Inductive proximity sensors

- Single sensing range

- Double sensing range

- Triple sensing range

- Flush installation

- Cylinder housing

- Threaded cylinder housing

- Cuboid housing

- Non-flush installation

Contents

ive proximity sensors →

Set the standards in your industry.

Ready to meet the requirements of factory automation.

Many type options	**Individual switching distances**	**IP 67/68 enclosure rating**
Vibration resistant	**Ex-area/ ATEX approval**	**AC/DC version**
High EMC resistance	**Many different designs**	**For difficult, small objects**

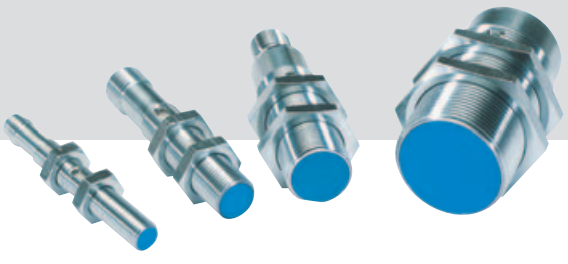
Co-ordinated with individual customer requirements, SICK inductive sensors enable the implementation of industry-specific automation solutions, increasing productivity with a high degree of reliability.

INOX Series – sensor solution with IP 69K protection and V4A stainless steel construction for the food and beverage industry.

Wet areas of food production facilities and bottling plants are harsher than anywhere else: pressures from 2-100 bar, high temperatures, acids, lyes and cleaning agents significantly affect many a sensor and signal. The INOX Series inductive sensors, however, have virtually no weaknesses. Types IM 12, IM 18 and IM 30 are available to detect objects. A particular feature of the sensors is the triple switching distance, the IP 69K enclosure rating, as well as the fully encapsulated housing in V4A stainless steel … resulting in long life of the SICK sensors and reliable signal transmission.

TRIPLEX – inductive sensors with triple switching distance.

With this innovation in metric design, SICK devices set new standards in scanning range and machine availability.
The TRIPLEX Series provides you with one of the largest switching distances to metal targets, currently available. 3 mm switching distance and quasi-flush mounting of the IM 08 design up to 40 mm, with non-flush mounting of the IM 30 design, enable a greater fitting distance – guaranteeing more protection from mechanical damage. TRIPLEX offers you best results, with even greater positioning tolerances for small, difficult to detect objects.



Simple and flexible installation.

Millions of inductive sensors are used in practically all areas of factory automation.
The SICK range offers you many sensors for different mounting requirements:
choice of NO or NC function, with NPN or PNP switching output, cable or plug-in sensor connection, standard or short body housings as well as integrated mounting rail brackets and device plug with 360° rotation.
In brief: SICK inductive sensors make the use and connection of sensors particularly easy and convenient.

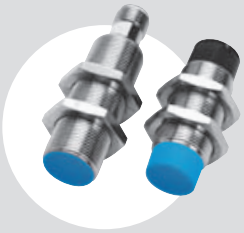
Robust and long lasting.

High-quality workmanship, robust metal or plastic housings ensure long life and high-precision switching. The sensors are highly reliable even in arduous operating conditions, withstanding vibration/shock, coolants/lubricants or high temperature variations, moisture or electromagnetic interference etc.

Meeting current and future market requirements.

Reducing error rates, eliminating quality defects and optimising processes. Whether for positional tasks, transport monitoring or muting safety guards – SICK inductive sensors are used wherever reliable detection of metallic objects is required.

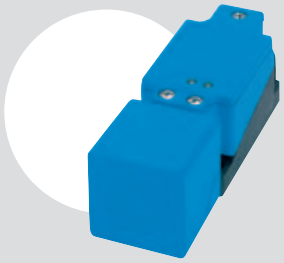
Inductive solutions in all types.



Inductive metric design IM

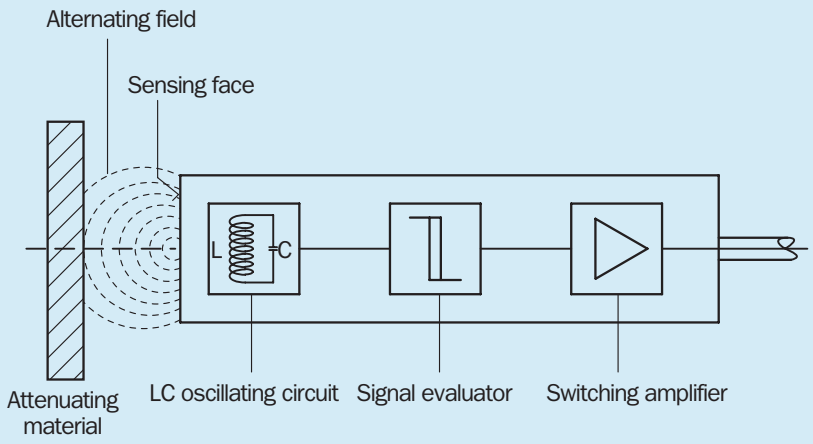
Inductive sleeve design IH

Inductive cuboid design IQ



Operating principle

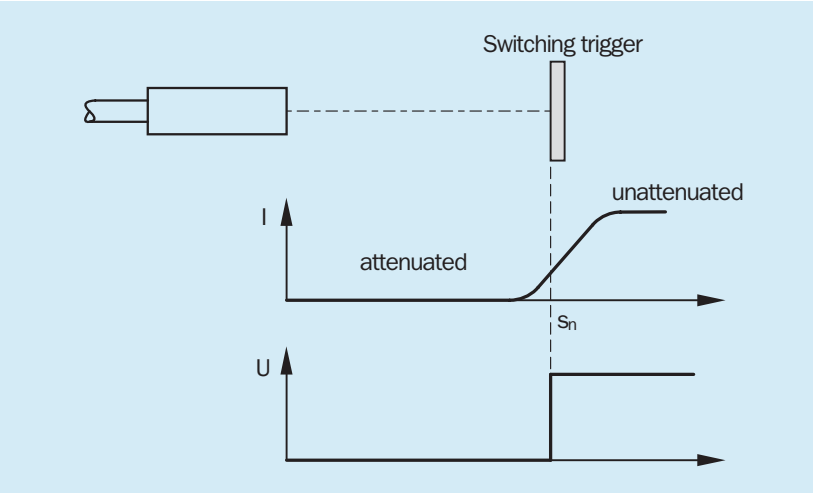
An inductive proximity sensor comprises an LC oscillating circuit, a signal evaluator, and a switching amplifier.



The coil of this oscillating circuit generates a high-frequency electromagnetic alternating field. This field is emitted at the sensing face of the sensor. If attenuating material nears the sensing face, eddy currents are generated in the case of non-ferrite metals. In the case of ferromagnetic metals, hysteresis and eddy-current loss also occurs.

These losses draw energy from the oscillating circuit and reduce oscillation. The signal evaluator detects this reduction and converts it into a switching signal.

The terms “attenuated” and “unattenuated” are used to describe the two switching states of the inductive proximity sensors.

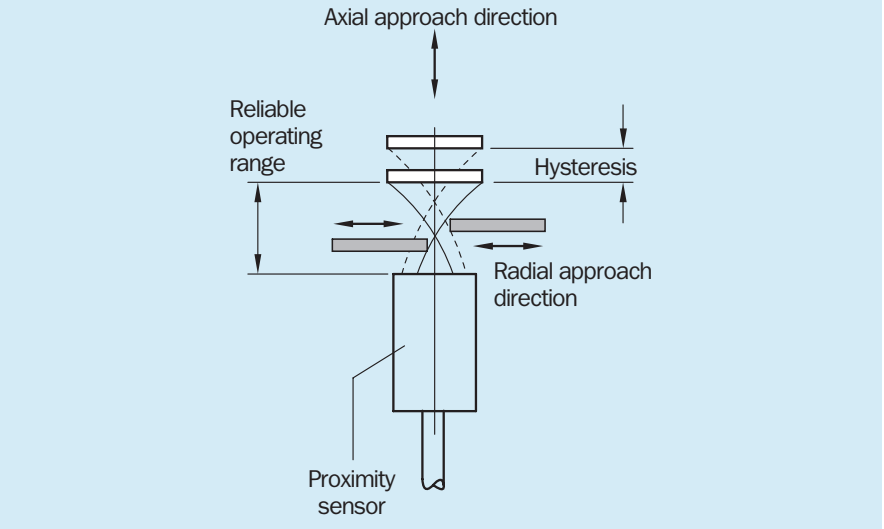


Operating principle

Response curve for inductive proximity sensors

The specified sensing ranges are determined in the case of axial approach along the reference axis of the sensor.

Radial approach results in a reduction of the sensing range. The edge of the switching trigger has only a small surface area. As a result, less eddy-current losses occur. The sensor therefore only reacts if the switching trigger laterally enters the alternating field relatively close to the sensing face. In the case of axial approach, the full surface of the switching trigger is exposed to the scattered electromagnetic field. Axial alignment therefore provides the maximum sensing range.



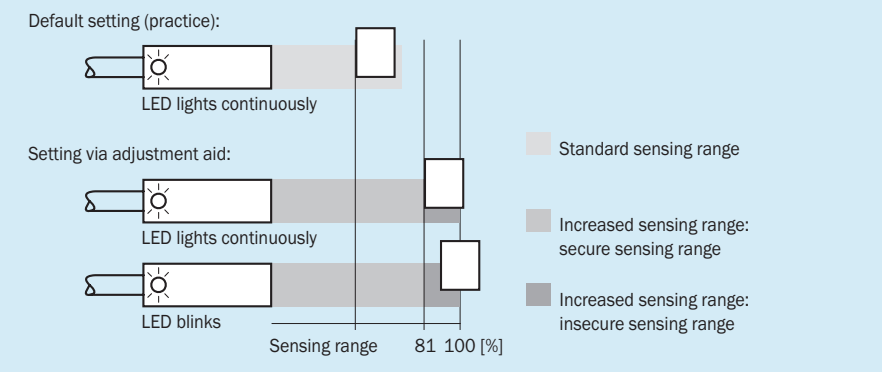
Glossary

Active switching zone

Area above the sensing face in which a proximity sensor responds by a change in switching status when attenuating material is brought nearer.

Adjustment aid (optical) inductive proximity sensor INOX

Optical adjustment aid per LED allows for quick alignment and optical usage of increased sensing range.
LED indicator flashes during 81 ... 100% of rated sensing range and proceeds to permanent display reaching the secured sensing range (81%).



Complementary output

A DC 4-wire with one NO and NC output that can be used at the same time.

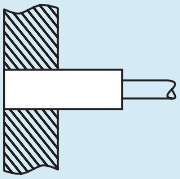
Glossary

Continuous current I_a

Current at which the proximity sensor can function reliably.

Flush installation

A proximity sensor can be embedded in an attenuating material so that it is flush with the active surface.

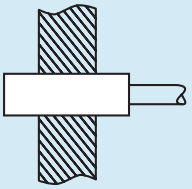


Minimum load current

Smallest load current that must flow with connected output in order to ensure the reliable operation of 2-wire proximity sensors.

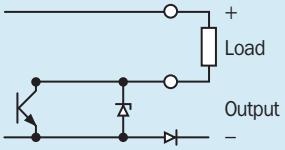
Non-flush installation

A proximity sensor must be installed in such a way that a free-zone is maintained.



NPN output

Proximity sensors with NPN output switch the negative potential to the load. They are also described as negative-switching or current-sinking.



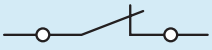
Operating voltage U_b

Voltage range in which the proximity sensor can function reliably.

Output function

Normally open: A proximity sensor with make function is disabled in the unattenuated state (high resistance) and is switched in the attenuated state (low resistance).

Normally closed : A proximity sensor with brake function is switched in the unattenuated state (low resistance)and disabled in the attenuated state (high resistance).



Glossary

Overload resistance

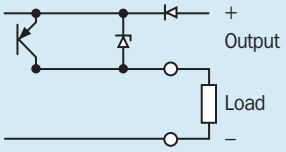
See also short-circuit protection. The response threshold for overload protection is greater than the value for continuous current-carrying capacity.

Peak current I_r

Current that may flow for a specified period at a defined switching frequency without destroying the proximity sensor.

PNP output

Proximity sensors with PNP output switch the positive potential to the load. They are also described as positive-switching or current-sourcing.



Power-up pulse suppression

The power-up pulse suppression ensures that no incorrect switching signal is sent to the output between the time when the operating voltage is applied and when the oscillator begins to oscillate.

Rated switching trigger

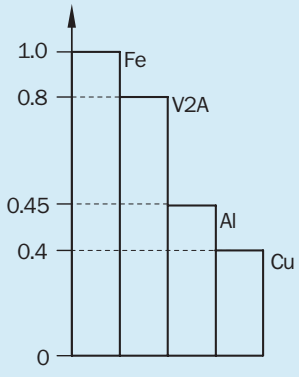
All sensing range measurements must be performed by axially moving a standard square measuring plate made of St37 (1 mm thick) through the alternating field. The length of the switching trigger sides is equal to the diameter of the response area or is 3 s_n. The larger value should be taken.

Reduction factor R_M

The specified sensing ranges all relate to St37. Considerable reductions in distance sometimes occur in the case of other materials.

Approximate reference values, which can vary from type to type:

St37 (Fe)	1
Stainless steal (V2A)	0.8
Aluminium (solid)	0.45
Copper (Cu)	0.4



These correction factors must be taken into consideration when selecting actuation elements or when calibrating to objects made of the respective alloys.

When proximity sensors are installed, the reliable sensing range (81 % of s_n) should always be used as the basis. The exact switching point must be set by means of fine adjustment.

Glossary

Residual current I_r

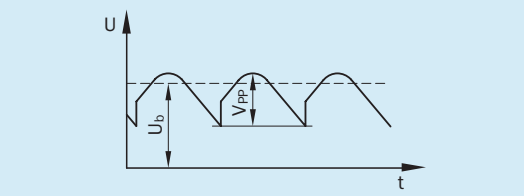
The residual current is used to supply power to the 2-wire sensors and also flows across the load if the output is disabled.

Reverse polarity protection

An internal protection circuit prevents the DC 3/4-wire proximity sensors from being destroyed if the supply voltage connections are incorrectly connected, and also ensures that no misoperation can occur which would result in an undesired signal being issued.

Ripple V_{PP}

The DC operating voltage of the ripple voltage content (maximum permissible peak value, given in % of U_b).

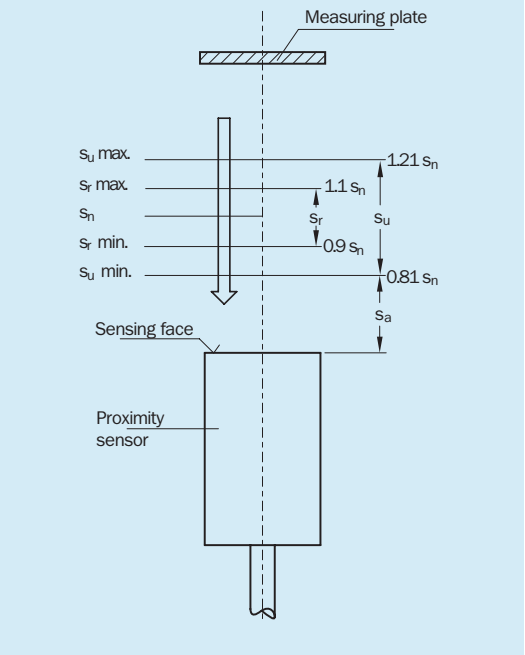


Sensing face

Surface of a proximity sensor to which the sensing range relates.

Sensing range

The sensing range of a proximity sensor is the distance at which one of the measuring plates being moved axially towards the active surface triggers a signal change.



Rated sensing range s_n: Device characteristics

Real sensing range s_r: $0.9\ s_n \leq s_r \leq 1.1\ s_n$

Useful sensing range s_u: $0.9\ s_r \leq s_u \leq 1.1\ s_r$

Actuation distance s_a: The actuation distance is the distance at which a proximity sensor reacts under specified temperature and voltage conditions. It is between 0 % and 81 % of the rated sensing range.

Shock stress

Pulse shape:	semi-sinoidal
Acceleration:	$\leq 30\ g_n$
Pulse length:	11 ms

Glossary

Short-circuit protection (with NAMUR sensor to EN 50227)

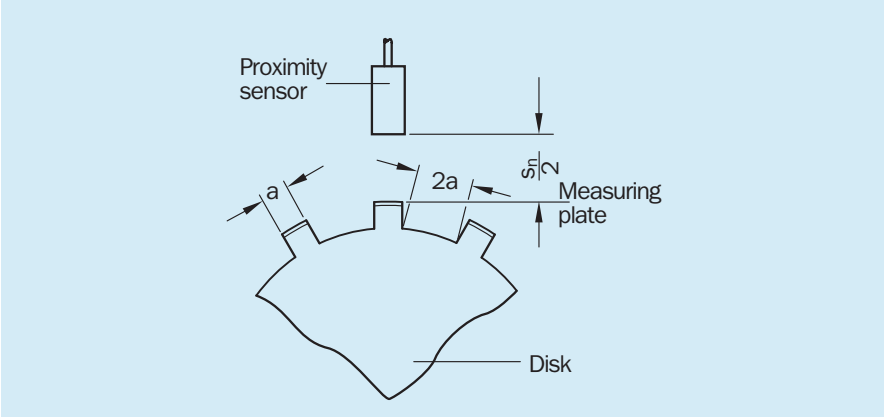
The proximity sensor is not destroyed if the load short-circuits or in the case of a short-circuit to ground at the output.

Short-circuit protection

Proximity sensors with short-circuit protection cannot be destroyed by either overloading or a direct short-circuit. When the triggering threshold is exceeded, the output is disabled and then periodically (in cycles) polled to establish whether the short-circuit still exists. An automatic reset is performed once the short-circuit has been eliminated.

Switching frequency f

Maximum number of switching actions per second.



Time delay before availability t_V

Time required by the proximity sensor to become operational after the operating voltage is applied.

Vibrations stress

Frequency range:	10 to 55 Hz
Amplitude:	1 mm
Vibration length:	5 min
Endurance at resonance frequency or at 55 Hz:	30 min in each axis

Voltage drop U_d (at I_a max)

Reduction in voltage occurring at maximum load current across the switching module of the proximity sensor. Special attention must be paid to this in the case of serial connections.

Wire-break protection

If one of the supply lines is broken, the output remains disabled (no misoperation).

Installation notes

Flush installation in metal

Proximity sensors for flush installation are shielded internally around the ferrite core. As a result, the sensor can be embedded in the metal up to the sensing face.

Proximity sensors for flush installation have a smaller sensing range compared to proximity sensors for non-flush installation with the same shape and design.

Quasi-flush installation in metal

These sensors with increased sensing range cannot be totally flush-mounted in metal but can be quasi-flush mounted with the free zone specified.

Advanced series	
Type	**Metal-free zone**
IM12-04B...	0.1 x d
IM18-08B...	0.1 x d
IM30-15B...	0.1 x d
IH06-02B...	2 mm

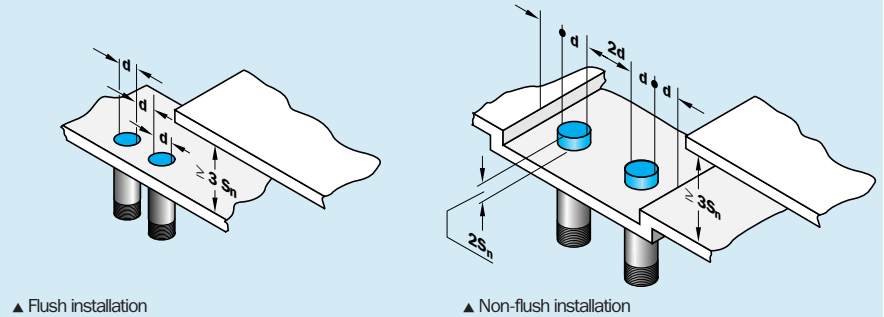
Triplex series	
Type	**Metal-free zone**
IM08-03B...	1 mm (St 37)
IM12-06B...	2 mm (St 37)
IM18-12B...	4 mm (St 37)
IM30-22B...	6 mm (St 37)

Non-flush installation in metal

With proximity sensors for non-flush installation, a metal-free zone must be maintained owing to the scattered field distribution.

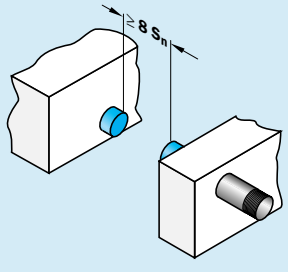
Cylindrical design

General installation notes for cylindrical design for flush and non-flush installation in metal:



▲ Flush installation ▲ Non-flush installation

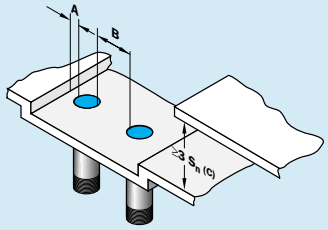
Opposite installation



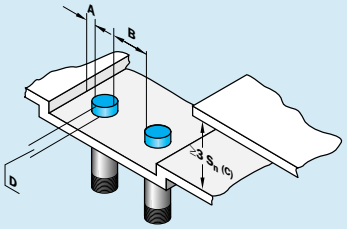
Installation notes

Cylindrical type Triplex Series

General installation notes for cylindrical types, for quasi-flush and non-flush installation in metal:



▲ Quasi-flush installation



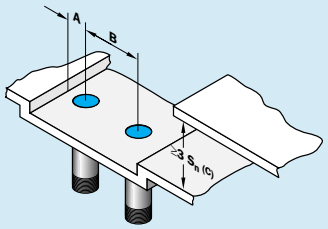
▲ Non-flush installation

Quasi-flush installation	
Type	**Metal-free zone: 2 x A x C**
IM08...	A = 4 mm, B = 8 mm, C = 9 mm
IM12...	A = 6 mm, B = 18 mm, C = 18 mm
IM18...	A = 11 mm, B = 26 mm, C = 36 mm
IM30...	A = 20 mm, B = 50 mm, C = 66 mm

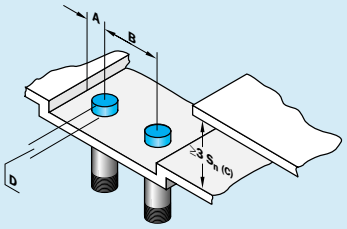
Non-flush installation	
Type	**Metal-free zone: 2 x A x (C + D)**
IM08...	A = 12 mm, B = 20 mm, C = 18 mm, D = 12 mm
IM12...	A = 18 mm, B = 30 mm, C = 30 mm, D = 20 mm
IM18...	A = 27 mm, B = 60 mm, C = 60 mm, D = 40 mm
IM30...	A = 45 mm, B = 120 mm, C = 120 mm, D = 80 mm

Cylindrical type INOX Series

General installation notes for cylindrical design for flush and non-flush installation in metal:



▲ Flush installation



▲ Non-flush installation

Flush installation	
Type	**Metal-free zone: 2 x A x C**
IM12...	A = 12 mm, B = 40 mm, C = 18 mm
IM18...	A = 25 mm, B = 60 mm, C = 30 mm
IM30...	A = 45 mm, B = 90 mm, C = 60 mm

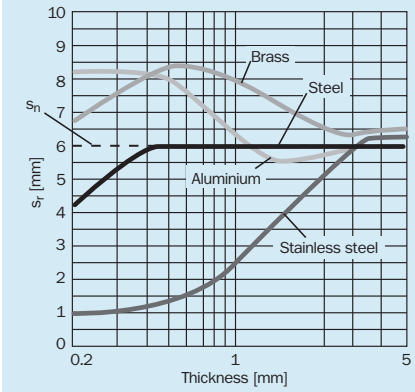
Non-flush installation	
Type	**Metal-free zone: 2 x A x (C + D)**
IM12...	A = 30 mm, B = 80 mm, C = 30 mm, D = 20 mm
IM18...	A = 50 mm, B = 150 mm, C = 60 mm, D = 35 mm
IM30...	A = 90 mm, B = 250 mm, C = 120 mm, D = 60 mm

Rated switching trigger			
Flush installation		**Non-flush installation**	
Type	**Measuring plate**	**Type**	**Measuring plate**
IM12...	18 x 18 mm²	IM12...	30 x 30 mm²
IM18...	30 x 30 mm²	IM18...	60 x 60 mm²
IM30...	60 x 60 mm²	IM30...	120 x 120 mm²

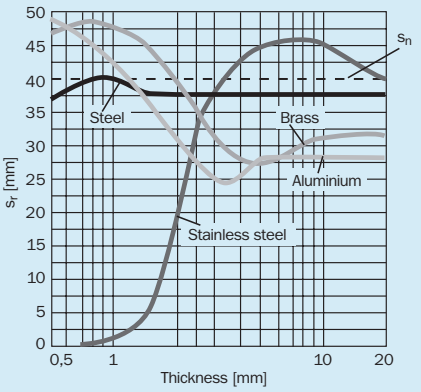
Installation notes

Operating distance s_r as a function of material thickness

INOX M12 version, flush installation

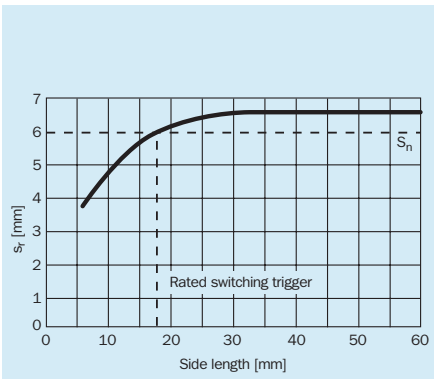


INOX M30 version, non-flush installation

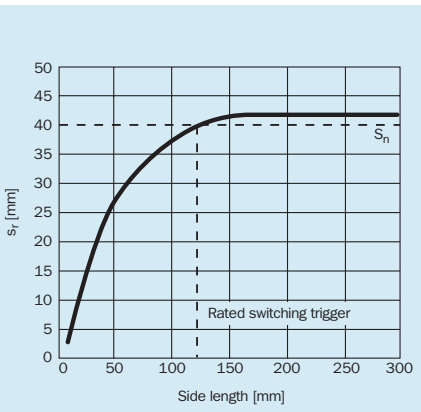


Operating distance s_r as a function of surface

INOX M12 version, flush installation

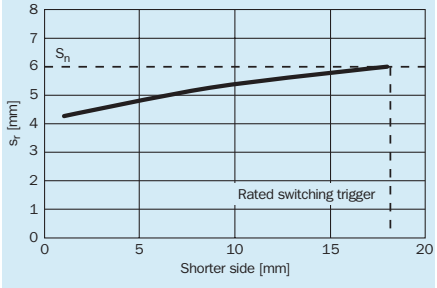


INOX M30 version, non-flush installation

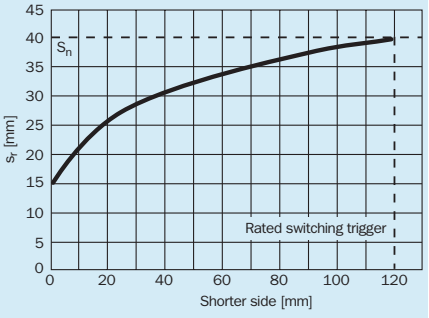


Operating distance s_r as a function of length/width

INOX M12 version, flush installation



INOX M30 version, non-flush installation

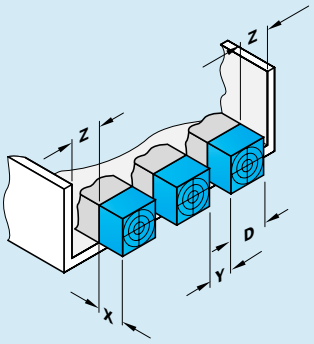


Installation notes

Cuboidal design

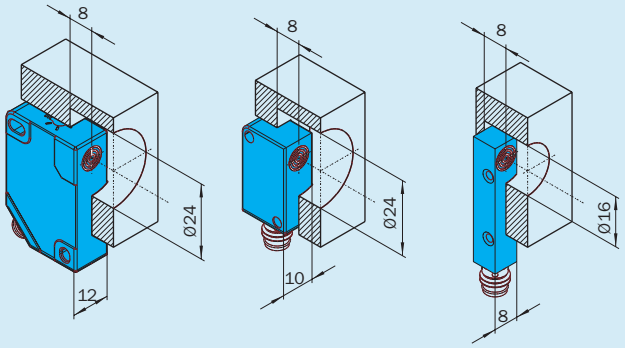
General installation notes for cuboidal design in metal:

Non-flush installation



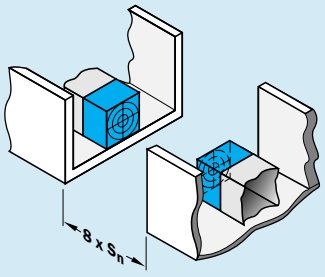
Design	X [mm]	Y [mm]	Z [mm]
IQ40-15B	0	40	0
IQ40-20B	0	40	0
IQ40-20N	0	80	80
IQ40-35N	40	80	80

Non-flush installation



Design	Y [mm]
IQ08-02B...	8
IQ08-04N...	16
IQ10-03B...	10
IQ10-06N...	20
IQ12-03B...	12
IQ12-06N...	24

Opposite installation



Selection table

Series	Housing	Sensing range S_n in mm		Switching output		Output function			Connction type			Electr. config.	From page
	Design, size in mm, material	Flush	Non-flush	P [1]	N [2]	NO	NC	NO/NC [3]	C [4]	Co. [5]	T [6]		
	Cylinder with thread												
IM 04	M4, Brass	0.6		■	■	■			■			DC 3-w.	216
IM 05	M5, Brass	0.8		■	■	■			■	■		DC 3-w.	218
IM 08	M8, Brass	1.5/2/3	2.5/4/6	■	■	■	■		■	■		DC 3-w.	220
IM 12	M12, Brass	2/4/6	4/8/10	■	■	■	■	■	■	■		DC 3/4-w.	238
IM 18	M18, Brass	5/8/12	8/12/20	■	■	■	■	■	■	■		DC 3/4-w.	266
IM 30	M30, Brass	10/15/22	15/20/40	■	■	■	■		■	■		DC 3-w.	292
	Cylinder with thread INOX series												
IM 12	M12, Stainless steel V4A	6	10	■	■	■	■			■		DC 3-w.	254
IM 18	M18, Stainless steel V4A	10	20	■	■	■	■			■		DC 3-w.	280
IM 30	M30, Stainless steel V4A	20	40	■	■	■				■		DC 3-w.	304
	Barrel, smooth												
IH 03	Ø 3, Stainless steel	0.6		■	■	■			■			DC 3-w.	312
IH 04	Ø 4, Stainless steel	0.8		■	■	■			■	■		DC 3-w.	314
IH 06	Ø 6,5, Stainless steel	1.5/2	4	■	■	■			■	■		DC 3-w.	316
	Cuboid												
IQ 05	5x5x25, Brass	0.8		■	■	■			■			DC 3-w.	326
IQ 08	8x40/8x49, Plastic	2	4	■	■	■			■	■		DC 3-w.	328
IQ 10	10x28/16x37, Plastic	3	6	■	■	■			■	■		DC 3-w.	330
IQ 12	12x40/26x49, Plastic	3	6	■	■	■			■	■		DC 3-w.	332
IQ 40	41x41x121, Plastic	15	20	■				■			■	DC 3-w.	334
IQ 40	40x40x118, Plastic	15	20					■			■	DC 4-w.	338
IQ 40	40x40x66, Plastic	15/20	35	■		■		■		■		DC 3/4-w.	336
IQ 80	80x40x105, Plastic		60	■				■			■	DC 3-w.	350
IQ 80	80x40x112, Plastic	50 (+over-flush)	44.5					■		■		DC 4-w.	352
	Cylinder with thread												
IM 12	M12, Brass	2	4			■			■	■		DC 2-w.	260
IM 18	M18, Brass	5	8			■			■	■		DC 2-w.	286
IM 30	M30, Brass	10	15			■			■	■		DC 2-w.	306
	Cuboid												
IQ 40	40x40x118, Plastic	15						■			■	DC 2-w.	344
	Cylinder with thread												
IM 12	M12, Brass	2	4			■	■		■			AC	262
IM 18	M18, Brass	5	8			■	■		■			AC/DC	288
IM 30	M30, Brass	10	15			■	■		■			AC/DC	308
	Barrel, smooth												
IH 20	Ø 20, Plastic		10			■			■			AC/DC	322
IH 34	Ø 34, Plastic		30			■	■		■			AC/DC	324
	Cuboid												
IQ 40	40x40x118, Plastic	15						■			■	AC 2-w.	346
IQ 40	41x41x121, Plastic	15	20					■			■	AC/DC	348
IQ 80	80x40x105, Plastic		60					■			■	AC/DC	354
	Cylinder with thread												
IM 08	M8, Brass	1							■			NAMUR	236
IM 12	M12, Brass	2	4						■			NAMUR	264
IM 18	M18, Brass	5	8						■			NAMUR	290
IM 30	M30, Brass	10	15						■			NAMUR	310

[1] P = PNP
[2] N = NPN
[3] NO/NC = progr./compl.
[4] C = Cable
[5] Co. = Connector
[6] T = Terminals

Type code

IM	12	–	02B	P	S	–	Z	U	0

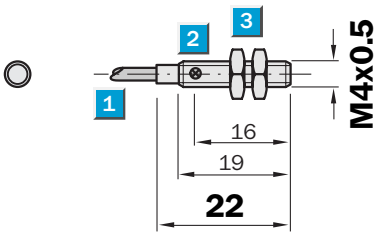
Sensor technology										**Other codes**
Inductive	I								K	Short body housing
Design									0	Standard
Barrel		H							1	Standard
Cylinder with thread		M								**Cables and connectors**
Cuboid		Q						W		Cable, PVC
Housing shape, diameter or edge dimension on the sensing face								U		Cable, PUR-PVC
								P		Cable with connector, M8 x 1
03		03						T		Connector, M8 x 1
04		04						C		Connector, M12 x 1
05		05						K		Terminals
06		06								**Housing material**
08		08					Z			MS, nickel-plated
10		10					V			Stainless steel
12		12					K			Plastic
18		18					N			Stainless steel V4A (INOX series)
20		20								**Output**
30		30			S					NO
34		34			O					NC
40		40			P					Programmable/complementary
80		80			N					NAMUR
Sensing range/installation										**Interface**
Flush			B	P						DC (3/4-wire) PNP
Non-flush			N	N						DC (3/4-wire) NPN
2 mm, flush			02B	C						DC (4-wire) PNP or NPN
4 mm, non-flush			04N	D						DC 2-wire
1.5 mm, flush			1B5	A						AC 2-wire
2.5 mm, non-flush			2N5	U						AC/DC 2-wire
				–						NAMUR

Sensing range 0.6 mm

Inductive sensor

- Can be installed flush
- High switching frequency
- Short-circuit protection (pulsed)
- Robust stainless steel housing with fine thread M4 x 0.5 mm
- Enclosure rating IP 67

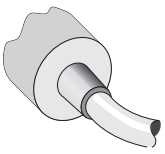
Dimensional drawing



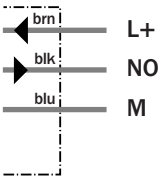
1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 6, stainless steel

Connection type

IM04-0B6NS-ZU1
IM04-0B6PS-ZU1



3 x 0.06 mm²



Technical specifications	IM04-	0B6NS -ZU1	0B6PS -ZU1								
Sensing range S_n	0.6 mm										
Electrical configuration	DC 3-wire										
Supply voltage V_S	DC 10 ... 30 V										
Ripple U_{pp}	≤ 20 %[1]										
Voltage drop U_d	≤ 0.6 V[2]										
Power consumption	≤ 10 mA[3]										
Continuous current I_a	≤ 100 mA										
Time delay before availability t_v	≤ 10 ms										
Hysteresis H, of s_r	10 %										
Repeatability R	≤ 2 % (U_b and T_a constant)										
Temperature drift, of s_r	± 10 %										
EMC	According to EN 60947-5-2										
Switching output	NPN										
	PNP										
Output function	Normally open[4]										
Installation	Flush										
Connection type	Cable, PUR, 2 m										
Enclosure rating	IP 67[5]										
Max. switching frequency	5,000 Hz										
Dimensions	M4 x 0.5[6]										
Short-circuit protection	✓[7]										
Reverse polarity protection	✓										
Power-up pulse suppression	✓										
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm										
Ambient temperature T_a	-25 °C ... +70 °C										
Housing material	Stainless steel, plastic										
Tightening torque	0.8 Nm										

[1] of U_b
[2] at I_a = 50 mA
[3] without load
[4] normally closed function available on request
[5] according to EN 60529
[6] Thread diameter x pitch (mm)
[7] (pulsed)

Order information

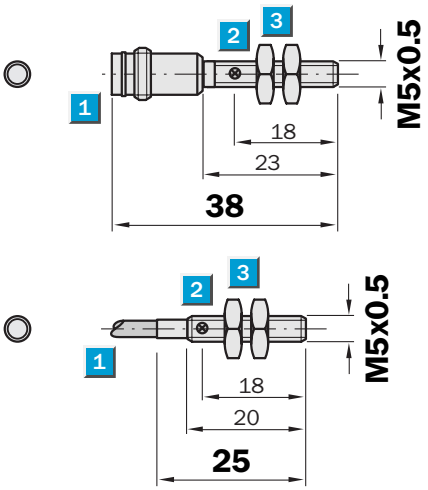
Type	Order no.
IM04-0B6NS-ZU1	6 020 146
IM04-0B6PS-ZU1	6 020 145

Sensing range 0.8 mm

Inductive sensor

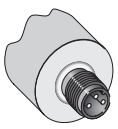
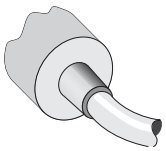
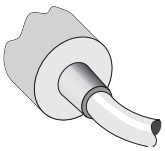
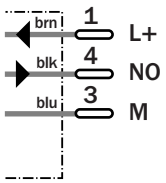
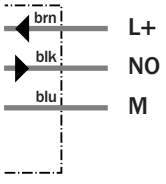
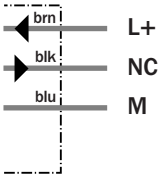
- Can be installed flush
- High switching frequency
- Short-circuit protection (pulsed)
- Robust stainless steel housing with fine thread M5 x 0.5 mm
- Enclosure rating IP 67

Dimensional drawing



1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 7, stainless steel

Connection type

IM05-0B8NS-ZT1 IM05-0B8PS-ZT1	IM05-0B8NS-ZW1 IM05-0B8PS-ZWB IM05-0B8PS-ZW1	IM05-0B8NO-ZW1
		
M8, 3-pin	3 x 0.14 mm²	3 x 0.14 mm²
		

See chapter Accessories
Connector, M8, 3-pin

Technical specifications	IM05-	0B8NO -ZW1	0B8NS -ZT1	0B8NS -ZW1	0B8PS -ZT1	0B8PS -ZWB	0B8PS -ZW1
Sensing range S_n	0.8 mm	■	■	■	■	■	■
Electrical configuration	DC 3-wire	■	■	■	■	■	■
Supply voltage V_S	DC 10 ... 30 V	■	■	■	■	■	■
Ripple U_{pp}	≤ 20 %[1]	■	■	■	■	■	■
Voltage drop U_d	≤ 2 V[2]	■	■	■	■	■	■
Power consumption	≤ 10 mA[3]	■	■	■	■	■	■
Continuous current I_a	≤ 200 mA	■	■	■	■	■	■
Time delay before availability t_v	≤ 10 ms	■	■	■	■	■	■
Hysteresis H, of s_r	10 %	■	■	■	■	■	■
Repeatability R	≤ 1.5 % (U_b and T_a constant)	■	■	■	■	■	■
Temperature drift, of s_r	± 10 %	■	■	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■	■	■
Switching output	NPN	■	■	■			
	PNP				■	■	■
Output function	Normally closed	■					
	Normally open		■	■	■	■	■
Installation	Flush	■	■	■	■	■	■
Connection type	Cable, PVC, 2 m	■		■			■
	Connector, M8, 3-pin		■		■		
	Cable, PVC, 5 m					■	
Enclosure rating	IP 67[4]	■	■	■	■	■	■
Max. switching frequency	5,000 Hz	■	■	■	■	■	■
Dimensions	M5 x 0.5[5]	■	■	■	■	■	■
Short-circuit protection	✓[6]	■	■	■	■	■	■
Reverse polarity protection	✓	■	■	■	■	■	■
Power-up pulse suppression	✓	■	■	■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■	■
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■	■	■
Housing material	Stainless steel, plastic	■	■	■	■	■	■
Tightening torque	1.5 Nm	■	■	■	■	■	■

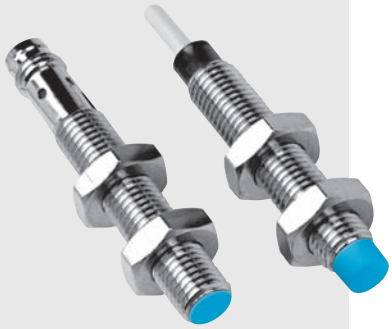
[1] of U_b
[2] at I_a = 200 mA
[3] without load
[4] according to EN 60529
[5] Thread diameter x pitch (mm)
[6] (pulsed)

Order information	
Type	**Order no.**
IM05-0B8NO-ZW1	6 020 157
IM05-0B8NS-ZT1	6 020 158
IM05-0B8NS-ZW1	6 020 155
IM05-0B8PS-ZT1	6 020 110
IM05-0B8PS-ZWB	6 021 575
IM05-0B8PS-ZW1	6 011 591

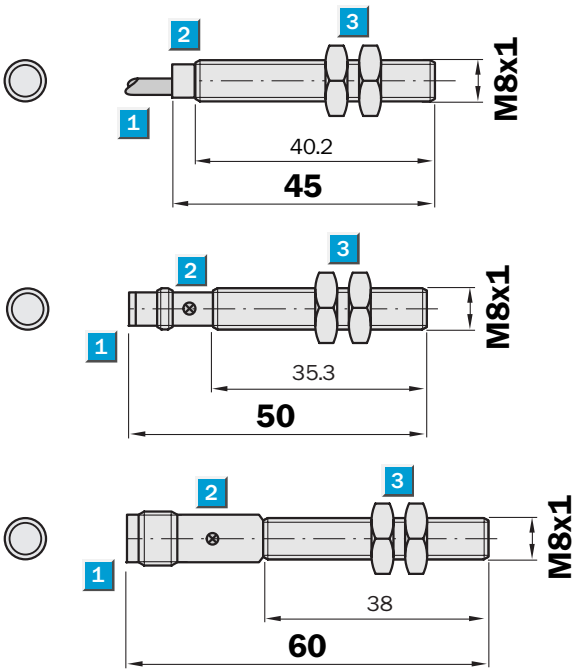
Sensing range 1.5 mm

Inductive sensor

- High switching frequency
- Short-circuit protection (pulsed)
- Robust brass housing, nickel-plated with fine thread M8 x 1 mm
- Enclosure rating IP 67



