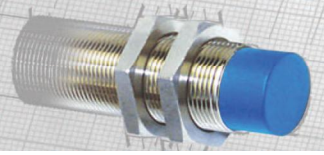

APPLICATIONS

Proximity switches can be used in many control functions and in particular they can operate even in the most arduous conditions exceeding the performance of any type of mechanical switch. The most frequent applications are:

- Limit switch without contact
- Detection of working pieces
- Sequence detection
- Detection of rotating or linear speed
- Incremental encoder function (2 sensors with 90° out of phase signals)
- Measurements of thickness and smoothness of metallic sheets (linear sensors)
- Detection of materials and alloys composition (linear sensors)

BENEFITS

The use of proximity sensors solves all the difficult problems of automation and detection in industrial and automotive places.

Compared to traditional mechanical micro-switches, they offer more advantages:

- No physical contact is required for operation
- Elimination of contact oxidation, due to solid state switching components
- No sparking of contacts; types ATEX ⟨Ex⟩ can operate in environments with explosive gas or inflammable liquids and solvents vapours
- Impermeableness against liquids, oils, powders, thanks to the resin clad
- High resistance against vibrations and impacts
- Very long life time thanks to non-electromechanical circuits
- No bounces on the switching edges
- Possibility of direct connecting to logical circuits and counters
- Almost unlimited life time non depending by the number of cycles

STANDARDS

Conformities CE

In accordance with the European Directives 2004/108/EC and 2006/95/EC, all products are in accordance with the rules for electromagnetic compatibility and safety standards for low voltage machinery.
These standards are met in accordance with EN60947-5-2.

Namur Sensors non-amplified

The non-amplified d.c. sensors are built according to EN60947-5-6 standards.

Amplified sensors

The amplified d.c. types (DCA and AC types) are manufactured according to EN60947-5-2.

ATEX sensors

For potentially explosive atmosphere applications a wide range of sensors is available certified according to the ATEX directive 94/9/EC. Please refere to the specific catalogue.

CABLE CHARACTERISTICS

All the standard sensor cables are manufactured from flexible PVC type with flammability resistance according to CEI 20-22 II - IEC 332.3A, with these characteristics:

- conductor formation according to VDE 0295 class 6
- insulation: PVC flammability resistance
- sheath: YM2 flammability resistance to VDE 0209/3.69

The standard cable length is 2 metres, however it is possible on request to have different cable lengths. It is also possible to have BDC sensors with PUR (polyurethane) sheath, particularly impervious against oils, acids or continuous stress. The cables can also be supplied with insulation and thermoplastic elastomer sheath (TPE-O) for temperatures from - 40° up to +140° C (sensors for high-low temperatures).

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RESISTANCE TO MECHANICAL SHOCK AND VIBRATION

Shock by EN 60068-2-27

- Max acceleration: 50 g
- Impulse time: 11 ms

Vibrations to EN 60068-2-6

- Frequency range: 10 ÷ 55 Hz
- Amplitude: ± 2 mm.

DEGREE OF PROTECTION

According to EN60529
IP 6X: against ingress of dust-tight.
IP 65: water jets from all directions.
IP 67: immersion for 30 min. under 1 m. depth of water.
IP 68: extended immersion in water at conditions agreed between user and manufacturer.
Please contact our technical office for further details.

According to DIN40050
IP 69K: high pressure/steam water jet cleaning.

DESCRIPTION OF THE TECHNICAL TERMS IN THE CATALOGUE

RATED OPERATING DISTANCE (S_n)

The rated operating distance is a nominal value used to designate the operating distance. Manufacturing tolerances and external factors are not taken into account. Fig. 1 shows the relation between the operating distance (S_n,S_r,S_a) and the hysteresis (H).

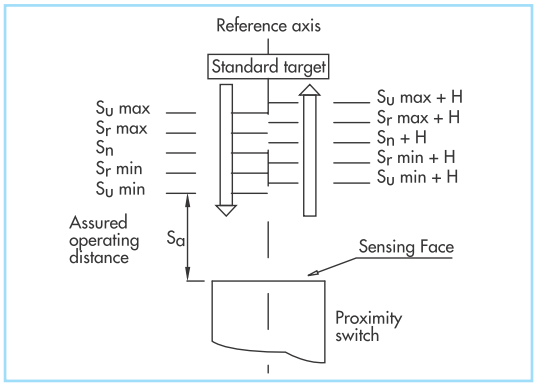

Fig. 1

STANDARD TARGET

The target used for the sensing distance is referenced to FE360 square steel sheet 1mm thick and with side the diameter of the circle on the active surface of the sensing face, or three times the rated operating distance Sn if this is more than the diameter. If the object to sense is of a different material, the rated operating distance is determined by multiplying the effective operating distance (Sr) by one of the following reduction factors:

Inductive Sensors

- stainless steel	0,3 ÷ 0,4
- brass	0,35 ÷ 0,50
- aluminum	0,35 ÷ 0,50
- copper	0,25 ÷ 0,45

Capacitive Sensors

- metal	1
- water	1
- PVC	0,5
- wood	0,25
- clothes	0,15
- paper	0,1

These reductions are not valid for the slot types, on which the switching point is almost indipendent of the metal used.

REAL OPERATING DISTANCE (S_r)

The real operating distance is measured with rated voltage and with a temperature of 23 ± 5°C. It must be between the 90% and 110% of the rated operating distance (S_n):

$$0,9\ S_n \leq S_r \leq 1,1\ S_n$$

GUARANTEED OPERATING DISTANCE (S_a)

This represents the safe sensing distance considering the manufacturing tolerances and the voltage and temperature changes. For the inductive proximity switches the guaranteed operating distance is between 0 and 81% of the rated operating distance (S_n):

$$0 \leq S_a \leq 0,81\ S_n$$

For the capacitive proximity switches the assured operating distance is between 0 and 72% of the rated operating distance (S_n):

$$0 \leq S_a \leq 0,72\ S_n$$

DIFFERENTIAL TRAVEL OR HYSTERESIS (H)

The differential travel is the difference between the switch-on point and the switch-off point with an axial motion of the target.

This is given as a percentage of the real operating distance (S_r) with a temperature of 23 ± 5°C and is shown in the tables. That value is never greater than the 15% of the real operating distance (S_r).

REPEAT ACCURACY (R)

The repeat accuracy (R) is the maximum variation, in percentage, of the effective operating distance (S_r) performing several switching cycles in 8 hours with a temperature of 23 ± 5°C and power supply changes of ± 5%.
The differences between measurments will never be greater than the 10% of the real operating distance:

$$R \leq 0,1 \cdot S_r$$

MAX SWITCHING FREQUENCY (f)

The max switching frequency specified in the tables of the products, is measured according to fig. 2.

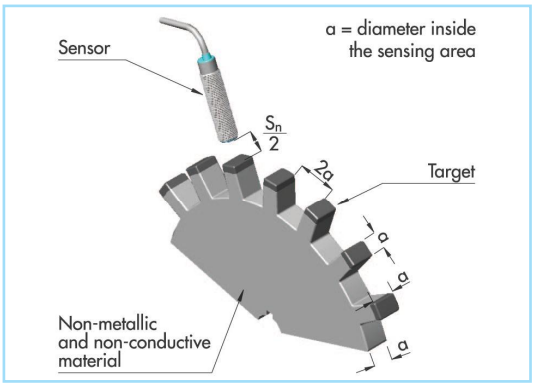

Fig. 2

OPERATIONAL VOLTAGE (U_B)

This is the voltage range where the device will work correctly. It includes ripples and oscillations.

VOLTAGE DROP (U_d)

This is the voltage measured at the end of the active output of the sensor when it is passing the rated operational current (I_e).

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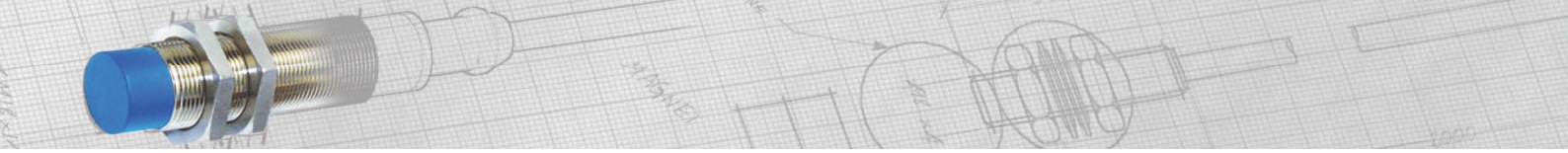

RATED OPERATIONAL CURRENT (I_e)

This is the maximum load current which the sensor can continuously pass at the specified temperature and operational voltage range.

OFF-STATE CURRENT (I_r)

This is the current which flows through the 2-wire amplified sensors in the off condition. It is recommended to check that this current doesn't exceed the minimum activation current of the load.

MINIMUM OPERATIONAL CURRENT (I_m)

This is the minimum current needed for a proper functioning of the 2-wire amplified sensors in on condition.

IMPULSE WITHSTAND VOLTAGE

All sensors are protected against the overvoltages coming from the supply line or from the load. The minimum value is 1KV and is tested according to EN60947-5-2 standards.

CHARACTERISTIC OF THE OUTPUT STAGES

NON AMPLIFIED IN d.c. NAMUR SERIES

The sensors of this series contain only the oscillator stage and an output filter. This allows the reduction of space and costs. Thanks to a small number of components and being used with low currents, these sensors ensure a very high reliability. The driving of a load is possible using them with a proper amplifier (AM... series. See section G) or connected to equipment with specific input stage for NAMUR devices.
ATEX sensors category 1G - 1D must be used with associated apparatus with ATEX certification.

Working:
With references to fig. 3, apply Un between 5 and 30 Volts: the I current flows through the sensor crossing the **Rx** resistance giving the **Vo** voltage. The current value will decrease in proportion to how a metal approaches its sensible surface, following the characteristic curve shown.
With Vo voltage we can control a trigger stage having then an exact switching point and giving an ON/OFF output. For the scaling of Rx look the table below:

Un (V)	Rx (Ω)
5	390
8,2	1000
12	1800
24	3900

It's important to consider that the NAMUR rules recommend the applications of these sensors in a supply range between 7,7 and 9 Vdc with an Rx of 1000 Ω.

