








## IN3000 Direct Inductive Safety Switches

Cost-effective position monitoring with direct evaluation

Cost-effective position monitoring with direct evaluation



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**Product description**

The IN3000 Direct non-contact safety switch belongs to the inductive safety switches product family. It is activated by metal (e.g. ST37 steel) and therefore doesn't need a separate actuator. The IN3000 Direct can be connected via two outputs directly to a suitable electronic

evaluation system such as a safe control solution.

Its small design makes optimum integration into the machine design possible. The IN3000 Direct is a cost-effective solution for position monitoring and combines the benefits of a small housing with easy and direct evaluation.

**At a glance**

- Inductive safety switch with cylindrical M12, M18 or M30 plastic/metal housing
- Two outputs for direct connection of sensors to a single safety controller
- Enclosure rating IP 65 or IP 67
- Response range of up to 15 mm
- Sensor with LED status indicator
- Up to performance level PL d (EN ISO 13849), SILCL2 (EN 62061), SIL2 (IEC 61508)
- M12 plug connector

**Your benefits**

- Cost-effective solution for applications up to PL d / SILCL2
- Space-saving mounting thanks to the small design and direct integration into the machine design
- Easy and direct connection to a safe control solution
- Fast diagnosis via LED status indicator
- Long service life due to resistance to shocks and vibrations
- Easy to clean, application in extremely dirty areas also possible

## Detailed technical data

You can find more detailed data in the operating instructions. Download at [www.mysick.com](http://www.mysick.com).

	IN30-E0208K	IN30-E0305K	IN30-E0306K	IN30-E0407K
<b>System part</b>	Sensor			
<b>Sensor principle</b>	Inductive			
<b>Housing diameter</b>	M30	M18	M18	M12
<b>Installation</b>	Non-flush	Non-flush	Flush	Non-flush
<b>Safety-related parameters</b>	Safety integrity level SIL2 (IEC 61508), SILCL2 (EN 62061) Category Category 2 (EN ISO 13849) Performance level PL d (EN ISO 13849) PFHd (mean probability of a dangerous failure per hour) $1.0 \times 10^{-7}$ (EN ISO 13849) T <sub>M</sub> (Mission Time) 10 years (EN ISO 13849), at -25 °C ... +70 °C and 5 % ... 95 % relative air humidity 20 years (EN ISO 13849), at +10 °C ... +40 °C and 5 % ... 70 % relative air humidity			
<b>Housing material</b>	V4A (housing), PBT (cover)	V4A (housing), PBT (cover)	V4A (housing), PBT (cover)	White bronze coated brass (housing), PBT (cover)
<b>Enclosure rating</b>	IP 67, IP 65			
<b>Ambient operating temperature from ... to</b>	-25 °C ... +70 °C			
<b>Protection class</b>	III			
<b>Operating voltage</b>	24 V DC (19.2 V DC ... 28.8 V DC)			
<b>Connection type</b>	Connector			
<b>Size of the cable gland</b>	M12			
<b>Type of output</b>	Semiconductor			
<b>Number of outputs</b>	2			
<b>Weight</b>	0.19 kg	0.1 kg	0.11 kg	0.08 kg
<b>Power indication</b>	✓			
<b>Status display</b>	✓			
<b>Safe switch on distance S<sub>ao</sub> from ... to <sup>1)</sup></b>	1 mm ... 15 mm	1 mm ... 8 mm	1 mm ... 5 mm	0.5 mm ... 4 mm
<b>Safe switch off distance S<sub>ar</sub></b>	22 mm	12 mm	7 mm	6 mm
<b>Maximum response time</b>	1 ms			

<sup>1)</sup> Values apply for steel (FE360).