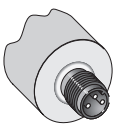
Dimensional drawing

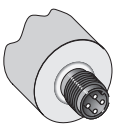


1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 13, metal

Connection type

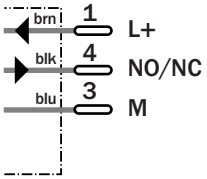
IM08-1B5NO-ZW1	IM08-1B5NS-ZT1	IM08-1B5NS-ZC1
IM08-1B5NS-ZW1	IM08-1B5PO-ZT1	IM08-1B5PS-ZC1
IM08-1B5PO-ZW1	IM08-1B5PS-ZT1	
IM08-1B5PS-ZW1		



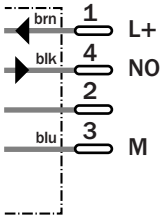


3 x 0.14 mm²

M8, 3-pin



M12, 4-pin



See chapter Accessories

Connector, M12, 4-pin
Connector, M8, 3-pin

Technical specifications	IM08-	1B5NO -ZW1	1B5NS -ZW1	1B5PO -ZW1	1B5PS -ZW1	1B5NS -ZC1	1B5NS -ZT1	1B5PO -ZT1	1B5PS -ZC1	1B5PS -ZT1
Sensing range S_n	1.5 mm	■	■	■	■	■	■	■	■	■
Electrical configuration	DC 3-wire	■	■	■	■	■	■	■	■	■
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■	■	■	■	■	■
Ripple U_{pp}	≤ 10 %	■	■	■	■	■	■	■	■	■
Voltage drop U_d	≤ 1.2 V[1]	■	■	■	■	■	■	■	■	■
Power consumption	≤ 20 mA[2]	■	■	■	■	■	■	■	■	■
Continuous current I_a	≤ 200 mA	■	■	■	■	■	■	■	■	■
Time delay before availability t_v	≤ 100 ms	■	■	■	■	■	■	■	■	■
Hysteresis H, of s_r	2 ... 10 %	■	■	■	■	■	■	■	■	■
Repeatability R	≤ 2 % (U_b and T_a constant)[3]	■	■	■	■	■	■	■	■	■
Temperature drift, of s_r	± 10 %	■	■	■	■	■	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■	■	■	■	■	■
Switching output	NPN	■	■			■	■			
	PNP			■	■			■	■	■
Output function	Normally closed	■		■				■		
	Normally open		■		■	■	■		■	■
Installation	Flush	■	■	■	■	■	■	■	■	■
Connection type	Cable, PVC, 2 m	■	■	■	■					
	Connector, M12, 4-pin					■			■	
	Connector, M8, 3-pin						■	■		■
Enclosure rating	IP 67[4]	■	■	■	■	■	■	■	■	■
Max. switching frequency	3,000 Hz	■	■	■	■	■	■	■	■	■
Dimensions	M8 x 1[5]	■	■	■	■	■	■	■	■	■
Short-circuit protection	✓[6]	■	■	■	■	■	■	■	■	■
Reverse polarity protection	✓	■	■	■	■	■	■	■	■	■
Power-up pulse suppression	✓	■	■	■	■	■	■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■	■	■	■	■
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■	■	■	■	■	■
Housing material	Brass nickel-plated, plastic	■	■	■	■	■	■	■	■	■
Tightening torque	4 Nm	■	■	■	■	■	■	■	■	■

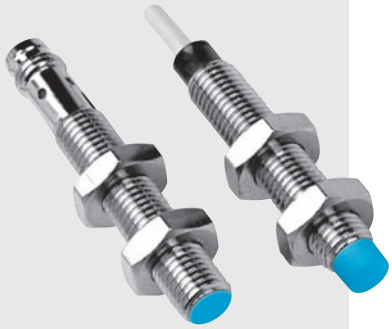
[1] at I_a max
[2] without load
[3] of s_r
[4] according to EN 60529
[5] Thread diameter x pitch (mm)
[6] (pulsed)

Order information	
Type	**Order no.**
IM08-1B5NO-ZW1	6 020 218
IM08-1B5NS-ZW1	6 020 216
IM08-1B5PO-ZW1	6 020 217
IM08-1B5PS-ZW1	6 020 215
IM08-1B5NS-ZC1	6 020 224
IM08-1B5NS-ZT1	6 020 220
IM08-1B5PO-ZT1	6 020 221
IM08-1B5PS-ZC1	6 020 223
IM08-1B5PS-ZT1	6 020 219

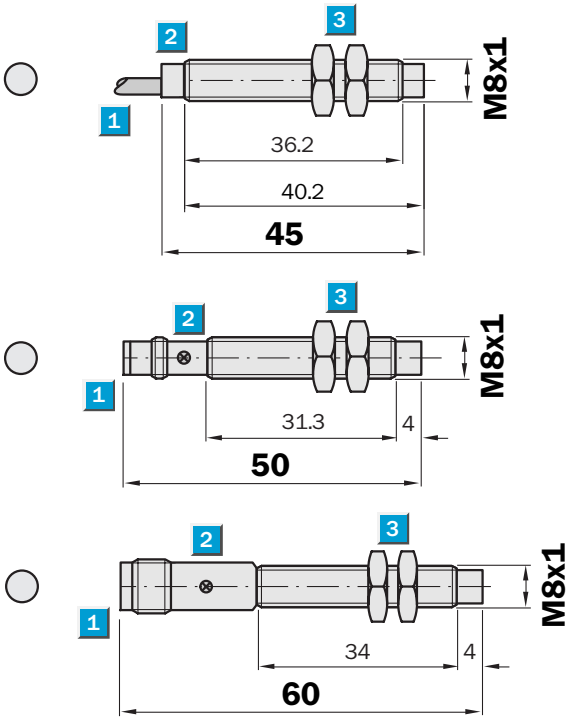
Sensing range 2.5 mm

Inductive sensor

- High switching frequency
- Short-circuit protection (pulsed)
- Robust brass housing, nickel-plated with fine thread M8 x 1 mm
- Enclosure rating IP 67

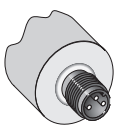
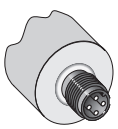
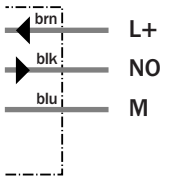
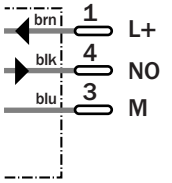
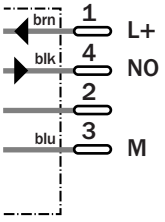


Dimensional drawing



1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 13, metal

Connection type

IM08-2N5NS-ZW1 IM08-2N5PS-ZW1	IM08-2N5NS-ZT1 IM08-2N5PS-ZT1	IM08-2N5NS-ZC1 IM08-2N5PS-ZC1
		
3 x 0.14 mm²	M8, 3-pin	M12, 4-pin
		

See chapter Accessories

Connector, M12, 4-pin
Connector, M8, 3-pin

Technical specifications	IM08-	2N5NS-ZW1	2N5PS-ZW1	2N5NS-ZC1	2N5NS-ZT1	2N5PS-ZC1	2N5PS-ZT1				
Sensing range S_n	2.5 mm	■	■	■	■	■	■				
Electrical configuration	DC 3-wire	■	■	■	■	■	■				
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■	■	■				
Ripple U_{pp}	≤ 10 %	■	■	■	■	■	■				
Voltage drop U_d	≤ 1.2 V[1]	■	■	■	■	■	■				
Power consumption	≤ 20 mA[2]	■	■	■	■	■	■				
Continuous current I_a	≤ 200 mA	■	■	■	■	■	■				
Time delay before availability t_v	≤ 100 ms	■	■	■	■	■	■				
Hysteresis H, of s_r	2 ... 10 %	■	■	■	■	■	■				
Repeatability R	≤ 2 % (U_b and T_a constant)[3]	■	■	■	■	■	■				
Temperature drift, of s_r	± 10 %	■	■	■	■	■	■				
EMC	According to EN 60947-5-2	■	■	■	■	■	■				
Switching output	NPN	■		■	■						
	PNP		■			■	■				
Output function	Normally open	■	■	■	■	■	■				
Installation	Non-flush	■	■	■	■	■	■				
Connection type	Cable, PVC, 2 m	■	■								
	Connector, M12, 4-pin			■		■					
	Connector, M8, 3-pin				■		■				
Enclosure rating	IP 67[4]	■	■	■	■	■	■				
Max. switching frequency	2,500 Hz	■	■	■	■	■	■				
Dimensions	M8 x 1[5]	■	■	■	■	■	■				
Short-circuit protection	✓[6]	■	■	■	■	■	■				
Reverse polarity protection	✓	■	■	■	■	■	■				
Power-up pulse suppression	✓	■	■	■	■	■	■				
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■	■				
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■	■	■				
Housing material	Brass nickel-plated, plastic	■	■	■	■	■	■				
Tightening torque	4 Nm	■	■	■	■	■	■				

[1] at I_a max
[2] without load
[3] of s_r
[4] according to EN 60529
[5] Thread diameter x pitch (mm)
[6] (pulsed)

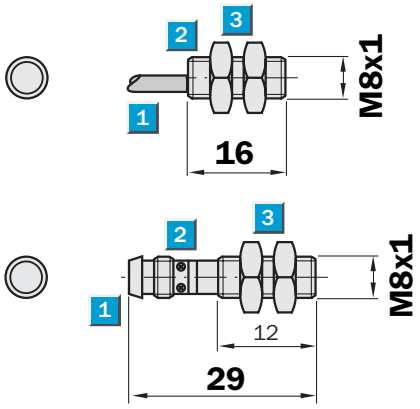
Order information	
Type	**Order no.**
IM08-2N5NS-ZW1	6 020 228
IM08-2N5PS-ZW1	6 020 227
IM08-2N5NS-ZC1	6 020 236
IM08-2N5NS-ZT1	6 020 232
IM08-2N5PS-ZC1	6 020 235
IM08-2N5PS-ZT1	6 020 231

Sensing range 1.5 mm

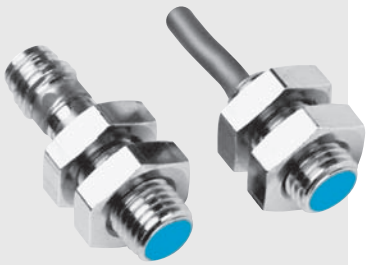
Inductive sensor

- High switching frequency
- Short-circuit protection (pulsed)
- Robust brass housing, nickel-plated with fine thread M8 x 1 mm
- Enclosure rating IP 67

Dimensional drawing

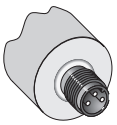
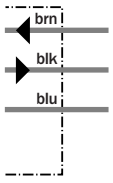
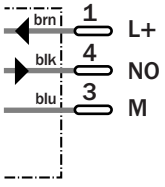


1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 13, metal



CE

Connection type

IM08-1B5NS-ZWK IM08-1B5PS-ZWK	IM08-1B5NS-ZTK IM08-1B5PS-ZTK
	
3 x 0.14 mm²	M8, 3-pin
	

See chapter Accessories

Connector, M8, 3-pin

Technical specifications	IM08-	1B5NS -ZWK	1B5PS -ZWK	1B5NS -ZTK	1B5PS -ZTK						
Sensing range S_n	1.5 mm	■	■	■	■						
Electrical configuration	DC 3-wire	■	■	■	■						
Supply voltage V_S	DC 10 ... 30 V	■	■	■	■						
Ripple U_{pp}	≤ 20 %[1]	■	■	■	■						
Voltage drop U_d	≤ 2 V[2]	■	■	■	■						
Power consumption	10 mA[3]	■	■	■	■						
Continuous current I_a	≤ 200 mA	■	■	■	■						
Time delay before availability t_v	≤ 10 ms	■	■	■	■						
Hysteresis H, of s_r	10 %	■	■	■	■						
Repeatability R	≤ 5 % (U_b and T_a constant)	■	■	■	■						
Temperature drift, of s_r	± 10 %	■	■	■	■						
EMC	According to EN 60947-5-2	■	■	■	■						
Switching output	NPN	■		■							
	PNP		■		■						
Output function	Normally open[4]	■	■	■	■						
Installation	Flush	■	■	■	■						
Connection type	Cable, PVC, 2 m	■	■								
	Connector, M8, 3-pin			■	■						
Enclosure rating	IP 67[5]	■	■	■	■						
Max. switching frequency	5,000 Hz	■	■	■	■						
Dimensions	M8 x 1[6]	■	■	■	■						
Short-circuit protection	✓[7]	■	■	■	■						
Reverse polarity protection	✓	■	■	■	■						
Power-up pulse suppression	✓	■	■	■	■						
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■						
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■						
Housing material	Brass nickel-plated, plastic	■	■	■	■						
Tightening torque	4 Nm	■	■	■	■						

[1] of U_b
[2] at I_a = 200 mA
[3] without load
[4] normally closed function available on request
[5] according to EN 60529
[6] Thread diameter x pitch (mm)
[7] (pulsed)

Order information

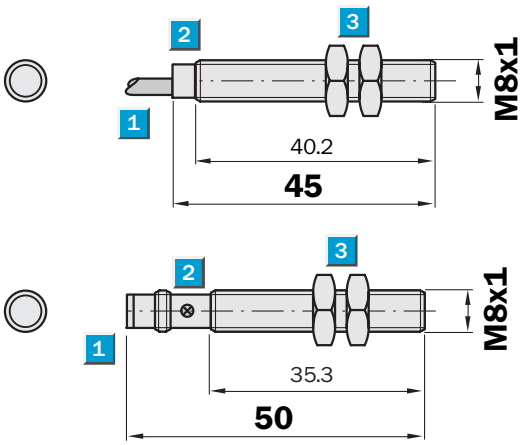
Type	Order no.
IM08-1B5NS-ZWK	6 020 173
IM08-1B5PS-ZWK	6 020 111
IM08-1B5NS-ZTK	6 020 176
IM08-1B5PS-ZTK	6 020 112

Sensing range 2 mm

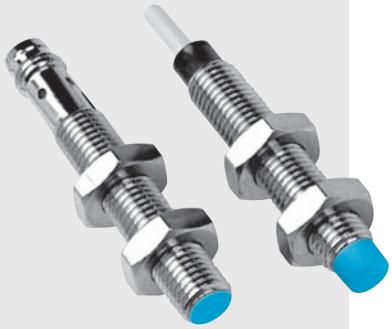
Inductive sensor

- Enhanced sensing range
- High switching frequency
- Short-circuit protection (pulsed)
- Robust brass housing, nickel-plated with fine thread M8 x 1 mm
- Enclosure rating IP 67

Dimensional drawing

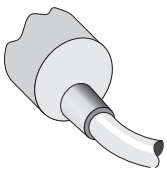


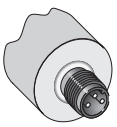
1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 13, metal



Connection type

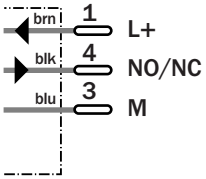
IM08-02BNS-ZW1	IM08-02BNO-ZT1
IM08-02BPO-ZW1	IM08-02BNS-ZT1
IM08-02BPS-ZW1	IM08-02BPS-ZT1
	IM08-02BPO-ZT1





3 x 0.14 mm²

M8, 3-pin



See chapter Accessories

Connector, M8, 3-pin

Technical specifications	IM08-	02BNS -ZW1	02BPO -ZW1	02BPS -ZW1	02BNO -ZT1	02BNS -ZT1	02BPS -ZT1	02BPO -ZT1
Sensing range S_n	2 mm	■	■	■	■	■	■	■
Electrical configuration	DC 3-wire	■	■	■	■	■	■	■
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■	■	■	■
Ripple U_{pp}	≤ 10 %[1]	■	■	■	■	■	■	■
Voltage drop U_d	≤ 1.2 V[2]	■	■	■	■	■	■	■
Power consumption	≤ 20 mA[3]	■	■	■	■	■	■	■
Continuous current I_a	≤ 200 mA	■	■	■	■	■	■	■
Time delay before availability t_v	≤ 100 ms	■	■	■	■	■	■	■
Hysteresis H, of s_r	2 ... 15 %	■	■	■	■	■	■	■
Repeatability R	≤ 5 % (U_b and T_a constant)[4]	■	■	■	■	■	■	■
Temperature drift, of s_r	± 10 %	■	■	■	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■	■	■	■
Switching output	NPN	■			■	■		
	PNP		■	■			■	■
Output function	Normally open	■		■		■	■	
	Normally closed		■		■			■
Installation	Flush	■	■	■	■	■	■	■
Connection type	Cable, PVC, 2 m	■	■	■				
	Connector, M8, 3-pin				■	■	■	■
Enclosure rating	IP 67[5]	■	■	■	■	■	■	■
Max. switching frequency	3,000 Hz	■	■	■	■	■	■	■
Dimensions	M8 x 1[6]	■	■	■	■	■	■	■
Short-circuit protection	✓[7]	■	■	■	■	■	■	■
Reverse polarity protection	✓	■	■	■	■	■	■	■
Power-up pulse suppression	✓	■	■	■	■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■	■	■
Ambient temperature T_a	-25 °C ... +70 C	■	■	■	■	■	■	■
Housing material	Brass nickel-plated, plastic	■	■	■	■	■	■	■
Tightening torque	4 Nm	■	■	■	■	■	■	■

[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] according to EN 60529
[6] Thread diameter x pitch (mm)
[7] (pulsed)

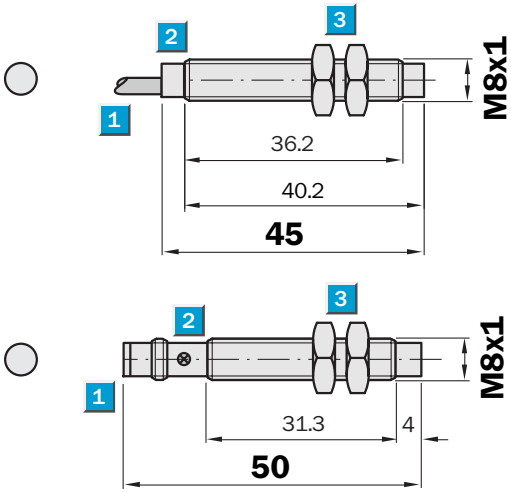
Order information	
Type	**Order no.**
IM08-02BNS-ZW1	7 900 002
IM08-02BPO-ZW1	7 900 003
IM08-02BPS-ZW1	7 900 001
IM08-02BNO-ZT1	7 900 008
IM08-02BNS-ZT1	7 900 006
IM08-02BPS-ZT1	7 900 005
IM08-02BPO-ZT1	7 900 007

Sensing range 4 mm

Inductive sensor

- Enhanced sensing range
- High switching frequency
- Short-circuit protection (pulsed)
- Robust brass housing, nickel-plated with fine thread M8 x 1 mm
- Enclosure rating IP 67

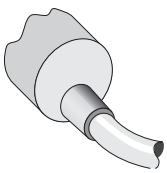
Dimensional drawing

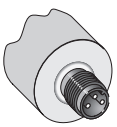


1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 13, metal

Connection type

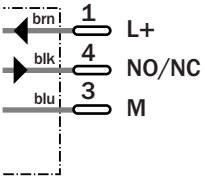
IM08-04NNS-ZW1	IM08-04NNO-ZT1
IM08-04NPO-ZW1	IM08-04NNS-ZT1
IM08-04NPS-ZW1	IM08-04NPO-ZT1
	IM08-04NPS-ZT1





3 x 0.14 mm²

M8, 3-pin



See chapter Accessories

Connector, M8, 3-pin

Technical specifications	IM08-	04NNS -ZW1	04NPO -ZW1	04NPS -ZW1	04NN 0-ZT1	04NNS -ZT1	04NPO -ZT1	04NPS -ZT1			
Sensing range S_n	4 mm	■	■	■	■	■	■	■			
Electrical configuration	DC 3-wire	■	■	■	■	■	■	■			
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■	■	■	■			
Ripple U_{pp}	≤ 10 %[1]	■	■	■	■	■	■	■			
Voltage drop U_d	≤ 1.2 V[2]	■	■	■	■	■	■	■			
Power consumption	≤ 20 mA[3]	■	■	■	■	■	■	■			
Continuous current I_a	≤ 200 mA	■	■	■	■	■	■	■			
Time delay before availability t_v	≤ 100 ms	■	■	■	■	■	■	■			
Hysteresis H, of s_r	2 ... 15 %	■	■	■	■	■	■	■			
Repeatability R	≤ 5 % (U_b and T_a constant)[4]	■	■	■	■	■	■	■			
Temperature drift, of s_r	± 10 %	■	■	■	■	■	■	■			
EMC	According to EN 60947-5-2	■	■	■	■	■	■	■			
Switching output	NPN	■			■	■					
	PNP		■	■			■	■			
Output function	Normally open	■		■		■		■			
	Normally closed		■		■		■				
Installation	Non-flush	■	■	■	■	■	■	■			
Connection type	Cable, PVC, 2 m	■	■	■							
	Connector, M8, 3-pin				■	■	■	■			
Enclosure rating	IP 67[5]	■	■	■	■	■	■	■			
Max. switching frequency	1,800 Hz	■	■	■	■	■	■	■			
Dimensions	M8 x 1[6]	■	■	■	■	■	■	■			
Short-circuit protection	✓[7]	■	■	■	■	■	■	■			
Reverse polarity protection	✓	■	■	■	■	■	■	■			
Power-up pulse suppression	✓	■	■	■	■	■	■	■			
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■	■	■			
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■	■	■	■			
Housing material	Brass nickel-plated, plastic	■	■	■	■	■	■	■			
Tightening torque	4 Nm	■	■	■	■	■	■	■			

[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] according to EN 60529
[6] Thread diameter x pitch (mm)
[7] (pulsed)

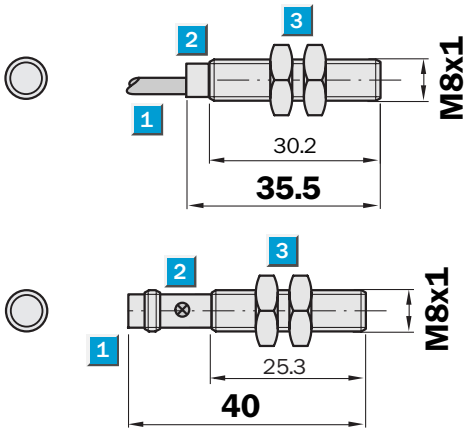
Order information	
Type	**Order no.**
IM08-04NNS-ZW1	7 900 010
IM08-04NPO-ZW1	7 900 011
IM08-04NPS-ZW1	7 900 009
IM08-04NN0-ZT1	7 900 016
IM08-04NNS-ZT1	7 900 014
IM08-04NPO-ZT1	7 900 015
IM08-04NPS-ZT1	7 900 013

Sensing range 2 mm

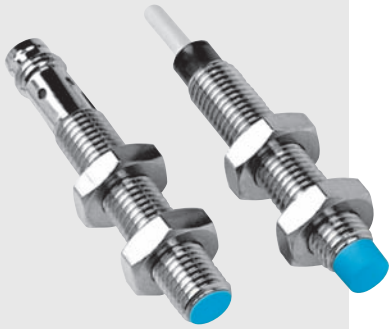
Inductive sensor

- Enhanced sensing range
- High switching frequency
- Short-circuit protection (pulsed)
- Robust brass housing, nickel-plated with fine thread M8 x 1 mm
- Enclosure rating IP 67

Dimensional drawing



1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 13, metal



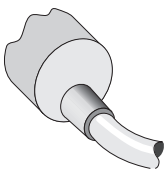
CE

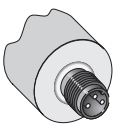
See chapter Accessories

Connector, M8, 3-pin

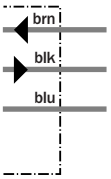
Connection type

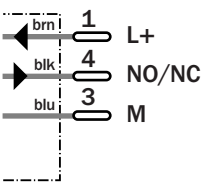
IM08-02BNS-ZWK	IM08-02BNS-ZTK
IM08-02BPS-ZWK	IM08-02BPO-ZTK
IM08-02BPS-ZUA	IM08-02BPS-ZTK
	IM08-02BNO-ZTK





3 x 0.14 mm²	M8, 3-pin





Technical specifications	IM08-	02BNS -ZWK	02BPS -ZWK	02BPS -ZUA	02BNS -ZTK	02BPO -ZTK	02BPS -ZTK	02BNO -ZTK
Sensing range S_n	2 mm	■	■	■	■	■	■	■
Electrical configuration	DC 3-wire	■	■	■	■	■	■	■
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■	■	■	■
Ripple U_{pp}	≤ 10 %[1]	■	■	■	■	■	■	■
Voltage drop U_d	≤ 1.2 V[2]	■	■	■	■	■	■	■
Power consumption	≤ 10 mA[3]	■	■	■	■	■	■	■
Continuous current I_a	≤ 200 mA	■	■	■	■	■	■	■
Time delay before availability t_v	≤ 5 ms	■	■	■	■	■	■	■
Hysteresis H, of s_r	1 ... 20 %	■	■	■	■	■	■	■
Repeatability R	≤ 5 % (U_b and T_a constant)[4]	■	■	■	■	■	■	■
Temperature drift, of s_r	± 10 %	■	■	■	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■	■	■	■
Switching output	NPN	■			■			■
	PNP		■	■		■	■	
Output function	Normally open	■	■	■	■		■	
	Normally closed					■		■
Installation	Flush	■	■	■	■	■	■	■
Connection type	Cable, PVC, 2 m	■	■					
	Cable, PUR, 3 m			■				
	Connector, M8, 3-pin				■	■	■	■
Enclosure rating	IP 67[5]	■	■	■	■	■	■	■
Max. switching frequency	3,000 Hz	■	■	■	■	■	■	■
Dimensions	M8 x 1[6]	■	■	■	■	■	■	■
Short-circuit protection	✓[7]	■	■	■	■	■	■	■
Reverse polarity protection	✓	■	■	■	■	■	■	■
Power-up pulse suppression	✓	■	■	■	■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■	■	■
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■	■	■	■
Housing material	Brass nickel-plated, plastic	■	■	■	■	■	■	■
Tightening torque	4 Nm	■	■	■	■	■	■	■

[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] according to EN 60529
[6] Thread diameter x pitch (mm)
[7] (pulsed)

Order information

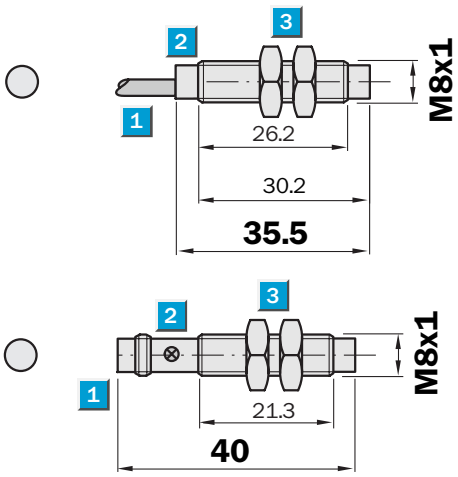
Type	Order no.
IM08-02BNS-ZWK	6 025 862
IM08-02BPS-ZWK	6 025 861
IM08-02BPS-ZUA	6 030 237
IM08-02BNS-ZTK	6 025 864
IM08-02BPO-ZTK	6 025 865
IM08-02BPS-ZTK	6 025 863
IM08-02BNO-ZTK	6 025 866

Sensing range 4 mm

Inductive sensor

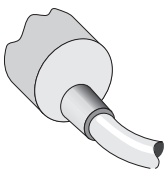
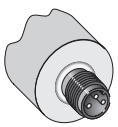
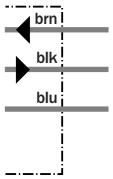
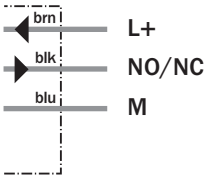
- Enhanced sensing range
- High switching frequency
- Short-circuit protection (pulsed)
- Robust brass housing, nickel-plated with fine thread M8 x 1 mm
- Enclosure rating IP 67

Dimensional drawing



1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 13, metal

Connection type

IM08-04NPS-ZWK IM08-04NNS-ZWK	IM08-04NPS-ZTK IM08-04NNO-ZTK IM08-04NNS-ZTK IM08-04NPO-ZTK
	
3 x 0.14 mm²	M8, 3-pin
	
brn L+ blk NO blu M	brn L+ blk NO/NC blu M

See chapter Accessories

Connector, M8, 3-pin

Technical specifications	IM08-	04NPS -ZWK	04NNS -ZWK	04NPS -ZTK	04NN 0-ZTK	04NNS -ZTK	04NPO -ZTK
Sensing range S_n	4 mm	■	■	■	■	■	■
Electrical configuration	DC 3-wire	■	■	■	■	■	■
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■	■	■
Ripple U_{pp}	≤ 10 %[1]	■	■	■	■	■	■
Voltage drop U_d	≤ 1.2 V[2]	■	■	■	■	■	■
Power consumption	≤ 10 mA[3]	■	■	■	■	■	■
Continuous current I_a	≤ 200 mA	■	■	■	■	■	■
Time delay before availability t_v	≤ 5 ms	■	■	■	■	■	■
Hysteresis H, of s_r	1 ... 20 %	■	■	■	■	■	■
Repeatability R	≤ 5 % (U_b and T_a constant)[4]	■	■	■	■	■	■
Temperature drift, of s_r	± 10 %	■	■	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■	■	■
Switching output	PNP	■		■			■
	NPN		■		■	■	
Output function	Normally open	■	■	■		■	
	Normally closed				■		■
Installation	Non-flush	■	■	■	■	■	■
Connection type	Cable, PVC, 2 m	■	■				
	Connector, M8, 3-pin			■	■	■	■
Enclosure rating	IP 67[5]	■	■	■	■	■	■
Max. switching frequency	2,500 Hz	■	■	■	■	■	■
Dimensions	M8 x 1[6]	■	■	■	■	■	■
Short-circuit protection	✓[7]	■	■	■	■	■	■
Reverse polarity protection	✓	■	■	■	■	■	■
Power-up pulse suppression	✓	■	■	■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■	■
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■	■	■
Housing material	Brass nickel-plated, plastic	■	■	■	■	■	■
Tightening torque	4 Nm	■	■	■	■	■	■

[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] according to EN 60529
[6] Thread diameter x pitch (mm)
[7] (pulsed)

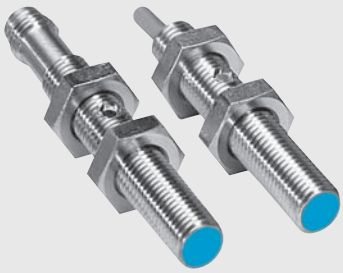
Order information

Type	Order no.
IM08-04NPS-ZWK	6 025 867
IM08-04NNS-ZWK	6 025 868
IM08-04NPS-ZTK	6 025 869
IM08-04NN0-ZTK	6 025 872
IM08-04NNS-ZTK	6 025 870
IM08-04NPO-ZTK	6 025 871

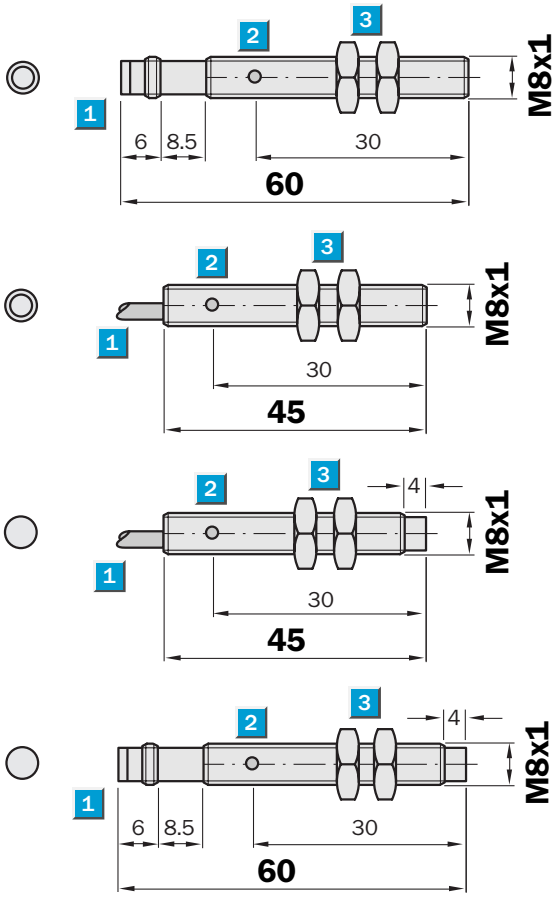
Sensing range 3 / 6 mm

Inductive sensor

- Triple sensing range
- Installation quasi flush or non-flush in metal
- Short-circuit protection (pulsed)
- Robust brass housing, chrome-plated with fine thread M8 x 1 mm
- Enclosure rating IP 67



Dimensional drawing



1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 13, metal

Connection type

IM08-03BPS-ZW1	IM08-03BPS-ZT1
IM08-06NNS-ZW1	IM08-06NPS-ZT1
IM08-06NPS-ZW1	

3 x 0.14 mm²	M8, 3-pin

See chapter Accessories

Connector, M8, 3-pin

Technical specifications	IM08-	03BPS -ZW1	03BPS -ZT1	06NNS -ZW1	06NPS -ZW1	06NPS -ZT1
Sensing range S_n	3 mm	■	■			
	6 mm			■	■	■
Electrical configuration	DC 3-wire	■	■	■	■	■
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■	■
Ripple U_{pp}	≤ 20 %[1]	■	■	■	■	■
Voltage drop U_d	≤ 2 V[2]	■	■	■	■	■
Power consumption	≤ 10 mA[3]	■	■	■	■	■
Continuous current I_a	≤ 200 mA	■	■	■	■	■
Time delay before availability t_v	≤ 100 ms	■	■	■	■	■
Hysteresis H, of s_r	1 ... 15 %	■	■	■	■	■
Repeatability R	≤ 5 % (U_b and T_a constant)[4]	■	■	■	■	■
Temperature drift, of s_r	± 10 %	■	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■	■
Switching output	PNP	■	■		■	■
	NPN			■		
Output function	Normally open[5]	■	■	■	■	■
Installation	Quasi-flush[6]	■	■			
	Non-flush			■	■	■
Connection type	Cable, PVC, 2 m	■		■	■	
	Connector, M8, 3-pin		■			■
Enclosure rating	IP 67[7]	■	■	■	■	■
Max. switching frequency	1,000 Hz	■	■			
	500 Hz			■	■	■
Dimensions	M8 x 1[8]	■	■	■	■	■
Short-circuit protection	✓[9]	■	■	■	■	■
Reverse polarity protection	✓	■	■	■	■	■
Power-up pulse suppression	✓	■	■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■	■
Housing material	Brass, chrome-plated, plastic	■	■	■	■	■
Tightening torque	4 Nm	■	■	■	■	■

[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] other output functions available on request.
[6] when mounting in conductible materials the sensors must be installed with a distance A to the surface. A Steel, metal = 1 mm/A Stainless steel = 0 mm
[7] according to EN 60529
[8] Thread diameter x pitch (mm)
[9] (pulsed)

Order information

Type	Order no.
IM08-03BPS-ZW1	6 027 505
IM08-03BPS-ZT1	6 025 574
IM08-06NNS-ZW1	6 027 507
IM08-06NPS-ZW1	6 027 506
IM08-06NPS-ZT1	6 027 508

Sensing range 1 mm

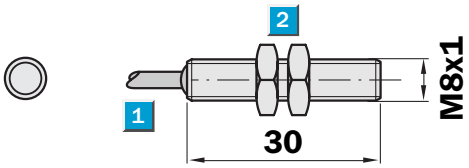
Inductive sensor

- NAMUR to EN 60 947-5-6
- High switching frequency
- Robust brass housing, nickel-plated, with fine thread M8 x 1 mm
- Enclosure rating IP 67
- Classification PTB 03 ATEX 2037
  Ⓔx II 2G EEx ia IIC T6

CE Ⓔx

See chapter Accessories
Switching units

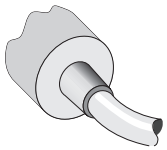
Dimensional drawing



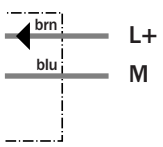
1 Connection
2 Fastening nuts (2 x); width across 13, metal

Connection type

IM08-01B-N-ZW0



2 x 0.14 mm²



Technical specifications	IM08-	01B-N-ZW0									

Sensing range S_n	1 mm	
Electrical configuration	NAMUR	
Supply voltage V_s	DC 5 ... 25 V	
Nominal voltage V_n	DC 8.2 V	
Power consumption, attenuated	≤ 1 mA	
Power consumption, unattenuated	≥ 2.2 mA	
Internal capacitance	≤ 80 nF	
Internal inductance	≤ 110 µH	
Cable resistance	≤ 50 Ohm	
Temperature drift, of s_r	± 10 %	
EMC	According to EN 60 947-5-6	
Switching output	Control current dependent on switching state[1)]	
Output function	NAMUR	
Installation	Flush	
Connection type	Cable, PVC, 2 m	
Enclosure rating	IP 67[2)]	
Max. switching frequency	2,000 Hz	
Dimensions	M8 x 1[3)]	
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	
Ambient temperature T_a	-25 °C ... +70 °C	
Housing material	Brass nickel-plated, plastic	
Tightening torque	2.5 Nm	

[1)] according to EN 60947-5-6 [2)] according to EN 60529 [3)] Thread diameter x pitch (mm)

Max. data for connecting Isolating unit EN 2 EX

or other approved isolating amplifier:

Short circuit current 1_{Kmax}	50 mA
No load voltage U_0	16 V
Power loss P_{max}	75 mW

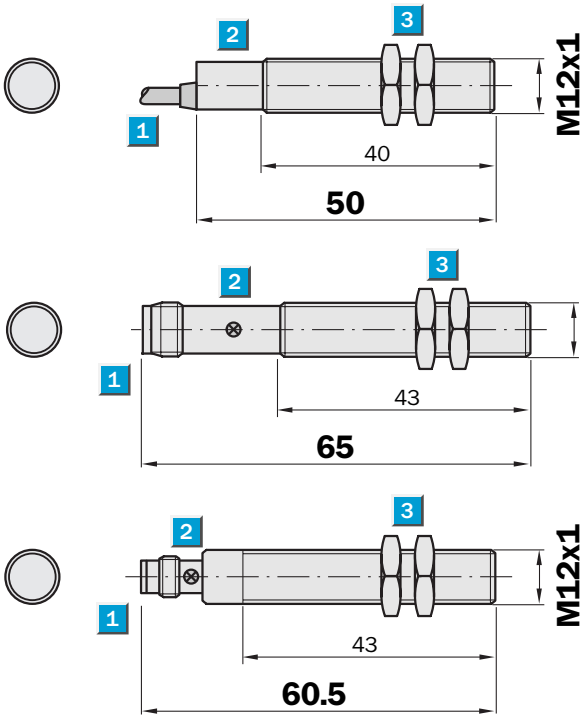
Order information	
Type	**Order no.**
IM08-01B-N-ZW0	6 021 123

Sensing range 2 mm

Inductive sensor

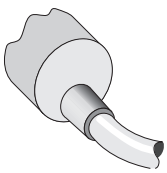
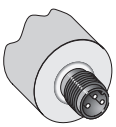
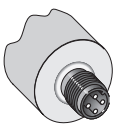
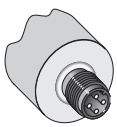
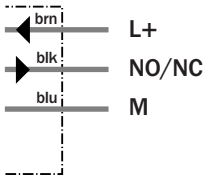
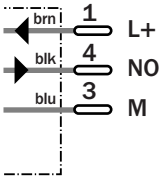
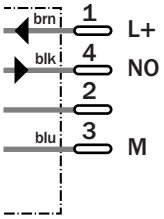
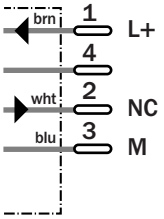
- Short-circuit protection (pulsed)
- High switching frequency
- Robust brass housing, nickel-plated with fine thread M12 x 1 mm
- Enclosure rating IP 67

Dimensional drawing



1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 17, metal

Connection type

IM12-02BNO-ZW1 IM12-02BNS-ZW1 IM12-02BPO-ZW1 IM12-02BPS-ZW1	IM12-02BPS-ZT1 IM12-02BNS-ZT1	IM12-02BNS-ZC1 IM12-02BPS-ZC1	IM12-02BNO-ZC1 IM12-02BPO-ZC1
			
3 x 0.22 mm²	M8, 3-pin	M12, 4-pin	M12, 4-pin
			

See chapter Accessories

- Connector, M12, 4-pin
- Connector, M8, 3-pin
- Mounting systems

Technical specifications	IM12-	02BNO -ZW1	02BNS -ZW1	02BPO -ZW1	02BPS -ZW1	02BNS -ZC1	02BNO -ZC1	02BPO -ZC1	02BPS -ZC1	02BPS -ZT1	02BNS -ZT1
Sensing range S_n	2 mm	■	■	■	■	■	■	■	■	■	■
Electrical configuration	DC 3-wire	■	■	■	■	■	■	■	■	■	■
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■	■	■	■	■	■	■
Ripple U_{pp}	≤ 10 %[1]	■	■	■	■	■	■	■	■	■	■
Voltage drop U_d	≤ 1.2 V[2]	■	■	■	■	■	■	■	■	■	■
Power consumption	≤ 20 mA[3]	■	■	■	■	■	■	■	■	■	■
Continuous current I_a	≤ 200 mA	■	■	■	■	■	■	■	■	■	■
Time delay before availability t_v	≤ 100 ms	■	■	■	■	■	■	■	■	■	■
Hysteresis H, of s_r	2 ... 10 %	■	■	■	■	■	■	■	■	■	■
Repeatability R	≤ 2 % (U_b and T_a constant)[4]	■	■	■	■	■	■	■	■	■	■
Temperature drift, of s_r	± 10 %	■	■	■	■	■	■	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■	■	■	■	■	■	■
Switching output	NPN	■	■			■	■				■
	PNP			■	■			■	■	■	
Output function	Normally closed	■		■			■	■			
	Normally open		■		■	■			■	■	■
Installation	Flush	■	■	■	■	■	■	■	■	■	■
Connection type	Cable, PVC, 2 m	■	■	■	■						
	Connector, M12, 4-pin					■	■	■	■		
	Connector, M8, 3-pin									■	■
Enclosure rating	IP 67[5]	■	■	■	■	■	■	■	■	■	■
Max. switching frequency	2,000 Hz	■	■	■	■	■	■	■	■	■	■
Dimensions	M12 x 1[6]	■	■	■	■	■	■	■	■	■	■
Short-circuit protection	✓[7]	■	■	■	■	■	■	■	■	■	■
Reverse polarity protection	✓	■	■	■	■	■	■	■	■	■	■
Power-up pulse suppression	✓	■	■	■	■	■	■	■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■	■	■	■	■	■
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■	■	■	■	■	■	■
Housing material	Brass nickel-plated, plastic	■	■	■	■	■	■	■	■	■	■
Tightening torque	10 Nm	■	■	■	■	■	■	■	■	■	■