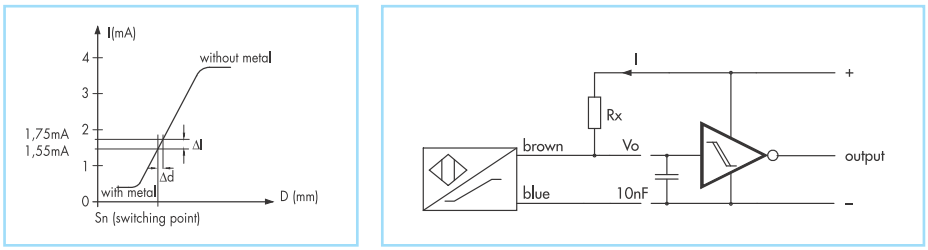

Fig. 3

NAMUR WITH LED SERIES

This series has a LED for the output condition and thanks to the integrated trigger, it has an exact switching point which permits the possibility to control PLC inputs and direct loads up to 10 mA without any interface module.

AMPLIFIED SERIES IN d.c. with 3 or 4-wire

The sensors in this series employ a power output stage with output protection (only K versions). They are suitable for direct driving of typical devices such as relays, PLC, contactors.

OUTPUT LOGIC

The choice for the output logic (NPN or PNP) depends on the connection type of load.

The typical output stages are shown in fig. 4. Open collector versions are available upon request.

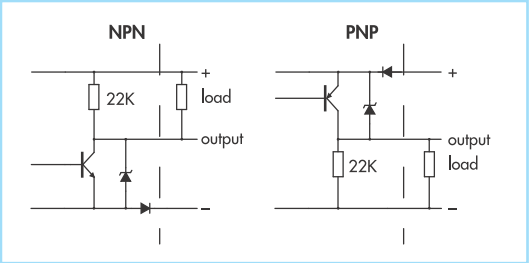

Fig. 4

PROTECTION AGAINST SHORT CIRCUIT

For the "K" version sensors, there is a protection against short circuits and overload in output stage. The protection is activated when the rated operational current is exceeded, blocking the current until there is a significant reduction. On d.c. sensors the sensor restarts to work as soon as the fault condition is removed. On a.c. sensors the power supply must be disconnected in order to reset the protection stage. In some cases the protection can be triggered because of high capacitive loads, like filter capacitors higher than 100 nF or lamps. In this case we recommend to use our specific proximity switches.

SERIES CONNECTION: AND LOGIC

With this connection the load is powered only when all switches are closed. The number of switches which can be connected in this way is limited by three factors:

1) from the residual voltage drop typical of selected switch, which is 2,2V (max for some types) at maximum load current;

2) from the maximum load current of switches employed, because it's important to consider that the self consumption of each sensor must be added to the final load.

3) from the delay time of availability. For each sensor there can be a maximum delay of 30 ms. which has to be multiplied for the number of sensors used.

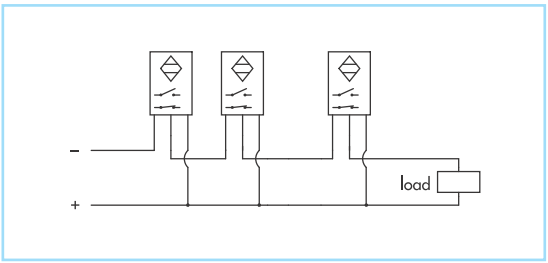

Fig. 5
Example of series connection with NPN sensors.

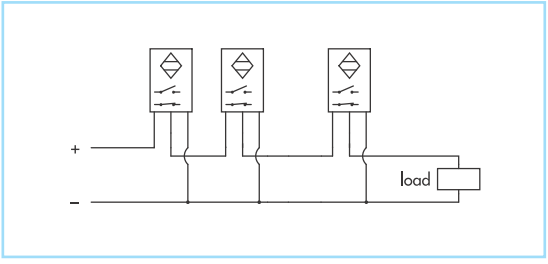

Fig. 6
Example of series connection with PNP sensors.

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PARALLEL CONNECTION: OR LOGIC

With this type of connection, the load is powered whenever any of the switches are closed (or its output is conducting).
In switches which are parallel connected, it must be considered that every connected sensor is loaded by other sensors internal resistor (collector resistor RC). It is possible to avoid this, using open collector types, or by introducing decoupling diodes as shown in fig 7-8.

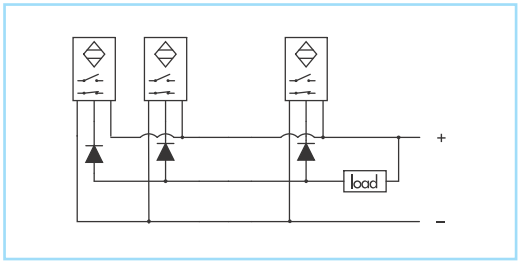


Fig. 7
Example of parallel connection with NPN sensors.

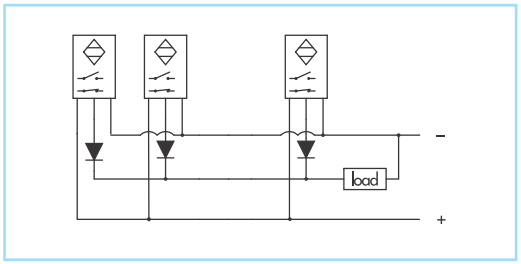


Fig. 8
Example of parallel connection with PNP sensors.

AMPLIFIED SERIES IN d.c. or a.c.

They are connected in series to the load like electro-mechanical micro-switches. It's important to verify that, after subtracting the voltage drop (U_d) from the supply voltage (U_B), there is sufficient voltage to drive the load correctly. Another important factor in this sensor is the minimum operational current (Im), below which the sensor doesn't work properly. In open conditions, there will always be a Off-state current (I_r) which will go through the load: it is important to make sure that this current will not activate the load.
If this happens it will be necessary to connect a resistor in parallel to the load itself.

SERIES CONNECTION: AND LOGIC

If several sensors must be connected in series, it is necessary to verify that summing all the sensors voltage drops the load continues to have sufficient voltage for the correct functioning. One must also consider that in the open condition the supply voltage is divided by the number of sensors: make sure that on each sensor there is a voltage greater than the minimum value of UB.

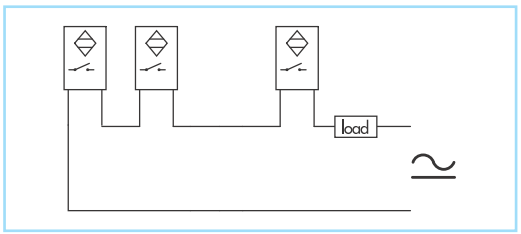


Fig. 9
Example of series connection with
2-wire amplified sensors.

AMPLIFIED SERIES IN a.c. 3-wire + earth

This series of sensors (ACB, ACBF) is suitable to solve minimum load, residual current and voltage drop problems typical on 2-wire series. They have two wires for supply, one for the output and one for the earth connection.

Their connection is similar to the amplified models in d.c. (fig. 10).

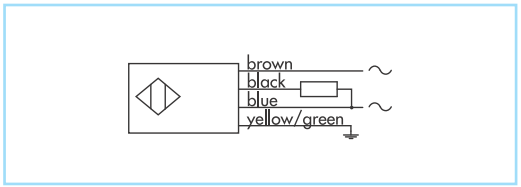
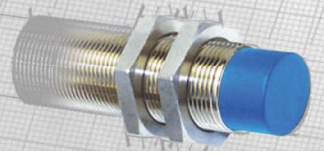


Fig. 10

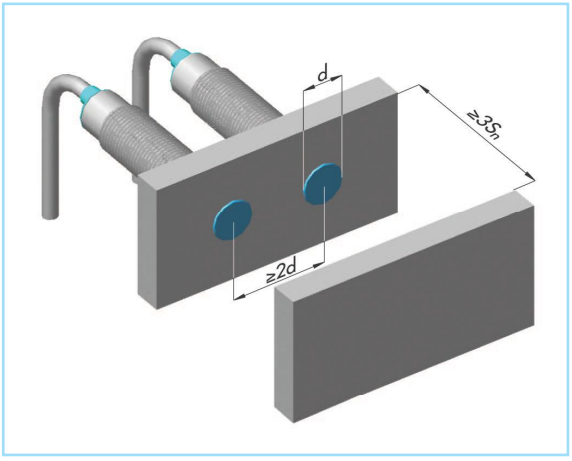


MOUNTING PRECAUTIONS

Although sensors are made to resist to the most difficult conditions of use, it is recommended:

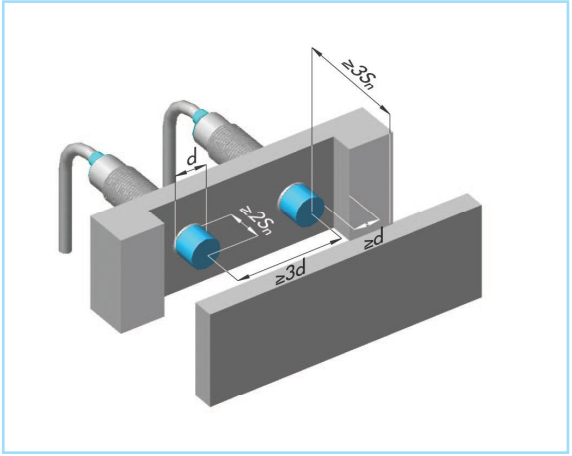
- not to wire sensors connections along with power conductors. Use of separated cable routing is recommended.
- never exceed the maximum of the fixing torque recommended for the fasteners. Bear in mind in addition that the threaded zone next to the sensing head on cylindrical products is less resistant than the rest of the body.
- make sure the product doesn't contact corrosive agents, oils, aggressive solvents, etc. Call our technical office to have further guidance on the resistance of materials to the various substances.
- avoid shocks and abrasive actions on the sensible face of the products: this area represents the most fragile zone of the device.
- the power supply circuit for sensors must be provided with suitable insulation and current limitation means.
- never use devices for the safety of machineries or people if they are not specifically recommended for that purpose. Contact our technical offices for more details.