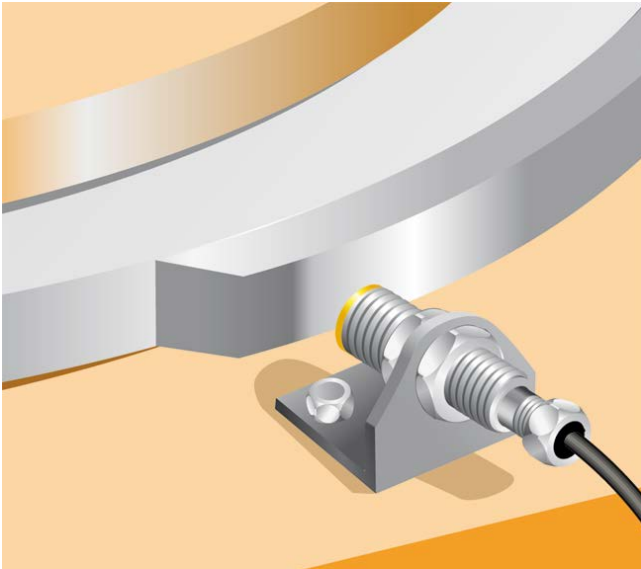
## Ordering information

- **System part:** sensor
- **Design:** cylindrical

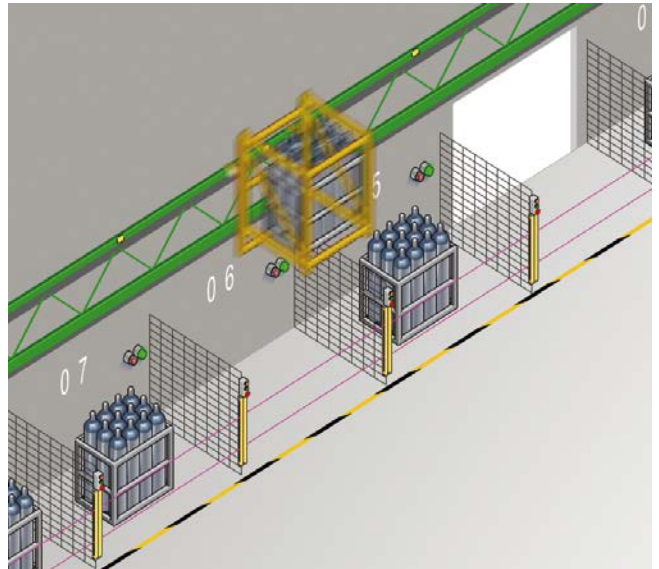
Housing diameter	Installation	Type	Part no.
M30	Non-flush	IN30-E0208K	6044655
M18	Non-flush	IN30-E0305K	6034576
	Flush	IN30-E0306K	6034581
M12	Non-flush	IN30-E0407K	6034582

## Applications

- Position determination of dangerous movements
- Position monitoring in hard-to-access areas



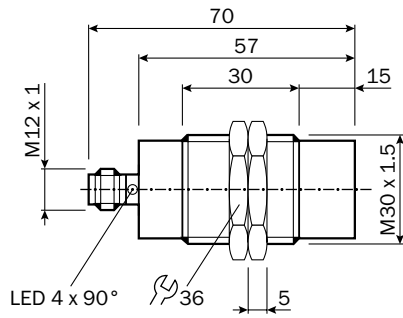
Safe position determination of a rotary table



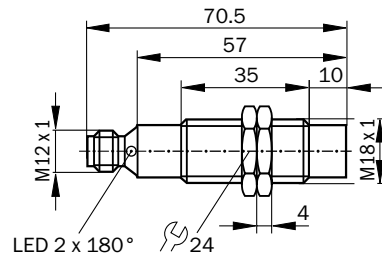
Position monitoring of a conveyor system for gas bottles