[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] according to EN 60529
[6] Thread diameter x pitch (mm)
[7] (pulsed)

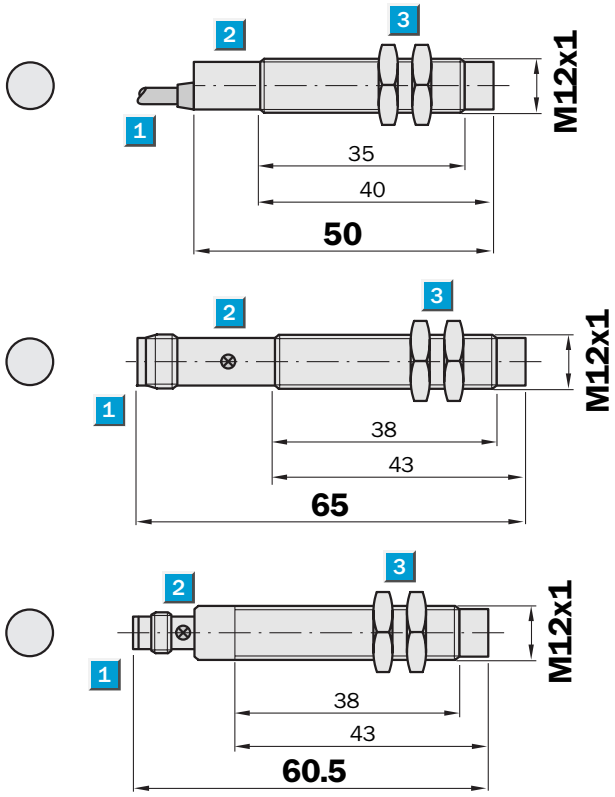
Order information	
Type	**Order no.**
IM12-02BNO-ZW1	6 011 966
IM12-02BNS-ZW1	6 011 964
IM12-02BPO-ZW1	6 011 965
IM12-02BPS-ZW1	6 011 963
IM12-02BNS-ZC1	6 011 972
IM12-02BNO-ZC1	6 011 974
IM12-02BPO-ZC1	6 011 973
IM12-02BPS-ZC1	6 011 971
IM12-02BPS-ZT1	6 011 967
IM12-02BNS-ZT1	6 011 968

Sensing range 4 mm

Inductive sensor

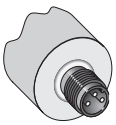
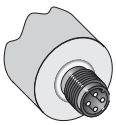
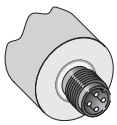
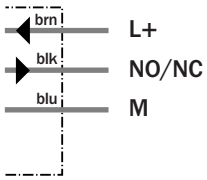
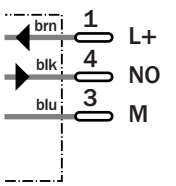
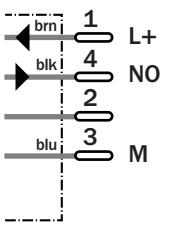
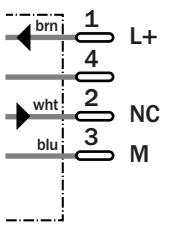
- Short-circuit protection (pulsed)
- High switching frequency
- Robust brass housing, nickel-plated with fine thread M12 x 1 mm
- Enclosure rating IP 67

Dimensional drawing



1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 17, metal

Connection type

IM12-04NNS-ZW1 IM12-04NPS-ZW1 IM12-04NPO-ZW1	IM12-04NPS-ZT1 IM12-04NNS-ZT1	IM12-04NNS-ZC1 IM12-04NPS-ZC1	IM12-04NPO-ZC1
			
3 x 0.22 mm²	M8, 3-pin	M12, 4-pin	M12, 4-pin
			

See chapter Accessories

- Connector, M12, 4-pin
- Connector, M8, 3-pin
- Mounting systems

Technical specifications	IM12-	04NNS -ZW1	04NPS -ZW1	04NPO -ZW1	04NNS -ZC1	04NPO -ZC1	04NPS -ZC1	04NPS -ZT1	04NNS -ZT1		
Sensing range S_n	4 mm	■	■	■	■	■	■	■	■		
Electrical configuration	DC 3-wire	■	■	■	■	■	■	■	■		
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■	■	■	■	■		
Ripple U_{pp}	≤ 10 %[1]	■	■	■	■	■	■	■	■		
Voltage drop U_d	≤ 1.2 V[2]	■	■	■	■	■	■	■	■		
Power consumption	≤ 20 mA[3]	■	■	■	■	■	■	■	■		
Continuous current I_a	≤ 200 mA	■	■	■	■	■	■	■	■		
Time delay before availability t_v	≤ 100 ms	■	■	■	■	■	■	■	■		
Hysteresis H, of s_r	2 ... 10 %	■	■	■	■	■	■	■	■		
Repeatability R	≤ 2 % (U_b and T_a constant)[4]	■	■	■	■	■	■	■	■		
Temperature drift, of s_r	± 10 %	■	■	■	■	■	■	■	■		
EMC	According to EN 60947-5-2	■	■	■	■	■	■	■	■		
Switching output	NPN	■			■				■		
	PNP		■	■		■	■	■			
Output function	Normally open	■	■		■		■	■	■		
	Normally closed			■		■					
Installation	Non-flush	■	■	■	■	■	■	■	■		
Connection type	Cable, PVC, 2 m	■	■	■							
	Connector, M12, 4-pin				■	■	■				
	Connector, M8, 3-pin							■	■		
Enclosure rating	IP 67[5]	■	■	■	■	■	■	■	■		
Max. switching frequency	2,000 Hz	■	■	■	■	■	■	■	■		
Dimensions	M12 x 1[6]	■	■	■	■	■	■	■	■		
Short-circuit protection	✓[7]	■	■	■	■	■	■	■	■		
Reverse polarity protection	✓	■	■	■	■	■	■	■	■		
Power-up pulse suppression	✓	■	■	■	■	■	■	■	■		
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■	■	■	■		
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■	■	■	■	■		
Housing material	Brass nickel-plated, plastic	■	■	■	■	■	■	■	■		
Tightening torque	10 Nm	■	■	■	■	■	■	■	■		

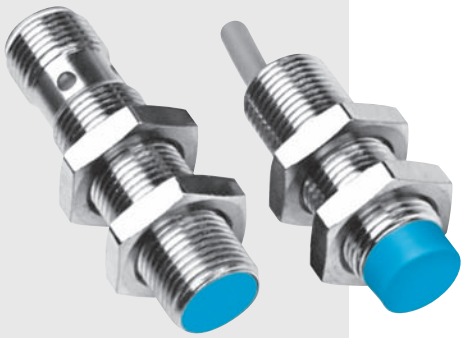
[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] according to EN 60529
[6] Thread diameter x pitch (mm)
[7] (pulsed)

Order information	
Type	**Order no.**
IM12-04NNS-ZW1	6 011 976
IM12-04NPS-ZW1	6 011 975
IM12-04NPO-ZW1	6 011 977
IM12-04NNS-ZC1	6 011 984
IM12-04NPO-ZC1	6 011 985
IM12-04NPS-ZC1	6 011 983
IM12-04NPS-ZT1	6 011 979
IM12-04NNS-ZT1	6 011 980

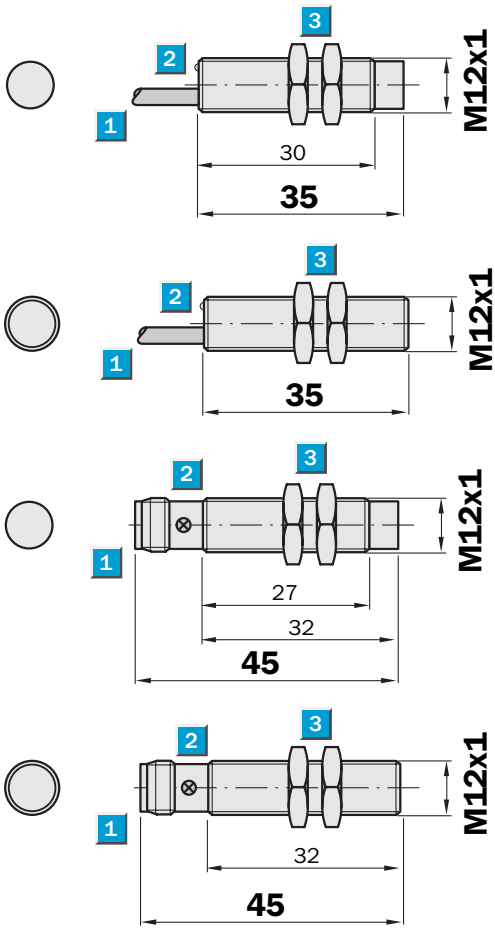
Sensing range 2 / 4 mm

Inductive sensor

- High switching frequency
- Short-circuit protection (pulsed)
- Robust brass housing, nickel-plated with fine thread M12 x 1 mm
- Enclosure rating IP 67



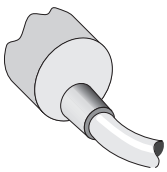
Dimensional drawing

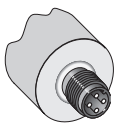


1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 17, metal

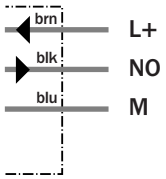
Connection type

IM12-02BNS-ZUK	IM12-02BPS-ZCK
IM12-02BPS-ZUK	IM12-02BNS-ZCK
IM12-04NNS-ZUK	IM12-04NPS-ZCK
IM12-04NPS-ZUK	IM12-04NNS-ZCK

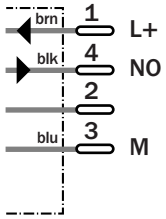




3 x 0.25 mm²



M12, 4-pin



See chapter Accessories

Connector, M12, 4-pin
Mounting systems

Technical specifications	IM12-	02BNS -ZUK	02BPS -ZUK	02BPS -ZCK	02BNS -ZCK	04NNS -ZUK	04NPS -ZUK	04NPS -ZCK	04NNS -ZCK		
Sensing range S_n	2 mm	■	■	■	■						
	4 mm					■	■	■	■		
Electrical configuration	DC 3-wire	■	■	■	■	■	■	■	■		
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■	■	■	■	■		
Ripple U_{pp}	≤ 10 %[1]	■	■	■	■	■	■	■	■		
Voltage drop U_d	≤ 1.5 V[2]	■	■	■	■	■	■	■	■		
Power consumption	≤ 10 mA[3]	■	■	■	■	■	■	■	■		
Continuous current I_a	≤ 300 mA	■	■	■	■	■	■	■	■		
Time delay before availability t_v	≤ 2 ms	■	■	■	■	■	■	■	■		
Hysteresis H, of s_r	1 ... 10 %	■	■	■	■	■	■	■	■		
Repeatability R	≤ 1 % (U_b and T_a constant)[4]	■	■	■	■	■	■	■	■		
Temperature drift, of s_r	± 10 %	■	■	■	■	■	■	■	■		
EMC	According to EN 60947-5-2	■	■	■	■	■	■	■	■		
Switching output	NPN	■			■	■			■		
	PNP		■	■			■	■			
Output function	Normally open	■	■	■	■	■	■	■	■		
Installation	Flush	■	■	■	■						
	Non-flush					■	■	■	■		
Connection type	Cable, PUR-PVC, 2 m	■	■			■	■				
	Connector, M12, 4-pin			■	■			■	■		
Enclosure rating	IP 67[5]	■	■	■	■	■	■	■	■		
Max. switching frequency	2,000 Hz	■	■	■	■	■	■	■	■		
Dimensions	M12 x 1[6]	■	■	■	■	■	■	■	■		
Wire-break protection	✓	■	■	■	■	■	■	■	■		
Short-circuit protection	✓[7]	■	■	■	■	■	■	■	■		
Reverse polarity protection	✓	■	■	■	■	■	■	■	■		
Power-up pulse suppression	✓	■	■	■	■	■	■	■	■		
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■	■	■	■		
Ambient temperature T_a	-25 °C ... +75 °C	■	■	■	■	■	■	■	■		
Housing material	Brass nickel-plated, plastic	■	■	■	■	■	■	■	■		
Tightening torque	7 Nm	■	■	■	■	■	■	■	■		

[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] according to EN 60529
[6] Thread diameter x pitch (mm)
[7] (pulsed)

Order information	
Type	**Order no.**
IM12-02BNS-ZUK	1 017 438
IM12-02BPS-ZUK	1 017 426
IM12-02BPS-ZCK	1 017 428
IM12-02BNS-ZCK	1 017 440
IM12-04NNS-ZUK	1 017 439
IM12-04NPS-ZUK	1 017 427
IM12-04NPS-ZCK	1 017 429
IM12-04NNS-ZCK	1 017 441

Sensing range 4 mm

Inductive sensor

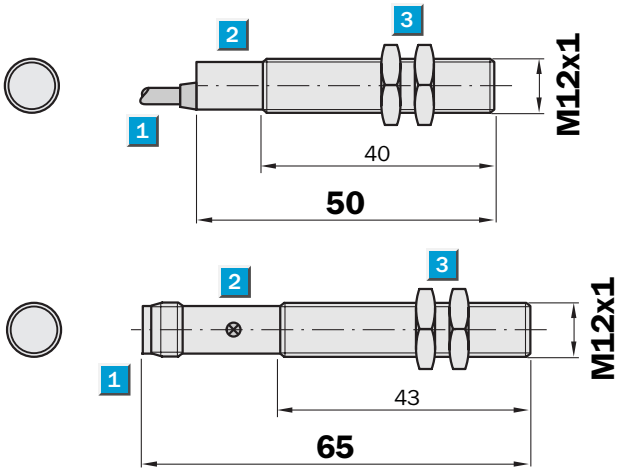
- Enhanced sensing range
- High switching frequency
- Short-circuit protection (pulsed)
- Robust brass housing, nickel-plated with fine thread M12 x 1 mm
- Enclosure rating IP 67

See chapter Accessories

Connector, M12, 4-pin

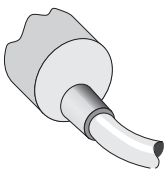
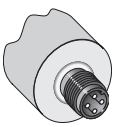
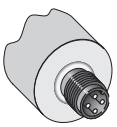
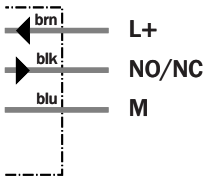
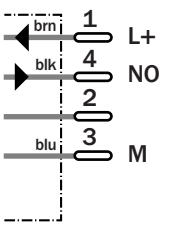
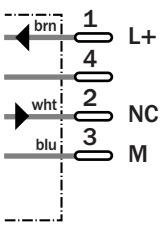
Mounting systems

Dimensional drawing



1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 17, metal

Connection type

IM12-04BNS-ZW1 IM12-04BPO-ZW1 IM12-04BPS-ZW1	IM12-04BNS-ZC1 IM12-04BPS-ZC1	IM12-04BPO-ZC1
		
3 x 0.22 mm²	M12, 4-pin	M12, 4-pin
		

Technical specifications	IM12-	04BNS -ZW1	04BPO -ZW1	04BPS -ZW1	04BNS -ZC1	04BPO -ZC1	04BPS -ZC1
Sensing range S_n	4 mm	■	■	■	■	■	■
Electrical configuration	DC 3-wire	■	■	■	■	■	■
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■	■	■
Ripple U_{pp}	≤ 10 %[1]	■	■	■	■	■	■
Voltage drop U_d	≤ 1.2 V[2]	■	■	■	■	■	■
Power consumption	≤ 10 mA[3]	■	■	■	■	■	■
Continuous current I_a	≤ 200 mA	■	■	■	■	■	■
Time delay before availability t_v	≤ 100 ms	■	■	■	■	■	■
Hysteresis H, of s_r	1 ... 15 %	■	■	■	■	■	■
Repeatability R	≤ 5 % (U_b and T_a constant)[4]	■	■	■	■	■	■
Temperature drift, of s_r	± 10 %	■	■	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■	■	■
Switching output	NPN	■			■		
	PNP		■	■		■	■
Output function	Normally open	■		■	■		■
	Normally closed		■			■	
Installation	Flush[5]	■	■	■	■	■	■
Connection type	Cable, PVC, 2 m	■	■	■			
	Connector, M12, 4-pin				■	■	■
Enclosure rating	IP 67[6]	■	■	■	■	■	■
Max. switching frequency	1,000 Hz	■	■	■	■	■	■
Dimensions	M12 x 1[7]	■	■	■	■	■	■
Short-circuit protection	✓[8]	■	■	■	■	■	■
Reverse polarity protection	✓	■	■	■	■	■	■
Power-up pulse suppression	✓	■	■	■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■	■
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■	■	■
Housing material	Brass nickel-plated, plastic	■	■	■	■	■	■
Tightening torque	10 Nm	■	■	■	■	■	■

[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] see installation notes
[6] according to EN 60529
[7] Thread diameter x pitch (mm)
[8] (pulsed)

Order information

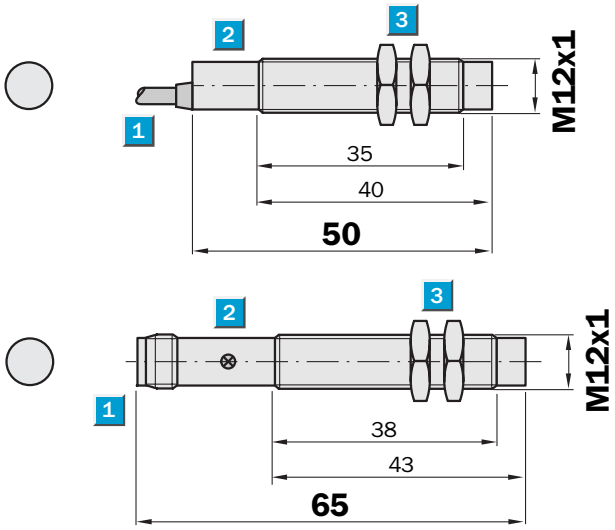
Type	Order no.
IM12-04BNS-ZW1	7 900 034
IM12-04BPO-ZW1	7 900 035
IM12-04BPS-ZW1	7 900 033
IM12-04BNS-ZC1	7 900 038
IM12-04BPO-ZC1	7 900 039
IM12-04BPS-ZC1	7 900 037

Sensing range 8 mm

Inductive sensor

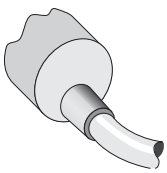
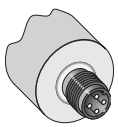
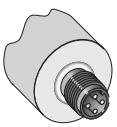
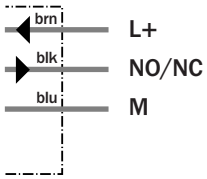
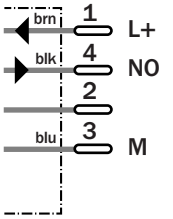
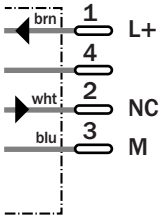
- Enhanced sensing range
- High switching frequency
- Short-circuit protection (pulsed)
- Robust brass housing, nickel-plated with fine thread M12 x 1 mm
- Enclosure rating IP 67

Dimensional drawing



1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 17, metal

Connection type

IM12-08NNO-ZW1 IM12-08NNS-ZW1 IM12-08NPO-ZW1 IM12-08NPS-ZW1	IM12-08NNS-ZC1 IM12-08NPS-ZC1	IM12-08NPO-ZC1
		
3 x 0.22 mm²	M12, 4-pin	M12, 4-pin
		

See chapter Accessories

Connector, M12, 4-pin
Mounting systems

Technical specifications	IM12-	08NNO-ZW1	08NNS-ZW1	08NPO-ZW1	08NPS-ZW1	08NNS-ZC1	08NPO-ZC1	08NPS-ZC1
Sensing range S_n	8 mm	■	■	■	■	■	■	■
Electrical configuration	DC 3-wire	■	■	■	■	■	■	■
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■	■	■	■
Ripple U_{pp}	≤ 10 %[1]	■	■	■	■	■	■	■
Voltage drop U_d	≤ 1.2 V[2]	■	■	■	■	■	■	■
Power consumption	≤ 10 mA[3]	■	■	■	■	■	■	■
Continuous current I_a	≤ 200 mA	■	■	■	■	■	■	■
Time delay before availability t_v	≤ 100 ms	■	■	■	■	■	■	■
Hysteresis H, of s_r	1 ... 15 %	■	■	■	■	■	■	■
Repeatability R	≤ 5 % (U_b and T_a constant)[4]	■	■	■	■	■	■	■
Temperature drift, of s_r	± 10 %	■	■	■	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■	■	■	■
Switching output	NPN	■	■			■		
	PNP			■	■		■	■
Output function	Normally closed	■		■			■	
	Normally open		■		■	■		■
Installation	Non-flush	■	■	■	■	■	■	■
Connection type	Cable, PVC, 2 m	■	■	■	■			
	Connector, M12, 4-pin					■	■	■
Enclosure rating	IP 67[5]	■	■	■	■	■	■	■
Max. switching frequency	1,000 Hz	■	■	■	■	■	■	■
Dimensions	M12 x 1[6]	■	■	■	■	■	■	■
Short-circuit protection	✓[7]	■	■	■	■	■	■	■
Reverse polarity protection	✓	■	■	■	■	■	■	■
Power-up pulse suppression	✓	■	■	■	■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■	■	■
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■	■	■	■
Housing material	Brass nickel-plated, plastic	■	■	■	■	■	■	■
Tightening torque	10 Nm	■	■	■	■	■	■	■

[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] according to EN 60529
[6] Thread diameter x pitch (mm)
[7] (pulsed)

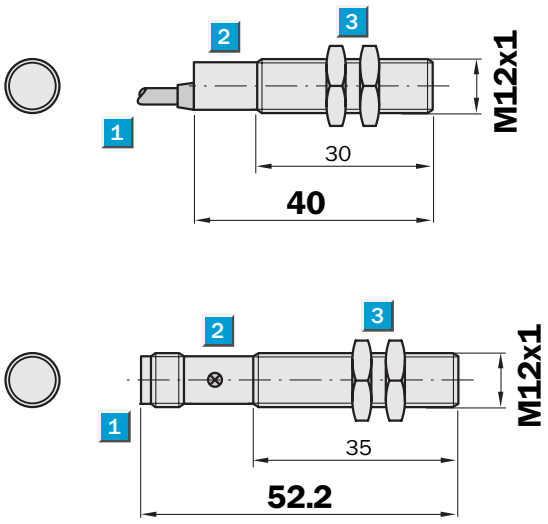
Order information	
Type	**Order no.**
IM12-08NNO-ZW1	7 900 044
IM12-08NNS-ZW1	7 900 042
IM12-08NPO-ZW1	7 900 043
IM12-08NPS-ZW1	7 900 041
IM12-08NNS-ZC1	7 900 046
IM12-08NPO-ZC1	7 900 047
IM12-08NPS-ZC1	7 900 045

Sensing range 4 mm

Inductive sensor

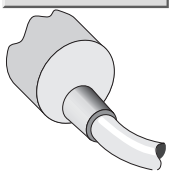
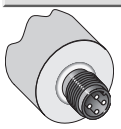
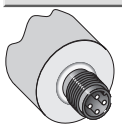
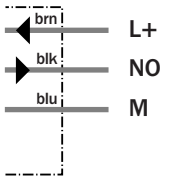
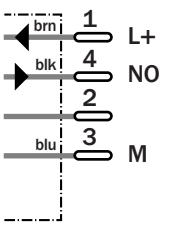
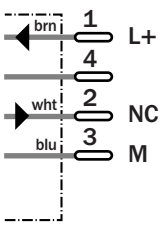
- Enhanced sensing range
- High switching frequency
- Short-circuit protection (pulsed)
- Robust brass housing, nickel-plated with fine thread M12 x 1 mm
- Enclosure rating IP 67

Dimensional drawing



1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 17, metal

Connection type

IM12-04BNS-ZWK IM12-04BPS-ZWK	IM12-04BNS-ZCK IM12-04BPS-ZCK	IM12-04BNO-ZCK IM12-04BPO-ZCK
		
3 x 0.22 mm²	M12, 4-pin	M12, 4-pin
		

See chapter Accessories
Connector, M12, 4-pin
Mounting systems

Technical specifications	IM12-	04BNS -ZWK	04BPS -ZWK	04BNO -ZCK	04BNS -ZCK	04BPO -ZCK	04BPS -ZCK
Sensing range S_n	4 mm	■	■	■	■	■	■
Electrical configuration	DC 3-wire	■	■	■	■	■	■
Supply voltage V_S	DC 10 ... 30 V	■	■	■	■	■	■
Ripple U_{pp}	≤ 10 %[1]	■	■	■	■	■	■
Voltage drop U_d	≤ 1.5 V[2]	■	■	■	■	■	■
Power consumption	≤ 10 mA[3]	■	■	■	■	■	■
Continuous current I_a	≤ 300 mA	■	■	■	■	■	■
Time delay before availability t_v	≤ 100 ms	■	■	■	■	■	■
Hysteresis H, of s_r	1 ... 15 %	■	■	■	■	■	■
Repeatability R	≤ 5 % (U_b and T_a constant)[4]	■	■	■	■	■	■
Temperature drift, of s_r	± 10 %	■	■	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■	■	■
Switching output	NPN	■		■	■		
	PNP		■			■	■
Output function	Normally open	■	■		■		■
	Normally closed			■		■	
Installation	Flush[5]	■	■	■	■	■	■
Connection type	Cable, PVC, 2 m	■	■				
	Connector, M12, 4-pin			■	■	■	■
Enclosure rating	IP 67[6]	■	■	■	■	■	■
Max. switching frequency	2,000 Hz	■	■	■	■	■	■
Dimensions	M12 x 1[7]	■	■	■	■	■	■
Wire-break protection	✓	■	■	■	■	■	■
Short-circuit protection	✓[8]	■	■	■	■	■	■
Reverse polarity protection	✓	■	■	■	■	■	■
Power-up pulse suppression	✓	■	■	■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■	■
Ambient temperature T_a	-25 °C ... +75 °C	■	■	■	■	■	■
Housing material	Brass nickel-plated, plastic	■	■	■	■	■	■
Tightening torque	7 Nm	■	■	■	■	■	■

[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] see installation notes
[6] according to EN 60529
[7] Thread diameter x pitch (mm)
[8] (pulsed)

Order information

Type	Order no.
IM12-04BNS-ZWK	6 025 683
IM12-04BPS-ZWK	6 025 682
IM12-04BNO-ZCK	6 025 859
IM12-04BNS-ZCK	6 025 681
IM12-04BPO-ZCK	6 025 680
IM12-04BPS-ZCK	6 025 679

Sensing range 8 mm

Inductive sensor

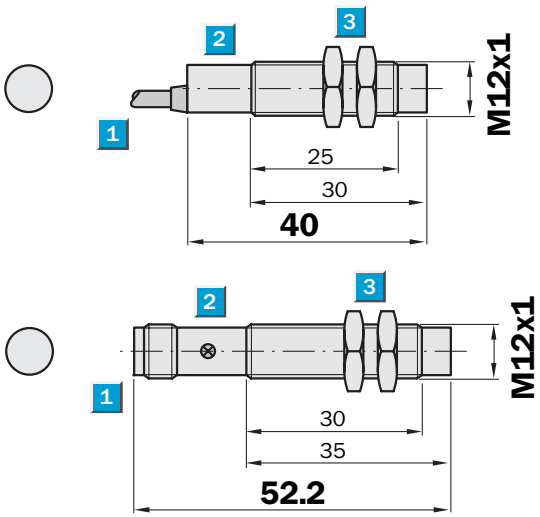
- Enhanced sensing range
- High switching frequency
- Short-circuit protection (pulsed)
- Robust brass housing, nickel-plated with fine thread M12 x 1 mm
- Enclosure rating IP 67

See chapter Accessories

Connector, M12, 4-pin

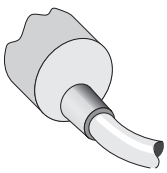
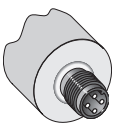
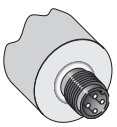
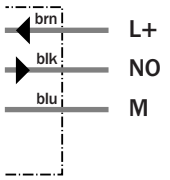
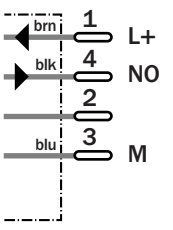
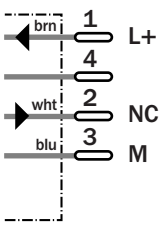
Mounting systems

Dimensional drawing



1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 17, metal

Connection type

IM12-08NNS-ZWK IM12-08NPS-ZWK	IM12-08NNS-ZCK IM12-08NPS-ZCK	IM12-08NNO-ZCK IM12-08NPO-ZCK
		
3 x 0.22 mm²	M12, 4-pin	M12, 4-pin
		
brn L+ blk NO blu M	brn 1 L+ blk 4 NO 2 blu 3 M	brn 1 L+ 4 wht 2 NC blu 3 M

Technical specifications	IM12-	08NNS -ZWK	08NPS -ZWK	08NNS -ZCK	08NN 0-ZCK	08NPO -ZCK	08NPS -ZCK
Sensing range S_n	8 mm	■	■	■	■	■	■
Electrical configuration	DC 3-wire	■	■	■	■	■	■
Supply voltage V_S	DC 10 ... 30 V	■	■	■	■	■	■
Ripple U_{pp}	≤ 10 %[1]	■	■	■	■	■	■
Voltage drop U_d	≤ 1.5 V[2]	■	■	■	■	■	■
Power consumption	≤ 10 mA[3]	■	■	■	■	■	■
Continuous current I_a	≤ 300 mA	■	■	■	■	■	■
Time delay before availability t_v	≤ 100 ms	■	■	■	■	■	■
Hysteresis H, of s_r	1 ... 15 %	■	■	■	■	■	■
Repeatability R	≤ 5 % (U_b and T_a constant)[4]	■	■	■	■	■	■
Temperature drift, of s_r	± 10 %	■	■	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■	■	■
Switching output	NPN	■		■	■		
	PNP		■			■	■
Output function	Normally open	■	■	■			■
	Normally closed				■	■	
Installation	Non-flush	■	■	■	■	■	■
Connection type	Cable, PVC, 2 m	■	■				
	Connector, M12, 4-pin			■	■	■	■
Enclosure rating	IP 67[5]	■	■	■	■	■	■
Max. switching frequency	2,000 Hz	■	■	■	■	■	■
Dimensions	M12 x 1[6]	■	■	■	■	■	■
Wire-break protection	✓	■	■	■	■	■	■
Short-circuit protection	✓[7]	■	■	■	■	■	■
Reverse polarity protection	✓	■	■	■	■	■	■
Power-up pulse suppression	✓	■	■	■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■	■
Ambient temperature T_a	-25 °C ... +75 °C	■	■	■	■	■	■
Housing material	Brass nickel-plated, plastic	■	■	■	■	■	■
Tightening torque	7 Nm	■	■	■	■	■	■

[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] according to EN 60529
[6] Thread diameter x pitch (mm)
[7] (pulsed)

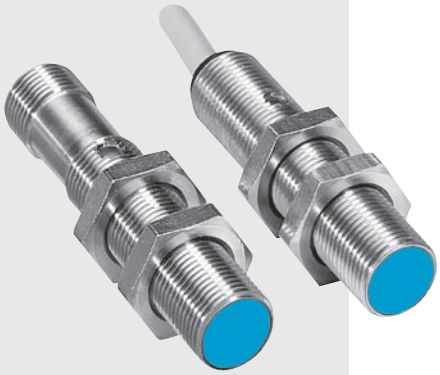
Order information

Type	Order no.
IM12-08NNS-ZWK	6 025 685
IM12-08NPS-ZWK	6 025 684
IM12-08NNS-ZCK	6 025 687
IM12-08NN0-ZCK	6 025 860
IM12-08NPO-ZCK	6 025 688
IM12-08NPS-ZCK	6 025 686

Sensing range 6 / 10 mm

Inductive sensor

- Triple sensing range
- Installation quasi flush or non-flush in metal
- High switching frequency
- Short-circuit protection (pulsed)
- Robust brass housing, chrome-plated with fine thread M12 x 1 mm
- Enclosure rating IP 67



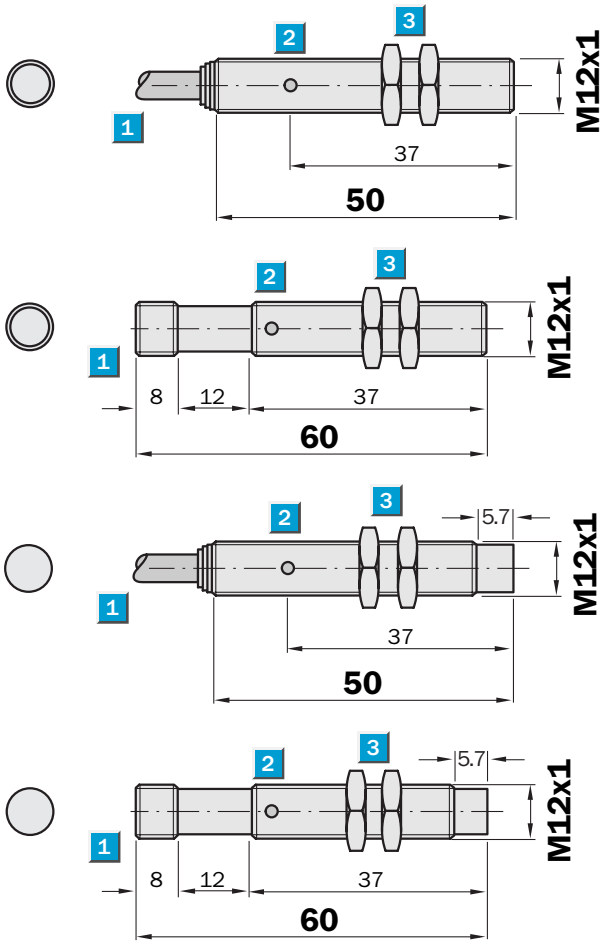
CE

See chapter Accessories

Connector, M12, 4-pin

Mounting systems

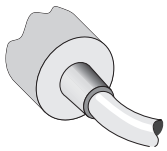
Dimensional drawing

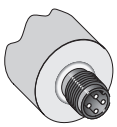


1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 17, metal

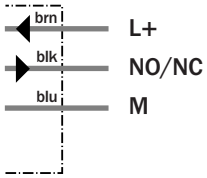
Connection type

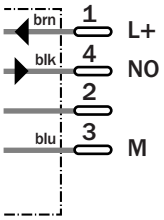
IM12-06BPO-ZW1	IM12-06BNS-ZC1
IM12-06BPS-ZW1	IM12-06BPS-ZC1
IM12-10NNS-ZW1	IM12-10NPS-ZC1
IM12-10NPS-ZW1	





3 x 0.34 mm²	M12, 4-pin





Technical specifications	IM12-	06BNS -ZC1	06BPO -ZW1	06BPS -ZW1	06BPS -ZC1	10NNS -ZW1	10NPS -ZW1	10NPS -ZC1			
Sensing range S_n	6 mm	■	■	■	■						
	10 mm					■	■	■			
Electrical configuration	DC 3-wire	■	■	■	■	■	■	■			
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■	■	■	■			
Ripple U_{pp}	≤ 20 %[1]	■	■	■	■						
	≤ 10 %[1]					■	■	■			
Voltage drop U_d	≤ 2 V[2]	■	■	■	■	■	■	■			
Power consumption	≤ 10 mA[3]	■	■	■	■	■	■	■			
Continuous current I_a	≤ 200 mA	■	■	■	■	■	■	■			
Time delay before availability t_v	≤ 100 ms	■	■	■	■	■	■	■			
Hysteresis H, of s_r	1 ... 15 %	■	■	■	■	■	■	■			
Repeatability R	≤ 5 % (U_b and T_a constant)[4]	■	■	■	■	■	■	■			
Temperature drift, of s_r	± 10 %	■	■	■	■	■	■	■			
EMC	According to EN 60947-5-2	■	■	■	■	■	■	■			
Switching output	NPN	■				■					
	PNP		■	■	■		■	■			
Output function	Normally open[5]	■		■	■	■	■	■			
	Normally closed[5]		■								
Installation	Quasi-flush[6]	■	■	■	■						
	Non-flush					■	■	■			
Connection type	Connector, M12, 4-pin	■			■			■			
	Cable, PVC, 2 m		■	■		■	■				
Enclosure rating	IP 67[7]	■	■	■	■	■	■	■			
Max. switching frequency	800 Hz	■	■	■	■						
	400 Hz					■	■	■			
Dimensions	M12 x 1[8]	■	■	■	■	■	■	■			
Short-circuit protection	✓[9]	■	■	■	■	■	■	■			
Reverse polarity protection	✓	■	■	■	■	■	■	■			
Power-up pulse suppression	✓	■	■	■	■	■	■	■			
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■	■	■			
Ambient temperature T_a	-25 °C ... +75 °C	■	■	■	■	■	■	■			
Housing material	Brass, chrome-plated, plastic	■	■	■	■	■	■	■			
Tightening torque	10 Nm	■	■	■	■	■	■	■			

[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] other output functions available on request.
[6] when mounting in conductible materials the sensors must be installed with a distance A to the surface. A Steel, metal = 2 mm/A Stainless steel = 1 mm
[7] according to EN 60529
[8] Thread diameter x pitch (mm)
[9] (pulsed)

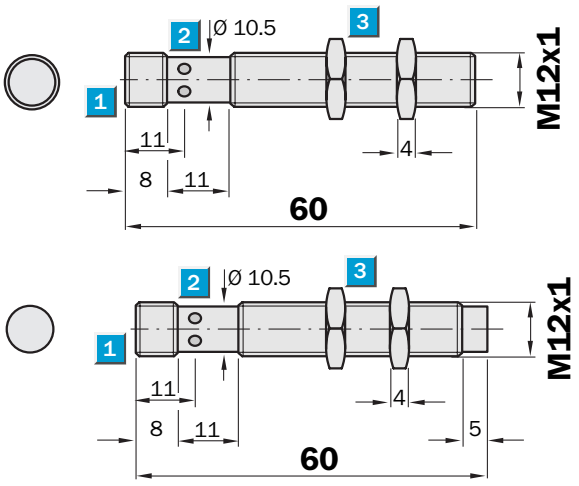
Order information	
Type	**Order no.**
IM12-06BNS-ZC1	6 030 524
IM12-06BPO-ZW1	6 027 510
IM12-06BPS-ZW1	6 027 509
IM12-06BPS-ZC1	6 027 511
IM12-10NNS-ZW1	6 027 513
IM12-10NPS-ZW1	6 027 512
IM12-10NPS-ZC1	6 027 514

Sensing range 6 / 10 mm

Inductive sensor

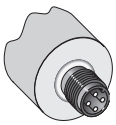
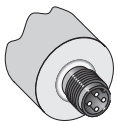
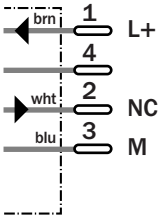
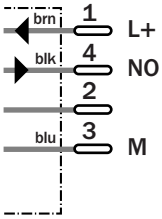
- Triple sensing range
- Robust stainless steel V4A, 316L one piece housing, with fine thread M12 x 1 mm
- Enclosure rating IP 69K + IP 68
- Especially suitable for use in the food and beverage sector
- Visual installation support

Dimensional drawing



1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 17, stainless steel V4A, 316L

Connection type

IM12-06BPO-NC1	IM12-06BNS-NC1 IM12-06BPS-NC1 IM12-10NNS-NC1 IM12-10NPS-NC1
	
M12, 4-pin	M12, 4-pin
	

See chapter Accessories

Connector, M12, 4-pin

Mounting systems

Technical specifications	IM12-	06BNS -NC1	06BPO -NC1	06BPS -NC1	10NNS -NC1	10NPS -NC1
Sensing range S_n	6 mm	■	■	■		
	10 mm				■	■
Electrical configuration	DC 3-wire	■	■	■	■	■
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■	■
Ripple U_{pp}	≤ 20 %[1]	■	■	■	■	■
Voltage drop U_d	≤ 2 V[2]	■	■	■	■	■
Power consumption	≤ 12 mA[3]	■	■	■	■	■
Continuous current I_a	≤ 200 mA	■	■	■	■	■
Time delay before availability t_v	≤ 300 ms	■	■	■	■	■
Hysteresis H, of s_r	1 ... 15 %	■	■	■	■	■
Repeatability R	≤ 5 % (U_b and T_a constant)[4]	■	■	■	■	■
Temperature drift, of s_r	≤ 10 %	■	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■	■
Switching output	NPN	■			■	
	PNP		■	■		■
Output function	Normally open[5]	■		■	■	■
	Normally closed[5]		■			
Installation	Flush	■	■	■		
	Non-flush[6]				■	■
Connection type	Connector, M12, 4-pin	■	■	■	■	■
Enclosure rating	IP68, IP 69K[7]	■	■	■	■	■
Max. switching frequency	400 Hz	■	■	■	■	■
Dimensions	M12 x 1[8]	■	■	■	■	■
Short-circuit protection	✓[9]	■	■	■	■	■
Reverse polarity protection	✓	■	■	■	■	■
Power-up pulse suppression	✓	■	■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm[10]	■	■	■	■	■
Ambient temperature T_a	-25 °C ... +85 °C	■	■	■	■	■
Housing material	Stainless steel V4A 1.4404, 316L	■	■	■	■	■
Tightening torque	10 Nm	■	■	■	■	■

[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] other output functions available on request.
[6] see installation notes
[7] according to EN 60529
[8] Thread diameter x pitch (mm)
[9] (pulsed)
[10] according to IEC 60 947-5-2/7.4

Correction factors:

	Flush installation:	Non-flush installation:
Steel (ST37)	1.0	1.0
Copper	0.85	0.8
Aluminium	1.0	1.0
Brass	1.3	1.3
Stainless steel	0.45 / 0.9	0.5 / 0.9
1 mm / 2 mm thick		

Order information

Type	Order no.
IM12-06BNS-NC1	6 027 573
IM12-06BPO-NC1	6 027 574
IM12-06BPS-NC1	6 027 572
IM12-10NNS-NC1	6 027 576
IM12-10NPS-NC1	6 027 575

Sensing range 2 / 4 mm

Inductive sensor

- For harsh environment, resistant to most cutting oils
- Enclosure rating IP 68
- Complementary output function
- Robust brass housing, nickel-plated with fine thread M12 x 1 mm
- LED status indicator (NO function)

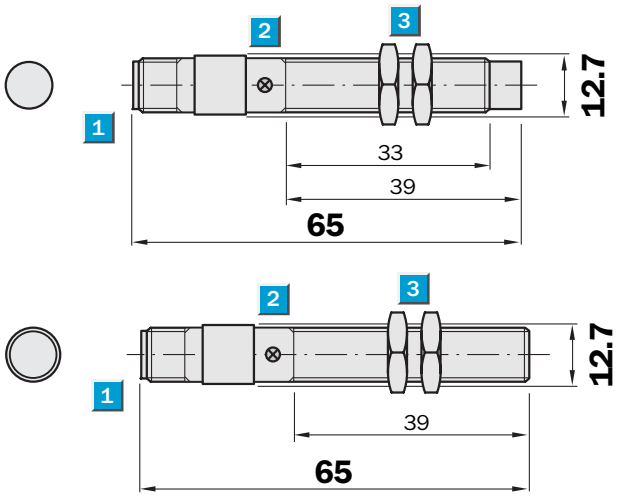
CE

See chapter Accessories

Connector, M12, 4-pin

Mounting systems

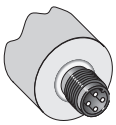
Dimensional drawing



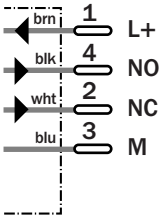
1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 17, metal