CYLINDRICAL SENSORS



Totally shielded: flush mounting

Sensors are not influenced by surrounding metals.
However it's recommended to keep a distance between adjacent sensors to avoid interferences.
If this isn't possible, it's recommended the use of sensors with different frequencies for mounting alongside each other.



Unshielded: non flush mounting

Sensors can be influenced by surrounding metals. A distance ≥ 3 d between adjacent sensors is needed. For extended sensing distance versions a distance at least ≥ 4d is recommended.

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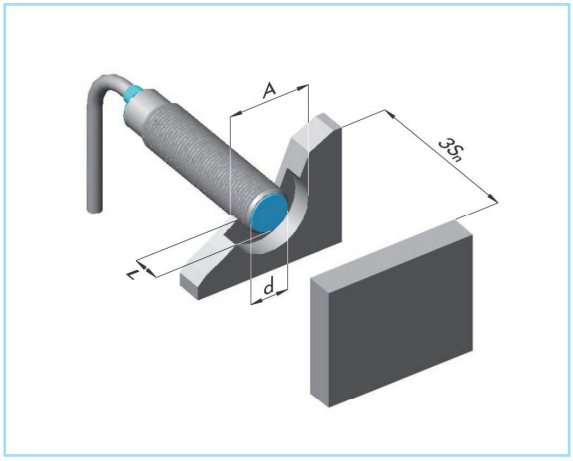
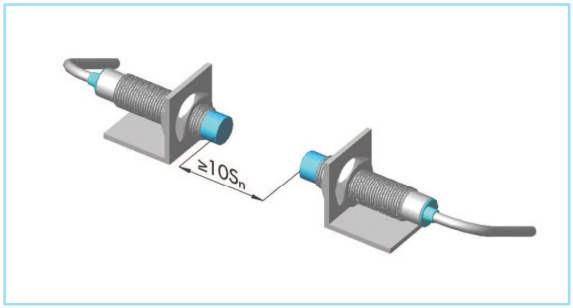
Extended sensing distance and stainless steel sensing face versions: quasi flush mounting

These sensors, because of their high sensitivity, are slightly sensitive to surrounding ferromagnetic metals which can reduce their sensing distance. To avoid this effect it's recommended to mount the sensor as indicated by the diagrams and charts shown.

Sensor diameter d (mm)	L min. (mm)	A min. (mm)
6,5 - 8	1,5	12
12	2,4	18
18	3,6	28
30	8	45

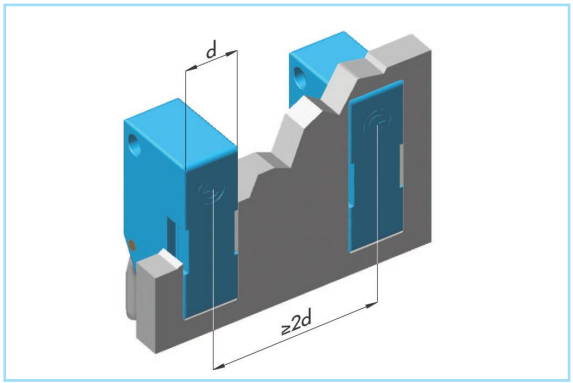




Opposed mounting of two sensors

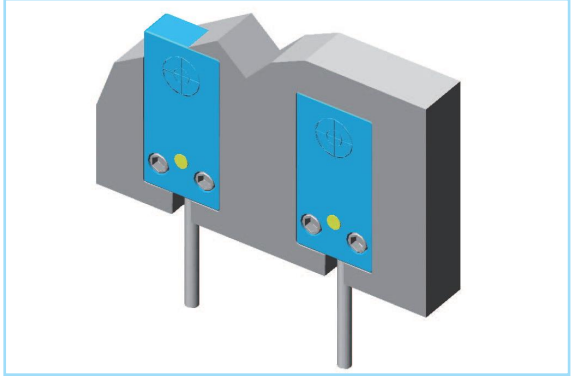
A minimum distance of 10 S_n ensures non interference between electromagnetic fields.

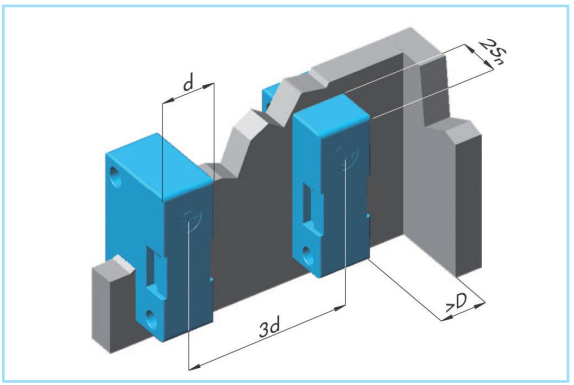
RECTANGULAR SENSORS



Totally shielded: flush mounting

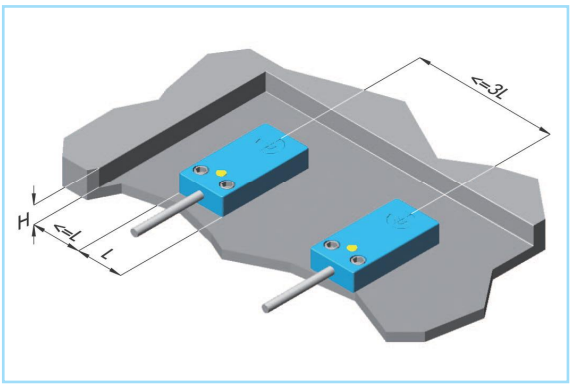
Sensors are not influenced by surrounding metals. However it's recommended to keep a distance between adjacent sensors to avoid interferences. If this isn't possible, it's recommended to use sensors with different frequencies when mounting side by side.

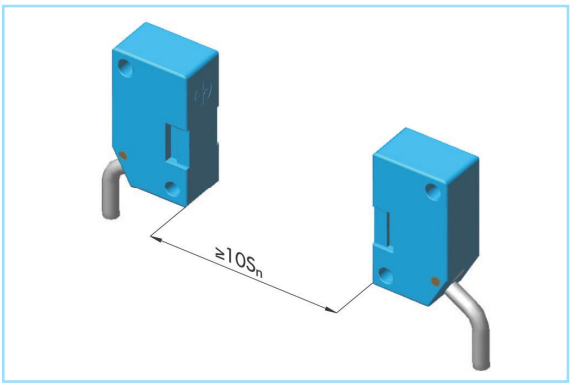




Unshielded: non flush mounting

Sensors can be influenced by surrounding metals.
It's necessary to have more space between adjacent sensors.

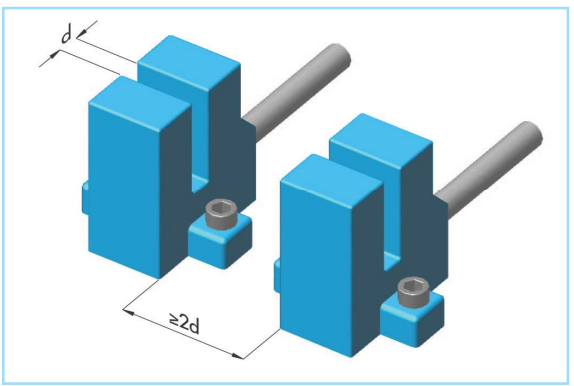




Opposed mounting of two sensors

A minimum distance of 10 S_n ensures non interference between electromagnetic fields.

SLOT SENSORS



It's recommended to keep a distance of twice the slot width (d) between adjacent sensors.

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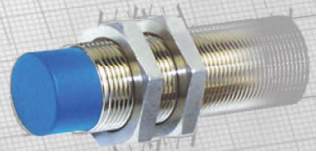


INDUCTIVE SENSORS

Inductive sensors detect the presence of metallic objects within the sensing area.
They aren't influenced by non-metallic materials.

WORKING PRINCIPLE

An oscillating electromagnetic field is generated in the sensing area. When a metal object enters the sensitivity field, it tends to damp the amplitude of the oscillation, a detector stage then creates a switching in the output stage.

In inductive sensors range there are versions with linear output with current or in voltage variations.

In these sensors the presence of metal objects is detected and turned into a signal proportional to the damping of the oscillator, which depends upon the distance and metallic composition of the detected object.

INDUCTIVE SENSORS

IPS = high precision (H < 1µm)
AC = amplified a.c. 2-wire cylindrical body inductive series
ACB = amplified a.c. 3-wire cylindrical body inductive series
ACF = amplified a.c. 2-wire slot inductive series
AX = amplified a.c. + d.c. 2-wire 20 ÷ 240 V
AXM = amplified a.c. + d.c. 2-wire 10 ÷ 50 V
DC = cylindrical inductive NOT amplified d.c. NAMUR series 2-wire
DCA = cylindrical inductive amplified d.c. 3 or 4-wire
DCAL = cylindrical inductive analog linear output
DCE = extended sensing distance d.c. series
DCF = amplified d.c. slot series
DF = inductive slot sensors NOT amplified d.c. NAMUR series
DSA = amplified d.c. cylindrical SHORT body inductive series
DSE = extended sensing distance d.c. SHORT series
DX = amplified d.c. 2-wire 5 function series
DCM = amplified d.c. 2-wire non polarized

Diameter of cylindrical sensor or slot width for slot types.
For other types, change the number with the following:
80B = diameter 80 mm
P = rectangular plastic 5 positions head 40 x 40 x 112
R = rectangular plastic with adjustable sensing distance 100 x 111 x 30
T = rectangular plastic 25 x 40 x 12
X = rectangular plastic 25 x 50 x 10
Y = rectangular plastic 30 x 50 x 15
Z = rectangular plastic 16 x 28 x 10

P = plastic housing

4 = flush mounting **5** = non flush mounting

DCA	18	P/	4	7	0	9	KS	-5	PUR

0 = with connector n° 17 - 18 in a.c.
1 = with connector n° 15 - 16 in a.c.
2 = 90° output with connector n° 1
3 = with connector M12 x 1 in c.c.
4 = with connector n° 1
6 = standard type cable output
7 = cable output with sheath support
8 = with gland
9 = with connector M8 x 1
A = body length 50 mm completely threaded
E = with connector n° 2
L = side cable output
***** = male connector wired to the sensor (see page H-1)