## Dimensional drawings

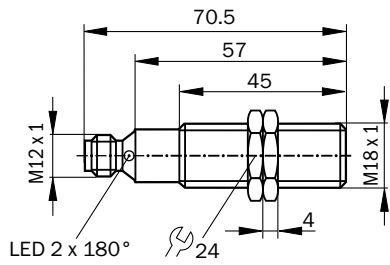
**IN30-E0208K**



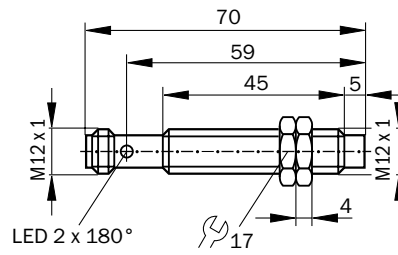
**IN30-E0305K**



**IN30-E0306K**

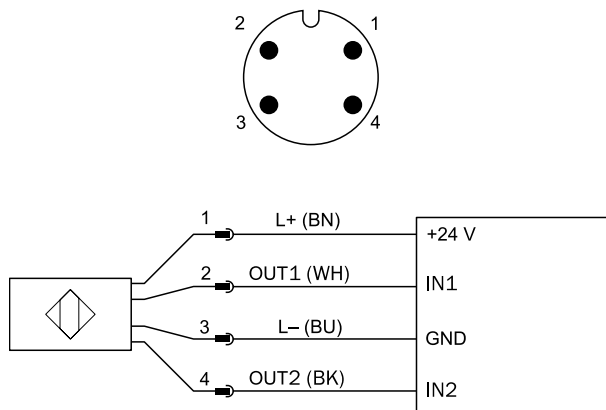


**IN30-E0407K**



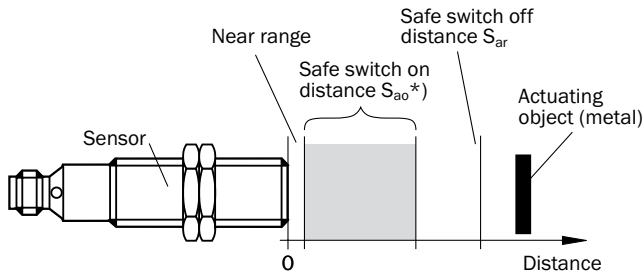
All dimensions in mm

## Connection example



Response range

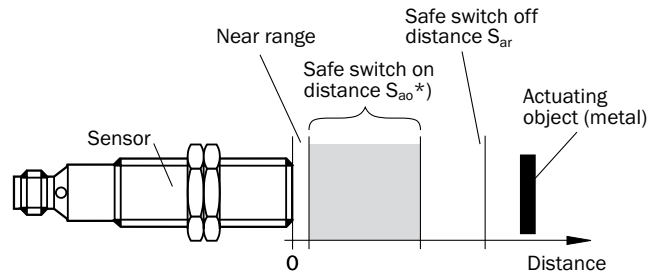
IN30-E0208K



Material of the actuating object	Safe switch on distance $S_{ao}^*$	Safe switch off distance $S_{ar}$
Steel FE360	1.0 mm ... 15.0 mm	22 mm
Stainless steel 1.4302	0 mm ... 11.4 mm	
AlMg 3G22	0 mm ... 6.8 mm	
CuZn 37	0 mm ... 7.2 mm	
Cu	0 mm ... 5.5 mm	

\*) Typical values for damping with a reference target plate of 45 x 45 x 1 mm and non-flush installation according to IEC 60947-5-2 at an ambient temperature of 20 °C.

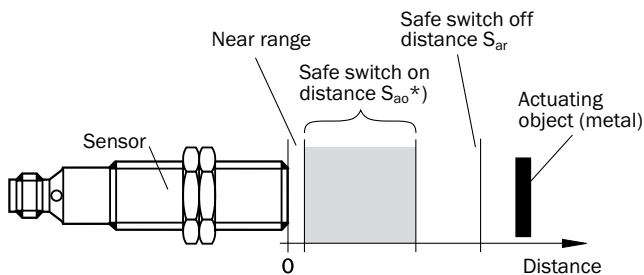
IN30-E0305K



Material of the actuating object	Safe switch on distance $S_{ao}^*$	Safe switch off distance $S_{ar}$
Steel FE360	1.0 mm ... 8.0 mm	12 mm
Stainless steel 1.4302	0.5 mm ... 5.6 mm	
AlMg 3G22	0 mm ... 3.2 mm	
CuZn 37	0 mm ... 3.2 mm	
Cu	0 mm ... 2.4 mm	

\*) Typical values for damping with a reference target plate of 24 x 24 x 1 mm and non-flush installation according to IEC 60947-5-2 at an ambient temperature of 20 °C.