Connection type

IM12-02BNP-ZC1
IM12-02BPP-ZC1
IM12-04NNP-ZC1
IM12-04NPP-ZC1



M12, 4-pin



Technical specifications	IM12-	02BNP -ZC1	02BPP -ZC1	04NNP -ZC1	04NPP -ZC1						
Sensing range S_n	2 mm	■	■								
	4 mm			■	■						
Electrical configuration	DC 4-wire	■	■	■	■						
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■						
Ripple U_{pp}	≤ 10 %[1]	■	■	■	■						
Voltage drop U_d	≤ 1.2 V[2]	■	■	■	■						
Power consumption	≤ 20 mA[3]	■	■	■	■						
Continuous current I_a	≤ 100 mA	■	■	■	■						
Time delay before availability t_v	≤ 100 ms	■	■	■	■						
Hysteresis H, of s_r	2 ... 10 %	■	■	■	■						
Repeatability R	≤ 5 % (U_b and T_a constant)[4]	■	■	■	■						
Temperature drift, of s_r	± 10 %	■	■	■	■						
EMC	According to EN 60947-5-2	■	■	■	■						
Switching output	NPN	■		■							
	PNP		■		■						
Output function	Complementary	■	■	■	■						
Installation	Flush	■	■								
	Non-flush			■	■						
Connection type	Connector, M12, 4-pin	■	■	■	■						
Enclosure rating	IP 68	■	■	■	■						
Max. switching frequency	2,000 Hz	■	■	■	■						
Dimensions	M12 x 1[5]	■	■	■	■						
Short-circuit protection	✓[6]	■	■	■	■						
Reverse polarity protection	✓	■	■	■	■						
Power-up pulse suppression	✓	■	■	■	■						
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■						
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■						
Housing material	Brass nickel-plated, plastic	■	■	■	■						
Tightening torque	10 Nm	■	■	■	■						

[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] Thread diameter x pitch (mm)
[6] (pulsed)

Order information	
Type	**Order no.**
IM12-02BNP-ZC1	7 902 924
IM12-02BPP-ZC1	7 902 923
IM12-04NNP-ZC1	7 902 926
IM12-04NPP-ZC1	7 902 925

Sensing range 2 / 4 mm

Inductive sensor

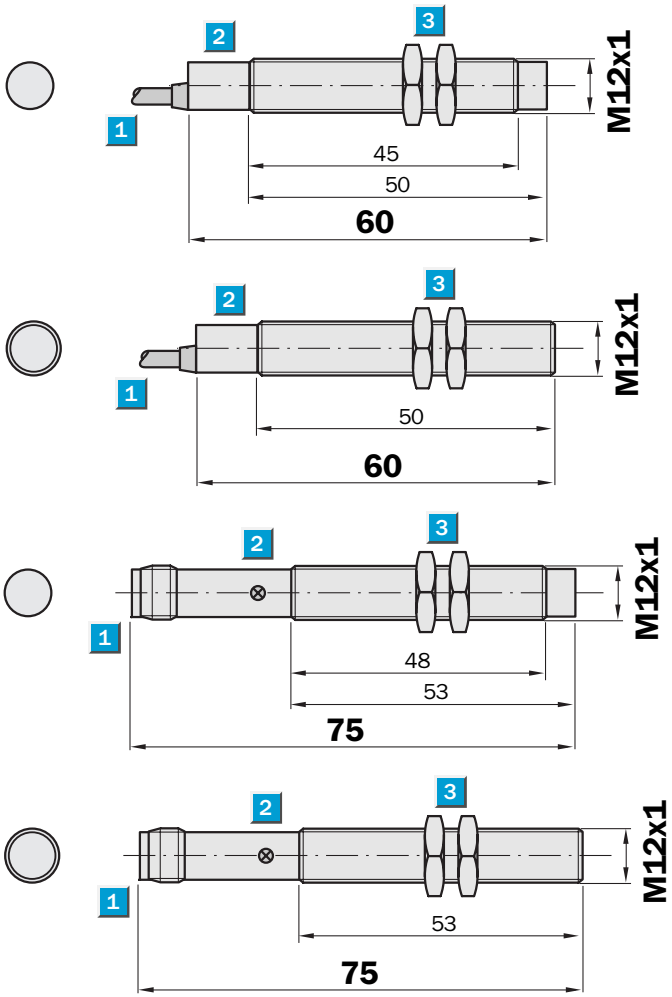
- Free configurable output functions in one sensor PNP / NO, PNP / NC NPN / NO, NPN / NC
- Short-circuit protection
- Robust brass housing, nickel-plated with fine thread M12 x 1 mm
- Enclosure rating IP 67
- LED status indicator (NO function)

See chapter Accessories

Connector, M12, 4-pin

Mounting systems

Dimensional drawing

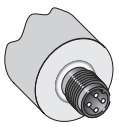


1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 17, metal

Connection type

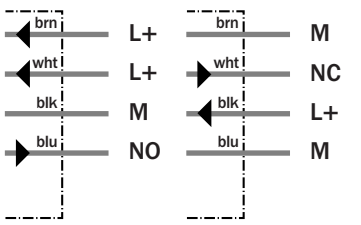
IM12-02BCP-ZW1
IM12-04NCP-ZW1

IM12-02BCP-ZC1
IM12-04NCP-ZC1

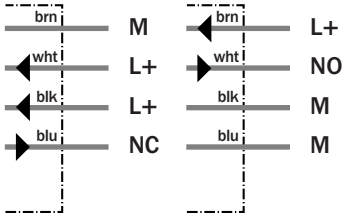


4 x 0.22 mm²

PNP version

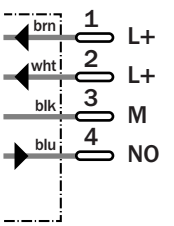


NPN version

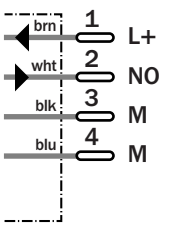


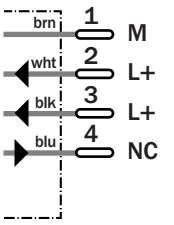
M12, 4-pin

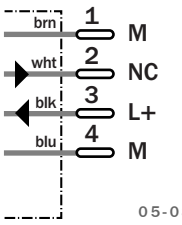
PNP version



NPN version







Technical specifications	IM12-	02BCP-ZW1	02BCP-ZC1	04NCP-ZW1	04NCP-ZC1
Sensing range S_n	2 mm	■	■		
	4 mm			■	■
Electrical configuration	DC 4-wire	■	■	■	■
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■
Ripple U_{pp}	≤ 10 %[1]	■	■	■	■
Voltage drop U_d	≤ 1.2 V[2]	■	■	■	■
Power consumption	≤ 30 mA[3]	■	■	■	■
Continuous current I_a	≤ 100 mA	■	■	■	■
Time delay before availability t_v	≤ 250 ms	■	■	■	■
Hysteresis H, of s_r	2 ... 10 %	■	■	■	■
Repeatability R	≤ 5 % (U_b and T_a constant)[4]	■	■	■	■
Temperature drift, of s_r	± 10 %	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■
Switching output	PNP/NPN config.	■	■	■	■
Output function	Configurable	■	■	■	■
Installation	Flush	■	■		
	Non-flush			■	■
Connection type	Cable, PVC, 2 m	■		■	
	Connector, M12, 4-pin		■		■
Enclosure rating	IP 67[5]	■	■	■	■
Max. switching frequency	1,000 Hz	■	■	■	■
Dimensions	M12 x 1[6]	■	■	■	■
Short-circuit protection	✓	■	■	■	■
Reverse polarity protection	✓	■	■	■	■
Power-up pulse suppression	✓	■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■
Housing material	Brass nickel-plated, plastic	■	■	■	■
Tightening torque	10 Nm	■	■	■	■

[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] according to EN 60529
[6] Thread diameter x pitch (mm)

Order information

Type	Order no.
IM12-02BCP-ZW1	7 902 927
IM12-02BCP-ZC1	7 902 928
IM12-04NCP-ZW1	7 902 929
IM12-04NCP-ZC1	7 902 930

Sensing range 2 / 4 mm

Inductive sensor

- Short-circuit protection (pulsed)
- Robust brass housing, nickel-plated with fine thread M12 x 1 mm
- Enclosure rating IP 67
- High switching frequency

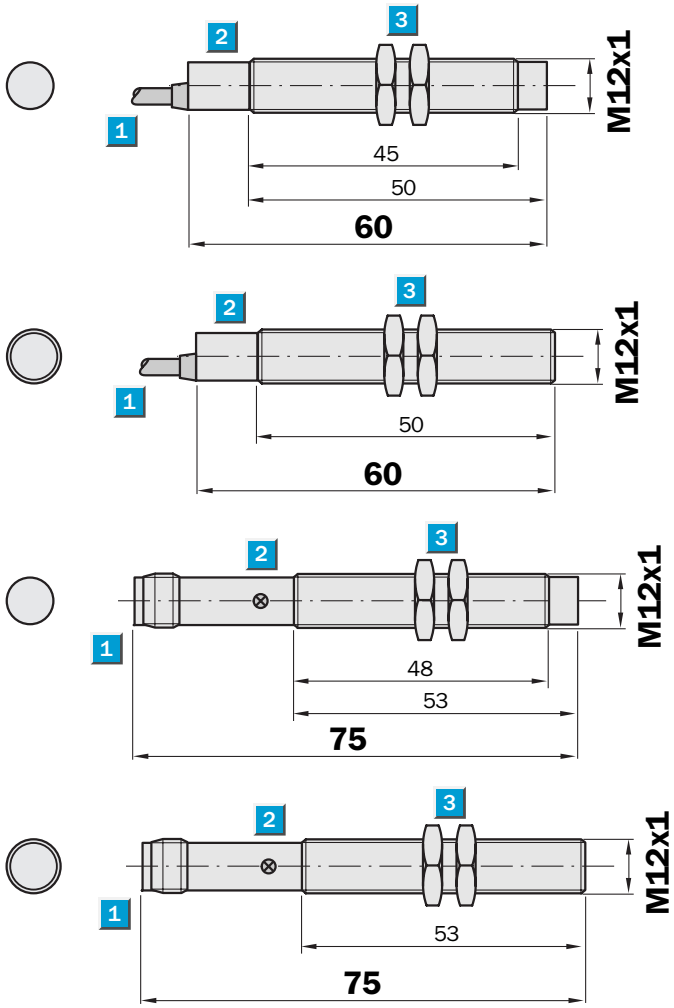
CE

See chapter Accessories

Connector, M12, 4-pin

Mounting systems

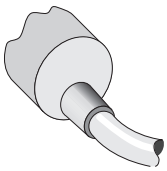
Dimensional drawing

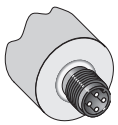


1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 17, metal

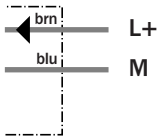
Connection type

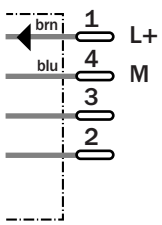
IM12-02BDS-ZW1	IM12-02BDS-ZC1
IM12-02BDO-ZW1	IM12-04NDS-ZC1
IM12-04NDO-ZW1	
IM12-04NDS-ZW1	





2 x 0.22 mm²	M12, 4-pin





Technical specifications	IM12-	02BDS-ZC1	04NDS-ZC1	02BDS-ZW1	02BDO-ZW1	04NDO-ZW1	04NDS-ZW1
Sensing range S_n	2 mm	■		■	■		
	4 mm		■			■	■
Electrical configuration	DC 2-wire	■	■	■	■	■	■
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■	■	■
Ripple U_{pp}	≤ 10 %	■	■	■	■	■	■
Voltage drop U_d	≤ 2.8 V[1]	■	■	■	■	■	■
Continuous current I_a	≤ 100 mA	■	■	■	■	■	■
Min. load current	≥ 3 mA	■	■	■	■	■	■
Residual current	≤ 0.8 mA	■	■	■	■	■	■
Time delay before availability t_v	≤ 50 ms	■	■	■	■	■	■
Hysteresis H, of s_r	2 ... 10 %	■	■	■	■	■	■
Repeatability R	≤ 5 % (U_b and T_a constant)[2]	■	■	■	■	■	■
Temperature drift, of s_r	± 10 %	■	■	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■	■	■
Output function	Normally open	■	■	■			■
	Normally closed				■	■	
Installation	Flush	■		■	■		
	Non-flush		■			■	■
Connection type	Connector, M12, 4-pin	■	■				
	Cable, PVC, 2 m			■	■	■	■
Enclosure rating	IP 67[3]	■	■	■	■	■	■
Max. switching frequency	1,500 Hz	■	■	■	■	■	■
Dimensions	M12 x 1[4]	■	■	■	■	■	■
Short-circuit protection	✓[5]	■	■	■	■	■	■
Reverse polarity protection	✓	■	■	■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■	■
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■	■	■
Housing material	Brass nickel-plated, plastic	■	■	■	■	■	■
Tightening torque	10 Nm	■	■	■	■	■	■

[1] at I_a max
[2] of s_r
[3] according to EN 60529
[4] Thread diameter x pitch (mm)
[5] (pulsed)

Order information

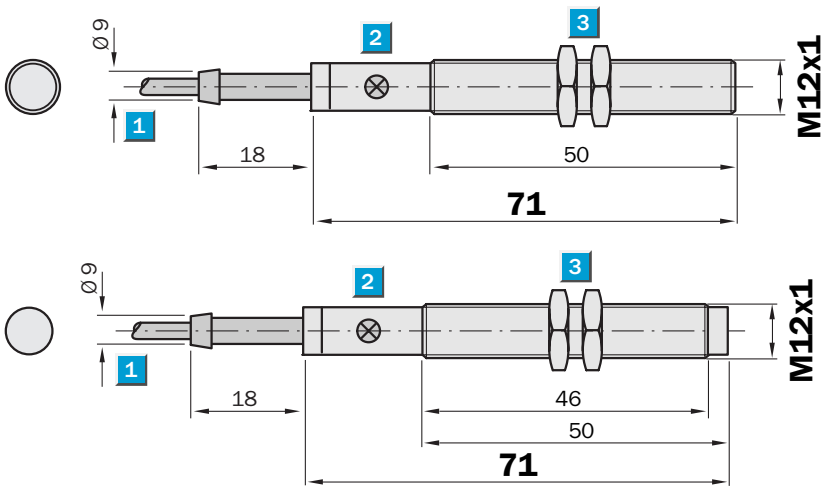
Type	Order no.
IM12-02BDS-ZC1	6 020 312
IM12-04NDS-ZC1	6 020 316
IM12-02BDS-ZW1	6 020 310
IM12-02BDO-ZW1	6 020 311
IM12-04NDO-ZW1	6 020 315
IM12-04NDS-ZW1	6 020 314

Sensing range 2 / 4 mm

Inductive sensor

- Broad supply voltage range in AC
- Robust brass housing, nickel-plated, with fine thread M12 x 1 mm
- Enclosure rating IP 67

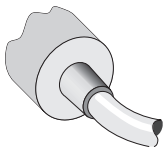
Dimensional drawing



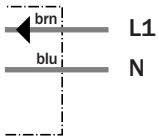
1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 17, metal

Connection type

IM12-02BAO-ZU0
IM12-02BAS-ZU0
IM12-04NAO-ZU0
IM12-04NAS-ZU0



2 x 0.5 mm²



See chapter Accessories

Mounting systems

Technical specifications	IM12-	02BAO -ZU0	02BAS -ZU0	04NAO -ZU0	04NAS -ZU0						
Sensing range S_n	2 mm	■	■								
	4 mm			■	■						
Electrical configuration	AC 2-wire	■	■	■	■						
Supply voltage V_s	AC 20 ... 250 V	■	■	■	■						
Voltage drop U_d	≤ 8.5 V[1]	■	■	■	■						
Continuous current I_a	≤ 250 mA (... +50 °C)	■	■	■	■						
Continuous current I_a	≤ 200 mA (... +80 °C)	■	■	■	■						
Intermittent current I_k	0.9 A (20 ms/0.5Hz)	■	■	■	■						
Min. load current	8 mA	■	■	■	■						
Residual current	≤ 3 mA (250 V AC)	■	■	■	■						
Residual current	≤ 1.5 mA (120 V AC)	■	■	■	■						
Time delay before availability t_v	≤ 10 ms	■	■	■	■						
Hysteresis H, of s_r	1 ... 15 %	■	■	■	■						
Repeatability R	≤ 10 % (U_b and T_a constant)[2]	■	■	■	■						
Temperature drift, of s_r	± 10 %	■	■	■	■						
EMC	According to EN 60947-5-2	■	■	■	■						
Output function	Normally closed	■		■							
	Normally open		■		■						
Installation	Flush	■	■								
	Non-flush			■	■						
Connection type	Cable, PUR-PVC, 2 m	■	■	■	■						
Enclosure rating	IP 67[3]	■	■	■	■						
VDE protection class	⧈	■	■	■	■						
Max. switching frequency	25 Hz	■	■	■	■						
Dimensions	M12 x 1[4]	■	■	■	■						
Power-up pulse suppression	✓	■	■	■	■						
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■						
Ambient temperature T_a	-25 °C ... +80 °C	■	■	■	■						
Housing material	Brass nickel-plated, plastic	■	■	■	■						
Tightening torque	7 Nm	■	■	■	■						

[1] at I_a max [2] of s_r [3] according to EN 60529 [4] Thread diameter x pitch (mm)

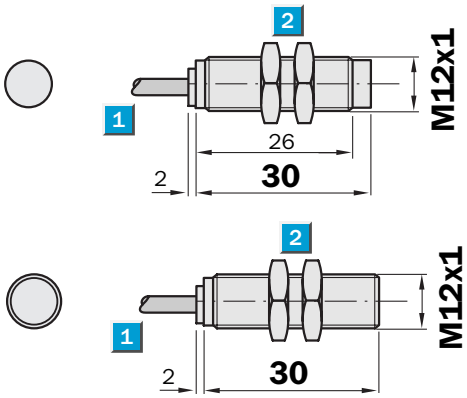
Order information	
Type	**Order no.**
IM12-02BAO-ZU0	7 902 119
IM12-02BAS-ZU0	7 902 118
IM12-04NAO-ZU0	7 902 121
IM12-04NAS-ZU0	7 902 120

Sensing range 2 / 4

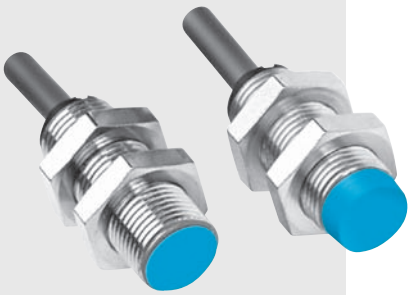
Inductive sensor

- NAMUR to EN 60 947-5-6
- Robust brass housing, nickel-plated, with fine thread M12 x 1 mm
- Classification PTB 03 ATEX 2037
  Ex II 2 G EEx ia IIC T6

Dimensional drawing



1 Connection
2 Fastening nuts (2 x); width across 17, metal

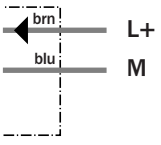


CE Ex

Connection type

IM12-02B-N-ZW0
IM12-04N-N-ZW0

2 x 0.34 mm²



See chapter Accessories

Mounting systems
Switching units

Technical specifications	IM12-	02B-N-ZW0	04N-N-ZW0
Sensing range S_n	2 mm	■	
	4 mm		■
Electrical configuration	NAMUR	■	■
Supply voltage V_s	DC 5 ... 25 V	■	■
Nominal voltage V_n	DC 8.2 V	■	■
Power consumption, attenuated	≤ 1 mA	■	■
Power consumption, unattenuated	≥ 2.2 mA	■	■
Internal capacitance	≤ 230 nF	■	■
Internal inductance	≤ 380 µH	■	■
Cable resistance	≤ 50 Ohm	■	■
Temperature drift, of s_r	± 10 %	■	■
EMC	According to EN 60 947-5-6	■	■
Switching output	Control current dependent on switching state[1]	■	■
Output function	NAMUR	■	■
Installation	Flush	■	
	Non-flush		■
Connection type	Cable, PVC, 2 m	■	■
Enclosure rating	IP 67[2]	■	■
Max. switching frequency	1,200 Hz	■	
	1,500 Hz		■
Dimensions	M12 x 1[3]	■	■
Short-circuit protected	✓	■	■
Reverse polarity protected	✓	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■
Ambient temperature T_a	-25 °C ... +70 °C	■	■
Housing material	Brass nickel-plated, plastic	■	■
Tightening torque	7 Nm	■	■

[1] according to NAMUR EN 60947-5-6 [2] according to EN 60529 [3] Thread diameter x pitch (mm)

Max. data for connecting Isolating unit EN 2 EX

or other approved isolating amplifier:

Short circuit current 1_{Kmax}	50 mA
No load voltage U_0	16 V
Power loss P_{max}	75 mW

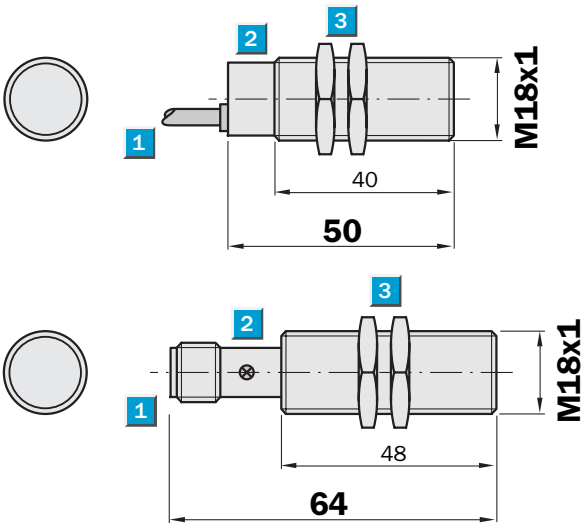
Order information	
Type	**Order no.**
IM12-02B-N-ZW0	6 021 124
IM12-04N-N-ZW0	6 021 125

Sensing range 5 mm

Inductive sensor

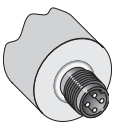
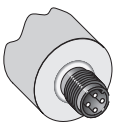
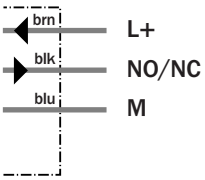
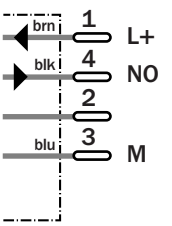
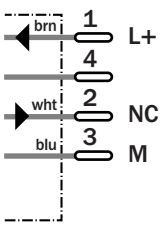
- Short-circuit protection (pulsed)
- Robust brass housing, nickel-plated with fine thread M18 x 1 mm
- Enclosure rating IP 67
- High switching frequency

Dimensional drawing



1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 24, metal

Connection type

IM18-05BNS-ZW1 IM18-05BPO-ZW1 IM18-05BPS-ZW1	IM18-05BNS-ZC1 IM18-05BPS-ZC1	IM18-05BPO-ZC1
		
3 x 0.34 mm²	M12, 4-pin	M12, 4-pin
		

See chapter Accessories
Connector, M12, 4-pin
Mounting systems

Technical specifications	IM18-	05BNS -ZW1	05BPO -ZW1	05BPS -ZW1	05BNS -ZC1	05BPO -ZC1	05BPS -ZC1				
Sensing range S_n	5 mm	■	■	■	■	■	■				
Electrical configuration	DC 3-wire	■	■	■	■	■	■				
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■	■	■				
Ripple U_{pp}	≤ 10 %	■	■	■	■	■	■				
Voltage drop U_d	≤ 1 V[1]	■	■	■	■	■	■				
Power consumption	≤ 20 mA[2]	■	■	■	■	■	■				
Continuous current I_a	≤ 400 mA	■	■	■	■	■	■				
Time delay before availability t_v	≤ 100 ms	■	■	■	■	■	■				
Hysteresis H, of s_r	2 ... 10 %	■	■	■	■	■	■				
Repeatability R	≤ 2 % (U_b and T_a constant)[3]	■	■	■	■	■	■				
Temperature drift, of s_r	± 10 %	■	■	■	■	■	■				
EMC	According to EN 60947-5-2	■	■	■	■	■	■				
Switching output	NPN	■			■						
	PNP		■	■		■	■				
Output function	Normally open	■		■	■		■				
	Normally closed		■			■					
Installation	Flush	■	■	■	■	■	■				
Connection type	Cable, PVC, 2 m	■	■	■							
	Connector, M12, 4-pin				■	■	■				
Enclosure rating	IP 67[4]	■	■	■	■	■	■				
Max. switching frequency	600 Hz	■	■	■	■	■	■				
Dimensions	M18 x 1[5]	■	■	■	■	■	■				
Short-circuit protection	✓[6]	■	■	■	■	■	■				
Reverse polarity protection	✓	■	■	■	■	■	■				
Power-up pulse suppression	✓	■	■	■	■	■	■				
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■	■				
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■	■	■				
Housing material	Brass nickel-plated, plastic	■	■	■	■	■	■				
Tightening torque	30 Nm	■	■	■	■	■	■				

[1] at I_a max
[2] without load
[3] of s_r
[4] according to EN 60529
[5] Thread diameter x pitch (mm)
[6] (pulsed)

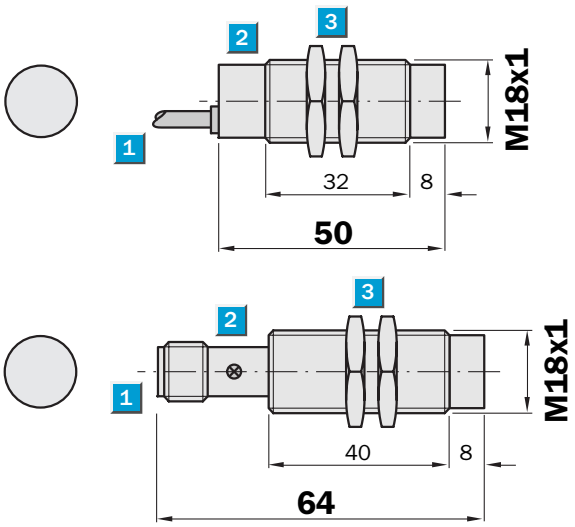
Order information	
Type	**Order no.**
IM18-05BNS-ZW1	6 011 988
IM18-05BPO-ZW1	6 011 989
IM18-05BPS-ZW1	6 011 987
IM18-05BNS-ZC1	6 011 992
IM18-05BPO-ZC1	6 011 993
IM18-05BPS-ZC1	6 011 991

Sensing range 8 mm

Inductive sensor

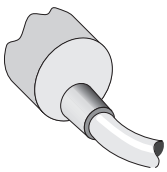
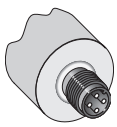
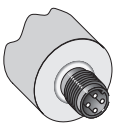
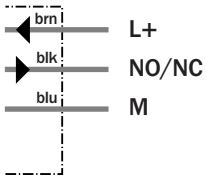
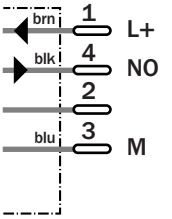
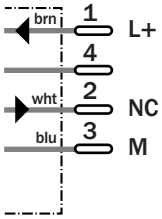
- Short-circuit protection (pulsed)
- Robust brass housing, nickel-plated with fine thread M18 x 1 mm
- Enclosure rating IP 67
- High switching frequency

Dimensional drawing



1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 24, metal

Connection type

IM18-08NNO-ZW1 IM18-08NNS-ZW1 IM18-08NPS-ZW1 IM18-08NNS-ZWA	IM18-08NNS-ZC1 IM18-08NPS-ZC1	IM18-08NPO-ZC1
		
3 x 0.34 mm²	M12, 4-pin	M12, 4-pin
		

See chapter Accessories

Connector, M12, 4-pin
Mounting systems

Technical specifications	IM18-	08NNO-ZW1	08NNS-ZW1	08NPS-ZW1	08NNS-ZWA	08NNS-ZC1	08NPO-ZC1	08NPS-ZC1
Sensing range S_n	8 mm	■	■	■	■	■	■	■
Electrical configuration	DC 3-wire	■	■	■	■	■	■	■
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■	■	■	■
Ripple U_{pp}	≤ 10 %	■	■	■	■	■	■	■
Voltage drop U_d	≤ 1 V[1]	■	■	■	■	■	■	■
Power consumption	≤ 20 mA[2]	■	■	■	■	■	■	■
Continuous current I_a	≤ 400 mA	■	■	■	■	■	■	■
Time delay before availability t_v	≤ 100 ms	■	■	■	■	■	■	■
Hysteresis H, of s_r	2 ... 10 %	■	■	■	■	■	■	■
Repeatability R	≤ 2 % (U_b and T_a constant)[3]	■	■	■	■	■	■	■
Temperature drift, of s_r	± 10 %	■	■	■	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■	■	■	■
Switching output	NPN	■	■		■	■		
	PNP			■			■	■
Output function	Normally closed	■					■	
	Normally open		■	■	■	■		■
Installation	Non-flush	■	■	■	■	■	■	■
Connection type	Cable, PVC, 2 m	■	■	■				
	Cable, PVC, 3 m				■			
	Connector, M12, 4-pin					■	■	■
Enclosure rating	IP 67[4]	■	■	■	■	■	■	■
Max. switching frequency	600 Hz	■	■	■	■	■	■	■
Dimensions	M18 x 1[5]	■	■	■	■	■	■	■
Short-circuit protection	✓[6]	■	■	■	■	■	■	■
Reverse polarity protection	✓	■	■	■	■	■	■	■
Power-up pulse suppression	✓	■	■	■	■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■	■	■
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■	■	■	■
Housing material	Brass nickel-plated, plastic	■	■	■	■	■	■	■
Tightening torque	30 Nm	■	■	■	■	■	■	■

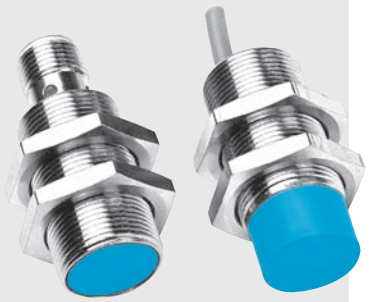
[1] at I_a max
[2] without load
[3] of s_r
[4] according to EN 60529
[5] Thread diameter x pitch (mm)
[6] (pulsed)

Order information	
Type	**Order no.**
IM18-08NNO-ZW1	6 011 998
IM18-08NNS-ZW1	6 011 996
IM18-08NPS-ZW1	6 011 995
IM18-08NNS-ZWA	6 030 123
IM18-08NNS-ZC1	6 012 000
IM18-08NPO-ZC1	6 012 001
IM18-08NPS-ZC1	6 011 999

Sensing range 5 / 8 mm

Inductive sensor

- Short-circuit protection (pulsed)
- Robust brass housing, nickel-plated with fine thread M18 x 1 mm
- Enclosure rating IP 67
- High switching frequency



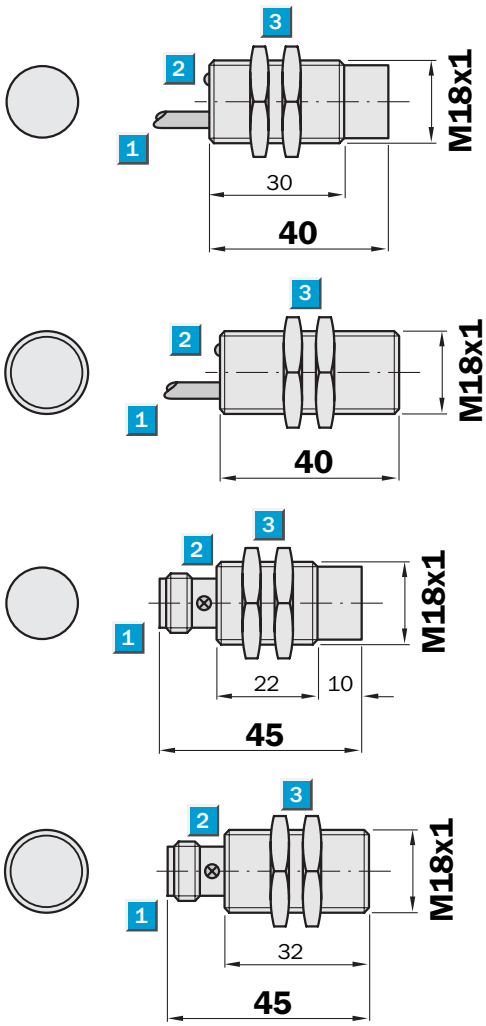
CE

See chapter Accessories

Connector, M12, 4-pin

Mounting systems

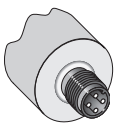
Dimensional drawing



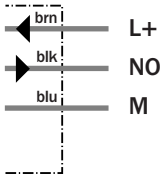
1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 24, metal

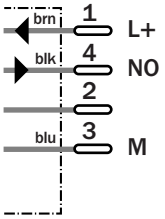
Connection type

IM18-05BNS-ZUK	IM18-05BNS-ZCK
IM18-05BPS-ZUK	IM18-05BPS-ZCK
IM18-08NNS-ZUK	IM18-08NNS-ZCK
IM18-08NPS-ZUK	IM18-08NPS-ZCK



3 x 0.25 mm²	M12, 4-pin





Technical specifications	IM18-	05BNS -ZUK	05BPS -ZUK	05BNS -ZCK	05BPS -ZCK	08NNS -ZUK	08NPS -ZUK	08NNS -ZCK	08NPS -ZCK
Sensing range S_n	5 mm	■	■	■	■				
	8 mm					■	■	■	■
Electrical configuration	DC 3-wire	■	■	■	■	■	■	■	■
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■	■	■	■	■
Ripple U_{pp}	≤ 10 %	■	■	■	■	■	■	■	■
Voltage drop U_d	≤ 1.5 V[1]	■	■	■	■	■	■	■	■
Power consumption	≤ 10 mA[2]	■	■	■	■	■	■	■	■
Continuous current I_a	≤ 300 mA	■	■	■	■	■	■	■	■
Time delay before availability t_v	≤ 10 ms	■	■	■	■	■	■	■	■
Hysteresis H, of s_r	1 ... 10 %	■	■	■	■	■	■	■	■
Repeatability R	≤ 2 % (U_b and T_a constant)[3]	■	■	■	■	■	■	■	■
Temperature drift, of s_r	± 10 %	■	■	■	■	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■	■	■	■	■
Switching output	NPN	■		■		■		■	
	PNP		■		■		■		■
Output function	Normally open	■	■	■	■	■	■	■	■
Installation	Flush	■	■	■	■				
	Non-flush					■	■	■	■
Connection type	Cable, PUR-PVC, 2 m	■	■			■	■		
	Connector, M12, 4-pin			■	■			■	■
Enclosure rating	IP 67[4]	■	■	■	■	■	■	■	■
Max. switching frequency	1,000 Hz	■	■	■	■	■	■	■	■
Dimensions	M18 x 1[5]	■	■	■	■	■	■	■	■
Wire-break protection	✓	■	■	■	■	■	■	■	■
Short-circuit protection	✓[6]	■	■	■	■	■	■	■	■
Reverse polarity protection	✓	■	■	■	■	■	■	■	■
Power-up pulse suppression	✓	■	■	■	■	■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■	■	■	■
Ambient temperature T_a	-25 °C ... +75 °C	■	■	■	■	■	■	■	■
Housing material	Brass nickel-plated, plastic	■	■	■	■	■	■	■	■
Tightening torque	25 Nm	■	■	■	■	■	■	■	■

[1] at I_a max
[2] without load
[3] of s_r
[4] according to EN 60529
[5] Thread diameter x pitch (mm)
[6] (pulsed)

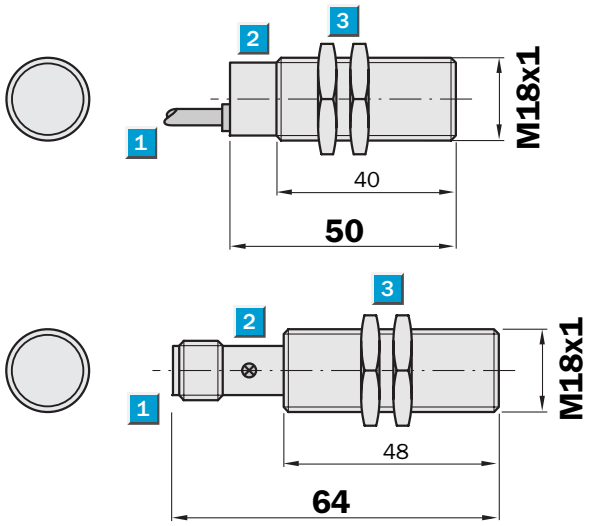
Order information	
Type	**Order no.**
IM18-05BNS-ZUK	1 017 442
IM18-05BPS-ZUK	1 017 430
IM18-05BNS-ZCK	1 017 444
IM18-05BPS-ZCK	1 017 432
IM18-08NNS-ZUK	1 017 443
IM18-08NPS-ZUK	1 017 431
IM18-08NNS-ZCK	1 017 445
IM18-08NPS-ZCK	1 017 433

Sensing range 8 mm

Inductive sensor

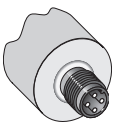
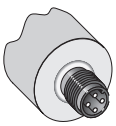
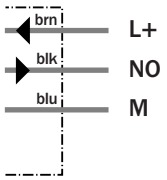
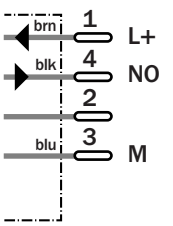
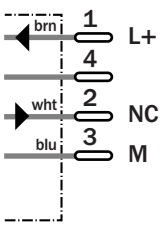
- Enhanced sensing range
- High switching frequency
- Short-circuit protection (pulsed)
- Robust brass housing, nickel-plated with fine thread M18 x 1 mm
- Enclosure rating IP 67

Dimensional drawing



1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 24, metal

Connection type

IM18-08BNS-ZW1 IM18-08BPS-ZWB IM18-08BPS-ZW1	IM18-08BNS-ZC1 IM18-08BPS-ZC1	IM18-08BPO-ZC1
		
3 x 0.34 mm²	M12, 4-pin	M12, 4-pin
		

See chapter Accessories
Connector, M12, 4-pin
Mounting systems

Technical specifications	IM18-	08BNS -ZC1	08BNS -ZW1	08BPO -ZC1	08BPS -ZC1	08BPS -ZWB	08BPS -ZW1
Sensing range S_n	8 mm	■	■	■	■	■	■
Electrical configuration	DC 3-wire	■	■	■	■	■	■
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■	■	■
Ripple U_{pp}	≤ 10 %	■	■	■	■	■	■
Voltage drop U_d	≤ 1 V[1]	■	■	■	■	■	■
Power consumption	≤ 10 mA[2]	■	■	■	■	■	■
Continuous current I_a	≤ 400 mA	■	■	■	■	■	■
Time delay before availability t_v	≤ 100 ms	■	■	■	■	■	■
Hysteresis H, of s_r	2 ... 15 %	■	■	■	■	■	■
Repeatability R	≤ 5 % (U_b and T_a constant)[3]	■	■	■	■	■	■
Temperature drift, of s_r	± 10 %	■	■	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■	■	■
Switching output	NPN	■	■				
	PNP			■	■	■	■
Output function	Normally open	■	■		■	■	■
	Normally closed			■			
Installation	Flush[4]	■	■	■	■	■	■
Connection type	Connector, M12, 4-pin	■		■	■		
	Cable, PVC, 2 m		■				■
	Cable, PVC, 5 m					■	
Enclosure rating	IP 67[5]	■	■	■	■	■	■
Max. switching frequency	300 Hz	■	■	■	■	■	■
Dimensions	M18 x 1[6]	■	■	■	■	■	■
Short-circuit protection	✓[7]	■	■	■	■	■	■
Reverse polarity protection	✓	■	■	■	■	■	■
Power-up pulse suppression	✓	■	■	■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■	■
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■	■	■
Housing material	Brass nickel-plated, plastic	■	■	■	■	■	■
Tightening torque	30 Nm	■	■	■	■	■	■

[1] at I_a max
[2] without load
[3] of s_r
[4] see installation notes
[5] according to EN 60529
[6] Thread diameter x pitch (mm)
[7] (pulsed)

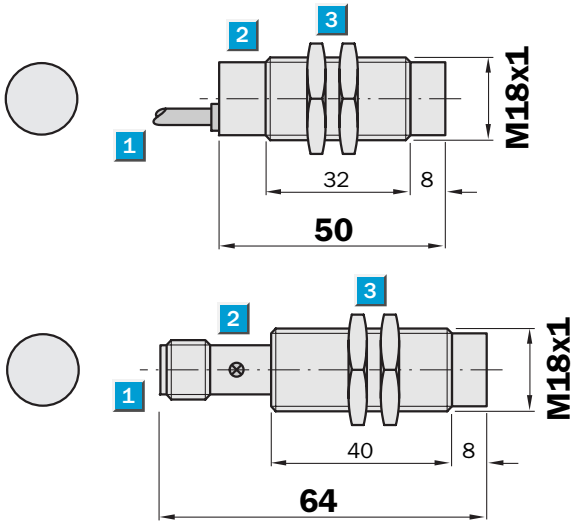
Order information	
Type	**Order no.**
IM18-08BNS-ZC1	7 900 086
IM18-08BNS-ZW1	7 900 082
IM18-08BPO-ZC1	7 900 087
IM18-08BPS-ZC1	7 900 085
IM18-08BPS-ZWB	6 030 761
IM18-08BPS-ZW1	7 900 081

Sensing range 12 mm

Inductive sensor

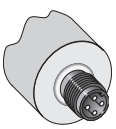
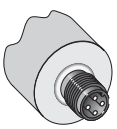
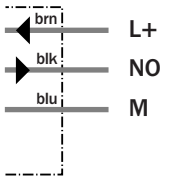
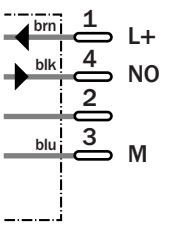
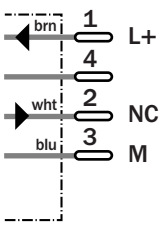
- Enhanced sensing range
- High switching frequency
- Short-circuit protection (pulsed)
- Robust brass housing, nickel-plated with fine thread M18 x 1 mm
- Enclosure rating IP 67