0 = NO (normally open output)
1 = NC (normally closed output)
2 = NO + NC (complementary outputs)
C = NC (output normally closed on pin 2 of connector)
5 = 5 functions sensor

0 = NAMUR series 2-wire
8 = NPN with pull-up resistor
2 = NPN open collector
9 = PNP with pull-down resistor
1 = PNP open collector
9 = 20 ÷ 240 V. for a.c. sensors
X = 5 functions sensor

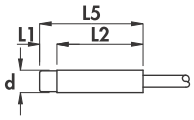
L = smooth body
M = stainless steel sensing face
J = degree of protection IP68
K = protection against short circuit and overload
S = LED output status
T = high temperature version
V = linear sensor with voltage output

Cable length (if required different than standard 2m)

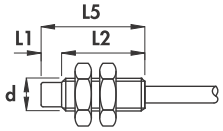
For Polyurethane cable add PUR

NAMUR SERIES - diameters 4 - 5 - 6,5 - 8 - 12 mm •
Non amplified in d.c. 2-wire •
Cable output •

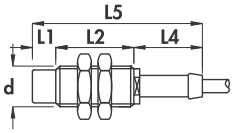
Housing A



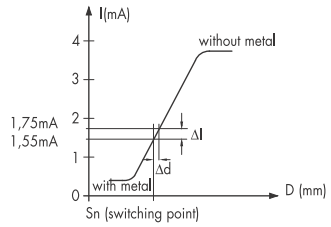
Housing B



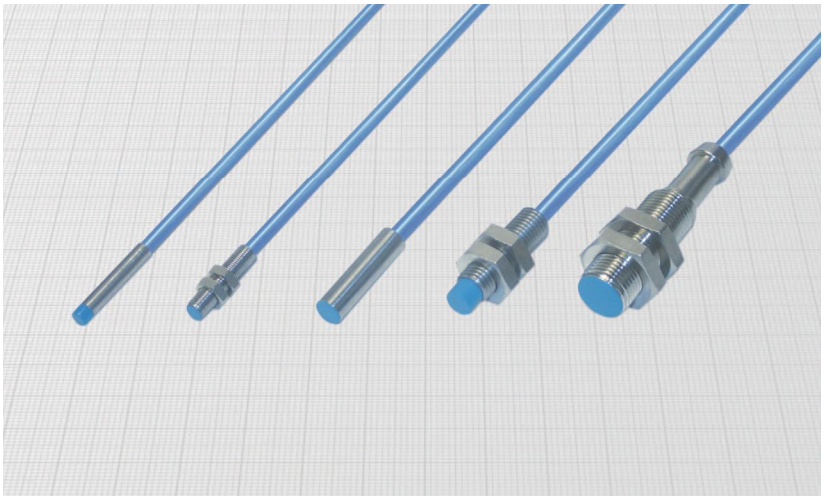
Housing F



Typical curve



Diameter		M5 x 0,5	M8 x 1	M12 x 1
Nut	Size	SW7	SW13	SW17
	Thickness mm	2,5	4	5
Max tightening torque Nm		2	10	15



Materials:

- Cable: 2 m PVC CEI 20 - 22 II; 90°C; 300 V; O.R.
- Housing 4 - 5 - 6,5 - 8 mm: stainless steel
- Housing 12 mm: nickel plated brass
- Sensing face: plastic

Technical data:

- Working voltage: 5 ÷ 30 Vdc
- Supply voltage according to NAMUR: 7,7 ÷ 9 Vdc
- Max ripple: 10%
- Consumption at 8,2 V with Rx = 1000 Ω
  - with metal: ≤ 1 mA
  - without metal: ≥ 3 mA
- Temperature range: - 25° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Degree of protection: IP67
- Cable conductor cross section: 0,15 mm² on 4 and 5 mm
  0,35 mm² on 6,5 ÷ 12 mm
- According to EN60947-5-6
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6
- For certified ATEX version see ATEX Catalogue

Housing	Flush mounting / Non flush mounting	L1	L2	L3	L4	L5	Cable diameter	Body diameter (d)	Max switching frequency (f)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES
		mm	mm	mm	mm	mm	mm	mm	KHz	mm	
A	•	-	20	-	-	20	3	4	5	0,8	**DC4/4600L**
B	•	-	20	-	-	20	3	M5 x 0,5	5	0,8	**DC5/4700**
A	•	-	25	-	-	25	4	6,5	5	1,5	**DC6,5/4700L**
A	•	5	20	-	-	25	4	6,5	3	2,5	**DC6,5/5700L**
A	•	-	25	-	-	25	4	8	5	1,5	**DC8/4700L**
B	•	-	25	-	-	25	4	M8 x 1	5	1,5	**DC8/4700**
B	•	5	20	-	-	25	4	M8 x 1	3	2,5	**DC8/5700**
B	•	-	30	-	-	30	4	M12 x 1	5	2	**DC12/4600**
F	•	-	30	-	20	50	4	M12 x 1	5	2	**DC12/4700**
B	•	7	23	-	-	30	4	M12 x 1	1	4	**DC12/5600**
F	•	7	23	-	20	50	4	M12 x 1	1	4	**DC12/5700**

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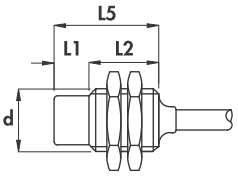
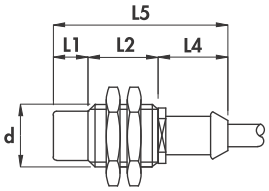
• NAMUR SERIES - diameters 14 - 16 - 18 mm
• Non amplified in d.c. 2-wire
• Cable output

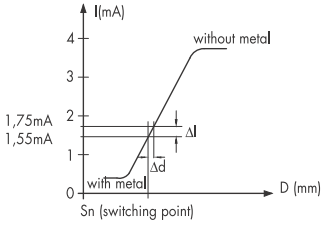
Housing B-1

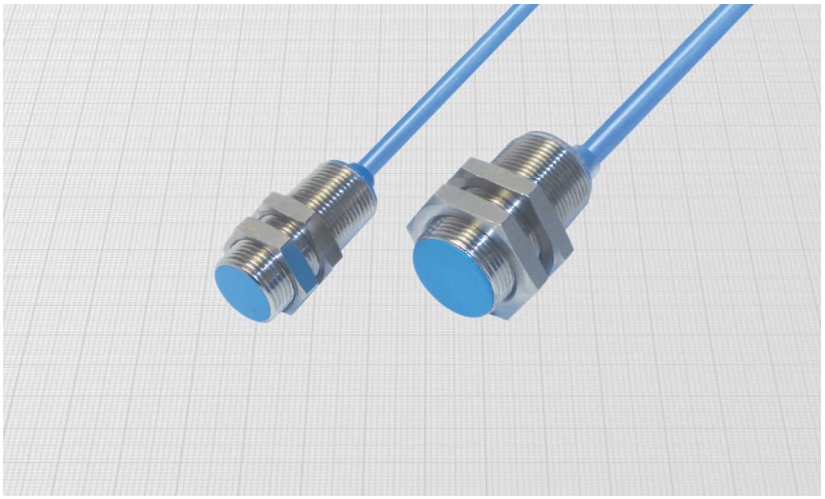


Housing F-1



Typical curve





Diameter		M14 x 1	M16 x 1	M18 x 1
Nut	Size	SW17	SW22	SW24
	Thickness mm	4	4	4
Max tightening torque Nm		20	25	35

Materials:

- Cable: 2 m PVC CEI 20 - 22 II; 90°C; 300 V; O.R.
- Housing: nickel plated brass
- Sensing face: plastic

Technical data:

- Working voltage: 5 ÷ 30 Vdc
- Supply voltage according to NAMUR: 7,7 ÷ 9 Vdc
- Max ripple: 10%
- Consumption at 8,2 V with Rx = 1000 Ω
  - with metal: ≤ 1 mA
  - without metal: ≥ 3 mA
- Temperature range: - 25° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Degree of protection: IP67
- Cable conductor cross section: 0,35 mm² on 14 ÷ 16 mm
  0,50 mm² on 18 mm
- According to EN60947-5-6
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6
- For certified ATEX version see ATEX Catalogue

Housing	Flush mounting / Non flush mounting	L1	L2	L3	L4	L5	Cable diameter	Body diameter (d)	Max switching frequency (f)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES
		mm	mm	mm	mm	mm	mm	mm	KHz	mm	
B-1	•	-	30	-	-	30	4	M14 x 1	2	3	**DC14/4700**
B-1	•	10	30	-	-	40	4	M14 x 1	1	5	**DC14/5700**
B-1	•	-	30	-	-	30	6	M18 x 1	1	5	**DC18/4600**
F-1	•	-	30	-	20	50	6	M18 x 1	1	5	**DC18/4700**
B-1	•	10	20	-	-	30	6	M18 x 1	0,5	8	**DC18/5600**
F-1	•	10	20	-	20	50	6	M18 x 1	0,5	8	**DC18/5700**

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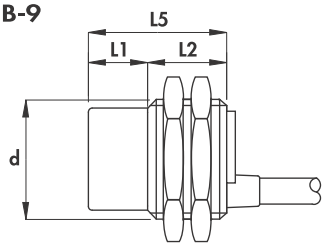
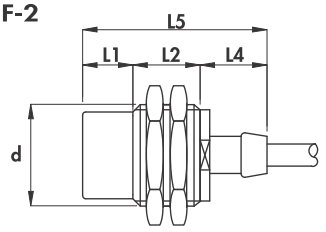
NAMUR SERIES - diameters 4 - 5 - 6,5 - 8 -12 mm •
Non amplified in d.c. 2-wire •
Cable output •

