIMKFHT-918-104
<b>PNP / NC</b>	Contact for Information

Technical Data:	
Mounting:	Flush, PTFE
Sensing Range in mm:	7 mm
Supply Voltage	10-40 V DC
Output function:	N.O.
Load current:	< 4 mA 200 at 24V DC, 25°C
Switching Frequency:	100 Hz
Short circuit limit:	< 80mA (SCP)
Cable:	2m silicone cable
Operating temperature:	-25°C to +150°C, IP69k
Target size	8 x 8 x 1 mm ST37
Hysteresis:	3 to 20%
LED:	no
Options:	Cable length, Cable type

## Application examples:

- Food industry
- Oil Industry
- Packaging machines
- Industrial ovens
- Chemical industry
- Vacuum technical plants
- Special machinery

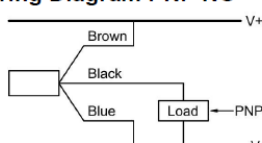
## Advantages:

- Insensitive to rapid temperature changes, from -25°C to +150°C
- Continuous temperature resistant up to +150°C
- Vacuum resistant up to < 1 mBar
- Protection class IP69k, resistant to water jets, steam jets or permanent immersion
- Resistant to most acids, alkalis, solvents and aggressive gases
- Vibration and shock resistant
- Robust stainless-steel housing V4A, front cap PTFE, cable silicone

### This sensor has the following specifications:

<ul style="list-style-type: none"> <li>* The EMC (Electromagnetic Compatibility) resistance of the switches: IEC 61000-4-2 Level 2 IEC 61000-4-4 Level 2 IEC 61000-4-3 Level 2 IEC 60255-5 1 kV</li> <li>* Sensing range can vary +/-10 %.</li> <li>* Voltage spikes (300 V for 1 ms, 10 Hz)</li> <li>* All standard cables are 3 x 0.25 mm<sup>2</sup> and a length of 2 m +/-5 %.</li> <li>* Output capacity is 100 nF.</li> <li>* Storage temperature -25 °C to 80 °C</li> <li>* Relative humidity is 100 %.</li> </ul>	<ul style="list-style-type: none"> <li>* Vibration resistant to 1 mm amplitude at 55 Hz.</li> <li>* Shock resistant to 5 g for a period of 11 ms.</li> <li>* Degree of protection (DIN 40 050) is IP69k.</li> <li>* Reverse polarity protection is incorporated on the supply voltage.</li> <li>* Load resistor of 100 kOhm is incorporated.</li> <li>* Leakage current is 4 mA at 24 V supply voltage.</li> <li>* Residual ripple is 15 %.</li> <li>* Voltage drop is approximately 2 V when sensor is on.</li> <li>* Sensing face material is: PTFE.</li> </ul>
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#### Wiring Diagram PNP NO



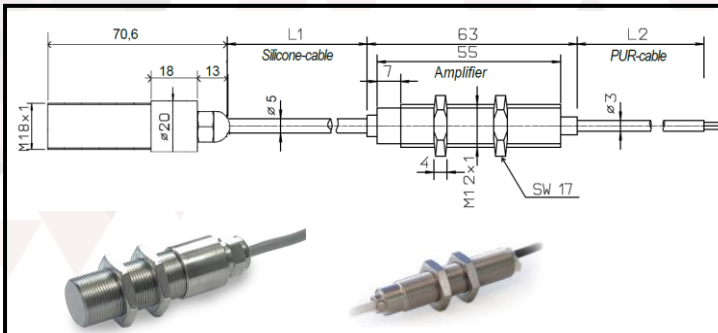
Special types and silicone free versions are available upon request

Design and technical details subject to change



# Inductive IP69k Sensors

Schaltabstand: **5mm** – Gehäuse: **M18**



Dimensions are in mm.

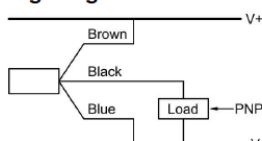
Part Numbers:	
<b>PNP / NO</b>	SIMKFHTD-918-142-L70
<b>NPN / NO</b>	Contact for Information

Technical Data:	
Mounting:	Flush, Ceramic head
Sensing Range in mm:	5 mm
Supply Voltage	10-35 V DC
Output function:	N.O.
Load current:	200 mA at 24V DC, 25°C
Switching Frequency:	300 Hz
Short circuit limit:	240 mA (SCP)
Cable:	L1: 2m Silicon, L2: 2m PUR
Operating temperature:	-20°C to +200°C, <=50 Bar
Target size	8 x 8 x 1 mm ST37
Hysteresis:	3 to 15%
LED:	no
Options:	Cable length, Cable type