Dimensional drawing



1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 24, metal

Connection type

IM18-12NNS-ZW1 IM18-12NPS-ZW1	IM18-12NNS-ZC1 IM18-12NPS-ZC1	IM18-12NPO-ZC1
		
3 x 0.34 mm²	M12, 4-pin	M12, 4-pin
		

See chapter Accessories
Connector, M12, 4-pin
Mounting systems

Technical specifications	IM18-	12NNS -ZC1	12NNS -ZW1	12NPO -ZC1	12NPS -ZC1	12NPS -ZW1
Sensing range S_n	12 mm	■	■	■	■	■
Electrical configuration	DC 3-wire	■	■	■	■	■
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■	■
Ripple U_{pp}	≤ 10 %	■	■	■	■	■
Voltage drop U_d	≤ 1 V[1]	■	■	■	■	■
Power consumption	≤ 10 mA[2]	■	■	■	■	■
Continuous current I_a	≤ 400 mA	■	■	■	■	■
Time delay before availability t_v	≤ 100 ms	■	■	■	■	■
Hysteresis H, of s_r	2 ... 15 %	■	■	■	■	■
Repeatability R	≤ 5 % (U_b and T_a constant)[3]	■	■	■	■	■
Temperature drift, of s_r	± 10 %	■	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■	■
Switching output	NPN	■	■			
	PNP			■	■	■
Output function	Normally open	■	■		■	■
	Normally closed			■		
Installation	Non-flush	■	■	■	■	■
Connection type	Connector, M12, 4-pin	■		■	■	
	Cable, PVC, 2 m		■			■
Enclosure rating	IP 67[4]	■	■	■	■	■
Max. switching frequency	300 Hz	■	■	■	■	■
Dimensions	M18 x 1[5]	■	■	■	■	■
Short-circuit protection	✓[6]	■	■	■	■	■
Reverse polarity protection	✓	■	■	■	■	■
Power-up pulse suppression	✓	■	■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■	■
Housing material	Brass nickel-plated, plastic	■	■	■	■	■
Tightening torque	30 Nm	■	■	■	■	■

[1] at I_a max
[2] without load
[3] of s_r
[4] according to EN 60529
[5] Thread diameter x pitch (mm)
[6] (pulsed)

Order information	
Type	**Order no.**
IM18-12NNS-ZC1	7 900 098
IM18-12NNS-ZW1	7 900 094
IM18-12NPO-ZC1	7 900 099
IM18-12NPS-ZC1	7 900 097
IM18-12NPS-ZW1	7 900 093

Sensing range 12 / 20 mm

Inductive sensor

- Triple sensing range
- Installation quasi flush or non-flush in metal
- Short-circuit protection (pulsed)
- Robust brass housing, chrome-plated with fine thread M18 x 1 mm
- Enclosure rating IP 67

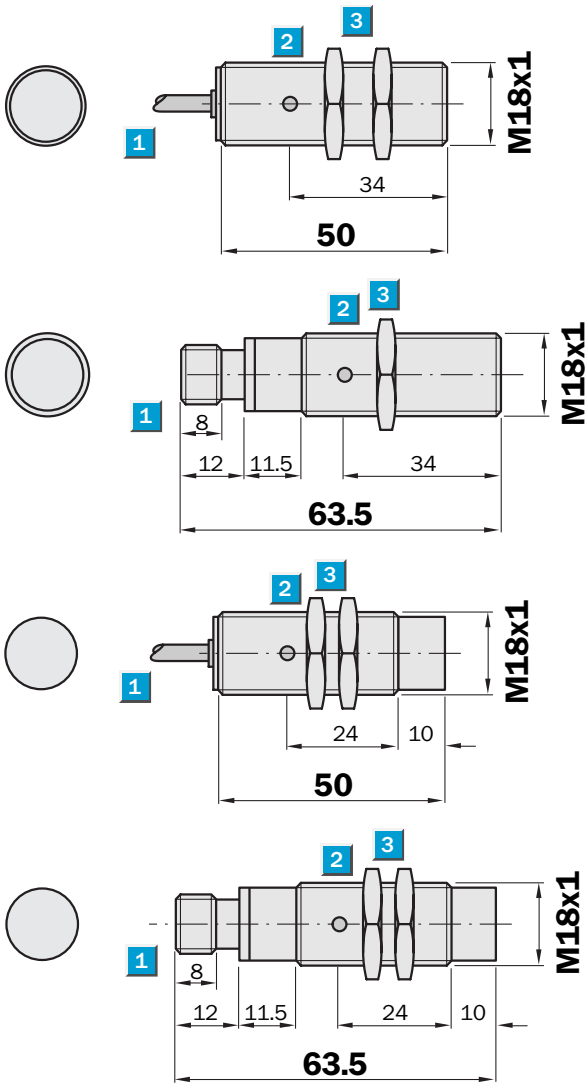
CE

See chapter Accessories

Connector, M12, 4-pin

Mounting systems

Dimensional drawing

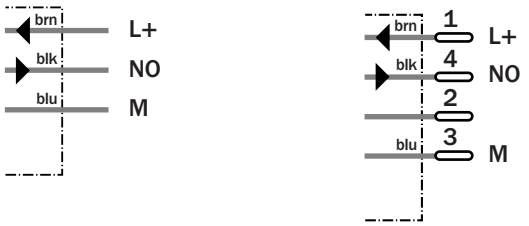


1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 24, metal

Connection type

IM18-12BNS-ZW1	IM18-12BPS-ZC1
IM18-12BPS-ZW1	IM18-20NPS-ZC1
IM18-20NPS-ZW1	

3 x 0.34 mm²	M12, 4-pin



Technical specifications	IM18-	12BNS -ZW1	12BPS -ZW1	12BPS -ZC1	20NPS -ZW1	20NPS -ZC1					
Sensing range S_n	12 mm	■	■	■							
	20 mm				■	■					
Electrical configuration	DC 3-wire	■	■	■	■	■					
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■	■					
Ripple U_{pp}	≤ 20 %[1]	■	■	■	■	■					
Voltage drop U_d	≤ 2 V[2]	■	■	■	■	■					
Power consumption	≤ 10 mA[3]	■	■	■	■	■					
Continuous current I_a	≤ 200 mA	■	■	■	■	■					
Time delay before availability t_v	≤ 100 ms	■	■	■	■	■					
Hysteresis H, of s_r	1 ... 15 %	■	■	■	■	■					
Repeatability R	≤ 5 % (U_b and T_a constant)[4]	■	■	■	■	■					
Temperature drift, of s_r	± 10 %	■	■	■	■	■					
EMC	According to EN 60947-5-2	■	■	■	■	■					
Switching output	NPN	■									
	PNP		■	■	■	■					
Output function	Normally open[5]	■	■	■	■	■					
Installation	Quasi-flush[6]	■	■	■							
	Non-flush				■	■					
Connection type	Cable, PVC, 2 m	■	■		■						
	Connector, M12, 4-pin			■		■					
Enclosure rating	IP 67[7]	■	■	■	■	■					
Max. switching frequency	500 Hz	■	■	■							
	200 Hz				■	■					
Dimensions	M18 x 1[8]	■	■	■	■	■					
Short-circuit protection	✓[9]	■	■	■	■	■					
Reverse polarity protection	✓	■	■	■	■	■					
Power-up pulse suppression	✓	■	■	■	■	■					
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■					
Ambient temperature T_a	-25 °C ... +75 °C	■	■	■	■	■					
Housing material	Brass, chrome-plated, plastic	■	■	■	■	■					
Tightening torque	30 Nm	■	■	■	■	■					

[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] other output functions available on request.
[6] when mounting in conductible materials the sensors must be installed with a distance A to the surface. A Steel, metal = 4 mm/A Stainless steel = 1.5 mm
[7] according to EN 60529
[8] Thread diameter x pitch (mm)
[9] (pulsed)

Order information	
Type	**Order no.**
IM18-12BNS-ZW1	6 027 516
IM18-12BPS-ZW1	6 027 515
IM18-12BPS-ZC1	6 027 517
IM18-20NPS-ZW1	6 027 518
IM18-20NPS-ZC1	6 027 519

Sensing range 12 mm

Inductive sensor

- Triple sensing range
- Installation quasi flush in metal
- Short-circuit protection (pulsed)
- Robust brass housing, chrome-plated with fine thread M18 x 1 mm
- Enclosure rating IP 67

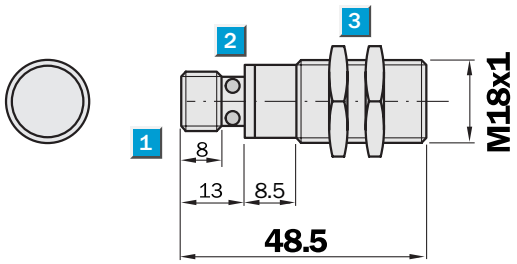
CE

See chapter Accessories

Connector, M12, 4-pin

Mounting systems

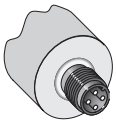
Dimensional drawing



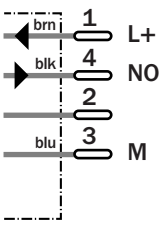
1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 24, metal

Connection type

IM18-12BPS-ZCK



M12, 4-pin



Technical specifications	IM18-	12BPS -ZCK
Sensing range S_n	12 mm	
Electrical configuration	DC 3-wire	
Supply voltage V_S	DC 10 ... 30 V	
Ripple U_{pp}	≤ 10 %[1]	
Voltage drop U_d	≤ 2 V[2]	
Power consumption	≤ 10 mA[3]	
Continuous current I_a	≤ 200 mA	
Time delay before availability t_v	≤ 100 ms	
Hysteresis H, of s_r	1 ... 15 %	
Repeatability R	≤ 5 % (U_b and T_a constant)[4]	
Temperature drift, of s_r	± 10 %	
EMC	According to EN 60947-5-2	
Switching output	PNP	
Output function	Normally open	
Installation	Quasi-flush[5]	
Connection type	Connector, M12, 4-pin	
Enclosure rating	IP 67[6]	
Max. switching frequency	500 Hz	
Dimensions	M18 x 1[7]	
Short-circuit protection	✓[8]	
Reverse polarity protection	✓	
Power-up pulse suppression	✓	
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	
Ambient temperature T_a	-25 °C ... +75 °C	
Housing material	Brass, chrome-plated, plastic	
Tightening torque	30 Nm	

[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] when mounting in conductible materials the sensors must be installed with a distance A to the surface. A Steel, metal = 4 mm/A Stainless steel = 1.5 mm
[6] according to EN 60529
[7] Thread diameter x pitch (mm)
[8] (pulsed)

Order information

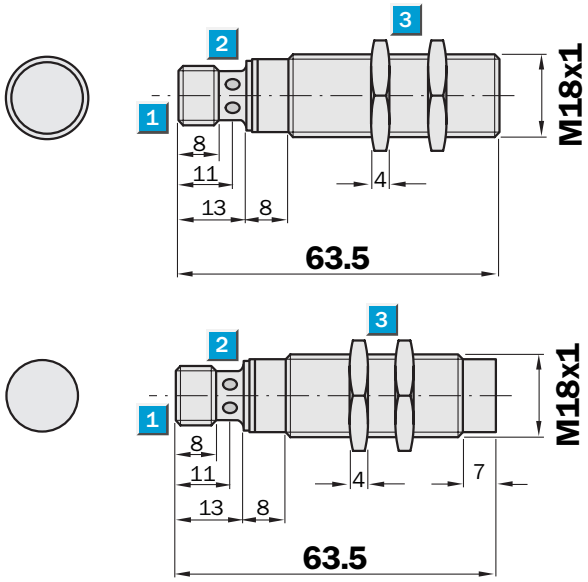
Type	Order no.
IM18-12BPS-ZCK	6 025 569

Sensing range 10 / 20 mm

Inductive sensor

- Triple sensing range
- Robust stainless steel V4A, 316L one piece housing, with fine thread M18 x 1 mm
- Enclosure rating IP 69K + IP 68
- Especially suitable for use in the food and beverage sector
- Visual installation support

Dimensional drawing



1 Connection
2 Display LED
3 Fastening nuts (2x); width across 24, stainless steel V4A, 316L

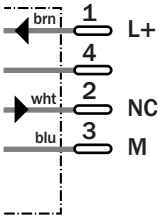
CE

Connection type

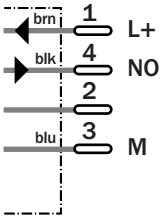
IM18-10BPO-NC1

IM18-10BNS-NC1
IM18-10BPS-NC1
IM18-20NNS-NC1
IM18-20NPS-NC1

M12, 4-pin



M12, 4-pin



See chapter Accessories

Connector, M12, 4-pin

Technical specifications	IM18-	10BNS -NC1	10BPO -NC1	10BPS -NC1	20NNS -NC1	20NPS -NC1
Sensing range S_n	10 mm	■	■	■		
	20 mm				■	■
Electrical configuration	DC 3-wire	■	■	■	■	■
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■	■
Ripple U_{pp}	≤ 20 %[1]	■	■	■	■	■
Voltage drop U_d	≤ 2 V[2]	■	■	■	■	■
Power consumption	≤ 12 mA[3]	■	■	■	■	■
Continuous current I_a	≤ 200 mA	■	■	■	■	■
Time delay before availability t_v	≤ 300 ms	■	■	■	■	■
Hysteresis H, of s_r	1 ... 15 %	■	■	■	■	■
Repeatability R	≤ 5 % (U_b and T_a constant)[4]	■	■	■	■	■
Temperature drift, of s_r	≤ 10 %	■	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■	■
Switching output	NPN	■			■	
	PNP		■	■		■
Output function	Normally open[5]	■		■	■	■
	Normally closed[5]		■			
Installation	Flush	■	■	■		
	Non-flush[6]				■	■
Connection type	Connector, M12, 4-pin	■	■	■	■	■
Enclosure rating	IP68, IP 69K[7]	■	■	■	■	■
Max. switching frequency	200 Hz	■	■	■	■	■
Dimensions	M18 x 1[8]	■	■	■	■	■
Short-circuit protection	✓[9]	■	■	■	■	■
Reverse polarity protection	✓	■	■	■	■	■
Power-up pulse suppression	✓	■	■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm[10]	■	■	■	■	■
Ambient temperature T_a	-25 °C ... +85 °C	■	■	■	■	■
Housing material	Stainless steel V4A 1.4404, 316L	■	■	■	■	■
Tightening torque	50 Nm	■	■	■	■	■

[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] other output functions available on request.
[6] see installation notes
[7] according to EN 60529
[8] Thread diameter x pitch (mm)
[9] (pulsed)
[10] according to IEC 60 947-5-2/7.4

Correction factors:

	Flush installation:	Non-flush installation:
Steel (ST37)	1.0	1.0
Copper	0.85	0.85
Aluminium	1.0	1.0
Brass	1.3	1.3
Stainless steel	0.4 / 0.8	0.4 / 0.8
1 mm / 2 mm thick		

Order information

Type	Order no.
IM18-10BNS-NC1	6 027 578
IM18-10BPO-NC1	6 027 579
IM18-10BPS-NC1	6 027 577
IM18-20NNS-NC1	6 027 581
IM18-20NPS-NC1	6 027 580

Sensing range 5/ 8 mm

Inductive sensor

- For harsh environment, resistant to most cutting oils
- Enclosure rating IP 68
- Complementary output function
- Robust brass housing, nickel-plated with fine thread M18 x 1 mm
- LED status indicator (NO function)

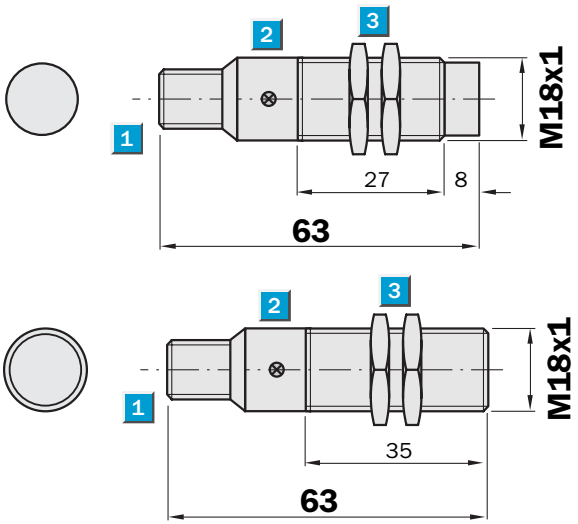
CE

See chapter Accessories

Connector, M12, 4-pin

Mounting systems

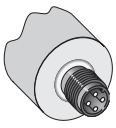
Dimensional drawing



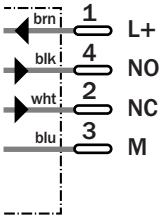
1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 24, metal

Connection type

IM18-05BNP-ZC1
IM18-05BPP-ZC1
IM18-08NNP-ZC1
IM18-08NPP-ZC1



M12, 4-pin



Technical specifications	IM18-	05BNP -ZC1	05BPP -ZC1	08NNP -ZC1	08NPP -ZC1						
Sensing range S_n	5 mm	■	■								
	8 mm			■	■						
Electrical configuration	DC 4-wire	■	■	■	■						
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■						
Ripple U_{pp}	≤ 10 %	■	■	■	■						
Voltage drop U_d	≤ 0.8 V[1]	■	■	■	■						
Power consumption	≤ 20 mA[2]	■	■	■	■						
Continuous current I_a	≤ 400 mA	■	■	■	■						
Time delay before availability t_v	≤ 100 ms	■	■	■	■						
Hysteresis H, of s_r	2 ... 10 %	■	■	■	■						
Repeatability R	≤ 5 % (U_b and T_a constant)[3]	■	■	■	■						
Temperature drift, of s_r	± 10 %	■	■	■	■						
EMC	According to EN 60947-5-2	■	■	■	■						
Switching output	NPN	■		■							
	PNP		■		■						
Output function	Complementary	■	■	■	■						
Installation	Flush	■	■								
	Non-flush			■	■						
Connection type	Connector, M12, 4-pin	■	■	■	■						
Enclosure rating	IP 68	■	■	■	■						
Max. switching frequency	1,000 Hz	■	■	■	■						
Dimensions	M18 x 1[4]	■	■	■	■						
Short-circuit protection	✓[5]	■	■	■	■						
Reverse polarity protection	✓	■	■	■	■						
Power-up pulse suppression	✓	■	■	■	■						
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■						
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■						
Housing material	Brass nickel-plated, plastic	■	■	■	■						
Tightening torque	40 Nm	■	■	■	■						

[1] at I_a max
[2] without load
[3] of s_r
[4] Thread diameter x pitch (mm)
[5] (pulsed)

Order information	
Type	**Order no.**
IM18-05BNP-ZC1	7 902 932
IM18-05BPP-ZC1	7 902 931
IM18-08NNP-ZC1	7 902 934
IM18-08NPP-ZC1	7 902 933

Sensing range 5 / 8 mm

Inductive sensor

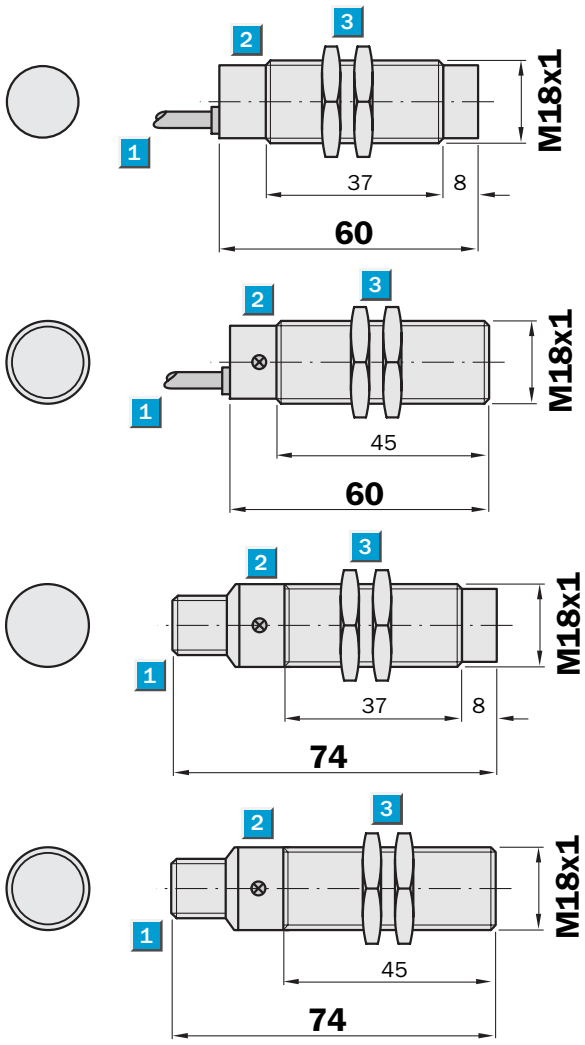
- Free configurable output functions in one sensor PNP / NO, PNP / NC NPN / NO, NPN / NC
- Short-circuit protection
- Robust brass housing, nickel-plated with fine thread M18 x 1 mm
- Enclosure rating IP 67
- LED status indicator (NO function)

See chapter Accessories

Connector, M12, 4-pin

Mounting systems

Dimensional drawing

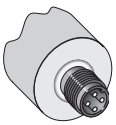


1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 24, metal

Connection type

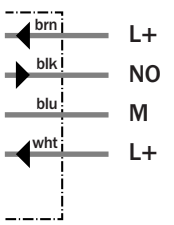
IM18-05BCP-ZW1
IM18-08NCP-ZW1

IM18-05BCP-ZC1
IM18-08NCP-ZC1

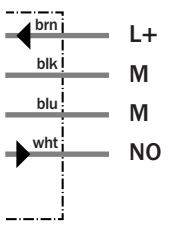


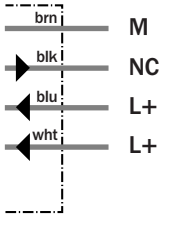
4 x 0.34 mm²

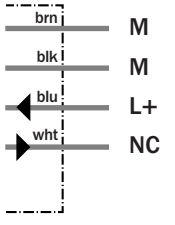
PNP version



NPN version

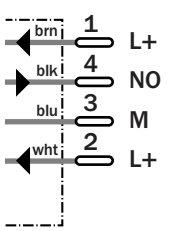




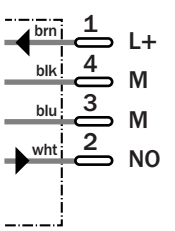


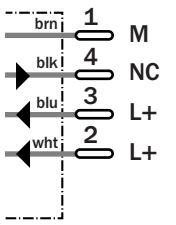
M12, 4-pin

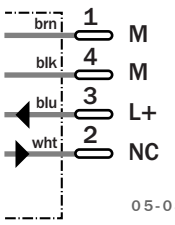
PNP version



NPN version







Technical specifications	IM18-	05BCP -ZW1	05BCP -ZC1	08NCP -ZW1	08NCP -ZC1						
Sensing range S_n	5 mm	■	■								
	8 mm			■	■						
Electrical configuration	DC 4-wire	■	■	■	■						
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■						
Ripple U_{pp}	≤ 10 %	■	■	■	■						
Voltage drop U_d	≤ 1.2 V[1]	■	■	■	■						
Power consumption	≤ 30 mA[2]	■	■	■	■						
Continuous current I_a	≤ 100 mA	■	■	■	■						
Time delay before availability t_v	≤ 200 ms	■	■	■	■						
Hysteresis H, of s_r	2 ... 10 %	■	■	■	■						
Repeatability R	≤ 5 % (U_b and T_a constant)[3]	■	■	■	■						
Temperature drift, of s_r	± 10 %	■	■	■	■						
EMC	According to EN 60947-5-2	■	■	■	■						
Switching output	PNP/NPN config.	■	■	■	■						
Output function	Configurable	■	■	■	■						
Installation	Flush	■	■								
	Non-flush			■	■						
Connection type	Cable, PVC, 2 m	■		■							
	Connector, M12, 4-pin		■		■						
Enclosure rating	IP 67[4]	■	■	■	■						
Max. switching frequency	300 Hz	■	■	■	■						
Dimensions	M18 x 1[5]	■	■	■	■						
Short-circuit protection	✓	■	■	■	■						
Reverse polarity protection	✓	■	■	■	■						
Power-up pulse suppression	✓	■	■	■	■						
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■						
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■						
Housing material	Brass nickel-plated, plastic	■	■	■	■						
Tightening torque	40 Nm	■	■	■	■						

[1] at I_a max
[2] without load
[3] of s_r
[4] according to EN 60529
[5] Thread diameter x pitch (mm)

Order information	
Type	**Order no.**
IM18-05BCP-ZW1	7 902 935
IM18-05BCP-ZC1	7 902 936
IM18-08NCP-ZW1	7 902 937
IM18-08NCP-ZC1	7 902 938

Sensing range 5 / 8 mm

Inductive sensor

- Short-circuit protection (pulsed)
- Robust brass housing, nickel-plated with fine thread M18 x 1 mm
- Enclosure rating IP 67

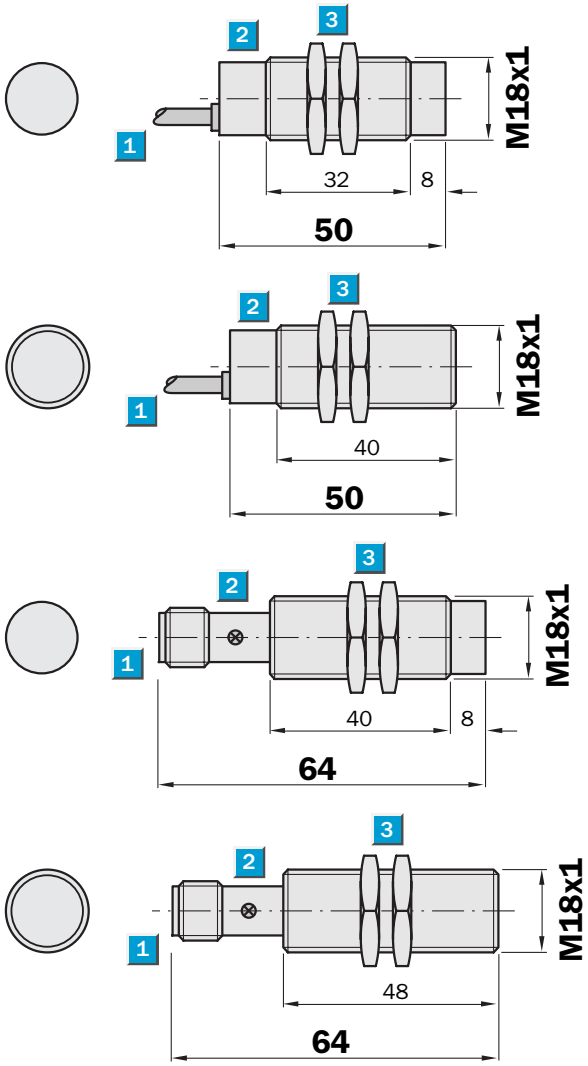
CE

See chapter Accessories

Connector, M12, 4-pin

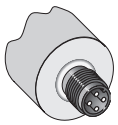
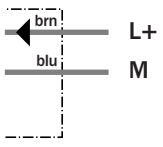
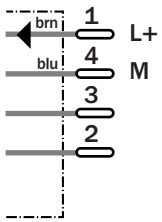
Mounting systems

Dimensional drawing



1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 24, metal

Connection type

IM18-05BDS-ZW1 IM18-08NDS-ZW1	IM18-05BDS-ZC1 IM18-08NDS-ZC1
	
2 x 0.34 mm²	M12, 4-pin
	

Technical specifications	IM18-	05BDS-ZW1	05BDS-ZC1	08NDS-ZW1	08NDS-ZC1
Sensing range S_n	5 mm	■	■		
	8 mm			■	■
Electrical configuration	DC 2-wire	■	■	■	■
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■
Ripple U_{pp}	≤ 10 %	■	■	■	■
Voltage drop U_d	≤ 2.8 V[1]	■	■	■	■
Continuous current I_a	≤ 100 mA	■	■	■	■
Min. load current	≥ 3 mA	■	■	■	■
Residual current	≤ 0.8 mA	■	■	■	■
Time delay before availability t_v	≤ 50 ms	■	■	■	■
Hysteresis H, of s_r	2 ... 10 %	■	■	■	■
Repeatability R	≤ 2 % (U_b and T_a constant)[2]	■	■	■	■
Temperature drift, of s_r	± 10 %	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■
Output function	Normally open[3]	■	■	■	■
Installation	Flush	■	■		
	Non-flush			■	■
Connection type	Cable, PVC, 2 m	■		■	
	Connector, M12, 4-pin		■		■
Enclosure rating	IP 67[4]	■	■	■	■
Max. switching frequency	300 Hz	■	■	■	■
Dimensions	M18 x 1[5]	■	■	■	■
Short-circuit protection	✓[6]	■	■	■	■
Reverse polarity protection	✓	■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■
Housing material	Brass nickel-plated, plastic	■	■	■	■
Tightening torque	30 Nm	■	■	■	■

[1] at I_a max
[2] of s_r
[3] normally closed function available on request
[4] according to EN 60529
[5] Thread diameter x pitch (mm)
[6] (pulsed)

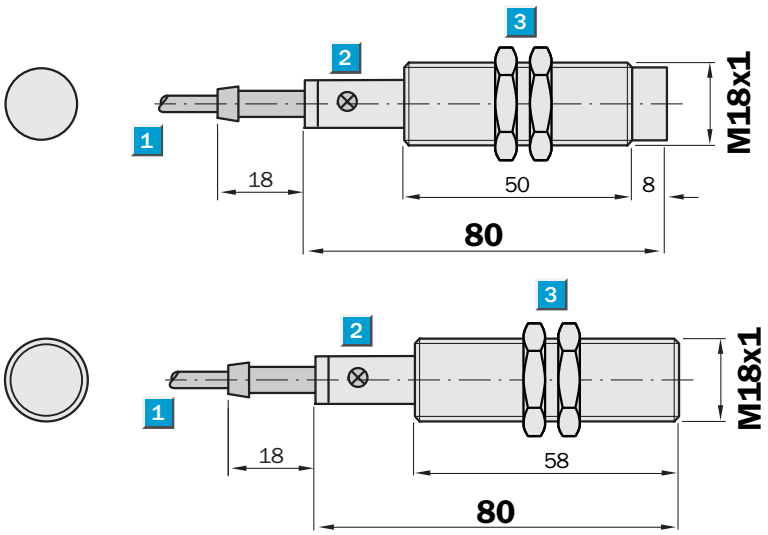
Order information	
Type	**Order no.**
IM18-05BDS-ZW1	6 020 318
IM18-05BDS-ZC1	6 020 320
IM18-08NDS-ZW1	6 020 322
IM18-08NDS-ZC1	6 020 324

Sensing range 5 / 8 mm

Inductive sensor

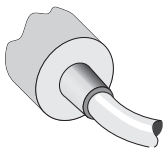
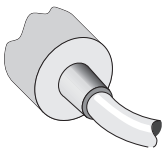
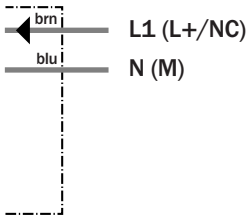
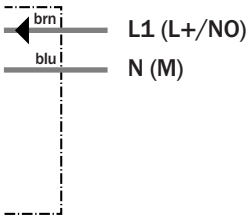
- Broad supply voltage range in AC and DC
- Robust brass housing, nickel-plated, with fine thread M18 x 1 mm
- Enclosure rating IP 67

Dimensional drawing



1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 24, metal

Connection type

IM18-05BUO-ZU0 IM18-08NUO-ZU0	IM18-05BUS-ZU0 IM18-08NUS-ZU0
	
2 x 0.5 mm²	2 x 0.5 mm²
	

See chapter Accessories
Mounting systems

Technical specifications	IM18-	05BUO -ZU0	05BUS -ZU0	08NU0 -ZU0	08NUS -ZU0						
Sensing range S_n	5 mm	■	■								
	8 mm			■	■						
Electrical configuration	AC/DC 2-wire	■	■	■	■						
Supply voltage V_s	AC/DC 20 ... 250 V	■	■	■	■						
Voltage drop U_dAC/DC	≤ 6.5 V / ≤ 6 V	■	■	■	■						
Continuous current I_a	≤ 350 mA AC (...+ 50 °C)	■	■	■	■						
Continuous current I_a	≤ 250 mA AC (... + 80 °C)	■	■	■	■						
Continuous current I_a	≤ 100 mA DC	■	■	■	■						
Intermittent current I_k	2.2 A (20 ms/0.5Hz)	■	■	■	■						
Min. load current	5 mA	■	■	■	■						
Residual current	≤ 2.5 mA (250 V AC)	■	■	■	■						
Residual current	≤ 1.3 mA (110 V AC)	■	■	■	■						
Residual current	≤ 0.8 mA (24 V DC)	■	■	■	■						
Time delay before availability t_v	≤ 8 ms	■	■	■	■						
Hysteresis H, of s_r	1 ... 15 %	■	■	■	■						
Repeatability R	≤ 10 % (U_b and T_a constant)[1]	■	■	■	■						
Temperature drift, of s_r	± 10 %	■	■	■	■						
EMC	According to EN 60947-5-2	■	■	■	■						
Output function	Normally closed	■		■							
	Normally open		■		■						
Installation	Flush	■	■								
	Non-flush			■	■						
Connection type	Cable, PUR-PVC, 2 m	■	■	■							
	Cable, PVC/PUR, 2 m				■						
Enclosure rating	IP 67[2]	■	■	■	■						
VDE protection class	⧈	■	■	■	■						
Max. switching frequency AC/DC	25 Hz / 100 Hz	■	■	■	■						
Dimensions	M18 x 1[3]	■	■	■	■						
Power-up pulse suppression	✓	■	■	■	■						
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■						
Ambient temperature T_a	-25 °C ... +80 °C	■	■	■	■						
Housing material	Brass nickel-plated, plastic	■	■	■	■						
Tightening torque	35 Nm	■	■	■	■						

[1] of s_r [2] according to EN 60529 [3] Thread diameter x pitch (mm)

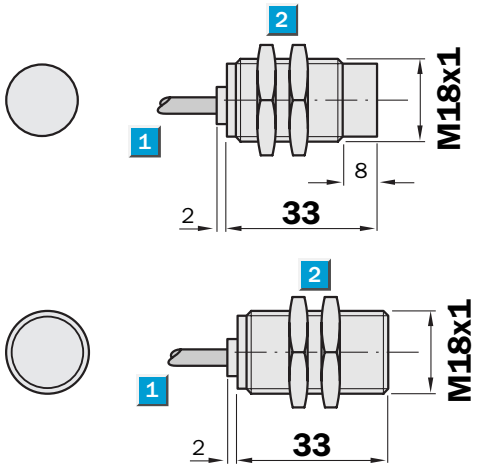
Order information	
Type	**Order no.**
IM18-05BUO-ZU0	7 902 123
IM18-05BUS-ZU0	7 902 122
IM18-08NU0-ZU0	7 902 125
IM18-08NUS-ZU0	7 902 124

Sensing range 5 / 8 mm

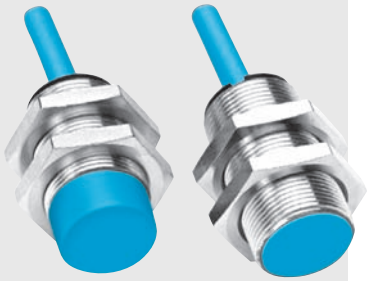
Inductive sensor

- NAMUR to EN 60 947-5-6
- High switching frequency
- Robust brass housing, nickel-plated, with fine thread M18 x 1 mm
- Enclosure rating IP 67
- Classification PTB 03 ATEX 2037
  Ex II 2 G EEx ia IIC T6

Dimensional drawing

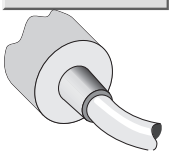


1 Connection
2 Fastening nuts (2 x); width across 24, metal

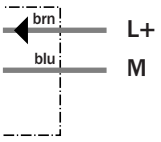


Connection type

IM18-05B-N-ZW0
IM18-08N-N-ZW0



2 x 0.34 mm²



See chapter Accessories

Mounting systems
Switching units

Technical specifications	IM18-	05B-N-ZW0	08N-N-ZW0
Sensing range S_n	5 mm	■	
	8 mm		■
Electrical configuration	NAMUR	■	■
Supply voltage V_s	DC 5 ... 25 V	■	■
Nominal voltage V_n	DC 8.2 V	■	■
Power consumption, attenuated	≤ 1 mA	■	■
Power consumption, unattenuated	≥ 2.2 mA	■	■
Internal capacitance	≤ 230 nF	■	
	≤ 240 nF		■
Internal inductance	≤ 60 µH	■	■
Cable resistance	≤ 50 Ohm	■	■
Temperature drift, of s_r	± 10 %	■	■
EMC	According to EN 60 947-5-6	■	■
Switching output	Control current dependent on switching state[1]	■	■
Output function	NAMUR	■	■
Installation	Flush	■	
	Non-flush		■
Connection type	Cable, PVC, 2 m	■	■
Enclosure rating	IP 67[2]	■	■
Max. switching frequency	720 Hz	■	
	300 Hz		■
Dimensions	M18 x 1[3]	■	■
short-circuit protected	✓	■	■
Reverse polarity protected	✓	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■
Ambient temperature T_a	-25 °C ... +70 °C	■	■
Housing material	Brass nickel-plated, plastic	■	■
Tightening torque	35 Nm	■	■

[1] according to NAMUR EN 60947-5-6 [2] according to EN 60529 [3] Thread diameter x pitch (mm)

Max. data for connecting Isolating unit EN 2 EX

or other approved isolating amplifier:

Short circuit current 1_{Kmax}	50 mA
No load voltage U_0	16 V
Power loss P_{max}	75 mW

Order information	
Type	**Order no.**
IM18-05B-N-ZW0	6 021 126
IM18-08N-N-ZW0	6 021 127

Sensing range 10 / 15 mm

Inductive sensor

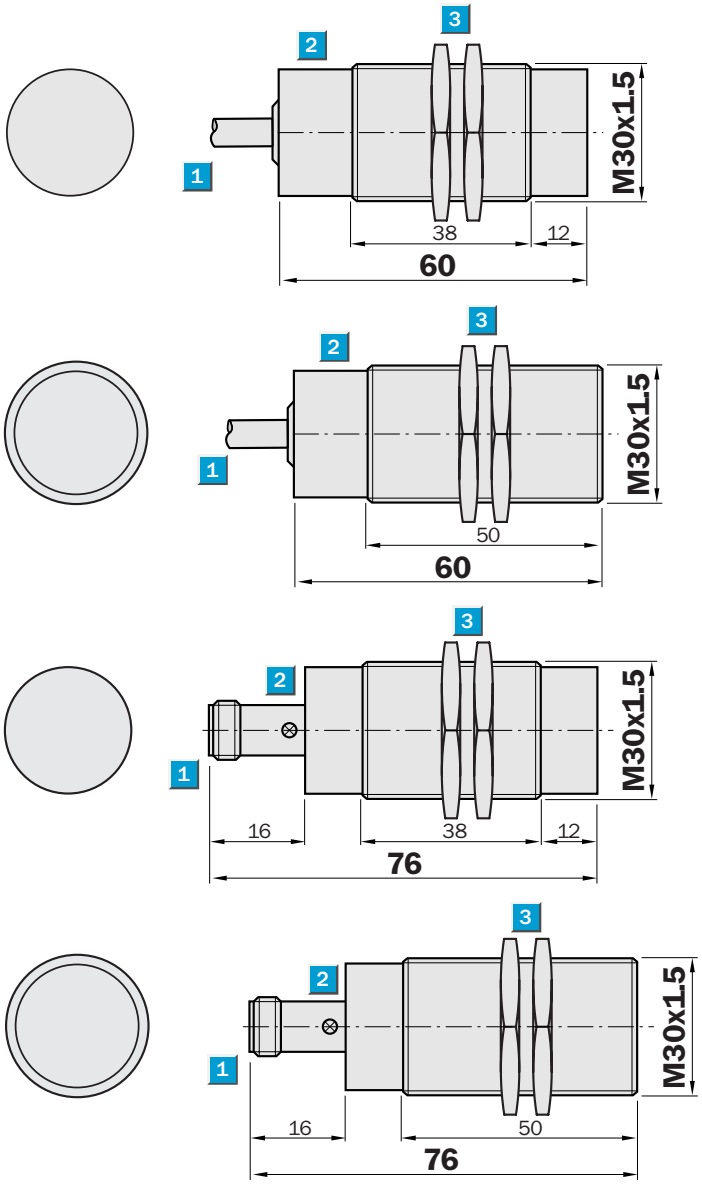
- High switching frequency
- Short-circuit protection (pulsed)
- Robust brass housing, nickel-plating with fine thread M30 x 1.5 mm
- Enclosure rating IP 67

See chapter Accessories

Connector, M12, 4-pin

Mounting systems

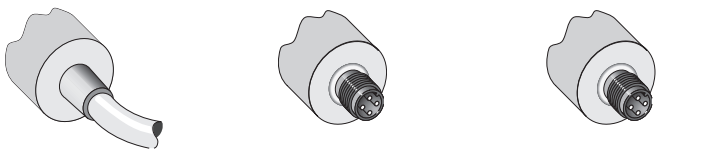
Dimensional drawing



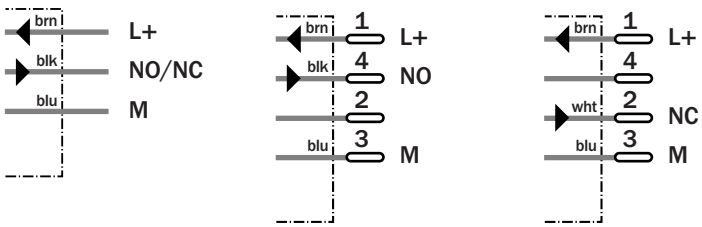
1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 36, metal

Connection type

IM30-10BNS-ZW1	IM30-10BNS-ZC1	IM30-10BP0-ZC1
IM30-10BPS-ZW1	IM30-10BPS-ZC1	
IM30-15NNS-ZW1	IM30-15NNS-ZC1	
IM30-15NPS-ZW1	IM30-15NPS-ZC1	
IM30-15NP0-ZW1		