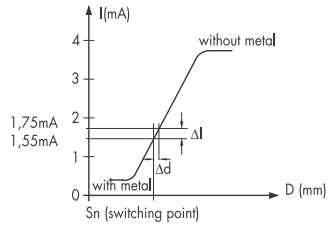
Housing B-9

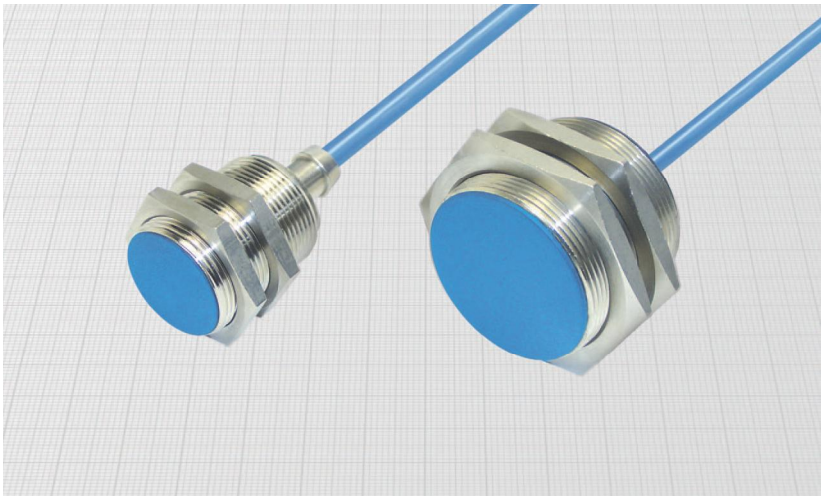


Housing F-2



Typical curve





Diameter		M28 x 1,5	M30 x 1,5	M35 x 1,5	M45 x 1,5
Nut	Size	SW32	SW36	SW41	SW55
	Thickness mm	4	5	5	5
Max tightening torque Nm		80	80	70	70

Materials:

- Cable: 2 m PVC CEI 20 - 22 II; 90°C; 300 V; O.R.
- Housing: nickel plated brass
- Sensing face: plastic

Technical data:

- Working voltage: 5 ÷ 30 Vdc
- Supply voltage according to NAMUR: 7,7 ÷ 9 Vdc
- Max ripple: 10%
- Consumption at 8,2 V with Rx = 1000 Ω
  - with metal: ≤ 1 mA
  - without metal: ≥ 3 mA
- Temperature range: - 25° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Degree of protection: IP67
- Cable conductor cross section: 0,50 mm²
- According to EN60947-5-6
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6
- For certified ATEX version see ATEX Catalogue

Housing	Flush mounting / Non flush mounting	L1	L2	L3	L4	L5	Cable diameter	Body diameter (d)	Max switching frequency (f)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES
		mm	mm	mm	mm	mm	mm	mm	KHz	mm	
B-9	•	-	35	-	-	35	6	M28 x 1,5	0,3	10	**DC28/4700**
B-9	•	10	25	-	-	35	6	M28 x 1,5	0,2	15	**DC28/5700**
B-9	•	-	35	-	-	35	6	M30 x 1,5	0,3	10	**DC30/4600**
F-2	•	-	35	-	20	55	6	M30 x 1,5	0,3	10	**DC30/4700**
B-9	•	15	20	-	-	35	6	M30 x 1,5	0,2	15	**DC30/5600**
F-2	•	15	20	-	20	55	6	M30 x 1,5	0,2	15	**DC30/5700**
B-9	•	-	35	-	-	35	6	M35 x 1,5	0,3	15	**DC35/4700**
B-9	•	-	35	-	-	35	6	M45 x 1,5	0,3	20	**DC45/4700**

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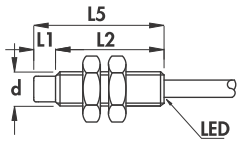
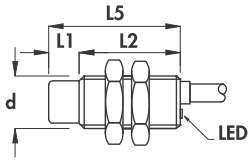
• NAMUR SERIES with LED
• Non amplified in d.c. 2-wire
• Cable output

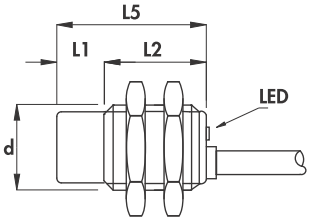
Housing B



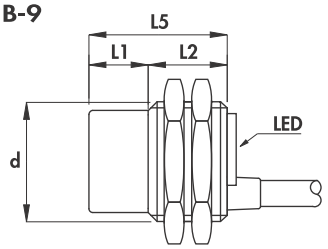
Housing B-4



Housing B-5



Housing B-9



Diameter		M8 x 1	M12 x 1	M18 x 1	M30 x 1,5
Nut	Size	SW13	SW17	SW24	SW36
	Thickness mm	4	4	4	5
Max tightening torque Nm		10	15	35	80

Materials:

- Cable: 2 m PVC CEI 20 - 22 II; 90°C; 300 V; O.R.
- Housing 8 mm: stainless steel
- Housing 12 - 18 - 30 mm: nickel plated brass
- Sensing face: plastic

General Features:

With this new series of sensors it's possible to drive specific inputs for NAMUR sensors or inputs for 2-wire amplified switches with low current (up to 10 mA). The output is internally triggered and monitored by LED. The load can be applied on both terminals (function PNP or NPN).

Technical data:

- Working voltage: 7,7 ÷ 30 Vdc
- Max ripple: 10%
- Off-state current (I_r): <1 mA
- Minimum operational current (I_m): 2 mA
- Rated operational current (I_e): 10 mA
- Voltage drop (U_d) with load 10 mA: < 6,5 V
- Voltage drop (U_d) with load 8 mA: < 5 V
- Temperature range: - 25° ÷ +70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Cable conductor cross section: 0,35 mm² on 8 and 12 mm; 0,75 mm² on 18 and 30 mm
- Protected against short-circuit and overload (8 mm not included)
- Protected against any wrong connection
- According to EN60947-5-6
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6
- For certified ATEX version see ATEX Catalogue

Use according to NAMUR:

- Supply voltage: 7,7 ÷ 9 Vdc
- Consumption at 8,2 V with Rx = 1000 Ω — with metal: ≤ 1 mA; without metal: ≥ 3 mA

Housing	Flush mounting / Non flush mounting	L1	L2	L3	L4	L5	Cable diameter	Body diameter (d)	Max switching frequency (f)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES NO	ORDERING REFERENCES NC
		mm	mm	mm	mm	mm	mm	mm	KHz	mm		
B	•	-	30	-	-	30	4	M8 x 1	3	1,5	**DC8/4600S**	**DC8/4610S**
B	•	5	25	-	-	30	4	M8 x 1	2	2,5	**DC8/5600S**	**DC8/5610S**
B-4	•	-	30	-	-	30	4	M12 x 1	2	2	**DC12/4600KS**	**DC12/4610KS**
B-4	•	7	23	-	-	30	4	M12 x 1	1	4	**DC12/5600KS**	**DC12/5610KS**
B-5	•	-	30	-	-	30	5	M18 x 1	0,8	5	**DC18/4600KS**	**DC18/4610KS**
B-5	•	10	20	-	-	30	5	M18 x 1	0,6	8	**DC18/5600KS**	**DC18/5610KS**
B-9	•	-	35	-	-	35	5	M30 x 1,5	0,8	10	**DC30/4600KS**	**DC30/4610KS**
B-9	•	15	20	-	-	35	5	M30 x 1,5	0,4	15	**DC30/5600KS**	**DC30/5610KS**

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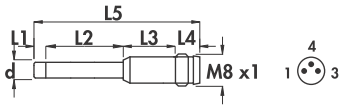
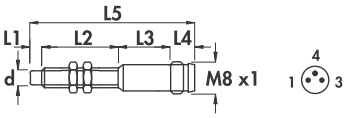
NAMUR SERIES •
Non amplified in d.c. •
Connector output M8 x 1 •

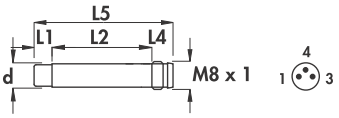
Housing I-3



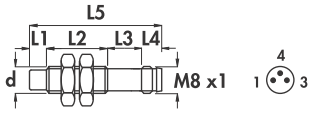
Housing I-4



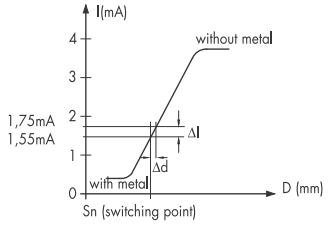
Housing I-8



Housing I-6



Typical curve



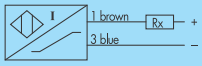
Diameter		M5 x 0,5	M8 x 1
Nut	Size	SW7	SW13
	Thickness mm	2,5	4
Max tightening torque Nm		2	10

Materials:

- Housing: stainless steel
- Sensing face: plastic

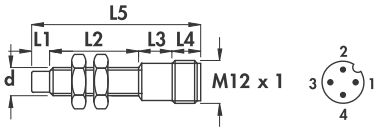
Technical data:

- Working voltage: 5 ÷ 30 Vdc
- Supply voltage according to NAMUR: 7,7 ÷ 9 Vdc
- Max ripple: 10%
- Consumption at 8,2 V with Rx = 1000 Ω
  - with metal: ≤ 1 mA
  - without metal: ≥ 3 mA
- Temperature range: - 25° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Degree of protection: IP67
- According to EN60947-5-6
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

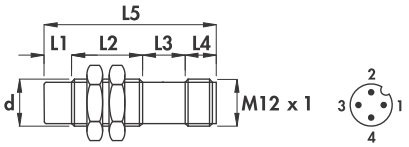
Housing	Flush mounting / Non flush mounting	L1	L2	L3	L4	L5	Female connector	Body diameter (d)	Max switching frequency (f)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES
		mm	mm	mm	mm	mm	n°	mm	KHz	mm	
I-3	•	-	22	12	5,5	39,5	11-12	4	5	0,8	**DC4/4900L**
I-4	•	-	22	12	5,5	39,5	11-12	M5 x 0,5	5	0,8	**DC5/4900**
I-8	•	-	29,5	-	5,5	35	11-12	6,5	4	1,5	**DC6,5/4900L**
I-8	•	5	24,5	-	5,5	35	11-12	6,5	3	2,5	**DC6,5/5900L**
I-6	•	-	21	8,5	5,5	35	11-12	M8 x 1	4	1,5	**DC8/4900**
I-6	•	5	16	8,5	5,5	35	11-12	M8 x 1	3	2,5	**DC8/5900**