## This sensor has the following specifications:

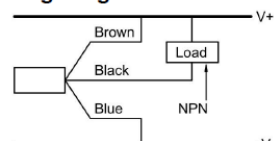
- \* The EMC (Electromagnetic Compatibility) resistance of the switches:  
IEC 61000-4-2 Level 2 IEC 61000-4-4 Level 2  
IEC 61000-4-3 Level 2 IEC 60255-5 1 kV
- \* Sensing range can vary +/-10 %.
- \* Voltage spikes (300 V for 1 ms, 10 Hz)
- \* All standard cables are 3 x 0.25 mm<sup>2</sup> and a length of 2 m +/-5 %.
- \* Output capacity is 100 nF.
- \* Storage temperature -25 °C to 80 °C
- \* Relative humidity is 100 %.
- \* Vibration resistant to 1 mm amplitude at 55 Hz.
- \* Shock resistant to 5 g for a period of 11 ms.
- \* Degree of protection (DIN 40 050) is IP69k.
- \* Reverse polarity protection is incorporated on the supply voltage.
- \* Load resistor of 100 kOhm is incorporated.
- \* Leakage current is 200 mA at 24 V supply voltage.
- \* Residual ripple is 15 %.
- \* Voltage drop is approximately 2 V when sensor is on.
- \* Sensing face material is: Ceramic.
- \* Temperature specification for external amplifier:  
+14 to +158°F (-10 °C to 70 °C).

### Wiring Diagram PNP NO



Special types and silicone free versions are available upon request

### Wiring Diagram NPN NO

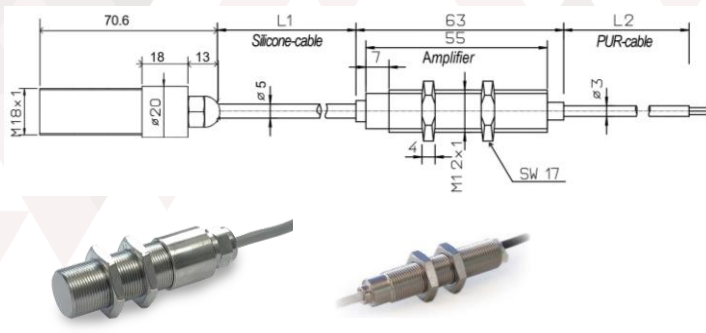


Design and technical details subject to change



# Inductive IP69k Sensors

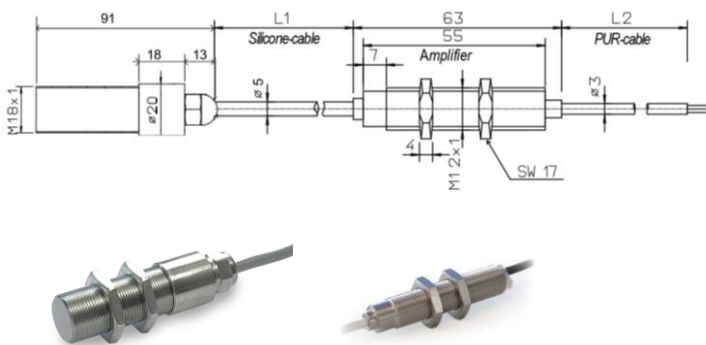
Schaltabstand: **5mm** – Gehäuse: **M18**



Dimensions are in mm.

Part Numbers:	
<b>PNP / NO</b>	IN5-18HTNS-230ext-IP69k
<b>PNP / NC</b>	IN5-18HTPS-230ext-IP69k

Technical Data:	
Mounting:	Flush, Ceramic head
Sensing Range in mm:	5 mm
Supply Voltage	10-35 V DC
Output function:	N.O.
Load current:	200 mA at 24V DC, 25°C
Switching Frequency:	200 Hz
Short circuit limit:	240 mA (SCP)
Cable:	L1: 2m Silicon, L2: 2m PUR
Operating temperature:	-20°C to +200°C, IP69k
Target size	8 x 8 x 1 mm ST37
Hysteresis:	3 to 20%
LED:	no
Options:	Cable length, Cable type



Dimensions are in mm.