3 x 0.5 mm²	M12, 4-pin	M12, 4-pin



Technical specifications	IM30-	10BNS -ZW1	10BPS -ZW1	10BNS -ZC1	10BPO -ZC1	10BPS -ZC1	15NNS -ZW1	15NPS -ZW1	15NPO -ZW1	15NNS -ZC1	15NPS -ZC1
Sensing range S_n	10 mm	■	■	■	■	■					
	15 mm						■	■	■	■	■
Electrical configuration	DC 3-wire	■	■	■	■	■	■	■	■	■	■
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■	■	■	■	■	■	■
Ripple U_{pp}	≤ 10 %[1]	■	■	■	■	■	■	■	■	■	■
Voltage drop U_d	≤ 1 V[2]	■	■	■	■	■	■	■	■	■	■
Power consumption	≤ 20 mA[3]	■	■	■	■	■	■	■	■	■	■
Continuous current I_a	≤ 400 mA	■	■	■	■	■	■	■	■	■	■
Time delay before availability t_v	≤ 100 ms	■	■	■	■	■	■	■	■	■	■
Hysteresis H, of s_r	2 ... 10 %	■	■	■	■	■	■	■	■	■	■
Repeatability R	≤ 2 % (U_b and T_a constant)[4]	■	■	■	■	■	■	■	■	■	■
Temperature drift, of s_r	± 10 %	■	■	■	■	■	■	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■	■	■	■	■	■	■
Switching output	NPN	■		■			■			■	
	PNP		■		■	■		■	■		■
Output function	Normally open	■	■	■		■	■	■		■	■
	Normally closed				■				■		
Installation	Flush	■	■	■	■	■					
	Non-flush						■	■	■	■	■
Connection type	Cable, PVC, 2 m	■	■				■	■	■		
	Connector, M12, 4-pin			■	■	■				■	■
Enclosure rating	IP 67[5]	■	■	■	■	■	■	■	■	■	■
Max. switching frequency	200 Hz	■	■	■	■	■	■	■	■	■	■
Dimensions	M30 x 1.5[6]	■	■	■	■	■	■	■	■	■	■
Short-circuit protection	✓[7]	■	■	■	■	■	■	■	■	■	■
Reverse polarity protection	✓	■	■	■	■	■	■	■	■	■	■
Power-up pulse suppression	✓	■	■	■	■	■	■	■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■	■	■	■	■	■
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■	■	■	■	■	■	■
Housing material	Brass nickel-plated, plastic	■	■	■	■	■	■	■	■	■	■
Tightening torque	60 Nm	■	■	■	■	■	■	■	■	■	■

[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] according to EN 60529
[6] Thread diameter x pitch (mm)
[7] (pulsed)

Order information	
Type	**Order no.**
IM30-10BNS-ZW1	6 020 275
IM30-10BPS-ZW1	6 020 274
IM30-10BNS-ZC1	6 020 279
IM30-10BPO-ZC1	6 020 280
IM30-10BPS-ZC1	6 020 278
IM30-15NNS-ZW1	6 020 283
IM30-15NPS-ZW1	6 020 282
IM30-15NPO-ZW1	6 020 284
IM30-15NNS-ZC1	6 020 287
IM30-15NPS-ZC1	6 020 286

Sensing range 10 / 15 mm

Inductive sensor

- Short-circuit protection (pulsed)
- Robust brass housing, nickel-plating with fine thread M30 x 1.5 mm
- Enclosure rating IP 67
- High switching frequency

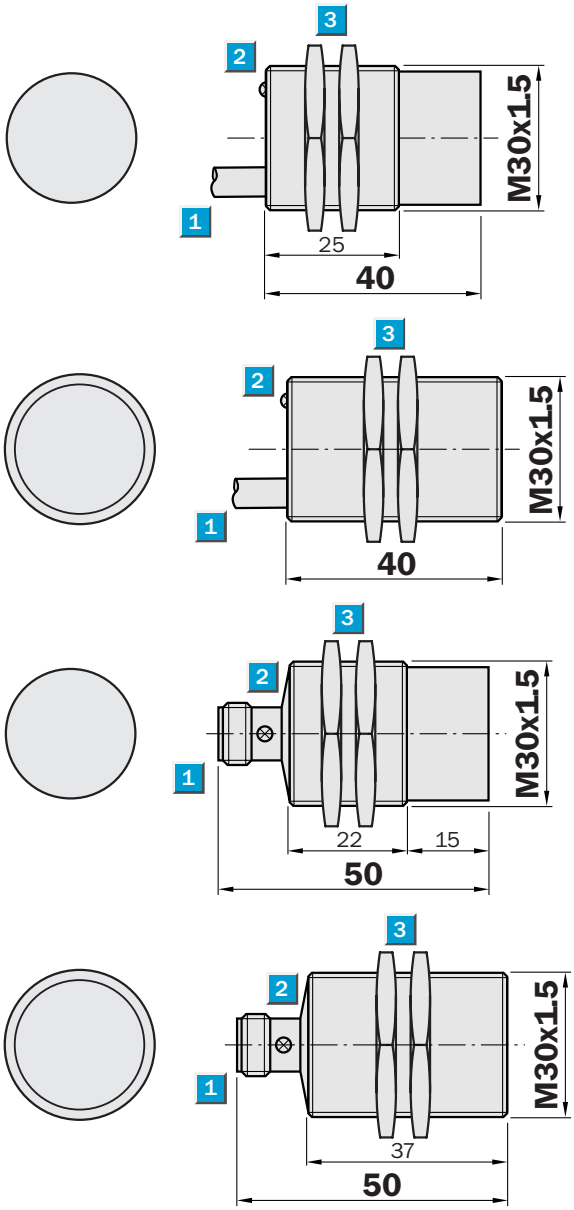
CE

See chapter Accessories

Connector, M12, 4-pin

Mounting systems

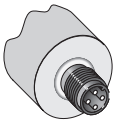
Dimensional drawing



1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 36, metal

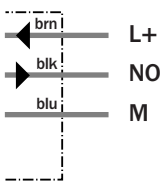
Connection type

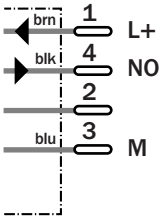
IM30-10BNS-ZUK	IM30-10BNS-ZCK
IM30-10BPS-ZUK	IM30-10BPS-ZCK
IM30-15NPS-ZUK	IM30-15NNS-ZCK
IM30-15NNS-ZUK	IM30-15NPS-ZCK



3 x 0.5 mm²

M12, 4-pin





Technical specifications	IM30-	10BNS -ZUK	10BPS -ZUK	10BNS -ZCK	10BPS -ZCK	15NPS -ZUK	15NNS -ZUK	15NNS -ZCK	15NPS -ZCK
Sensing range S_n	10 mm	■	■	■	■				
	15 mm					■	■	■	■
Electrical configuration	DC 3-wire	■	■	■	■	■	■	■	■
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■	■	■	■	■
Ripple U_{pp}	≤ 10 %[1]	■	■	■	■	■	■	■	■
Voltage drop U_d	≤ 1.5 V[2]	■	■	■	■	■	■	■	■
Power consumption	≤ 10 mA[3]	■	■	■	■	■	■	■	■
Continuous current I_a	≤ 300 mA	■	■	■	■	■	■	■	■
Time delay before availability t_v	≤ 15 ms	■	■	■	■	■	■	■	■
Hysteresis H, of s_r	1 ... 10 %	■	■	■	■	■	■	■	■
Repeatability R	≤ 3 % (U_b and T_a constant)[4]	■	■	■	■	■	■	■	■
Temperature drift, of s_r	± 10 %	■	■	■	■	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■	■	■	■	■
Switching output	NPN	■		■			■	■	
	PNP		■		■	■			■
Output function	Normally open	■	■	■	■	■	■	■	■
Installation	Flush	■	■	■	■				
	Non-flush					■	■	■	■
Connection type	Cable, PUR-PVC, 2 m	■	■			■	■		
	Connector, M12, 4-pin			■	■			■	■
Max. switching frequency	500 Hz	■	■	■	■	■	■	■	■
Dimensions	M30 x 1.5[5]	■	■	■	■	■	■	■	■
Wire-break protection	✓	■	■	■	■	■	■	■	■
Short-circuit protection	✓[6]	■	■	■	■	■	■	■	■
Reverse polarity protection	✓	■	■	■	■	■	■	■	■
Power-up pulse suppression	✓	■	■	■	■	■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■	■	■	■
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■	■	■	■	■
Housing material	Brass nickel-plated, plastic	■	■	■	■	■	■	■	■
Tightening torque	50 Nm	■	■	■	■	■	■	■	■

[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] Thread diameter x pitch (mm)
[6] (pulsed)

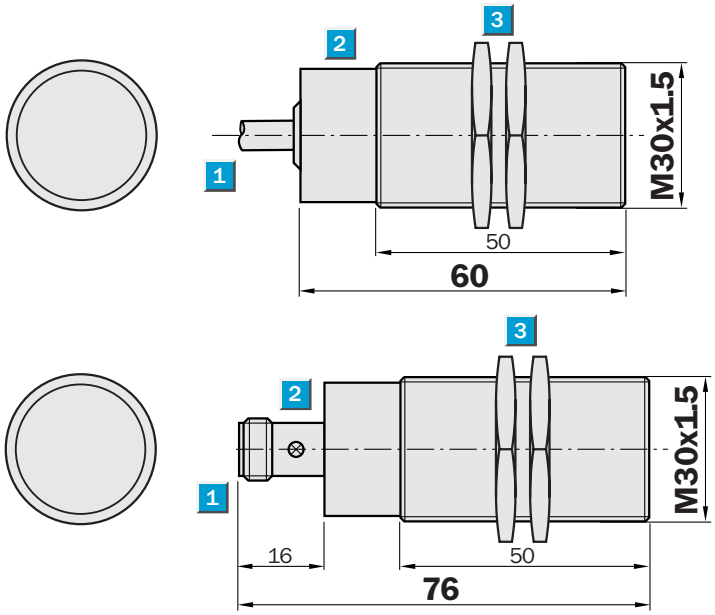
Order information	
Type	**Order no.**
IM30-10BNS-ZUK	1 017 446
IM30-10BPS-ZUK	1 017 434
IM30-10BNS-ZCK	1 017 448
IM30-10BPS-ZCK	1 017 436
IM30-15NPS-ZUK	1 017 435
IM30-15NNS-ZUK	1 017 447
IM30-15NNS-ZCK	1 017 449
IM30-15NPS-ZCK	1 017 437

Sensing range 15 mm

Inductive sensor

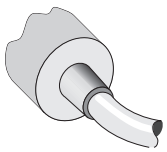
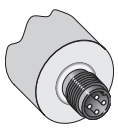
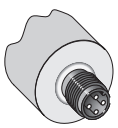
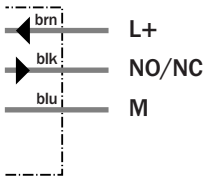
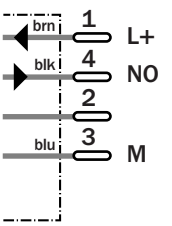
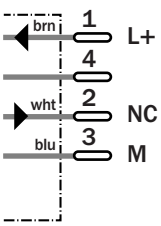
- Enhanced sensing range
- High switching frequency
- Short-circuit protection (pulsed)
- Robust brass housing, nickel-plated with fine thread M30 x 1.5 mm
- Enclosure rating IP 67

Dimensional drawing



1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 36, metal

Connection type

IM30-15BNS-ZW1 IM30-15BPO-ZW1 IM30-15BPS-ZW1	IM30-15BNS-ZC1 IM30-15BPS-ZC1	IM30-15BPO-ZC1
		
3 x 0.5 mm²	M12, 4-pin	M12, 4-pin
		

See chapter Accessories
Connector, M12, 4-pin
Mounting systems

Technical specifications	IM30-	15BNS -ZW1	15BPO -ZW1	15BPS -ZW1	15BNS -ZC1	15BPO -ZC1	15BPS -ZC1				
Sensing range S_n	15 mm	■	■	■	■	■	■				
Electrical configuration	DC 3-wire	■	■	■	■	■	■				
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■	■	■				
Ripple U_{pp}	≤ 10 %[1]	■	■	■	■	■	■				
Voltage drop U_d	≤ 1 V[2]	■	■	■	■	■	■				
Power consumption	≤ 10 mA[3]	■	■	■	■	■	■				
Continuous current I_a	≤ 400 mA	■	■	■	■	■	■				
Time delay before availability t_v	≤ 100 ms	■	■	■	■	■	■				
Hysteresis H, of s_r	2 ... 15 %	■	■	■	■	■	■				
Repeatability R	≤ 5 % (U_b and T_a constant)[4]	■	■	■	■	■	■				
Temperature drift, of s_r	± 10 %	■	■	■	■	■	■				
EMC	According to EN 60947-5-2	■	■	■	■	■	■				
Switching output	NPN	■			■						
	PNP		■	■		■	■				
Output function	Normally open	■		■	■		■				
	Normally closed		■			■					
Installation	Flush[5]	■	■	■	■	■	■				
Connection type	Cable, PVC, 2 m	■	■	■							
	Connector, M12, 4-pin				■	■	■				
Max. switching frequency	150 Hz	■	■	■	■	■	■				
Dimensions	M30 x 1.5[6]	■	■	■	■	■	■				
Short-circuit protection	✓[7]	■	■	■	■	■	■				
Reverse polarity protection	✓	■	■	■	■	■	■				
Power-up pulse suppression	✓	■	■	■	■	■	■				
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■	■				
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■	■	■				
Housing material	Brass nickel-plated, plastic	■	■	■	■	■	■				
Tightening torque	60 Nm	■	■	■	■	■	■				

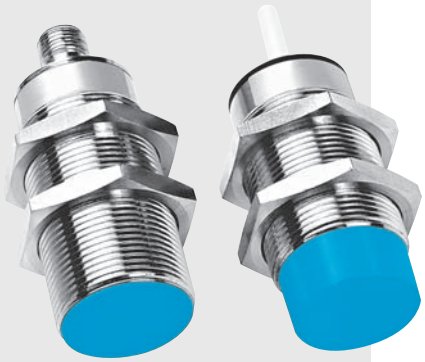
[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] see installation notes
[6] Thread diameter x pitch (mm)
[7] (pulsed)

Order information	
Type	**Order no.**
IM30-15BNS-ZW1	7 900 142
IM30-15BPO-ZW1	7 900 143
IM30-15BPS-ZW1	7 900 141
IM30-15BNS-ZC1	7 900 146
IM30-15BPO-ZC1	7 900 147
IM30-15BPS-ZC1	7 900 145

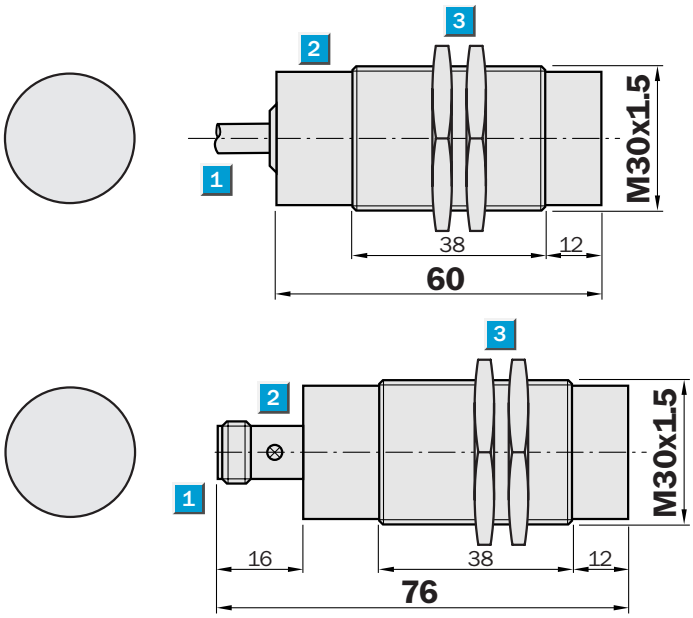
Sensing range 20 mm

Inductive sensor

- Enhanced sensing range
- High switching frequency
- Short-circuit protection (pulsed)
- Robust brass housing, nickel-plated with fine thread M30 x 1.5 mm
- Enclosure rating IP 67



Dimensional drawing

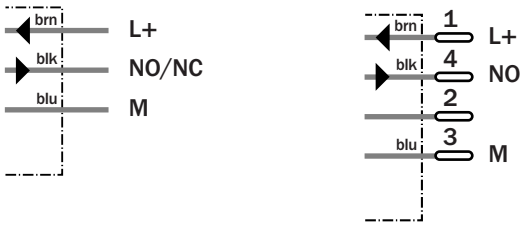


1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 36, metal

Connection type

IM30-20NNS-ZW1	IM30-20NNS-ZC1
IM30-20NPO-ZW1	IM30-20NPS-ZC1
IM30-20NPS-ZW1	

3 x 0.5 mm²	M12, 4-pin



See chapter Accessories

Connector, M12, 4-pin
Mounting systems

Technical specifications	IM30-	20NNS -ZW1	20NPO -ZW1	20NPS -ZW1	20NNS -ZC1	20NPS -ZC1					
Sensing range S_n	20 mm	■	■	■	■	■					
Electrical configuration	DC 3-wire	■	■	■	■	■					
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■	■					
Ripple U_{pp}	≤ 10 %[1]	■	■	■	■	■					
Voltage drop U_d	≤ 1 V[2]	■	■	■	■	■					
Power consumption	≤ 10 mA[3]	■	■	■	■	■					
Continuous current I_a	≤ 400 mA	■	■	■	■	■					
Time delay before availability t_v	≤ 100 ms	■	■	■	■	■					
Hysteresis H, of s_r	2 ... 15 %	■	■	■	■	■					
Repeatability R	≤ 5 % (U_b and T_a constant)[4]	■	■	■	■	■					
Temperature drift, of s_r	± 10 %	■	■	■	■	■					
EMC	According to EN 60947-5-2	■	■	■	■	■					
Switching output	NPN	■			■						
	PNP		■	■		■					
Output function	Normally open	■		■	■	■					
	Normally closed		■								
Installation	Non-flush	■	■	■	■	■					
Connection type	Cable, PVC, 2 m	■	■	■							
	Connector, M12, 4-pin				■	■					
Max. switching frequency	150 Hz	■	■	■	■	■					
Dimensions	M30 x 1.5[5]	■	■	■	■	■					
Short-circuit protection	✓[6]	■	■	■	■	■					
Reverse polarity protection	✓	■	■	■	■	■					
Power-up pulse suppression	✓	■	■	■	■	■					
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■					
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■	■					
Housing material	Brass nickel-plated, plastic	■	■	■	■	■					
Tightening torque	60 Nm	■	■	■	■	■					

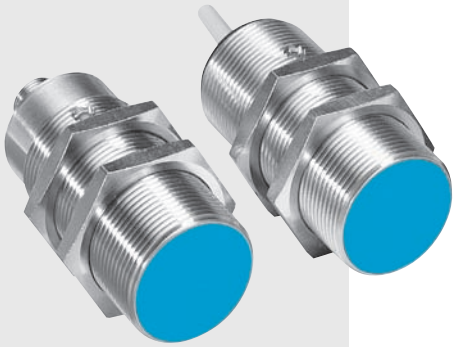
[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] Thread diameter x pitch (mm)
[6] (pulsed)

Order information	
Type	**Order no.**
IM30-20NNS-ZW1	7 900 154
IM30-20NPO-ZW1	7 900 155
IM30-20NPS-ZW1	7 900 153
IM30-20NNS-ZC1	7 900 158
IM30-20NPS-ZC1	7 900 157

Sensing range 22 / 40 mm

Inductive sensor

- Triple sensing range
- Installation quasi flush or non-flush in metal
- Short-circuit protection (pulsed)
- Robust brass housing, chrome-plated with fine thread M30 x 1 mm
- Enclosure rating IP 67



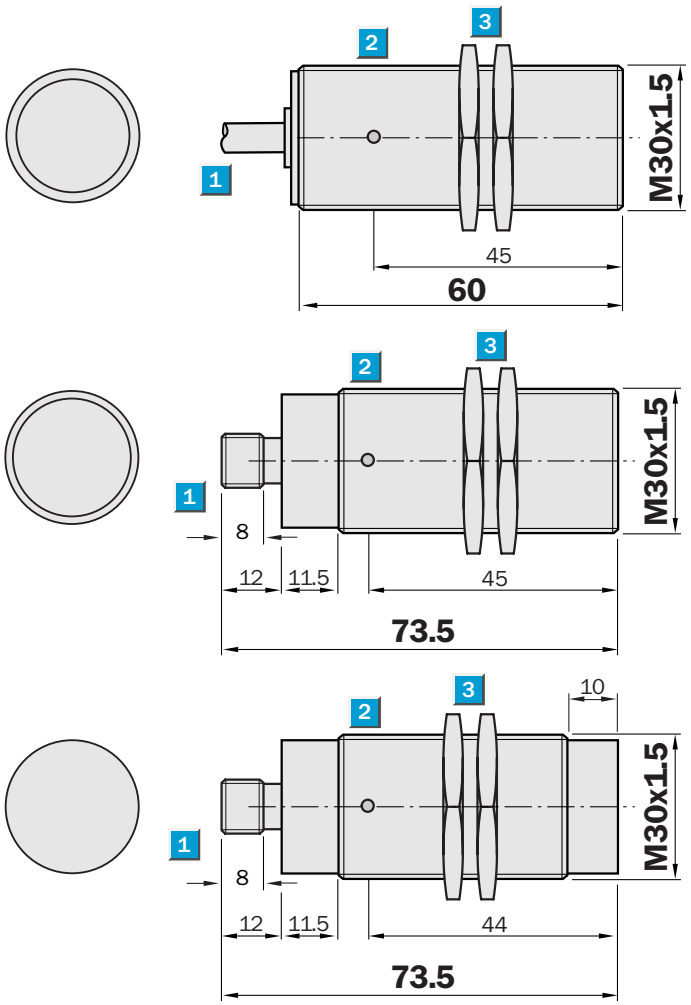
CE

See chapter Accessories

Connector, M12, 4-pin

Mounting systems

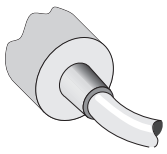
Dimensional drawing



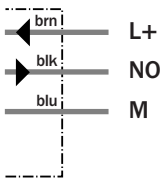
1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 36, metal

Connection type

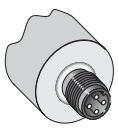
IM30-22BNS-ZW1



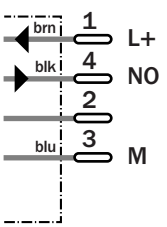
3 x 0.34 mm²



IM30-22BPS-ZC1
IM30-40NPS-ZC1



M12, 4-pin



Technical specifications	IM30-	22BNS -ZW1	22BPS -ZC1	40NPS -ZC1
Sensing range S_n	22 mm	■	■	
	40 mm			■
Electrical configuration	DC 3-wire	■	■	■
Supply voltage V_s	DC 10 ... 30 V	■	■	■
Ripple U_{pp}	≤ 20 %[1]	■	■	■
Voltage drop U_d	≤ 2 V[2]	■	■	■
Power consumption	≤ 10 mA[3]	■	■	■
Continuous current I_a	≤ 200 mA	■	■	■
Time delay before availability t_v	≤ 100 ms	■	■	■
Hysteresis H, of s_r	1 ... 15 %	■	■	■
Repeatability R	≤ 5 % (U_b and T_a constant)[4]	■	■	■
Temperature drift, of s_r	± 10 %	■	■	■
EMC	According to EN 60947-5-2	■	■	■
Switching output	NPN	■		
	PNP		■	■
Output function	Normally open[5]	■	■	■
Installation	Quasi-flush[6]	■	■	
	Non-flush			■
Connection type	Cable, PVC, 2 m	■		
	Connector, M12, 4-pin		■	■
Max. switching frequency	200 Hz	■	■	
	100 Hz			■
Dimensions	M30 x 1.5[7]	■	■	■
Short-circuit protection	✓[8]	■	■	■
Reverse polarity protection	✓	■	■	■
Power-up pulse suppression	✓	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■
Housing material	Brass, chrome-plated, plastic	■	■	■
Tightening torque	60 Nm	■	■	■

[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] other output functions available on request.
[6] when mounting in conductible materials the sensors must be installed with a distance A to the surface. A Steel, metal = 6 mm/A Stainless steel = 2 mm
[7] Thread diameter x pitch (mm)
[8] (pulsed)

Order information

Type	Order no.
IM30-22BNS-ZW1	6 027 520
IM30-22BPS-ZC1	6 027 521
IM30-40NPS-ZC1	6 027 522

Sensing range 22 mm

Inductive sensor

- Triple sensing range
- Installation quasi flush in metal
- Short-circuit protection (pulsed)
- Robust brass housing, chrome-plated with fine thread M30 x 1 mm
- Enclosure rating IP 67

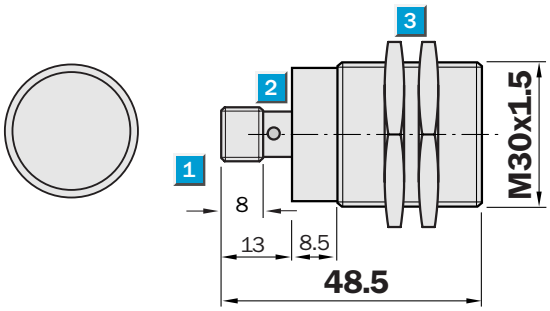
CE

See chapter Accessories

Connector, M12, 4-pin

Mounting systems

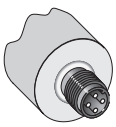
Dimensional drawing



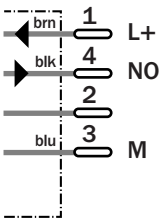
1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 36, metal

Connection type

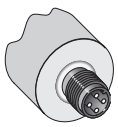
IM30-22BPS-ZCK



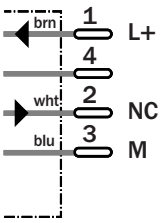
M12, 4-pin



IM30-22BPO-ZCK



M12, 4-pin



Technical specifications	IM30-	22BPO-ZCK	22BPS-ZCK
Sensing range S_n	22 mm		
Electrical configuration	DC 3-wire		
Supply voltage V_S	DC 10 ... 30 V		
Ripple U_{pp}	≤ 20 %[1]		
Voltage drop U_d	≤ 2 V[2]		
Power consumption	≤ 10 mA[3]		
Continuous current I_a	≤ 200 mA		
Time delay before availability t_v	≤ 100 ms		
Hysteresis H, of s_r	1 ... 15 %		
Repeatability R	≤ 5 % (U_b and T_a constant)[4]		
Temperature drift, of s_r	± 10 %		
EMC	According to EN 60947-5-2		
Switching output	PNP		
Output function	Normally closed[5]		
	Normally open[5]		
Installation	Quasi-flush[6]		
Connection type	Connector, M12, 4-pin		
Enclosure rating	IP 67[7]		
Max. switching frequency	200 Hz		
Dimensions	M30 x 1.5[8]		
Short-circuit protection	✓[9]		
Reverse polarity protection	✓		
Power-up pulse suppression	✓		
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm		
Ambient temperature T_a	-25 °C ... +70 °C		
Housing material	Brass, chrome-plated, plastic		
Tightening torque	60 Nm		

[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] other output functions available on request.
[6] when mounting in conductible materials the sensors must be installed with a distance A to the surface. A Steel, metal = 6 mm/A Stainless steel = 2 mm
[7] according to EN 60529
[8] Thread diameter x pitch (mm)
[9] (pulsed)

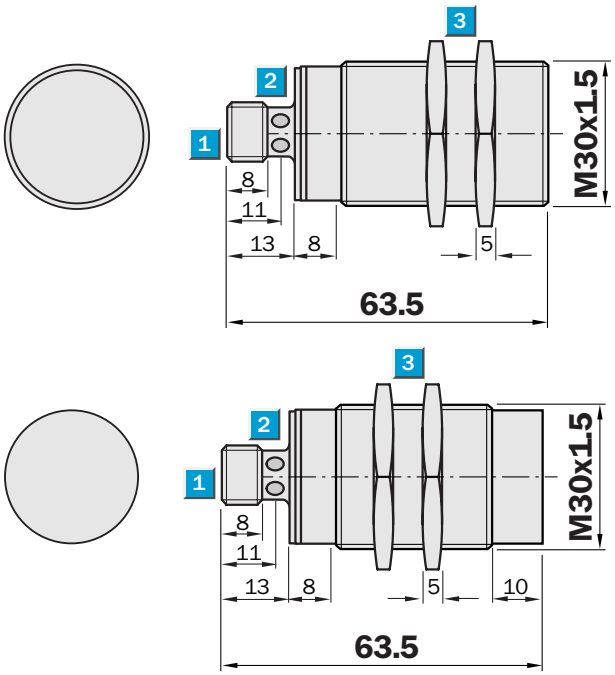
Order information	
Type	**Order no.**
IM30-22BPO-ZCK	6 025 568
IM30-22BPS-ZCK	6 025 566

Sensing range 20 / 40 mm

Inductive sensor

- Triple sensing range
- Robust stainless steel V4A, 316L one piece housing, with fine thread M30 x 1.5 mm
- Enclosure rating IP 69K + IP 68
- Especially suitable for use in the food and beverage sector
- Visual installation support

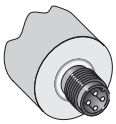
Dimensional drawing



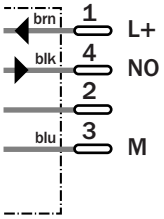
1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 36, stainless steel V4A, 316L

Connection type

IM30-20BNS-NC1
IM30-20BPS-NC1
IM30-40NNS-NC1
IM30-40NPS-NC1



M12, 4-pin



See chapter Accessories

Connector, M12, 4-pin

Technical specifications	IM30-	20BNS -NC1	20BPS -NC1	40NNS -NC1	40NPS -NC1
Sensing range S_n	20 mm	■	■		
	40 mm			■	■
Electrical configuration	DC 3-wire	■	■	■	■
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■
Ripple U_{pp}	≤ 20 %[1]	■	■	■	■
Voltage drop U_d	≤ 2 V[2]	■	■	■	■
Power consumption	≤ 12 mA[3]	■	■	■	■
Continuous current I_a	≤ 200 mA	■	■	■	■
Time delay before availability t_v	≤ 300 ms	■	■	■	■
Hysteresis H, of s_r	1 ... 15 %	■	■	■	■
Repeatability R	≤ 5 % (U_b and T_a constant)[4]	■	■	■	■
Temperature drift, of s_r	≤ 10 %	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■
Switching output	NPN	■		■	
	PNP		■		■
Output function	Normally open[5]	■	■	■	■
Installation	Flush	■	■		
	Non-flush[6]			■	■
Connection type	Connector, M12, 4-pin	■	■	■	■
Enclosure rating	IP68, IP 69K[7]	■	■	■	■
Max. switching frequency	100 Hz	■	■	■	■
Dimensions	M30 x 1.5[8]	■	■	■	■
Short-circuit protection	✓[9]	■	■	■	■
Reverse polarity protection	✓	■	■	■	■
Power-up pulse suppression	✓	■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm[10]	■	■	■	■
Ambient temperature T_a	-25 °C ... +85 °C	■	■	■	■
Housing material	Stainless steel V4A 1.4404, 316L	■	■	■	■
Tightening torque	150 Nm	■	■	■	■

[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] other output functions available on request.
[6] see installation notes
[7] according to EN 60529
[8] Thread diameter x pitch (mm)
[9] (pulsed)
[10] according to IEC 60 947-5-2/7.4

Correction factors:

	Flush installation:	Non-flush installation:
Steel (ST37)	1.0	1.0
Copper	0.9	0.9
Aluminium	1.0	1.0
Brass	1.2	1.2
Stainless steel	0.5 / 0.9	- / 0.5
1 mm / 2 mm thick		

Order information

Type	Order no.
IM30-20BNS-NC1	6 027 583
IM30-20BPS-NC1	6 027 582
IM30-40NNS-NC1	6 027 585
IM30-40NPS-NC1	6 027 584

Sensing range 10 / 15 mm

Inductive sensor

- Short-circuit protection (pulsed)
- Robust brass housing, nickel-plated with fine thread M30 x 1 mm
- Enclosure rating IP 67

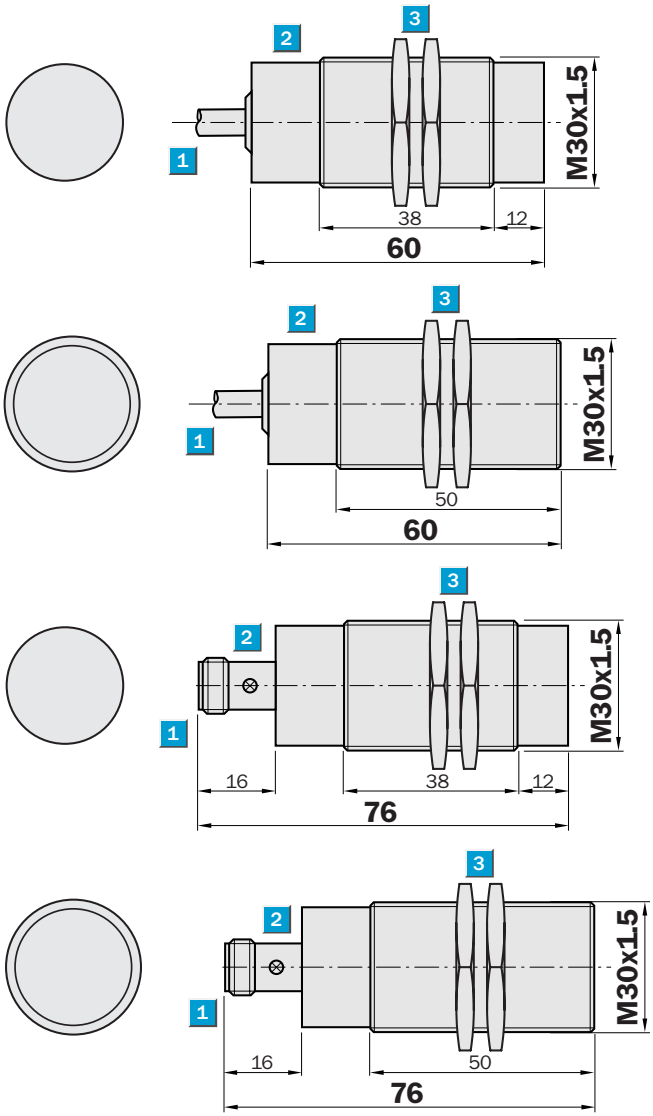
CE

See chapter Accessories

Connector, M12, 4-pin

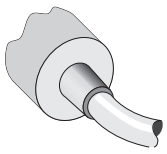
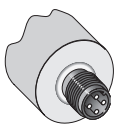
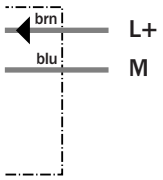
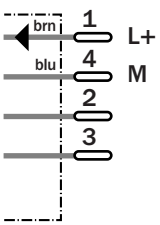
Mounting systems

Dimensional drawing



1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 36, metal

Connection type

IM30-10BDS-ZW1 IM30-15NDS-ZW1	IM30-10BDS-ZC1 IM30-15NDS-ZC1
	
2 x 0.34 mm²	M12, 4-pin
	

Technical specifications	IM30-	10BDS -ZW1	10BDS -ZC1	15NDS -ZW1	15NDS -ZC1
Sensing range S_n	10 mm	■	■		
	15 mm			■	■
Electrical configuration	DC 2-wire	■	■	■	■
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■
Ripple U_{pp}	≤ 10 %	■	■	■	■
Voltage drop U_d	≤ 2.8 V[1]	■	■	■	■
Continuous current I_a	≤ 100 mA	■	■	■	■
Min. load current	≥ 3 mA	■	■	■	■
Residual current	≤ 0.8 mA	■	■	■	■
Time delay before availability t_v	≤ 50 ms	■	■	■	■
Hysteresis H, of s_r	2 ... 10 %	■	■	■	■
Repeatability R	≤ 2 % (U_b and T_a constant)[2]	■	■	■	■
Temperature drift, of s_r	± 10 %	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■
Output function	Normally open[3]	■	■	■	■
Installation	Flush	■	■		
	Non-flush			■	■
Connection type	Cable, PVC, 2 m	■		■	
	Connector, M12, 4-pin		■		■
Enclosure rating	IP 67[4]	■	■	■	■
Max. switching frequency	150 Hz	■	■	■	■
Dimensions	✓M30 x 1.5[5]	■	■	■	■
Short-circuit protection	✓[6]	■	■	■	■
Reverse polarity protection		■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■
Housing material	Brass nickel-plated, plastic	■	■	■	■
Tightening torque	60 Nm	■	■	■	■

[1] at I_a max
[2] of s_r
[3] normally closed function available on request
[4] according to EN 60 529
[5] Thread diameter x pitch (mm)
[6] (pulsed)

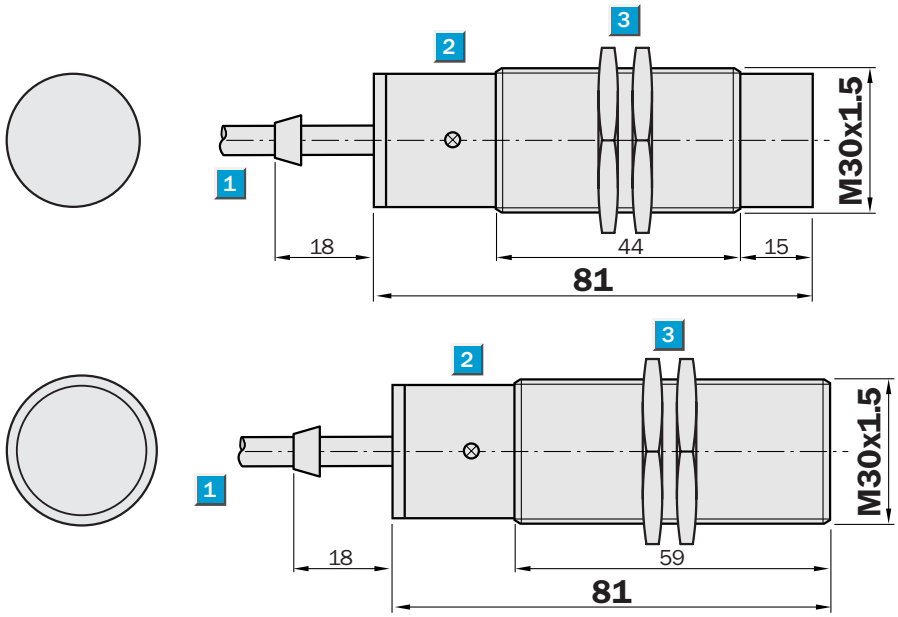
Order information	
Type	**Order no.**
IM30-10BDS-ZW1	6 020 326
IM30-10BDS-ZC1	6 020 328
IM30-15NDS-ZW1	6 020 330
IM30-15NDS-ZC1	6 020 332

Sensing range 10 / 15 mm

Inductive sensor

- Broad supply voltage range in AC and DC
- Robust brass housing, nickel-plated, with fine thread M30 x 1.5 mm
- Enclosure rating IP 67

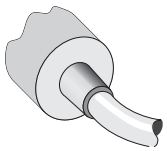
Dimensional drawing



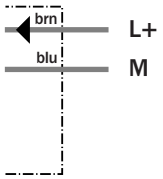
1 Connection
2 Display LED
3 Fastening nuts (2 x); width across 36, metal

Connection type

IM30-10BUO-ZU0
IM30-10BUS-ZU0
IM30-15NUO-ZU0
IM30-15NUS-ZU0



2 x 0.5 mm²



See chapter Accessories

Mounting systems

Technical specifications	IM30-	10BUO -ZU0	10BUS -ZU0	15NUO -ZU0	15NUS -ZU0
Sensing range S_n	10 mm	■	■		
	15 mm			■	■
Electrical configuration	AC/DC 2-wire	■	■	■	■
Supply voltage V_s	AC/DC 20 ... 250 V	■	■	■	■
Voltage drop U_dAC/DC	≤ 6.5 V / ≤ 6 V	■	■	■	■
Continuous current I_a	≤ 350 mA (... + 50 °C)	■	■	■	■
Continuous current I_a	≤ 250 mA (... + 80 °C)	■	■	■	■
Continuous current I_a	≤ 100 mA DC	■	■	■	■
Intermittent current I_k	2.2 A (20 ms/0.5Hz)	■	■	■	■
Min. load current	5 mA	■	■	■	■
Residual current	≤ 2.5 mA (250 V AC)	■	■	■	■
Residual current	≤ 1.3 mA (110 V AC)	■	■	■	■
Residual current	≤ 0.8 mA (24 V DC)	■	■	■	■
Time delay before availability t_v	≤ 8 ms	■	■	■	■
Hysteresis H, of s_r	1 ... 15 %	■	■	■	■
Repeatability R	≤ 10 % (U_b and T_a constant)[1]	■	■	■	■
Temperature drift, of s_r	± 10 %	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■
Output function	Normally closed	■		■	
	Normally open		■		■
Installation	Flush	■	■		
	Non-flush			■	■
Connection type	Cable, PUR-PVC, 2 m	■	■	■	■
Enclosure rating	IP 67[2])	■	■	■	■
VDE protection class	⧈	■	■	■	■
Max. switching frequency AC/DC	25 Hz / 30 Hz	■	■	■	■
Dimensions	✓M30 x 1.5[2]	■	■	■	■
Power-up pulse suppression		■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■
Housing material	Brass nickel-plated, plastic	■	■	■	■
Tightening torque	50 Nm	■	■	■	■

[1] of s_r [2] according to EN 60 529 [3] thread diameter x pitch (mm)

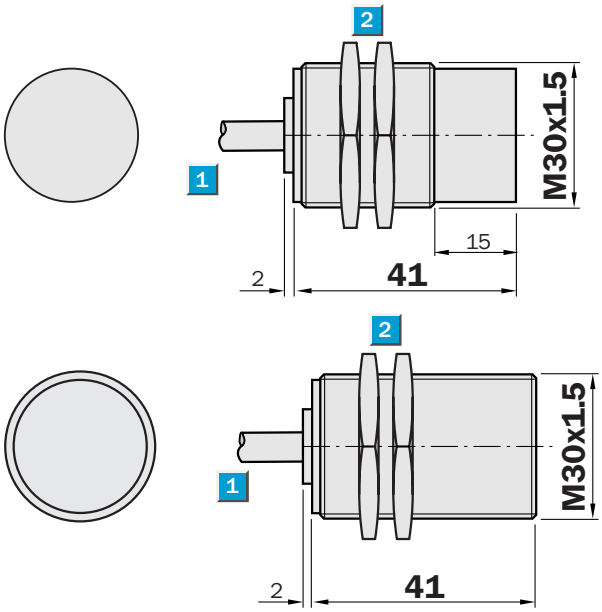
Order information	
Type	**Order no.**
IM30-10BUO-ZU0	7 902 127
IM30-10BUS-ZU0	7 902 126
IM30-15NUO-ZU0	7 902 129
IM30-15NUS-ZU0	7 902 128

Sensing range 10 / 15 mm

Inductive sensor

- NAMUR to EN 60 947-5-6
- High switching frequency
- Robust brass housing, nickel-plated, with fine thread M30 x 1.5 mm
- Classification PTB 03 ATEX 2037
  Ex II 2 G EEx ia IIC T6

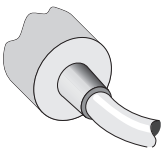
Dimensional drawing



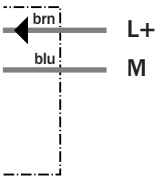
1 Connection
2 Fastening nuts (2 x); width across 36, metal