• NAMUR SERIES
• Non amplified in d.c.
• Connector output M12 x 1

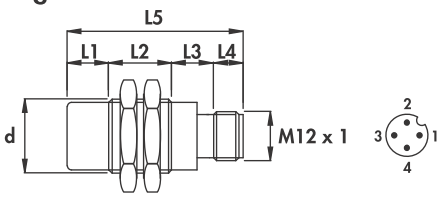
Housing I



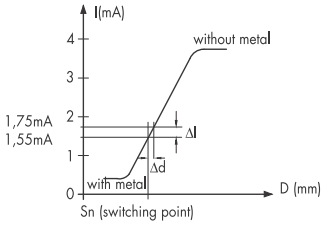
Housing I-9



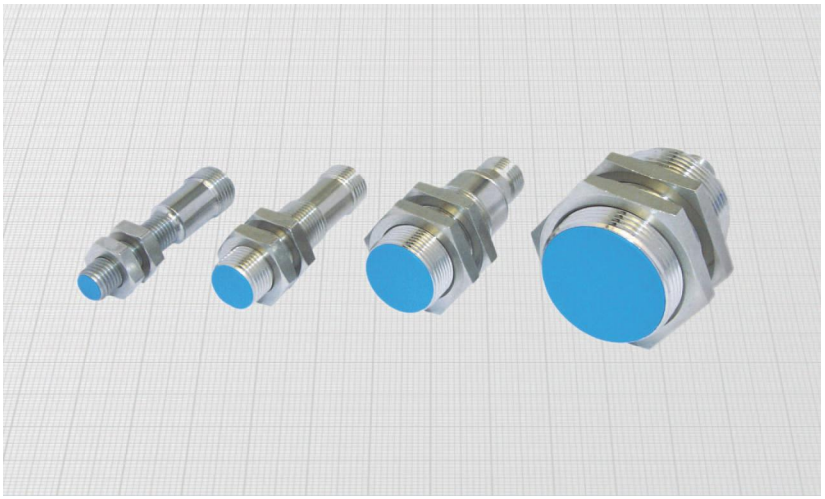
Housing I-1



Typical curve



Diameter		M8 x 1	M12 x 1	M18 x 1	M30 x 1,5
Nut	Size	SW13	SW17	SW24	SW36
	Thickness mm	4	4	4	5
Max tightening torque Nm		10	15	35	80

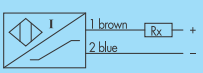


Materials:

- Housing 8 mm: stainless steel
- Housing 12 - 18 - 30 mm: nickel plated brass
- Sensing face: plastic

Technical data:

- Working voltage: 5 ÷ 30 Vdc
- Supply voltage according to NAMUR: 7,7 ÷ 9 Vdc
- Max ripple: 10%
- Consumption at 8,2 V with Rx = 1000 Ω
  - with metal: ≤ 1 mA
  - without metal: ≥ 3 mA
- Temperature range: - 25° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Degree of protection: IP67
- According to EN60947-5-6
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6
- For certified ATEX version see ATEX Catalogue

Housing	Flush mounting / Non flush mounting	L1	L2	L3	L4	L5	Female connector	Body diameter (d)	Max switching frequency (f)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES
		mm	mm	mm	mm	mm	n°	mm	KHz	mm	
I	•	-	26	13	8	47	6 - 8B - 10	M8 x 1	4	1,5	**DC8/4300**
I	•	5	21	13	8	47	6 - 8B - 10	M8 x 1	3	2,5	**DC8/5300**
I-9	•	-	30	10	8	48	6 - 8B - 10	M12 x 1	2	2	**DC12/4300**
I-9	•	7	23	10	8	48	6 - 8B - 10	M12 x 1	1	4	**DC12/5300**
I-1	•	-	25	15	8	48	6 - 8B - 10	M18 x 1	0,8	5	**DC18/4300**
I-1	•	10	15	15	8	48	6 - 8B - 10	M18 x 1	0,6	8	**DC18/5300**
I-1	•	-	25	17	8	50	6 - 8B - 10	M30 x 1,5	0,8	10	**DC30/4300**
I-1	•	15	25	17	8	65	6 - 8B - 10	M30 x 1,5	0,4	15	**DC30/5300**

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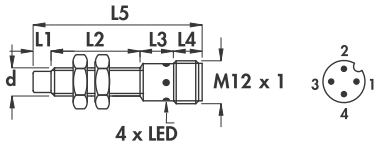
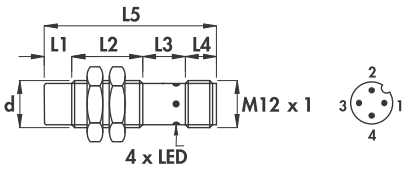
NAMUR SERIES with LED •
Non amplified in d.c. •
Connector output M12 x 1 •

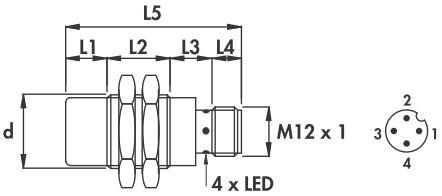
Housing I



Housing I-9



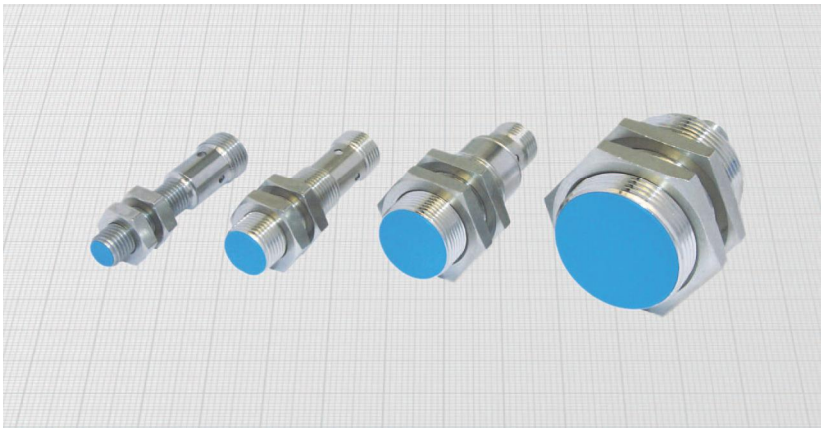
Housing I-1



Diameter		M8 x 1	M12 x 1	M18 x 1	M30 x 1,5
Nut	Size	SW13	SW17	SW24	SW36
	Thickness mm	4	4	4	5
Max tightening torque Nm		10	15	35	80

Materials:

- Housing 8 mm: stainless steel
- Housing 12 - 18 - 30 mm: nickel plated brass
- Sensing face: plastic



General Features:

With this new series of sensors it's possible to drive specific inputs for NAMUR sensors or inputs for 2-wire amplified switches with low current (up to 10 mA). The load can be applied on both terminals (function PNP or NPN).
Thanks to LED monitoring and to the internally triggered output, direct use is allowed with PLC and other electronic inputs optimizing in this way the wiring and the reliability of the entire system.

Technical data:

- Working voltage: 7,7 ÷ 30 Vdc
- Max ripple: 10%
- Off-state current (I_r): < 1 mA
- Minimum operational current (I_m): 2 mA
- Rated operational current (I_e): 10 mA
- Voltage drop (U_d) with load 10 mA: < 6,5 V
- Voltage drop (U_d) with load 8 mA: < 5 V
- Temperature range: - 25° ÷ +70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Protected against short-circuit and overload (8 mm not included)
- Protected against any wrong connection
- According to EN60947-5-6
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

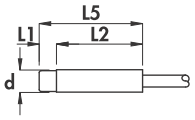
Use according to NAMUR:

- Supply voltage: 7,7 ÷ 9 Vdc
- Consumption at 8,2 V with Rx = 1000 Ω
  - with metal: ≤ 1 mA
  - without metal: ≥ 3 mA
- For certified ATEX version see ATEX Catalogue

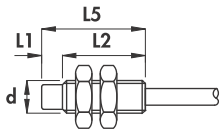
Housing	Flush mounting / Non flush mounting	L1	L2	L3	L4	L5	Female connector	Body diameter (d)	Max switching frequency (f)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES NO	ORDERING REFERENCES NC
		mm	mm	mm	mm	mm	n°	mm	KHz	mm		
I	•	-	26	13	8	47	6 - 8B - 10	M8 x 1	3	1,5	**DC8/4300S**	**DC8/4310S**
I	•	5	21	13	8	47	6 - 8B - 10	M8 x 1	2	2,5	**DC8/5300S**	**DC8/5310S**
I-9	•	-	30	10	8	48	6 - 8B - 10	M12 x 1	2	2	**DC12/4300KS**	**DC12/4310KS**
I-9	•	7	23	10	8	48	6 - 8B - 10	M12 x 1	1	4	**DC12/5300KS**	**DC12/5310KS**
I-1	•	-	25	16	8	49	6 - 8B - 10	M18 x 1	0,8	5	**DC18/4300KS**	**DC18/4310KS**
I-1	•	10	15	16	8	49	6 - 8B - 10	M18 x 1	0,6	8	**DC18/5300KS**	**DC18/5310KS**
I-1	•	-	25	17	8	50	6 - 8B - 10	M30 x 1,5	0,8	10	**DC30/4300KS**	**DC30/4310KS**
I-1	•	15	25	17	8	65	6 - 8B - 10	M30 x 1,5	0,4	15	**DC30/5300KS**	**DC30/5310KS**

• NAMUR SERIES - for high temperatures (-25° ÷ +110°C)
• Non amplified in d.c. 2-wire
• Cable output