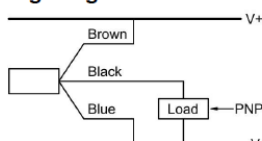
Part Numbers:	
<b>PNP / NO</b>	IN5-18HTNS-230ext-L91-IP69k-PEEK
<b>PNP / NC</b>	IN5-18HTPS-230ext-L91-IP69k-PEEK

Technical Data:	
Mounting:	Flush
Sensing Range in mm:	5 mm
Supply Voltage	10-36 V DC
Output function:	N.O.
Load current:	200 mA at 20V DC, 25°C
Switching Frequency:	200 Hz
Short circuit limit:	240 mA (SCP)
Cable:	L1: 3m Silicon, L2: 2m PUR
Operating temperature:	-25°C to +200°C, IP69k
Target size	8 x 8 x 1 mm ST37
Hysteresis:	3 to 20%
LED:	no
Options:	Cable length, Cable type

### This sensor has the following specifications:

- \* The EMC (Electromagnetic Compatibility) resistance of the switches:  
IEC 61000-4-2 Level 2 IEC 61000-4-4 Level 2  
IEC 61000-4-3 Level 2 IEC 60255-5 1 kV
- \* Sensing range can vary +/-10 %.
- \* Voltage spikes (300 V for 1 ms, 10 Hz)
- \* All standard cables are 3 x 0.25 mm<sup>2</sup> and a length of 2 m +/-5 %.
- \* Output capacity is 100 nF.
- \* Storage temperature -25 °C to 80 °C.
- \* Relative humidity is 100 %.
- \* Vibration resistant to 1 mm amplitude at 55 Hz.
- \* Shock resistant to 5 g for a period of 11 ms.
- \* Degree of protection (DIN 40 050) is IP69k.
- \* Reverse polarity protection is incorporated on the supply voltage.
- \* Load resistor of 100 kOhm is incorporated.
- \* Leakage current is 200 mA at 24 V supply voltage.
- \* Residual ripple is 15 %.
- \* Voltage drop is approximately 2 V when sensor is on.
- \* Sensing face material is: Ceramic / PEEK.
- \* Temperature specification for external amplifier:  
+14 to +158°F (-10 °C to 70 °C).

#### Wiring Diagram PNP NO



Special types and silicone free versions are available upon request

Design and technical details subject to change



## Anwendungen in der Spezial-Sensorik Sonderanfertigungen der Schlüter Gruppe

Die Schlüter Gruppe ist führend in Sachen Spezial-Sensorik. So können bei allen Schlüter Sensoren z.B. Formen, Materialien oder Kabellängen individuell modifiziert werden. Egal ob hohe Temperaturen in Industrieöfen oder extreme Witterungsbedingungen in Hochgeschwindigkeitszügen oder auf Passstrassen – Schlüter Sensoren leisten auch unter extremen Bedingungen gute Arbeit und sind jeder Herausforderung gewachsen.

### Verkehrstechnik

Die automatische Kuppelungsabdeckung der Zugklappe wird mit Zylinderschaltern gesteuert. Diese müssen auch bei starken Vibrationen sowie bei Schmutz, Kälte, Hitze, Dreck und Schnee sicher und zuverlässig funktionieren.



### Lebensmittelindustrie

Sensoren prüfen im laufenden Prozess in Abfüllanlagen, ob z.B. eine Flasche, Becher oder Deckel vorhanden ist. Die Sensoren müssen extreme Anforderungen erfüllen und z.B. Reinigungslaugen, hohen Temperaturen, Dämpfen etc. trotzen.



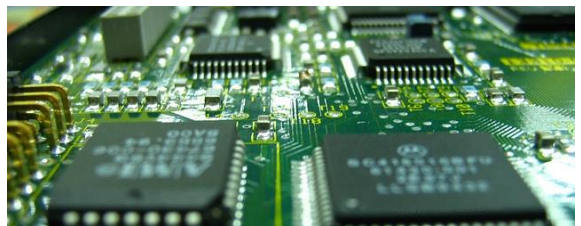
### Walzwerke

Unter extremsten Umgebungstemperaturen sowie bei Wasserdampf, Staub und Schmutz prüfen induktive Sensoren, ob das Walzgut richtig positioniert ist, damit der nächste Fertigungsschritt stattfinden kann.



### Halbleiterindustrie

Beim Chipbonden müssen kapazitive Sensoren Golddrähte erkennen, mit denen die Nacktchips des Wafers auf einer Grundplatte befestigt werden. Die Sensoren müssen extremst präzise arbeiten, damit minimalste Bauteile platziert und befestigt werden können.



Weitere Anwendungen auf unserer Website: [LINK](#)