Connection type

IM30-10B-N-ZW0
IM30-15N-N-ZW0



2 x 0.5 mm²



See chapter Accessories

Mounting systems
Switching units

Technical specifications	IM30-10B-	N-ZW0	N-ZW0
Sensing range S_n	10 mm	■	
	15 mm		■
Electrical configuration	NAMUR	■	■
Supply voltage V_s	DC 5 ... 25 V	■	■
Nominal voltage V_n	DC 8.2 V	■	■
Power consumption, attenuated	≤ 1 mA	■	■
Power consumption, unattenuated	≥ 2.2 mA	■	■
Internal capacitance	≤ 230 nF	■	
	≤ 240 nF		■
Internal inductance	≤ 130 µH	■	
	≤ 100 µH		■
Cable resistance	≤ 50 Ohm	■	■
Temperature drift, of s_r	± 10 %	■	■
EMC	According to EN 60947-5-2	■	■
Switching output	Control current dependent on switching state[1)]	■	■
Output function	NAMUR	■	■
Installation	Flush	■	
	Non-flush		■
Connection type	Cable, PVC, 2 m	■	■
Enclosure rating	IP 67[2)]	■	■
Max. switching frequency	450 Hz	■	
	200 Hz		■
Dimensions	✓M30 x 1.5[3)]	■	■
short-circuit protected	✓	■	■
Reverse polarity protected		■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■
Ambient temperature T_a	-25 °C ... +70 °C	■	■
Housing material	Brass nickel-plated, plastic	■	■
Tightening torque	50 Nm	■	■

[1)] according to NAMUR EN 60947-5-6 [2)] according to EN 60 529 [3)] thread diameter x pitch (mm)

Max. data for connecting Isolating unit EN 2 EX

or other approved isolating amplifier:

Short circuit current 1_{Kmax}	50 mA
No load voltage U_0	16 V
Power loss P_{max}	75 mW

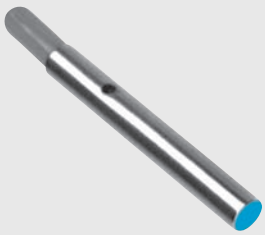
Order information

Type	Order no.
IM30-10B-N-ZW0	6 021 128
IM30-15N-N-ZW0	6 021 129

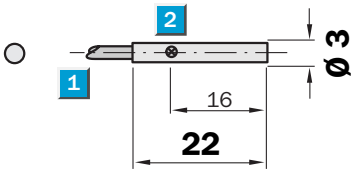
Sensing range 0.6 mm

Inductive sensor

- Can be installed flush
- High switching frequency
- Short-circuit protection (pulsed)
- Solid stainless steel housing
- Enclosure rating IP 67



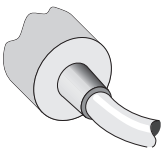
Dimensional drawing



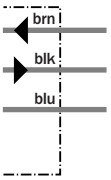
1 Connection
2 Display LED

Connection type

IH03-0B6NS-VU1
IH03-0B6PS-VU1



3 x 0.06 mm²



Technical specifications	IH03-	0B6NS -VU1	0B6PS -VU1								
Sensing range S_n	0.6 mm										
Electrical configuration	DC 3-wire										
Supply voltage V_s	DC 10 ... 30 V										
Ripple U_{pp}	≤ 20 %[1]										
Voltage drop U_d	≤ 0.6 V[2]										
Power consumption	≤ 10 mA[3]										
Continuous current I_a	≤ 100 mA										
Time delay before availability t_v	≤ 10 ms										
Hysteresis H, of s_r	10 %										
Repeatability R	≤ 2 % (U_b and T_a constant)										
Temperature drift, of s_r	± 10 %										
EMC	According to EN 60947-5-2										
Switching output	NPN										
	PNP										
Output function	Normally open[4]										
Installation	Flush										
Connection type	Cable, PUR, 2 m										
Enclosure rating	IP 67[5]										
Max. switching frequency	5,000 Hz										
Sleeve diameter	3 mm										
Short-circuit protection	✓[6]										
Reverse polarity protection	✓										
Power-up pulse suppression	✓										
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm										
Ambient temperature T_a	-25 °C ... +70 °C										
Housing material	Stainless steel, plastic										

[1] of U_b
[2] at I_a = 50 mA
[3] without load
[4] normally closed function available on request
[5] according to EN 60529
[6] (pulsed)

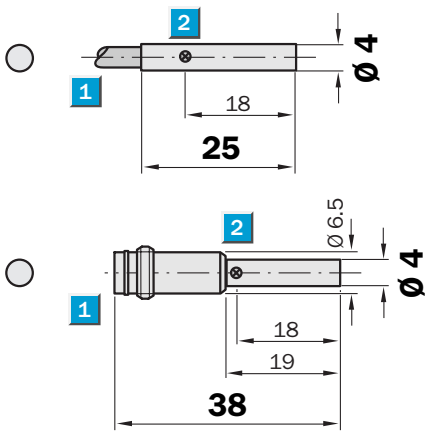
Order information	
Type	**Order no.**
IH03-0B6NS-VU1	6 020 142
IH03-0B6PS-VU1	6 020 141

Sensing range 0.8 mm

Inductive sensor

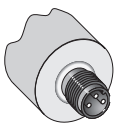
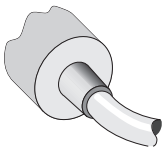
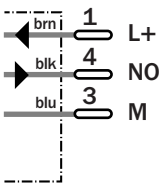
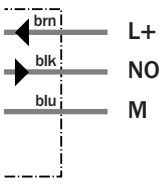
- Can be installed flush
- High switching frequency
- Short-circuit protection (pulsed)
- Solid stainless steel housing
- Enclosure rating IP 67

Dimensional drawing



1 Connection
2 Display LED

Connection type

IH04-0B8NS-VT1 IH04-0B8PS-VT1	IH04-0B8NS-VW1 IH04-0B8PS-VW1
	
M8, 3-pin	3 x 0.14 mm²
	

See chapter Accessories

Connector, M8, 3-pin

Technical specifications	IH04-	0B8NS -VW1	0B8PS -VW1	0B8NS -VT1	0B8PS -VT1
Sensing range S_n	0.8 mm	■	■	■	■
Electrical configuration	DC 3-wire	■	■	■	■
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■
Ripple U_{pp}	≤ 20 %[1]	■	■	■	■
Voltage drop U_d	≤ 2 V[2]	■	■	■	■
Power consumption	10 mA[3]	■	■	■	■
Continuous current I_a	≤ 200 mA	■	■	■	■
Time delay before availability t_v	≤ 10 ms	■	■	■	■
Hysteresis H, of s_r	10 %	■	■	■	■
Repeatability R	≤ 1.5 % (U_b and T_a constant)	■	■	■	■
Temperature drift, of s_r	± 10 %	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■
Switching output	NPN	■		■	
	PNP		■		■
Output function	Normally open[4]	■	■	■	■
Installation	Flush	■	■	■	■
Connection type	Cable, PVC, 2 m	■	■		
	Connector, M8, 3-pin			■	■
Enclosure rating	IP 67[5]	■	■	■	■
Max. switching frequency	5,000 Hz	■	■	■	■
Sleeve diameter	4 mm	■	■	■	■
Short-circuit protection	✓[6]	■	■	■	■
Reverse polarity protection	✓	■	■	■	■
Power-up pulse suppression	✓	■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■
Housing material	Stainless steel, plastic	■	■	■	■

[1] of U_b
[2] at I_a = 200 mA
[3] without load
[4] normally closed function available on request
[5] according to EN 60529
[6] (pulsed)

Order information

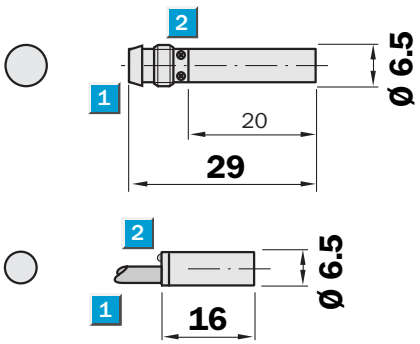
Type	Order no.
IH04-0B8NS-VW1	6 020 149
IH04-0B8PS-VW1	6 020 113
IH04-0B8NS-VT1	6 020 152
IH04-0B8PS-VT1	6 020 114

Sensing range 1.5 mm

Inductive sensor

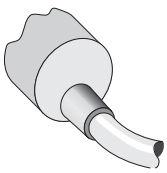
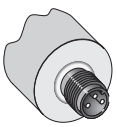
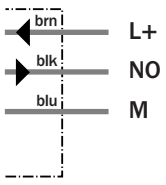
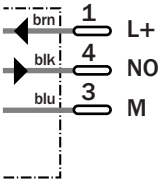
- Can be installed flush
- High switching frequency
- Short-circuit protection (pulsed)
- Solid stainless steel housing
- Enclosure rating IP 67

Dimensional drawing



1 Connection
2 Display LED

Connection type

IH06-1B5NS-VWK IH06-1B5PS-VWK	IH06-1B5NS-VTK IH06-1B5PS-VTK
	
3 x 0.14 mm²	M8, 3-pin
	

See chapter Accessories

Connector, M8, 3-pin
Mounting systems

Technical specifications	IH06-	1B5NS -VWK	1B5PS -VWK	1B5NS -VTK	1B5PS -VTK
Sensing range S_n	1.5 mm	■	■	■	■
Electrical configuration	DC 3-wire	■	■	■	■
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■
Ripple U_{pp}	≤ 20 %[1]	■	■	■	■
Voltage drop U_d	≤ 2 V[2]	■	■	■	■
Power consumption	≤ 10 mA[3]	■	■	■	■
Continuous current I_a	≤ 200 mA	■	■	■	■
Time delay before availability t_v	≤ 10 ms	■	■	■	■
Hysteresis H, of s_r	10 %	■	■	■	■
Repeatability R	≤ 5 % (U_b and T_a constant)	■	■	■	■
Temperature drift, of s_r	± 10 %	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■
Switching output	NPN	■		■	
	PNP		■		■
Output function	Normally open[4]	■	■	■	■
Installation	Flush	■	■	■	■
Connection type	Cable, PVC, 2 m	■	■		
	Connector, M8, 3-pin			■	■
Enclosure rating	IP 67[5]	■	■	■	■
Max. switching frequency	5,000 Hz	■	■	■	■
Sleeve diameter	6.5 mm	■	■	■	■
Short-circuit protection	✓[6]	■	■	■	■
Reverse polarity protection	✓	■	■	■	■
Power-up pulse suppression	✓	■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■
Housing material	Stainless steel, plastic	■	■	■	■

[1] of U_b
[2] at I_a = 200 mA
[3] without load
[4] normally closed function available on request
[5] according to EN 60529
[6] (pulsed)

Order information

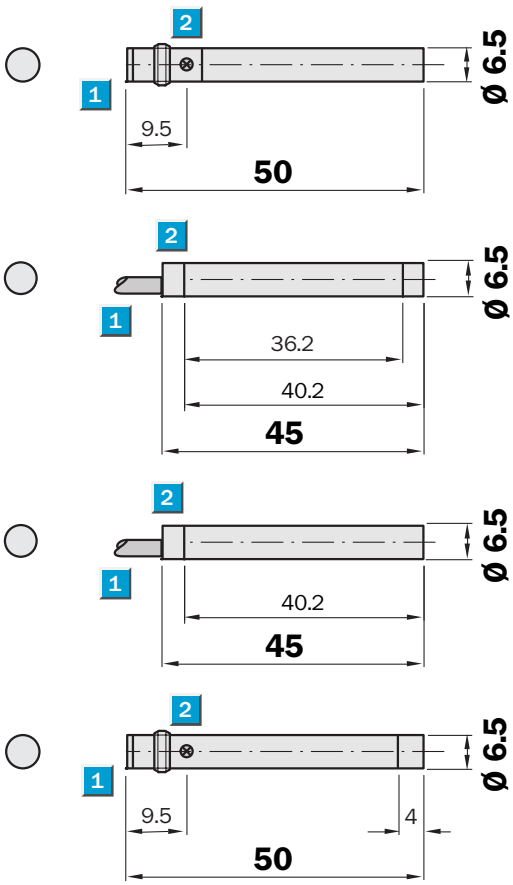
Type	Order no.
IH06-1B5NS-VWK	6 020 166
IH06-1B5PS-VWK	6 020 165
IH06-1B5NS-VTK	6 020 170
IH06-1B5PS-VTK	6 020 169

Sensing range 2 / 4 mm

Inductive sensor

- Enhanced sensing range
- High switching frequency
- Short-circuit protection (pulsed)
- Solid stainless steel housing
- Enclosure rating IP 67

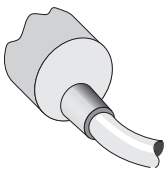
Dimensional drawing

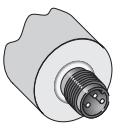


1 Connection
2 Display LED

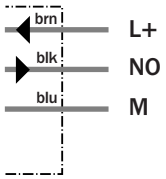
Connection type

IH06-02BNS-VW1	IH06-02BNS-VT1
IH06-02BPS-VW1	IH06-02BPO-VT1
IH06-04NNS-VW1	IH06-02BPS-VT1
IH06-04NPS-VW1	IH06-04NPS-VT1

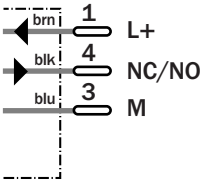




3 x 0.14 mm²



M8, 3-pin



See chapter Accessories

Connector, M8, 3-pin
Mounting systems

Technical specifications	IH06-	02BNS -VW1	02BPS -VW1	02BNS -VT1	02BPO -VT1	02BPS -VT1	04NNS -VW1	04NPS -VW1	04NPS -VT1
Sensing range S_n	2 mm	■	■	■	■	■			
	4 mm						■	■	■
Electrical configuration	DC 3-wire	■	■	■	■	■	■	■	■
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■	■	■	■	■
Ripple U_{pp}	≤ 10 %[1]	■	■	■	■	■	■	■	■
Voltage drop U_d	≤ 1.2 V[2]	■	■	■	■	■	■	■	■
Power consumption	≤ 20 mA[3]	■	■	■	■	■	■	■	■
Continuous current I_a	≤ 200 mA	■	■	■	■	■	■	■	■
Time delay before availability t_v	≤ 100 ms	■	■	■	■	■	■	■	■
Hysteresis H, of s_r	2 ... 15 %	■	■	■	■	■	■	■	■
Repeatability R	≤ 5 % (U_b and T_a constant)[4]	■	■	■	■	■	■	■	■
Temperature drift, of s_r	± 10 %	■	■	■	■	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■	■	■	■	■
Switching output	NPN	■		■			■		
	PNP		■		■	■		■	■
Output function	Normally open	■	■	■		■	■	■	■
	Normally closed				■				
Installation	Flush[5]	■	■	■	■	■			
	Non-flush						■	■	■
Connection type	Cable, PVC, 2 m	■	■				■	■	
	Connector, M8, 3-pin			■	■	■			■
Enclosure rating	IP 67[6]	■	■	■	■	■	■	■	■
Max. switching frequency	3,000 Hz	■	■	■	■	■			
	1,800 Hz						■	■	■
Sleeve diameter	6.5 mm	■	■	■	■	■	■	■	■
Short-circuit protection	✓[7]	■	■	■	■	■	■	■	■
Reverse polarity protection	✓	■	■	■	■	■	■	■	■
Power-up pulse suppression	✓	■	■	■	■	■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■	■	■	■
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■	■	■	■	■
Housing material	Stainless steel, plastic	■	■	■	■	■	■	■	■

[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] see installation notes
[6] according to EN 60529
[7] (pulsed)

Order information	
Type	**Order no.**
IH06-02BNS-VW1	7 900 178
IH06-02BPS-VW1	7 900 177
IH06-02BNS-VT1	7 900 180
IH06-02BPO-VT1	1 016 857
IH06-02BPS-VT1	7 900 179
IH06-04NNS-VW1	7 900 182
IH06-04NPS-VW1	7 900 181
IH06-04NPS-VT1	7 900 183

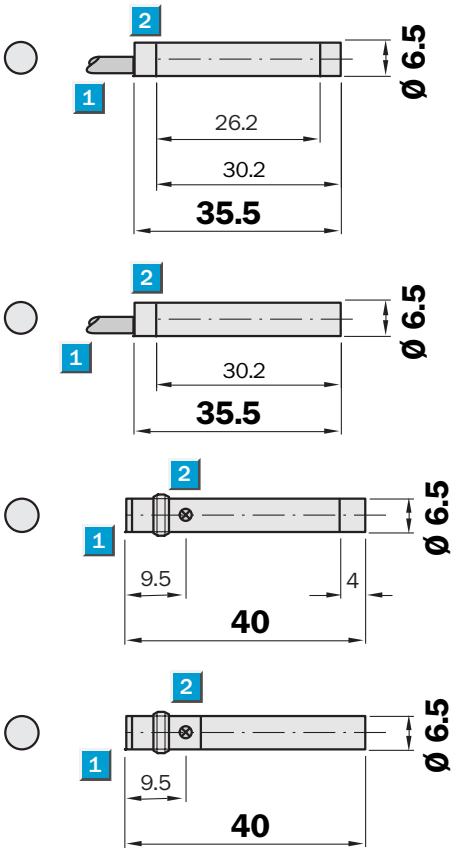
Sensing range 2 / 4 mm

Inductive sensor

- Enhanced sensing range
- High switching frequency
- Short-circuit protection (pulsed)
- Solid stainless steel housing
- Enclosure rating IP 67

CE

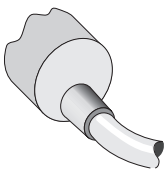
Dimensional drawing



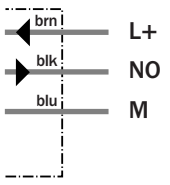
1 Connection
2 Display LED

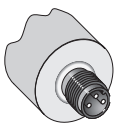
Connection type

IH06-02BPS-VWK	IH06-02BNS-VTK
IH06-02BNS-VWK	IH06-02BPS-VTK
IH06-04NNS-VWK	IH06-02BPO-VTK
IH06-04NPS-VWK	IH06-04NPS-VTK
	IH06-04NNS-VTK
	IH06-04NPO-VTK

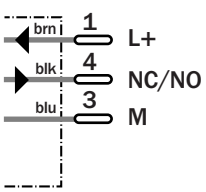


3 x 0.14 mm²





M8, 3-pin



See chapter Accessories

Connector, M8, 3-pin

Mounting systems

Technical specifications	IH06-	02BPS -VWK	02BNS -VWK	02BNS -VTK	02BPS -VTK	02BPO -VTK	04NNS -VWK	04NPS -VWK	04NPS -VTK	04NNS -VTK	04NPO -VTK
Sensing range S_n	2 mm	■	■	■	■	■					
	4 mm						■	■	■	■	■
Electrical configuration	DC 3-wire	■	■	■	■	■	■	■	■	■	■
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■	■	■	■	■	■	■
Ripple U_{pp}	≤ 10 %[1]	■	■	■	■	■	■	■	■	■	■
Voltage drop U_d	≤ 1.2 V[2]	■	■	■	■	■	■	■	■	■	■
Power consumption	≤ 10 mA[3]	■	■	■	■	■	■	■	■	■	■
Continuous current I_a	≤ 200 mA	■	■	■	■	■	■	■	■	■	■
Time delay before availability t_v	≤ 100 ms	■	■	■	■	■	■	■	■	■	■
Hysteresis H, of s_r	1 ... 20 %	■	■	■	■	■	■	■	■	■	■
Repeatability R	≤ 5 % (U_b and T_a constant)[4]	■	■	■	■	■	■	■	■	■	■
Temperature drift, of s_r	± 10 %	■	■	■	■	■	■	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■	■	■	■	■	■	■
Switching output	PNP	■			■	■		■	■		■
	NPN		■	■			■			■	
Output function	Normally open	■	■	■	■		■	■	■	■	
	Normally closed					■					■
Installation	Flush[5]	■	■	■	■	■					
	Non-flush						■	■	■	■	■
Connection type	Cable, PVC, 2 m	■	■				■	■			
	Connector, M8, 3-pin			■	■	■			■	■	■
Enclosure rating	IP 67[6]	■	■	■	■	■	■	■	■	■	■
Max. switching frequency	3,000 Hz	■	■	■	■	■					
	2,500 Hz						■	■	■	■	■
Sleeve diameter	6.5 mm	■	■	■	■	■	■	■	■	■	■
Short-circuit protection	✓[7]	■	■	■	■	■	■	■	■	■	■
Reverse polarity protection	✓	■	■	■	■	■	■	■	■	■	■
Power-up pulse suppression	✓	■	■	■	■	■	■	■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■	■	■	■	■	■
Ambient temperature T_a	-25 °C ... +70 °C	■	■	■	■	■	■	■	■	■	■
Housing material	Stainless steel, plastic	■	■	■	■	■	■	■	■	■	■

[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] see installation notes
[6] according to EN 60529
[7] (pulsed)

Order information

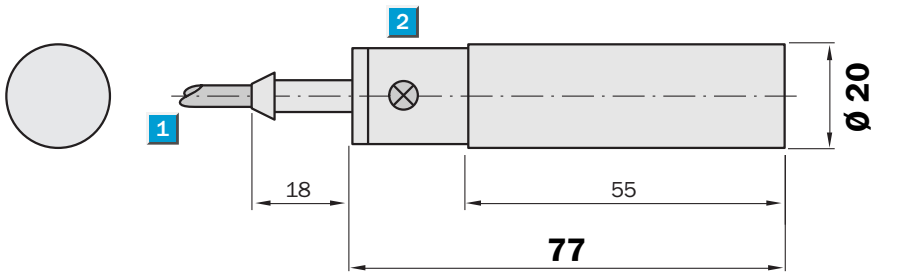
Type	Order no.
IH06-02BPS-VWK	6 025 874
IH06-02BNS-VWK	6 025 875
IH06-02BNS-VTK	6 025 878
IH06-02BPS-VTK	6 025 877
IH06-02BPO-VTK	6 025 879
IH06-04NNS-VWK	6 025 881
IH06-04NPS-VWK	6 025 880
IH06-04NPS-VTK	6 025 882
IH06-04NNS-VTK	6 025 883
IH06-04NPO-VTK	6 025 884

Sensing range 10 mm

Inductive sensor

- Can be installed non-flush in metal
- Broad supply voltage range in AC and DC
- Plastic housing
- Enclosure rating IP 67
- Mounting clamps incl.

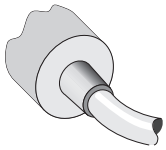
Dimensional drawing



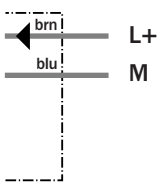
1 Connection
2 Display LED

Connection type

IH20-10NUS-KU0



2 x 0.5 mm²



Technical specifications	IH20-	10NUS -KU0									
Sensing range S_n	10 mm										
Electrical configuration	AC/DC 2-wire										
Supply voltage V_s	AC/DC 20 ... 250 V										
Voltage drop U_dAC/DC	≤ 6.5 V / ≤ 6 V										
Continuous current I_a	≤ 350 mA AC (... + 50 °C)										
Continuous current I_a	≤ 250 mA AC (... + 80 °C)										
Continuous current I_a	≤ 100 mA DC										
Intermittent current I_k	2.2 A (20 ms/0.5Hz)										
Min. load current	5 mA										
Residual current	≤ 2.5 mA (250 V AC)										
Residual current	≤ 1.3 mA (110 V AC)										
Residual current	≤ 0.8 mA (24 V DC)										
Time delay before availability t_v	≤ 45 ms										
Hysteresis H, of s_r	1 ... 15 %										
Repeatability R	≤ 10 % (U_b and T_a constant)[1]										
Temperature drift, of s_r	± 10 %										
EMC	According to EN 60947-5-2										
Output function	Normally open										
Installation	Non-flush										
Connection type	Cable, PUR-PVC, 2 m										
Enclosure rating	IP 67[2]										
VDE protection class	⧈										
Max. switching frequency AC/DC	25 Hz / 70 Hz										
Sleeve diameter	20 mm										
Power-up pulse suppression	✓										
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm										
Ambient temperature T_a	-25 °C ... +80 °C										
Housing material	Plastic										

[1] of s_r

[2] according to EN 60529

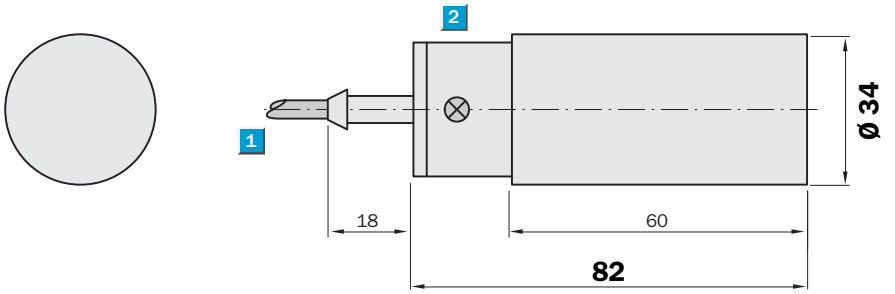
Order information	
Type	**Order no.**
IH20-10NUS-KU0	7 902 130

Sensing range 30 mm

Inductive sensor

- Can be installed non-flush in metal
- Enhanced sensing range
- Broad supply voltage range in AC and DC
- Plastic housing
- Enclosure rating IP 67
- Mounting clamps incl.

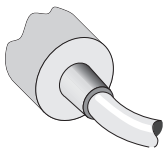
Dimensional drawing



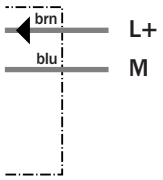
1 Connection
2 Display LED

Connection type

IH34-30NU0-KU0
IH34-30NUS-KU0



2 x 0.5 mm²



Technical specifications	IH34-	30NUO -KU0	30NUS -KU0								
Sensing range S_n	30 mm										
Electrical configuration	AC/DC 2-wire										
Supply voltage V_s	AC/DC 20 ... 250 V										
Voltage drop U_dAC/DC	≤ 6.5 V / ≤ 6 V										
Continuous current I_a	≤ 350 mA AC (... + 50 °C)										
Continuous current I_a	≤ 250 mA AC (... + 80 °C)										
Continuous current I_a	≤ 100 mA DC										
Intermittent current I_k	2.2 A (20 ms/0.5Hz)										
Min. load current	5 mA										
Residual current	≤ 2.5 mA (250 V AC)										
Residual current	≤ 1.3 mA (110 V AC)										
Residual current	≤ 0.8 mA (24 V DC)										
Time delay before availability t_v	≤ 50 ms										
Hysteresis H, of s_r	1 ... 15 %										
Repeatability R	≤ 10 % (U_b and T_a constant)[1]										
Temperature drift, of s_r	± 10 %										
EMC	According to EN 60947-5-2										
Output function	Normally closed										
	Normally open										
Installation	Non-flush										
Connection type	Cable, PUR-PVC, 2 m										
Enclosure rating	IP 67[2]										
VDE protection class	⊡										
Max. switching frequency	7 Hz										
Sleeve diameter	34 mm										
Power-up pulse suppression	✓										
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm										
Ambient temperature T_a	-25 °C ... +80 °C										
Housing material	Plastic										

[1] of s_r

[2] according to EN 60529

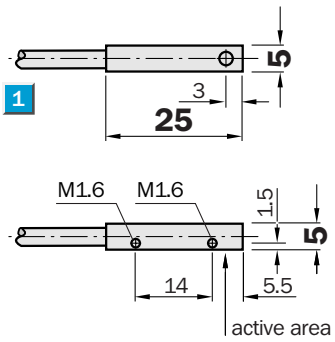
Order information	
Type	**Order no.**
IH34-30NUO-KU0	7 902 135
IH34-30NUS-KU0	7 902 134

Sensing range 0.8 mm

Inductive sensor

- Can be installed flush
- High switching frequency
- Short-circuit protection (pulsed)
- Robust brass housing, nickel-plated
- Enclosure rating IP 67

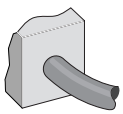
Dimensional drawing



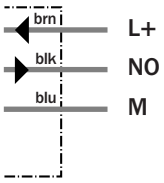
1 Connection

Connection type

IQ05-0B8NS-ZU1
IQ05-0B8PS-ZU1



3 x 0.06 mm²



Technical specifications	IQ05-	0B8NS -ZU1	0B8PS -ZU1								
Sensing range S_n	0.8 mm										
Electrical configuration	DC 3-wire										
Supply voltage V_s	DC 10 ... 30 V										
Ripple U_{pp}	≤ 20 %[1]										
Voltage drop U_d	≤ 2 V[2]										
Power consumption	≤ 10 mA[3]										
Continuous current I_a	≤ 200 mA										
Time delay before availability t_v	≤ 10 ms										
Hysteresis H, of s_r	10 %										
Repeatability R	≤ 1.5 % (U_b and T_a constant)										
Temperature drift, of s_r	± 10 %										
EMC	According to EN 60947-5-2										
Switching output	NPN										
	PNP										
Output function	Normally open[4]										
Installation	Flush										
Connection type	Cable, PUR, 2 m										
Enclosure rating	IP 67[5]										
Max. switching frequency	5,000 Hz										
Dimensions	5 x 5 x 25 mm[6]										
Short-circuit protection	✓[7]										
Reverse polarity protection	✓										
Power-up pulse suppression	✓										
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm										
Ambient temperature T_a	-25 °C ... +70 °C										
Housing material	Brass nickel-plated, plastic										

[1] of U_b
[2] at I_a = 200 mA
[3] without load
[4] normally closed function available on request
[5] according to EN 60529
[6] Width x height x depth
[7] (pulsed)

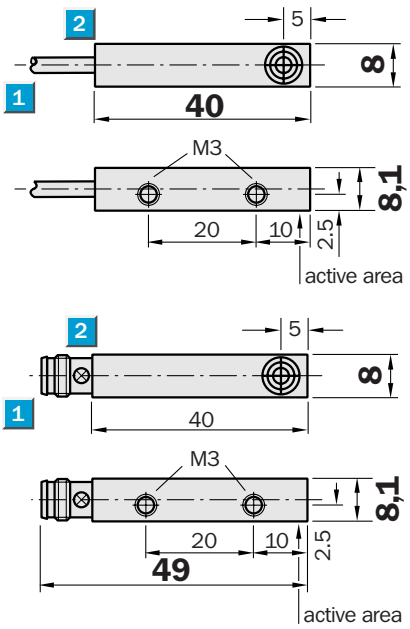
Order information	
Type	**Order no.**
IQ05-0B8NS-ZU1	6 020 162
IQ05-0B8PS-ZU1	6 020 161

Sensing range 2 / 4 mm

Inductive sensor

- Can be installed flush or non-flush in metal
- High switching frequency
- Short-circuit protection (pulsed)
- Small plastic housing
- Enclosure rating IP 67

Dimensional drawing

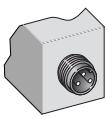


1 Connection
2 Display LED

CE

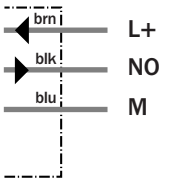
Connection type

IQ08-02BNS-KU0	IQ08-02BNS-KT0
IQ08-02BPS-KU0	IQ08-02BPS-KT0
IQ08-04NPS-KU0	IQ08-04NPS-KT0

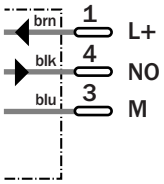


See chapter Accessories
Connector, M8, 3-pin

3 x 0.25 mm²



M8, 3-pin



Technical specifications	IQ08-	02BNS -KU0	02BPS -KU0	02BNS -KT0	02BPS -KT0	04NPS -KU0	04NPS -KT0
Sensing range S_n	2 mm	■	■	■	■		
	4 mm					■	■
Electrical configuration	DC 3-wire	■	■	■	■	■	■
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■	■	■
Ripple U_{pp}	≤ 10 %[1]	■	■	■	■	■	■
Voltage drop U_d	≤ 1.5 V[2]	■	■	■	■	■	■
Power consumption	≤ 10 mA[3]	■	■	■	■	■	■
Continuous current I_a	≤ 300 mA	■	■	■	■	■	■
Time delay before availability t_v	≤ 2 ms	■	■	■	■	■	■
Hysteresis H, of s_r	1 ... 10 %	■	■	■	■	■	■
Repeatability R	≤ 1 % (U_b and T_a constant)[4]	■	■	■	■	■	■
Temperature drift, of s_r	± 10 %	■	■	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■	■	■
Switching output	NPN	■		■			
	PNP		■		■	■	■
Output function	Normally open	■	■	■	■	■	■
Installation	Flush	■	■	■	■		
	Non-flush					■	■
Connection type	Cable, PUR-PVC, 2 m	■	■			■	
	Connector, M8, 3-pin			■	■		■
Enclosure rating	IP 67[5]	■	■	■	■	■	■
Max. switching frequency	5,000 Hz	■	■	■	■	■	■
Dimensions	8 x 8 x 40 mm[6]	■	■			■	
	8 x 8 x 49 mm[6]			■	■		■
Wire-break protection	✓	■	■	■	■	■	■
Short-circuit protection	✓[7]	■	■	■	■	■	■
Reverse polarity protection	✓	■	■	■	■	■	■
Power-up pulse suppression	✓	■	■	■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■	■
Ambient temperature T_a	-25 °C ... +75 °C	■	■	■	■	■	■
Housing material	Plastic	■	■	■	■	■	■

[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] according to EN 60529
[6] Width x height x depth
[7] (pulsed)

Order information	
Type	**Order no.**
IQ08-02BNS-KU0	7 900 196
IQ08-02BPS-KU0	7 900 195
IQ08-02BNS-KT0	7 900 198
IQ08-02BPS-KT0	7 900 197
IQ08-04NPS-KU0	7 900 199
IQ08-04NPS-KT0	7 900 201

Sensing range 3 / 6 mm

Inductive sensor

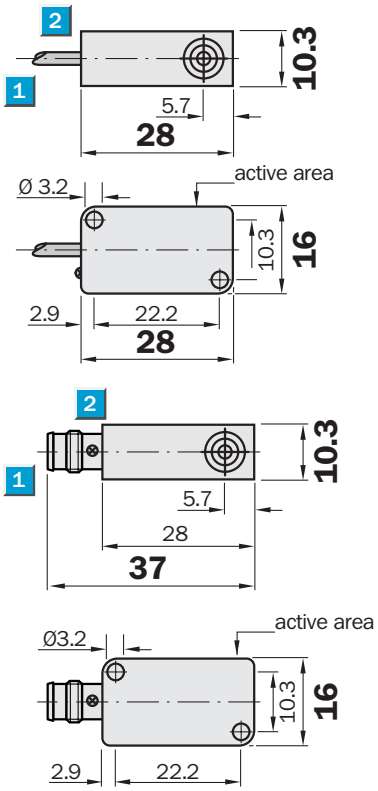
- Can be installed flush or non-flush in metal
- High switching frequency
- Short-circuit protection (pulsed)
- Plastic housing
- Enclosure rating IP 67

CE

See chapter Accessories

Connector, M8, 3-pin

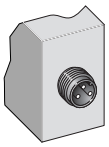
Dimensional drawing

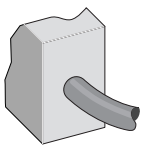


1 Connection
2 Display LED

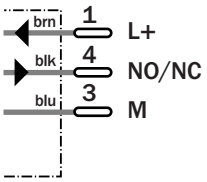
Connection type

IQ10-03BPS-KT1	IQ10-03BPS-KW1
IQ10-03BNS-KT1	IQ10-03BNS-KW1
IQ10-03BPO-KT1	IQ10-06NPS-KW1
IQ10-06NNS-KT1	IQ10-06NNS-KW1
IQ10-06NPS-KT1	

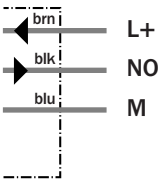




M8, 3-pin



3 x 0.25 mm²



Technical specifications	IQ10-	03BPS -KW1	03BNS -KW1	03BPS -KT1	03BNS -KT1	03BPO -KT1	06NPS -KW1	06NNS -KW1	06NNS -KT1	06NPS -KT1
Sensing range S_n	3 mm	■	■	■	■	■				
	6 mm						■	■	■	■
Electrical configuration	DC 3-wire	■	■	■	■	■	■	■	■	■
Supply voltage V_s	DC 10 ... 30 V	■	■	■	■	■	■	■	■	■
Ripple U_{pp}	≤ 10 %[1]	■	■	■	■	■	■	■	■	■
Voltage drop U_d	≤ 1.5 V[2]	■	■	■	■	■	■	■	■	■
Power consumption	≤ 5 mA[3]	■	■	■	■	■	■	■	■	■
Continuous current I_a	≤ 300 mA	■	■	■	■	■	■	■	■	■
Time delay before availability t_v	≤ 10 ms	■	■	■	■	■	■	■	■	■
Hysteresis H, of s_r	1 ... 15 %	■	■	■	■	■	■	■	■	■
Repeatability R	≤ 1 % (U_b and T_a constant)[4]	■	■	■	■	■	■	■	■	■
Temperature drift, of s_r	± 10 %	■	■	■	■	■	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■	■	■	■	■	■
Switching output	PNP	■		■		■	■			■
	NPN		■		■			■	■	
Output function	Normally open	■	■	■	■		■	■	■	■
	Normally closed					■				
Installation	Flush	■	■	■	■	■				
	Non-flush						■	■	■	■
Connection type	Cable, PVC, 2 m	■	■				■	■		
	Connector, M8, 3-pin			■	■	■			■	■
Enclosure rating	IP 67[5]	■	■	■	■	■	■	■	■	■
Max. switching frequency	3,000 Hz	■	■	■	■	■				
	1,000 Hz						■	■	■	■
Dimensions	10 x 16 x 28 mm[6]	■	■				■	■		
	10 x 16 x 37 mm[6]			■	■	■			■	■
Wire-break protection	✓	■	■	■	■	■	■	■	■	■
Short-circuit protection	✓[7]	■	■	■	■	■	■	■	■	■
Reverse polarity protection	✓	■	■	■	■	■	■	■	■	■
Power-up pulse suppression	✓	■	■	■	■	■	■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■	■	■	■	■
Ambient temperature T_a	-25 °C ... +75 °C	■	■	■	■	■	■	■	■	■
Housing material	Plastic	■	■	■	■	■	■	■	■	■

[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] according to EN 60529
[6] Width x height x depth
[7] (pulsed)

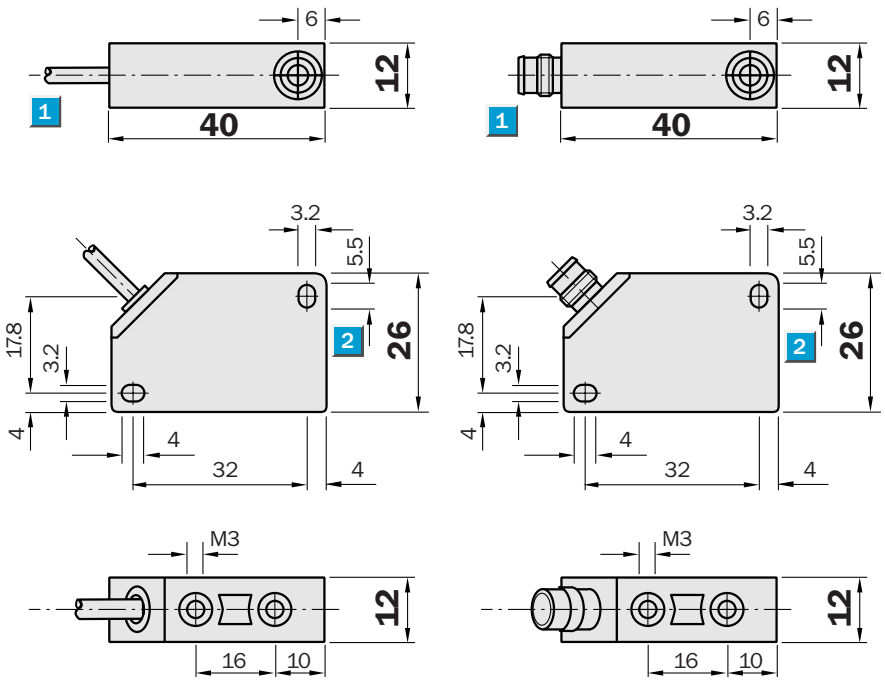
Order information	
Type	**Order no.**
IQ10-03BPS-KW1	7 900 203
IQ10-03BNS-KW1	7 900 204
IQ10-03BPS-KT1	7 900 205
IQ10-03BNS-KT1	7 900 206
IQ10-03BPO-KT1	7 902 530
IQ10-06NPS-KW1	7 900 207
IQ10-06NNS-KW1	7 900 208
IQ10-06NNS-KT1	7 900 210
IQ10-06NPS-KT1	7 900 209

Sensing range 3 / 6 mm

Inductive sensor

- Can be installed flush or non-flush in metal
- High switching frequency
- Short-circuit protection (pulsed)
- Plastic housing
- Enclosure rating IP 67

Dimensional drawing



1 Connection
2 Display LED

Connection type

IQ12-03BNS-KT0	IQ12-03BNS-KU0
IQ12-03BPS-KT0	IQ12-03BPS-KU0
IQ12-06NPS-KT0	IQ12-06NPS-KU0

M8, 3-pin	3 x 0.25 mm²

See chapter Accessories

Connector, M8, 3-pin

Technical specifications	IQ12-	03BNS -KU0	03BPS -KU0	03BNS -KT0	03BPS -KT0	06NPS -KU0	06NPS -KT0
Sensing range S_n	3 mm	■	■	■	■		
	6 mm					■	■
Electrical configuration	DC 3-wire	■	■	■	■	■	■
Supply voltage V_s	DC 6 ... 36 V	■	■	■	■	■	■
Ripple U_{pp}	≤ 10 %[1]	■	■	■	■	■	■
Voltage drop U_d	≤ 1.5 V[2]	■	■	■	■	■	■
Power consumption	≤ 5 mA[3]	■	■	■	■	■	■
Continuous current I_a	≤ 300 mA	■	■	■	■	■	■
Time delay before availability t_v	≤ 10 ms	■	■	■	■	■	■
Hysteresis H, of s_r	1 ... 15 %	■	■	■	■	■	■
Repeatability R	≤ 1 % (U_b and T_a constant)[4]	■	■	■	■	■	■
Temperature drift, of s_r	± 10 %	■	■	■	■	■	■
EMC	According to EN 60947-5-2	■	■	■	■	■	■
Switching output	NPN	■		■			
	PNP		■		■	■	■
Output function	Normally open	■	■	■	■	■	■
Installation	Flush	■	■	■	■		
	Non-flush					■	■
Connection type	Cable, PUR-PVC, 2 m	■	■			■	
	Connector, M8, 3-pin			■	■		■
Enclosure rating	IP 67[5]	■	■	■	■	■	■
Max. switching frequency	3,000 Hz	■	■	■	■		
	1,000 Hz					■	■
Dimensions	12 x 26 x 40 mm[6]	■	■			■	
	12 x 26 x 49 mm[6]			■	■		■
Wire-break protection	✓	■	■	■	■	■	■
Short-circuit protection	✓[7]	■	■	■	■	■	■
Reverse polarity protection	✓	■	■	■	■	■	■
Power-up pulse suppression	✓	■	■	■	■	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■	■	■	■	■
Ambient temperature T_a	-25 °C ... +75 °C	■	■	■	■	■	■
Housing material	Plastic	■	■	■	■	■	■