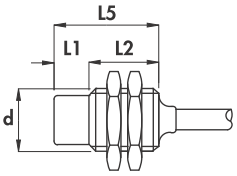
Housing A



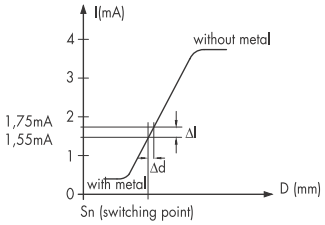
Housing B



Housing B-1



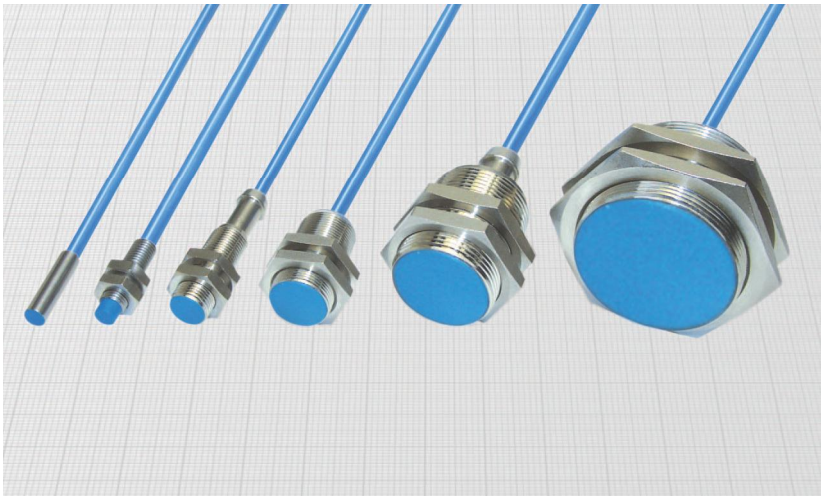
Typical curve



Diameter		M8 x 1	M12 x 1	M18 x 1	M30 x 1,5	M45 x 1,5
Nut	Size	SW13	SW17	SW24	SW36	SW55
	Thickness mm	4	4	4	5	5
Max tightening torque Nm		10	15	35	80	70

Materials:

- Cable: 2 m thermoplastic 140°C; 300 V; O.R.
- Housing 6,5 - 8 mm: stainless steel
- Housing 12 ÷ 45 mm: nickel plated brass
- Sensing face: plastic



Technical data:

- Working voltage: 5 ÷ 30 Vdc
- Supply voltage according to NAMUR: 7,7 ÷ 9 Vdc
- Max ripple: 10%
- Consumption at 8,2 V with Rx = 1000 Ω
  - with metal: ≤ 1 mA
  - without metal: ≥ 3 mA
- Temperature range: - 25° ÷ +110°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Degree of protection: IP67
- Cable conductor cross section: 0,35 mm² on 6,5 ÷12 mm
  0,50 mm² on 18 ÷ 45 mm
- According to EN60947-5-6
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6
- For certified ATEX version see ATEX Catalogue

Housing	Flush mounting Non flush mounting	L1	L2	L3	L4	L5	Cable diameter	Body diameter (d)	Max switching frequency (f)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES
		mm	mm	mm	mm	mm	mm	mm	KHz	mm	
A	•	-	25	-	-	25	4	6,5	5	1,5	**DC6,5/4600LT**
B	•	-	25	-	-	25	4	M8 x 1	5	1,5	**DC8/4600T**
B	•	-	30	-	-	30	4	M12 x 1	5	2	**DC12/4600T**
B - 1	•	-	30	-	-	30	5	M18 x 1	1	5	**DC18/4600T**
B - 1	•	-	35	-	-	35	6	M30 x 1,5	0,3	10	**DC30/4600T**
B - 1	•	-	35	-	-	35	6	M45 x 1,5	0,3	20	**DC45/4600T**

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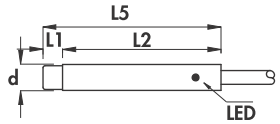
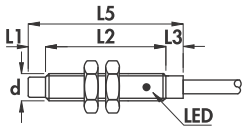
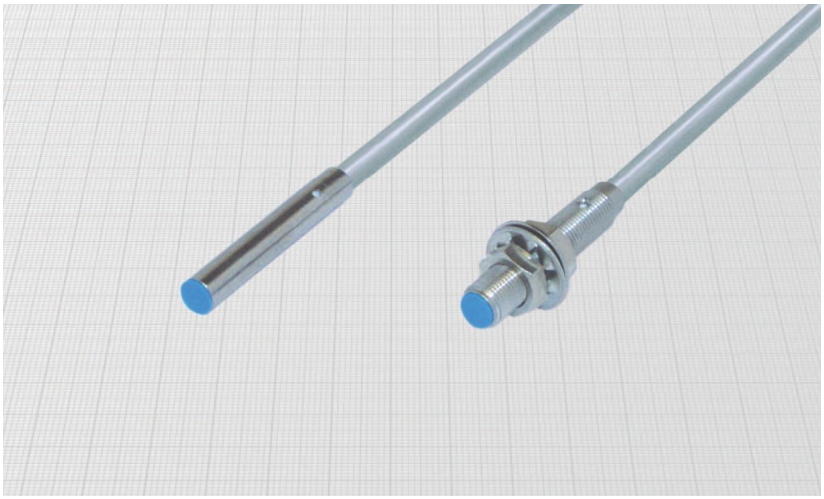
Diameters 4 - 5 mm •
Amplified in d.c. 3-wire •
Cable output •

Housing A-3



Housing B-6





Diameter		M5 x 0,5
Nut	Size	SW7
	Thickness mm	2,5
Max tightening torque Nm		2

Materials:

- Cable: 2 m PVC CEI 20 - 22 II; 90°C; 300 V; O.R.
- Housing: stainless steel
- Sensing face: plastic

Technical data:

- Supply voltage (U_B): 7 ÷ 30 Vdc
- Max ripple: 10%
- No-load supply current (I_o): ≤ 10 mA
- Voltage drop (U_d): ≤ 1,5 V
- Temperature range: - 25° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Cable conductor cross section: 0,15 mm²
- Protected against short-circuit and overload (versions with letter K)
- Protected against any wrong connection
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

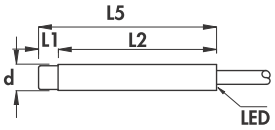
Housing	Flush mounting / Non flush mounting	L1	L2	L3	L5	Cable diameter	Body diameter (d)	Max switching frequency (f)	Rated operational current (I_e)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES PNP (positive switching) NO	ORDERING REFERENCES PNP (positive switching) NC
		mm	mm	mm	mm	mm	mm	KHz	mA	mm		
A - 3	•	-	25	-	25	3	4	5	200	1	**DCA4/4609LKS**	**DCA4/4619LKS**
A - 3	•	3	22	-	25	3	4	5	200	1,4	**DCA4/5609LKS**	**DCA4/5619LKS**
B - 6	•	-	23	2	25	3	M5 x 0,5	5	200	1	**DCA5/4609KS**	**DCA5/4619KS**
B - 6	•	3	20	2	25	3	M5 x 0,5	5	200	1,4	**DCA5/5609KS**	**DCA5/5619KS**

NPN (negative switching)

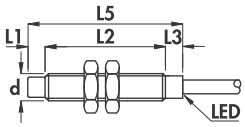
Use the above mentioned part number changing the last number 9 with 8 (ie. DCA4/4608LS)

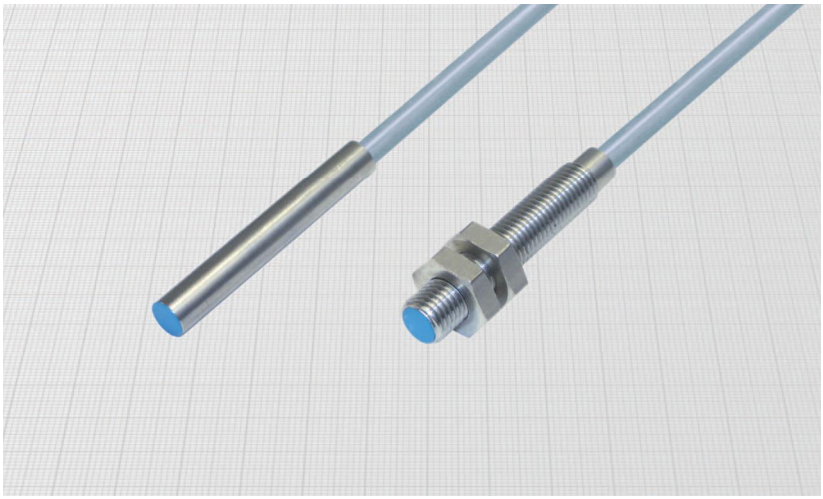
- **Diameters 6,5 - 8 mm**
- **Amplified in d.c. 3 and 4-wire**
- Cable output

Housing A-3



Housing B-6





Diameter		M8 x 1
Nut	Size	SW13
	Thickness mm	4
Max tightening torque Nm		10

Materials:

- Cable: 2 m PVC CEI 20 - 22 II; 90°C; 300 V; O.R.
- Housing: stainless steel
- Sensing face: plastic

Technical data:

- Supply voltage (U_B): 7 ÷ 30 Vdc
- Max ripple: 10%
- No-load supply current (I_o): ≤ 10 mA
- Voltage drop (U_d): ≤ 1,5 V
- Temperature range: - 25° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Cable conductor cross section: 0,15 mm² on 4-wire versions
  0,22 mm² on 3-wire versions

- Protected against short-circuit and overload
- Protected against any wrong connection
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting	Non flush mounting	L1	L2	L3	L5	Cable diameter	Body diameter (d)	Max switching frequency (f)	No-load supply current (I_o)	Nominal sensing distance (S_n) ±10%	ORDERING REFERENCES PNP (positive switching) NO	NC	NO + NC
			mm	mm	mm	mm	mm	mm	KHz	mA	mm			
A - 3	•		-	45	-	45	3,5	6,5	4	200	1,5	**DCA6,5/4609LKS**	**DCA6,5/4619LKS**	**DCA6,5/4629LKS**
A - 3		•	5	40	-	45	3,5	6,5	3	200	2,5	**DCA6,5/5609LKS**	**DCA6,5/5619LKS**	**DCA6,5/5629LKS**
A - 3	•		-	45	-	45	3,5	8	4	200	1,5	**DCA8/4609LKS**	**DCA8/4619LKS**	**DCA8/4629LKS**
B - 6	•		-	40	5	45	3,5	M8 x 1	4	200	1,5	**DCA8/4609KS**	**DCA8/4619KS**	**DCA8/4629KS**
A - 3		•	5	40	-	45	3,5	8	3	200	2,5	**DCA8/5609LKS**	**DCA8/5619LKS**	**DCA8/5629LKS**
B - 6		•	5	35	5	45	3,5	M8 x 1	3	200	2,5	**DCA8/5609KS**	**DCA8/5619KS**	**DCA8/5629KS**