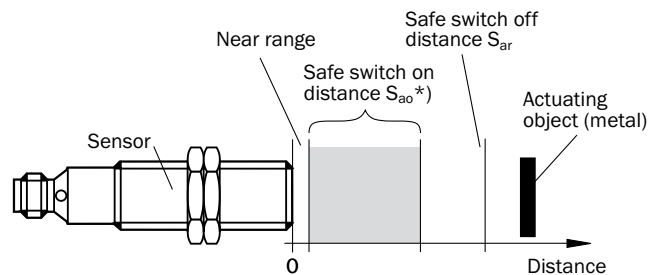
IN30-E0306K



Material of the actuating object	Safe switch on distance $S_{ao}^*$	Safe switch off distance $S_{ar}$
Steel FE360	1.0 mm ... 5.0 mm	7 mm
Stainless steel 1.4302	0.5 mm ... 3.5 mm	
AlMg 3G22	0 mm ... 2.0 mm	
CuZn 37	0 mm ... 2.0 mm	
Cu	0 mm ... 1.5 mm	

\*) Typical values for damping with a reference target plate of 18 x 18 x 1 mm and non-flush installation according to IEC 60947-5-2 at an ambient temperature of 20 °C.

IN30-E0407K




Material of the actuating object	Safe switch on distance $S_{ao}^*$	Safe switch off distance $S_{ar}$
Steel FE360	0.5 mm ... 4 mm	6 mm
Stainless steel 1.4302	0 mm ... 3.1 mm	
AlMg 3G22	0 mm ... 1.8 mm	
CuZn 37	0 mm ... 2.0 mm	
Cu	0 mm ... 1.2 mm	






\*) Typical values for damping with a reference target plate of 12 x 12 x 1 mm and non-flush installation according to IEC 60947-5-2 at an ambient temperature of 20 °C.

## Accessories

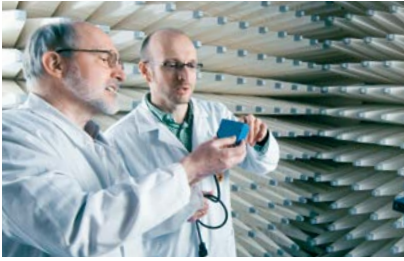
### Connectors

Figure	Connection type	Direction of cable outlet	Cable length	Type	Part no.
	M12, 4-pin	Straight	5 m	DOL-1204-G05M	6009866
			10 m	DOL-1204-G10M	6010543
			15 m	DOL-1204-G15M	6010753

### Mounting systems

Figure	Description	Type	Part no.
	Mounting bracket, thread M12	BEF-WN-M12	5308447
	Mounting bracket, thread M18	BEF-WN-M18	5308446
	Mounting bracket, thread M30	BEF-WN-M30	5308445
	Mounting clamp for cylindrical sensors M12 (without mechanical stop)	BEF-KH-M12	2051479
	Mounting clamp for cylindrical sensors M18 (without mechanical stop)	BEF-KH-M18	2051481

## SICK at a glance



### Leading technologies

With a staff of more than 5,000 and over 50 subsidiaries and representations worldwide, SICK is one of the leading and most successful manufacturers of sensor technology. The power of innovation and solution competency have made SICK the global market leader. No matter what the project and industry may be, talking with an expert from SICK will provide you with an ideal basis for your plans – there is no need to settle for anything less than the best.



### Unique product range

- Non-contact detecting, counting, classifying and positioning of any type of object
- Accident and operator protection with sensors, safety software and services
- Automatic identification with bar code and RFID readers
- Laser measurement technology for detecting the volume, position and contour of people and objects
- Complete system solutions for analysis and flow measurement of gases and liquids



### Comprehensive services

- SICK LifeTime Services – for safety and productivity
- Application centers in Europe, Asia and North America for the development of system solutions under real-world conditions
- E-Business Partner Portal [www.mysick.com](http://www.mysick.com) – price and availability of products, requests for quotation and online orders

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