[1] of U_b
[2] at I_a max
[3] without load
[4] of s_r
[5] according to EN 60529
[6] Width x height x depth
[7] (pulsed)

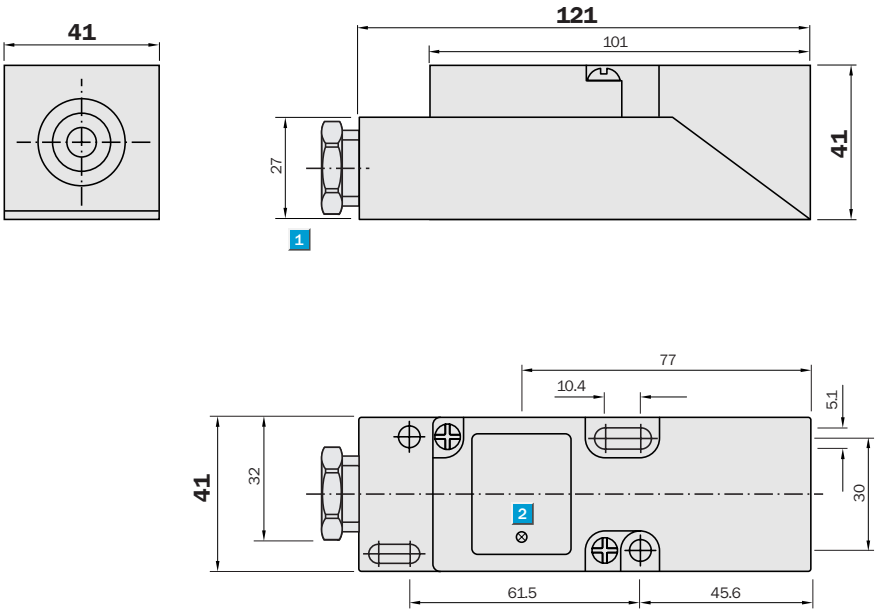
Order information	
Type	**Order no.**
IQ12-03BNS-KU0	1 016 299
IQ12-03BPS-KU0	1 016 275
IQ12-03BNS-KT0	1 016 461
IQ12-03BPS-KT0	1 016 276
IQ12-06NPS-KU0	1 016 463
IQ12-06NPS-KT0	1 016 467

Sensing range 15 / 20 mm

Inductive sensor

- Variable switching zone
- Programmable NO/NC function
- Short-circuit protection (pulsed)
- Terminal
- Enclosure rating IP 65

Dimensional drawing

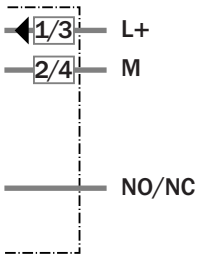


1 Connection
2 Display LED

Connection type

IQ40-15BPP-KK0
IQ40-20NPP-KK0

Terminal, M20 x 1.5



Technical specifications	IQ40-	15BPP -KK0	20NPP -KK0								
Sensing range S_n	15 mm	■									
	20 mm		■								
Electrical configuration	DC 3-wire	■	■								
Supply voltage V_s	DC 10 ... 36 V	■	■								
Voltage drop U_d	≤ 2.5 V[1]	■	■								
Power consumption	≤ 15 mA[2]	■	■								
Continuous current I_a	≤ 250 mA	■	■								
Time delay before availability t_v	≤ 4 ms	■	■								
Hysteresis H, of s_r	1 ... 15 %	■	■								
Repeatability R	≤ 10 % (U_b and T_a constant)[3]	■	■								
Temperature drift, of s_r	± 10 %	■	■								
EMC	According to EN 60947-5-2	■	■								
Switching output	PNP	■	■								
Output function	Programmable	■	■								
Installation	Flush	■									
	Non-flush		■								
Connection type	Cable gland, Terminal, M20 x 1.5	■	■								
Enclosure rating	IP 65[4]	■	■								
VDE protection class	⧈	■	■								
Max. switching frequency	300 Hz	■	■								
Dimensions	40 x 40 x 121 mm[5]	■	■								
Short-circuit protection	✓[6]	■	■								
Reverse polarity protection	✓	■	■								
Power-up pulse suppression	✓	■	■								
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■								
Ambient temperature T_a	-25 °C ... +80 °C	■	■								
Housing material	Plastic	■	■								

[1] at I_a max and U_b 24 V
[2] without load
[3] of s_r
[4] according to EN 60529
[5] Width x height x depth
[6] (pulsed)

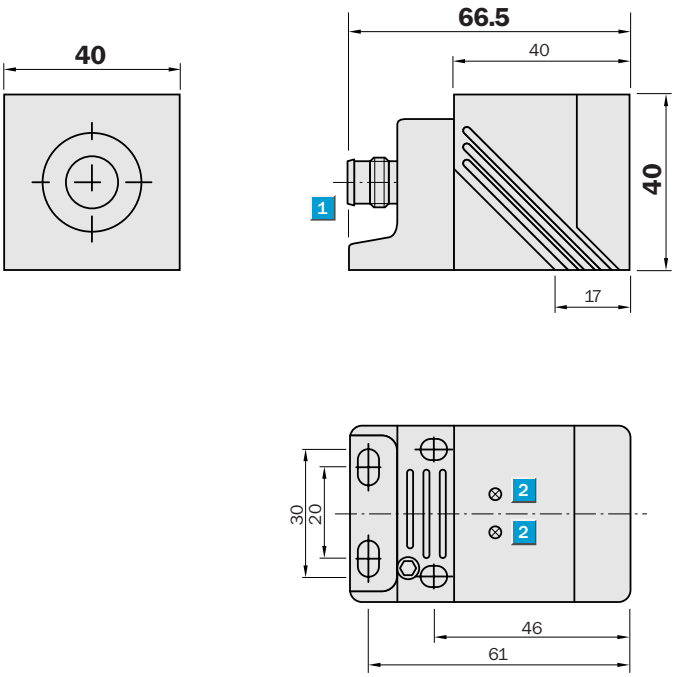
Order information	
Type	**Order no.**
IQ40-15BPP-KK0	7 900 219
IQ40-20NPP-KK0	7 900 221

Sensing range 15 / 35 mm

Inductive sensor

- Variable switching zone
- NO output function
- Short-circuit protection (pulsed)
- Enclosure rating IP 67
- LED status-and function indicator

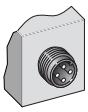
Dimensional drawing



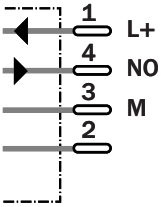
1 Connection
2 Display LED

Connection type

IQ40-15BPS-KC0
IQ40-35NPS-KC0



M12, 4-pin



See chapter Accessories

Connector, M12, 4-pin

Technical specifications	IQ40-	15BPS -KC0	35NPS -KC0								
Sensing range S_n	15 mm	■									
	35 mm		■								
Supply voltage V_S	DC 10 ... 36 V	■	■								
Voltage drop U_d	≤ 2.5 V[1]	■	■								
Power consumption	≤ 15 mA[2]	■	■								
Continuous current I_a	≤ 250 mA	■	■								
Time delay before availability t_v	≤ 4 ms	■	■								
Hysteresis H, of s_r	1 ... 15 %	■	■								
Repeatability R	≤ 10 % (U_b and T_a constant)[3]	■	■								
Temperature drift, of s_r	± 10 %	■	■								
EMC	According to EN 60947-5-2	■	■								
Switching output	PNP	■	■								
Output function	Normally open	■	■								
Installation	Flush	■									
	Non-flush		■								
Connection type	Connector, M12, 4-pin	■	■								
Enclosure rating	IP 67[4]	■	■								
VDE protection class	⧈	■	■								
Max. switching frequency	300 Hz	■									
	100 Hz		■								
Dimensions	40 x 40 x 66.5 mm[5]	■	■								
Short-circuit protection	✓[6]	■	■								
Reverse polarity protection	✓	■	■								
Power-up pulse suppression	✓	■	■								
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■								
Ambient temperature T_a	-25 °C ... +70 °C	■	■								
Housing material	Plastic	■	■								

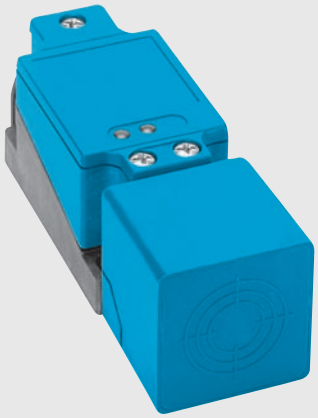
[1] at I_a max and U_b 24 V
[2] without load
[3] of s_r
[4] according to EN 60529
[5] Width x height x depth
[6] (pulsed)

Order information	
Type	**Order no.**
IQ40-15BPS-KC0	7 900 223
IQ40-35NPS-KC0	7 900 224

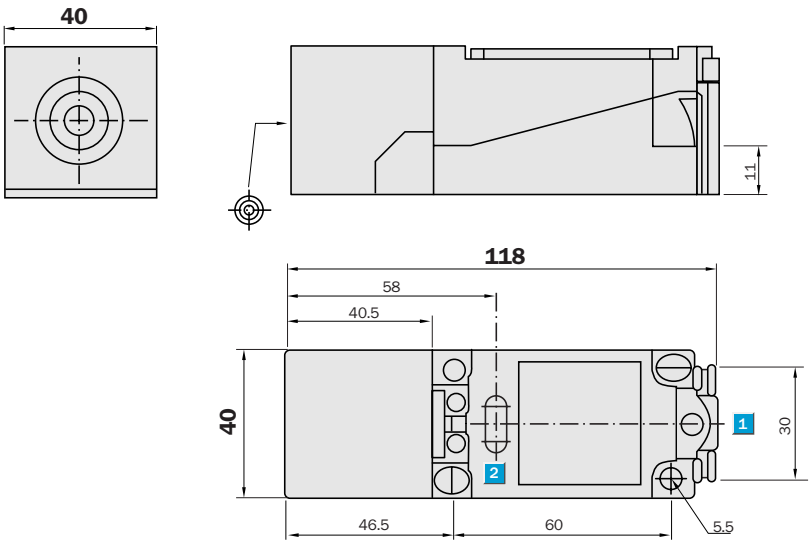
Sensing range 15 / 20 mm

Inductive sensor

- Variable switching zone
- Short-circuit protection (pulsed)
- Terminal
- Enclosure rating IP 68
- Switching status LED, yellow
- Operating voltage status LED, green



Dimensional drawing

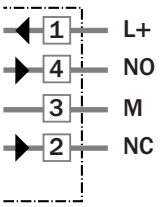


1 Connection
2 Display LED

Connection type

IQ40-15BPP-KK1
IQ40-20NPP-KK1

Terminal, M20 x 1.5



Technical specifications	IQ40-	15BPP-KK1	20NPP-KK1
Sensing range S_n	15 mm	■	
	20 mm		■
Electrical configuration	DC 4-wire	■	■
Supply voltage V_s	DC 10 ... 60 V	■	■
Voltage drop U_d	≤ 2.8 V[1]	■	■
Power consumption	≤ 10 mA[2]	■	■
Continuous current I_a	≤ 200 mA	■	■
Temperature drift, of s_r	± 10 %	■	■
EMC	According to EN 60947-5-2	■	■
Switching output	PNP	■	■
Output function	Complementary	■	■
Installation	Flush	■	
	Non-flush		■
Connection type	Cable gland, Terminal, M20 x 1.5	■	■
Enclosure rating	IP 68[3]	■	■
VDE protection class	⧈	■	■
Max. switching frequency	150 Hz	■	■
Dimensions	40 x 40 x 118 mm[4]	■	■
Short-circuit protection	✓[5]	■	■
Reverse polarity protection	✓	■	■
Power-up pulse suppression	✓	■	■
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■
Ambient temperature T_a	-25 °C ... +70 °C	■	■
Housing material	Plastic, PBT	■	■

[1] at I_a max and U_b 60 V
[2] without load
[3] according to EN 60529
[4] Width x height x depth
[5] (pulsed)

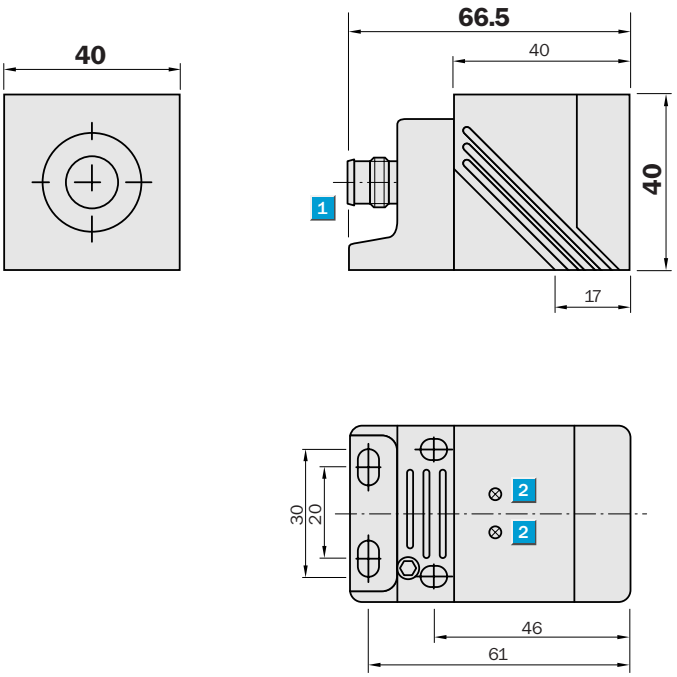
Order information	
Type	**Order no.**
IQ40-15BPP-KK1	6 025 814
IQ40-20NPP-KK1	6 025 815

Sensing range 20 / 35 mm

Inductive sensor

- Variable switching zone
- Complementary output function
- Short-circuit protection (pulsed)
- Enclosure rating IP 67
- LED status-and function indicator

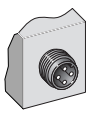
Dimensional drawing



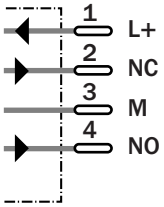
1 Connection
2 Display LED

Connection type

IQ40-20BPP-KCK
IQ40-35NPP-KCK



M12, 4-pin



See chapter Accessories

Connector, M12, 4-pin

Technical specifications	IQ40-	20BPP -KCK	35NPP -KCK								
Sensing range S_n	20 mm	■									
	35 mm		■								
Electrical configuration	DC 4-wire	■	■								
Supply voltage V_s	DC 10 ... 36 V	■	■								
Voltage drop U_d	≤ 2.5 V[1]	■	■								
Power consumption	≤ 15 mA[2]	■	■								
Continuous current I_a	≤ 250 mA	■	■								
Time delay before availability t_v	≤ 4 ms	■	■								
Hysteresis H, of s_r	1 ... 15 %	■	■								
Repeatability R	≤ 10 % (U_b and T_a constant)[3]	■	■								
Temperature drift, of s_r	± 10 %	■	■								
EMC	According to EN 60947-5-2	■	■								
Switching output	PNP	■	■								
Output function	Complementary	■	■								
Installation	Flush	■									
	Non-flush		■								
Connection type	Connector, M12, 4-pin	■	■								
Enclosure rating	IP 67[4]	■	■								
VDE protection class	⧈	■	■								
Max. switching frequency	100 Hz	■	■								
Dimensions	40 x 40 x 66.5 mm[5]	■	■								
Short-circuit protection	✓[6]	■	■								
Reverse polarity protection	✓	■	■								
Power-up pulse suppression	✓	■	■								
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■								
Ambient temperature T_a	-25 °C ... +70 °C	■	■								
Housing material	Plastic	■	■								

[1] at I_a max and U_b 24 V
[2] without load
[3] of s_r
[4] according to EN 60529
[5] Width x height x depth
[6] (pulsed)

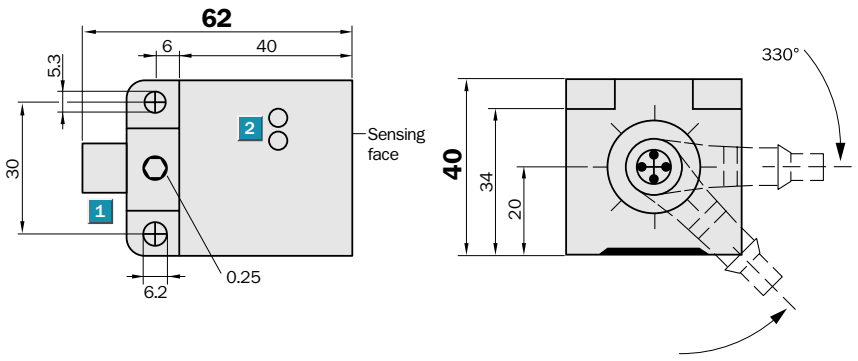
Order information	
Type	**Order no.**
IQ40-20BPP-KCK	6 012 014
IQ40-35NPP-KCK	6 012 015

Sensing range 30 / 35 mm

Inductive sensor

- Variable switching zone
- Complementary output function
- Connector, 330° rotatable
- Enclosure rating IP 67
- Factor 1 for all metals
- Magnetic field immune (6025813)

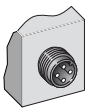
Dimensional drawing



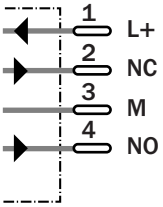
1 Connection
2 Display LED

Connection type

IQ40-35NPP-KCM
IQ40-30NPP-KC1



M12, 4-pin



See chapter Accessories

Connector, M12, 4-pin

Technical specifications	IQ40-	35NPP -KCM	30NPP -KC1								
Sensing range S_n	35 mm	■									
	30 mm		■								
Electrical configuration	DC 4-wire	■	■								
Supply voltage V_s	DC 10 ... 30 V	■	■								
Voltage drop U_d	≤ 2.5 V[1]	■	■								
Power consumption	≤ 15 mA[2]	■	■								
Continuous current I_a	≤ 200 mA	■	■								
Time delay before availability t_v	≤ 30 ms	■	■								
Hysteresis H, of s_r	1 ... 15 %	■	■								
Repeatability R	≤ 5 % (U_b and T_a constant)[3]	■	■								
Temperature drift, of s_r	± 10 %	■	■								
EMC	According to EN 60947-5-2	■	■								
Switching output	PNP	■	■								
Output function	Complementary	■	■								
Installation	Non-flush	■	■								
Connection type	Connector, M12, 4-pin	■	■								
Enclosure rating	IP 67[4]	■	■								
VDE protection class	⧈	■	■								
Max. switching frequency	200 Hz	■									
	50 Hz		■								
Dimensions	40 x 40 x 62 mm[5]	■	■								
Short-circuit protection	✓[6]	■	■								
Reverse polarity protection	✓	■	■								
Power-up pulse suppression	✓	■	■								
Factor 1 for all metals	✓	■	■								
Magnetic field immune	✓	■	■								
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■								
Ambient temperature T_a	-25 °C ... +70 °C	■	■								
Housing material	Plastic	■	■								

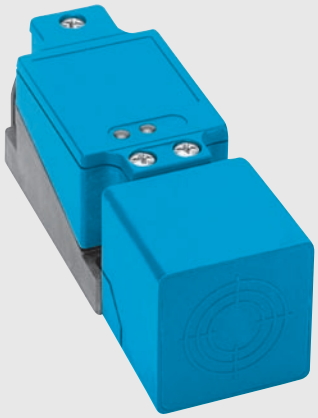
[1] at I_a max and U_b 24 V
[2] without load
[3] of s_r
[4] according to EN 60529
[5] Width x height x depth
[6] (pulsed)

Order information	
Type	**Order no.**
IQ40-35NPP-KCM	6 025 813
IQ40-30NPP-KC1	6 025 811

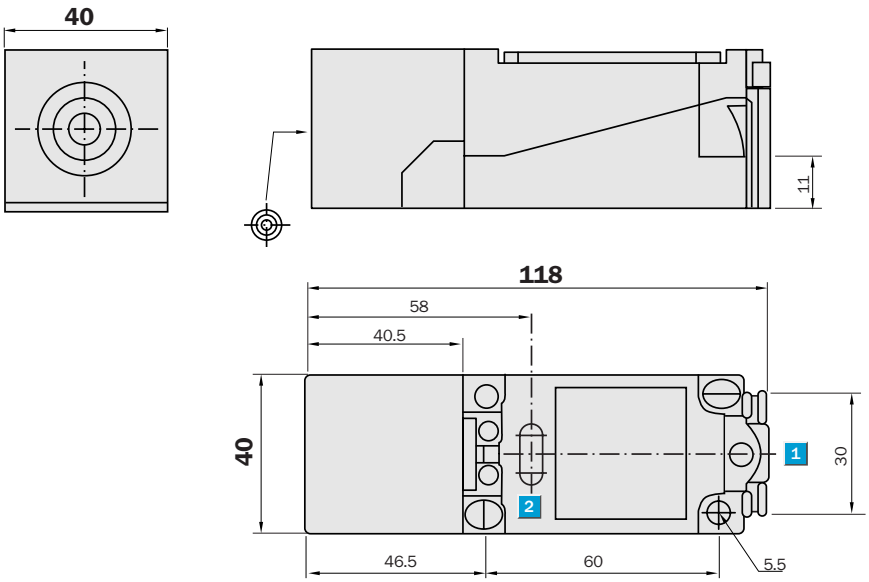
Sensing range 15 mm

Inductive sensor

- Variable switching zone
- Broad supply voltage range in DC
- Switching output: NO/NC
- Enclosure rating IP 68
- Terminal connection



Dimensional drawing

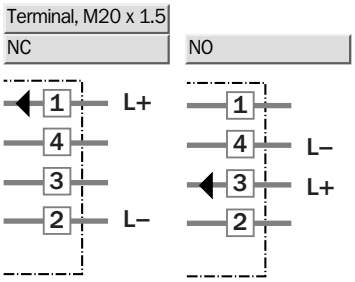


1 Connection
2 Display LED

Connection type

IQ40-15BDP-KK1

Terminal, M20 x 1.5



Technical specifications	IQ40-	15BDP -KK1									
Sensing range S_n	15 mm										
Electrical configuration	DC 2-wire										
Supply voltage V_s	DC 5 ... 60 V										
Voltage drop U_d	≤ 5 V[1]										
Continuous current I_a	≤ 200 mA										
Residual current	≤ 1 mA										
Temperature drift, of s_r	± 10 %										
EMC	According to EN 60947-5-2										
Output function	Programmable										
Installation	Flush										
Connection type	Cable gland, Terminal, M20 x 1.5										
Enclosure rating	IP 68[2]										
VDE protection class	⊡										
Max. switching frequency	400 Hz										
Dimensions	40 x 40 x 118 mm[3]										
Short-circuit protection	✓[4]										
Reverse polarity protection	✓										
Power-up pulse suppression	✓										
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm										
Ambient temperature T_a	-25 °C ... +70 °C										
Housing material	Plastic, PBT										

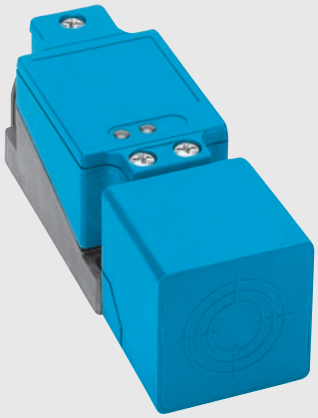
[1] at I_a max and U_b 60 V [2] according to EN 60529 [3] Width x height x depth [4] (pulsed)

Order information	
Type	**Order no.**
IQ40-15BDP-KK1	6 025 817

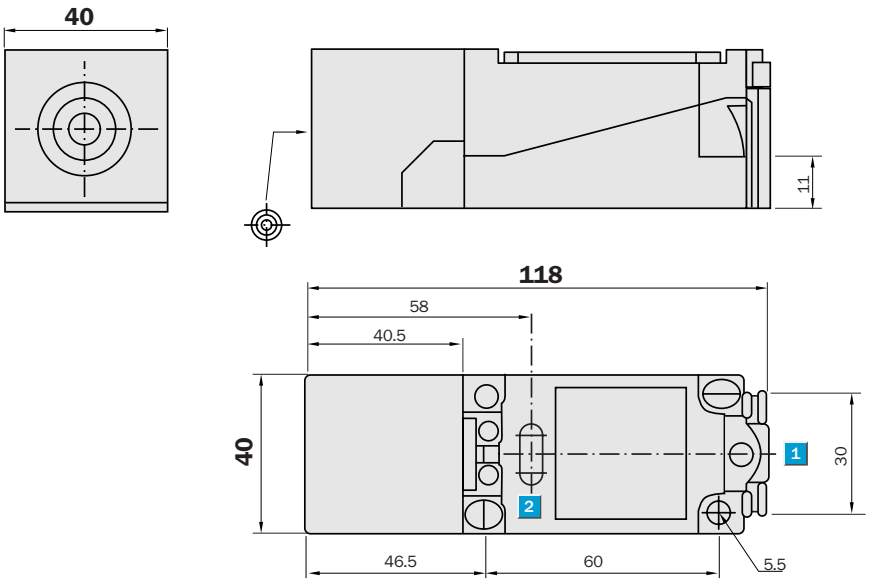
Sensing range 15 mm

Inductive sensor

- Variable switching zone
- Broad supply voltage range in AC
- Switching output: NO/NC
- Enclosure rating IP 68
- Terminal connection



Dimensional drawing

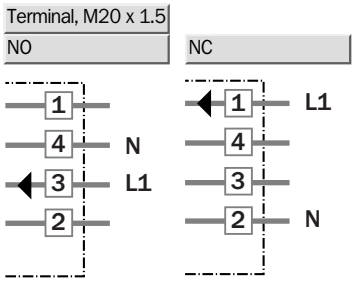


1 Connection
2 Display LED

Connection type

IQ40-15BAP-KK1

Terminal, M20 x 1.5



Technical specifications	IQ40-	15BAP -KK1									
Sensing range S_n	15 mm										
Electrical configuration	AC 2-wire										
Supply voltage V_s	AC 20 ... 253 V										
Voltage drop U_d	≤ 12 V										
Continuous current I_a	≤ 500 mA										
Intermittent current I_k	3 A (20 ms/0.1Hz)										
Residual current	≤ 1.95 mA										
Temperature drift, of s_r	± 10 %										
EMC	According to EN 60947-5-2										
Output function	Programmable										
Installation	Flush										
Connection type	Cable gland, Terminal, M20 x 1.5										
Enclosure rating	IP 68[1)]										
VDE protection class	⧈										
Max. switching frequency	20 Hz										
Dimensions	40 x 40 x 118 mm[2)]										
Short-circuit protection	✓[3)]										
Reverse polarity protection	✓										
Power-up pulse suppression	✓										
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm										
Ambient temperature T_a	-25 °C ... +70 °C										
Housing material	Plastic, PBT										

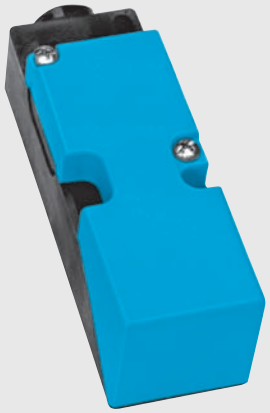
[1)] according to EN 60529 [2)] Width x height x depth [3)] (pulsed)

Order information	
Type	**Order no.**
IQ40-15BAP-KK1	6 025 816

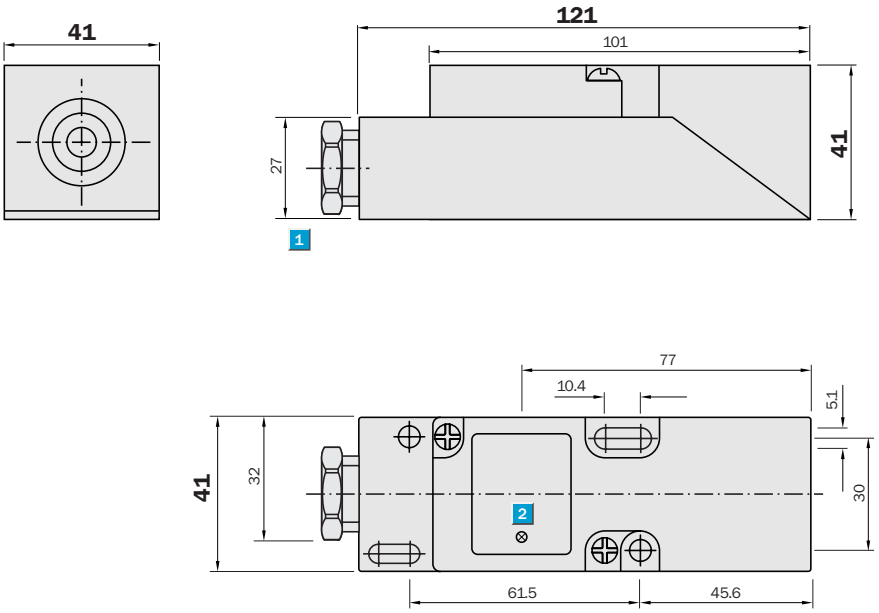
Sensing range 15 / 20 mm

Inductive sensor

- Variable switching zone
- Broad supply voltage range in AC and DC
- Programmable switching output: NO or NC
- Enclosure rating IP 65
- Terminal connection



Dimensional drawing

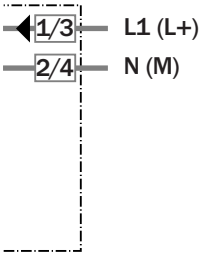


1 Connection
2 Display LED

Connection type

IQ40-15BUP-KK0
IQ40-20NUP-KK0

Terminal, M20 x 1.5



Technical specifications	IQ40-	15BUP -KK0	20NUP -KK0								
Sensing range S_n	15 mm	■									
	20 mm		■								
Electrical configuration	AC/DC 2-wire	■	■								
Supply voltage V_s	AC/DC 20 ... 250 V	■	■								
Voltage drop U_dAC/DC	≤ 6.5 V / ≤ 6 V	■	■								
Continuous current I_a	≤ 350 mA AC (... + 50 °C)	■	■								
Continuous current I_a	≤ 250 mA AC (... + 80 °C)	■	■								
Continuous current I_a	≤ 100 mA DC	■	■								
Intermittent current I_k	2.2 A (20 ms/0.5Hz)	■	■								
Min. load current	> 5 mA	■	■								
Residual current	≤ 2.5 mA (250 V AC)	■	■								
Residual current	≤ 1.3 mA (110 V AC)	■	■								
Residual current	≤ 0.8 mA (24 V DC)	■	■								
Time delay before availability t_v	≤ 8 ms	■	■								
Hysteresis H, of s_r	1 ... 15 %	■	■								
Repeatability R	≤ 10 % (U_b and T_a constant)[1]	■	■								
Temperature drift, of s_r	± 10 %	■	■								
EMC	According to EN 60947-5-2	■	■								
Output function	Programmable	■	■								
Installation	Flush	■									
	Non-flush		■								
Connection type	Cable gland, Terminal, M20 x 1.5	■	■								
Enclosure rating	IP 65[2]	■	■								
VDE protection class	⧈	■	■								
Max. switching frequency AC/DC	20 Hz / 55 Hz	■	■								
Dimensions	40 x 40 x 121 mm[3]	■	■								
Power-up pulse suppression	✓	■	■								
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	■	■								
Ambient temperature T_a	-25 °C ... +80 °C	■	■								
Housing material	Plastic	■	■								

[1] of s_r [2] according to EN 60529 [3] Width x height x depth

Order information

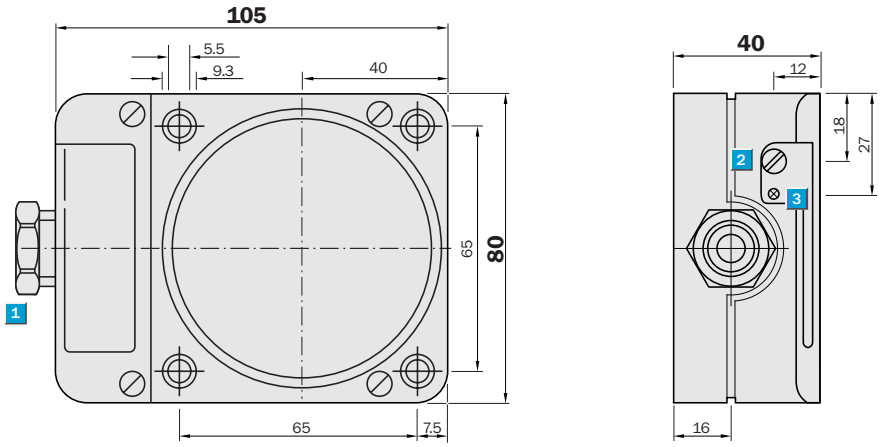
Type	Order no.
IQ40-15BUP-KK0	7 902 136
IQ40-20NUP-KK0	7 902 137

Sensing range 60 mm

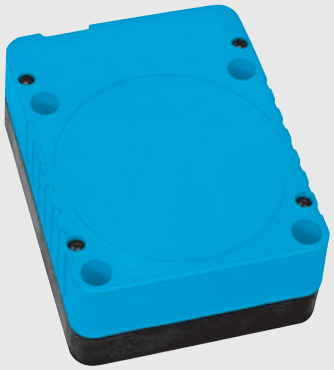
Inductive sensor

- Adjustable switching distance between 20 to 60 mm
- Programmable NO/NC function
- Short-circuit protection (pulsed)
- Terminal connection
- Enclosure rating IP 65

Dimensional drawing



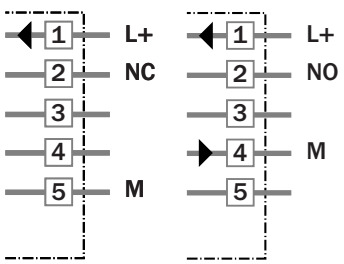
1 Connection
2 Potentiometer
3 Display LED



Connection type

IQ80-60NPP-KK0

Terminal, M20 x 1.5



Technical specifications	IQ80-	60NPP -KK0									
Sensing range S_n	60 mm										
Electrical configuration	DC 3-wire										
Supply voltage V_s	DC 10 ... 36 V										
Voltage drop U_d	≤ 2.5 V[1]										
Power consumption	≤ 15 mA[2]										
Continuous current I_a	≤ 250 mA										
Time delay before availability t_v	≤ 250 ms										
Hysteresis H, of s_r	1 ... 15 %										
Repeatability R	≤ 10 % (U_b and T_a constant)[3]										
Temperature drift, of s_r	± 10 %										
EMC	According to EN 60947-5-2										
Switching output	PNP										
Output function	Programmable										
Connection type	Cable gland, Terminal, M20 x 1.5										
Enclosure rating	IP 65[4]										
VDE protection class	⧈										
Max. switching frequency	4 Hz										
Dimensions	80 x 40 x 105 mm[5]										
Short-circuit protection	✓[6]										
Reverse polarity protection	✓										
Power-up pulse suppression	✓										
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm										
Ambient temperature T_a	-25 °C ... +80 °C										
Housing material	Plastic										

[1] at I_a max and U_b 24 V
[2] without load
[3] of s_r
[4] according to EN 60529
[5] Width x height x depth
[6] (pulsed)

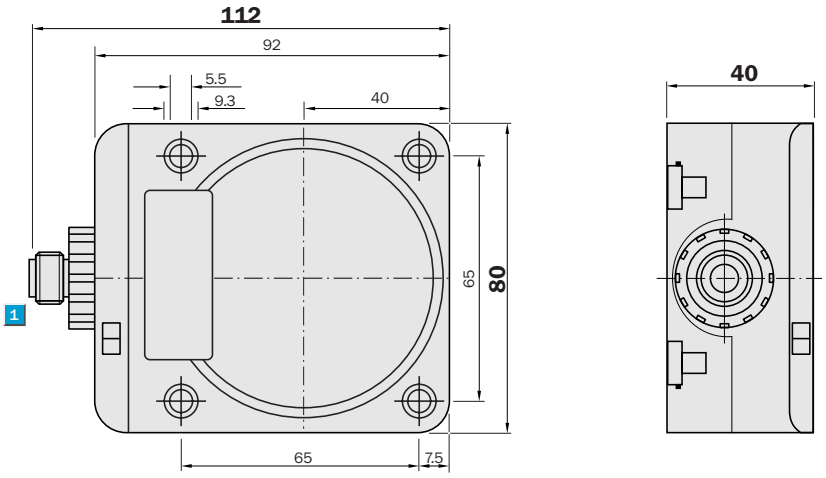
Order information	
Type	**Order no.**
IQ80-60NPP-KK0	7 900 227

Sensing range 44.55 / 50 mm

Inductive sensor

- Can be installed non-flush, flush or over flush in metal
- Switching distance 50 mm (flush or over flush installation) switching distance max. 5.5 mm reduced (non-flush installation)
- Antivalent output functions
- Connector M12 (rotable in 45°-steps)
- Enclosure rating IP 67

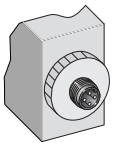
Dimensional drawing



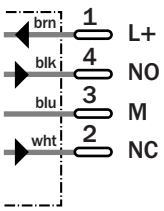
1 Connection

Connection type

IQ80-50BPP-KC0



M12, 4-pin



See chapter Accessories

Connector, M12, 4-pin

Technical specifications	IQ80-	50BPP -KC0
Sensing range S_n	44.55 / 50 / 50 mm	
Electrical configuration	DC 4-wire	
Supply voltage V_S	DC 10 ... 36 V	
Voltage drop U_d	≤ 2.5 V[1]	
Power consumption	≤ 20 mA[2]	
Continuous current I_a	≤ 250 mA	
Hysteresis H, of s_r	1 ... 15 %	
Repeatability R	≤ 10 % (U_b and T_a constant)[3]	
Temperature drift, of s_r	± 10 %	
EMC	According to EN 60947-5-2	
Switching output	PNP	
Output function	Complementary	
Installation	Non-flush Overflush Flush	
Connection type	Connector, M12, 4-pin	
Enclosure rating	IP 67[4]	
VDE protection class	⧈	
Max. switching frequency	70 Hz	
Dimensions	80 x 40 x 112 mm[5]	
Overload protected	✓	
Short-circuit protection	✓[6]	
Reverse polarity protection	✓	
Power-up pulse suppression	✓	
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	
Ambient temperature T_a	-25 °C ... +70 °C	
Housing material	PPE, zinc-die cast, nickel special coated	

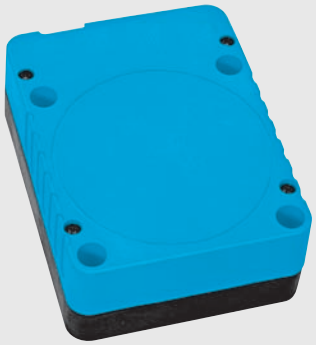
[1] at I_a max and U_b 24 V
[2] without load
[3] of s_r
[4] according to EN 60529
[5] Width x height x depth
[6] (pulsed)

Order information	
Type	**Order no.**
IQ80-50BPP-KC0	6 026 473

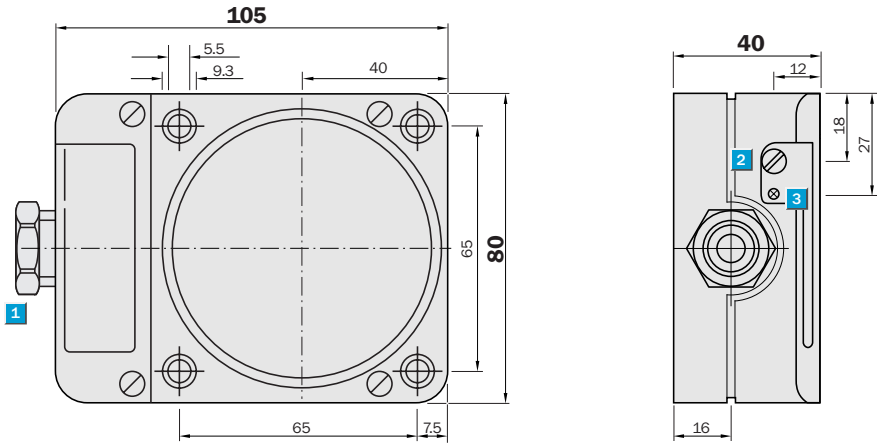
Sensing range 60 mm

Inductive sensor

- Adjustable switching distance between 20 and 60 mm
- Broad supply voltage range in AC and DC
- Programmable switching output: NO or NC
- Enclosure rating IP 65
- Terminal connection



Dimensional drawing



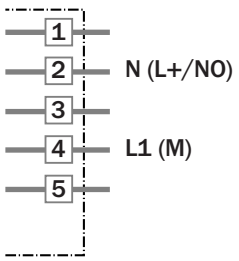
1 Connection
2 Potentiometer
3 Display LED

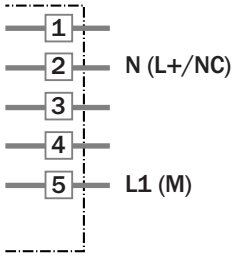
Connection type

IQ80-60NUP-KK0

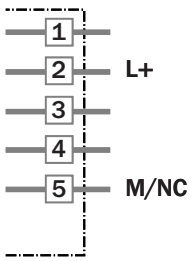
Terminal, M20 x 1.5

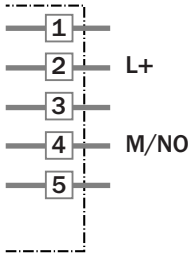
AC / DC (NPN)





DC (PNP)





Technical specifications	IQ80-	60NUP -KK0
Sensing range S_n	60 mm	
Electrical configuration	AC/DC 2-wire	
Supply voltage V_s	AC/DC 20 ... 250 V	
Voltage drop U_dAC/DC	≤ 6.5 V / ≤ 6 V	
Continuous current I_a	≤ 350 mA AC (... + 50 °C)	
Continuous current I_a	≤ 250 mA AC (... + 80 °C)	
Continuous current I_a	≤ 100 mA DC	
Intermittent current I_k	2.2 A 20 ms/0.5 Hz	
Min. load current	> 5 mA	
Residual current	≤ 2.5 mA (250 V AC)	
Residual current	≤ 1.3 mA (110 V AC)	
Residual current	≤ 0.8 mA (24 V DC)	
Time delay before availability t_v	≤ 8 ms	
Hysteresis H, of s_r	1 ... 15 %	
Repeatability R	≤ 10 % (U_b and T_a constant)[1]	
Temperature drift, of s_r	± 10 %	
EMC	According to EN 60947-5-2	
Switching output	PNP/NPN config.	
Output function	Programmable	
Installation	Non-flush	
Connection type	Cable gland, Terminal, M20 x 1.5	
Enclosure rating	IP 65[2]	
VDE protection class	⊡	
Max. switching frequency	4 Hz	
Dimensions	80 x 40 x 105 mm[3]	
Power-up pulse suppression	✓	
Shock/vibration stress	30 g, 11 ms/10 ... 55 Hz, 1 mm	
Ambient temperature T_a	-25 °C ... +80 °C	
Housing material	Plastic	

[1] of s_r [2] according to EN 60529 [3] Width x height x depth

Order information	
Type	**Order no.**
IQ80-60NUP-KK0	7 902 138