NPN (negative switching)

Use the above mentioned part number changing the last number 9 with 8 (ie. DCA6,5/4608LKS)

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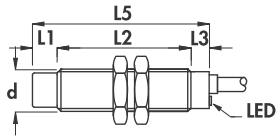
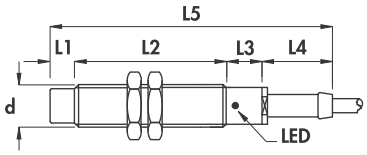
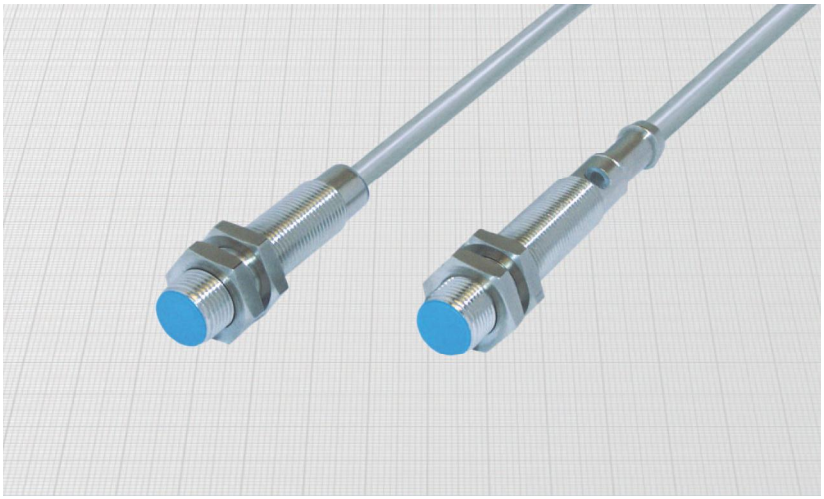
Diameters 12 mm •
Amplified in d.c. 3 and 4-wire •
Cable output •

Housing B-3



Housing D





Diameter		M12 x 1
Nut	Size	SW17
	Thickness mm	4
Max tightening torque Nm		15

Materials:

- Cable: 2 m PVC CEI 20 - 22 II; 90°C; 300 V; O.R.
- Housing: nickel plated brass
- Sensing face: plastic

Technical data:

- Supply voltage (U_B): 5 ÷ 40 Vdc
- Max ripple: 10%
- No-load supply current (I_o): ≤ 10 mA
- Voltage drop (U_d): ≤ 1,5 V
- Temperature range: - 25° ÷ + 75°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Cable conductor cross section: 0,35 mm² on 3-wire
  0,25 mm² on 4-wire

- Protected against short-circuit and overload
- Protected against any wrong connection
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting	Non flush mounting	L1	L2	L3	L4	L5	Cable diameter	Body diameter (d)	Max switching frequency (f)	Rated operational current (I_e)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES PNP (positive switching) NO	NC	NO + NC
			mm	mm	mm	mm	mm	mm	mm	KHz	mA	mm			
B - 3	•		-	43	7	-	50	4	M12 x 1	2	200	2	**DCA12/4609KS**	**DCA12/4619KS**	**DCA12/4629KS**
D	•		-	50	10	20	80	4	M12 x 1	2	200	2	**DCA12/4709KS**	**DCA12/4719KS**	**DCA12/4729KS**
B - 3		•	7	36	7	-	50	4	M12 x 1	1,5	200	4	**DCA12/5609KS**	**DCA12/5619KS**	**DCA12/5629KS**
D		•	7	43	10	20	80	4	M12 x 1	1,5	200	4	**DCA12/5709KS**	**DCA12/5719KS**	**DCA12/5729KS**

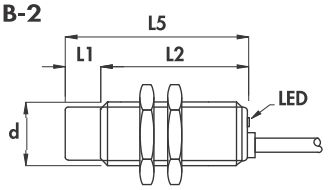
NPN (negative switching)

Use the above mentioned part number changing the last number 9 with 8 (ie DCA12/4608KS)

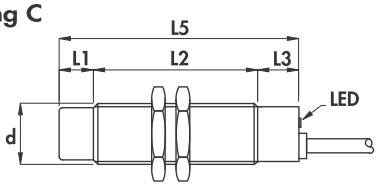
NO: brown, black, blue (+ / −)
NC: brown, black, blue (+ / −)
NO + NC: brown, black, white, blue (+ / −)

- **Diameters 18 mm**
- **Amplified in d.c. 3 and 4-wire**
- Cable output

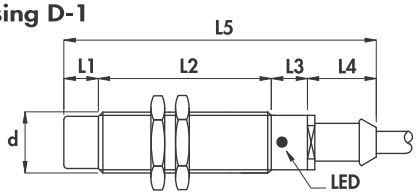
Housing B-2



Housing C



Housing D-1



Diameter		M18 x 1
Nut	Size	SW24
	Thickness mm	4
Max tightening torque Nm		35

Materials:

- Cable: 2 m PVC CEI 20 - 22 II; 90°C; 300 V; O.R.
- Housing: nickel plated brass
- Sensing face: plastic

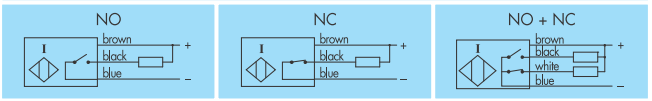
Technical data:

- Supply voltage (U_B): 5 ÷ 60 V
- Max ripple: 10%
- No-load supply current (I_o): ≤ 10 mA
- Voltage drop (U_d): ≤ 2,2 V
- Temperature range: - 25° ÷ + 75°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Cable conductor cross section: 0,50 mm²
- Protected against short-circuit and overload
- Protected against any wrong connection
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting / Non flush mounting	L1	L2	L3	L4	L5	Cable diameter	Body diameter (d)	Max switching frequency (f)	No-load supply current (I_e)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES PNP (positive switching) NO	NC	NO + NC
		mm	mm	mm	mm	mm	mm	mm	KHz	mA	mm			
B - 2	•	-	50	-	-	50	5	M18 x 1	1	400	5	**DCA18/4A09KS**	**DCA18/4A19KS**	**DCA18/4A29KS**
B - 2	•	10	40	-	-	50	5	M18 x 1	1	400	8	**DCA18/5A09KS**	**DCA18/5A19KS**	**DCA18/5A29KS**
C	•	-	58	12	-	70	5	M18 x 1	1	400	5	**DCA18/4609KS**	**DCA18/4619KS**	**DCA18/4629KS**
D - 1	•	-	60	12	20	92	6	M18 x 1	1	400	5	**DCA18/4709KS**	**DCA18/4719KS**	**DCA18/4729KS**
C	•	10	48	12	-	70	5	M18 x 1	1	400	8	**DCA18/5609KS**	**DCA18/5619KS**	**DCA18/5629KS**
D - 1	•	10	50	12	20	92	6	M18 x 1	1	400	8	**DCA18/5709KS**	**DCA18/5719KS**	**DCA18/5729KS**

NPN (negative switching)

Use the above mentioned part number changing the last number 9 with 8 (ie DCA18/4A08KS)



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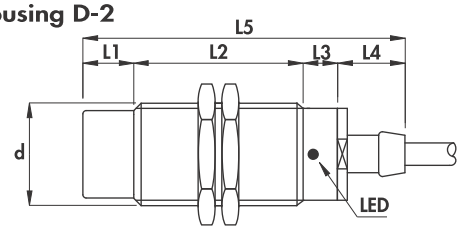
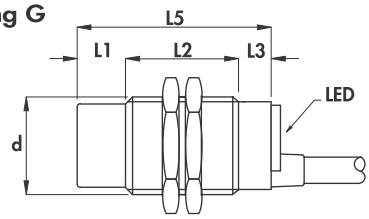
Diameters 30 - 45 mm •
Amplified in d.c. 3 and 4-wire •
Cable output •

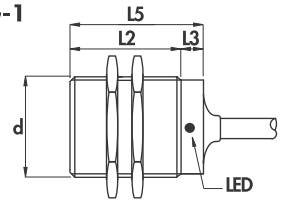
Housing D-2

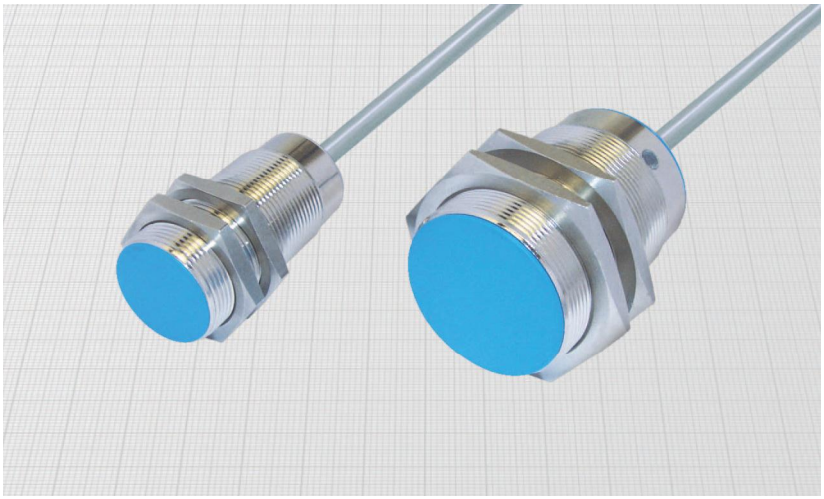


Housing G



Housing G-1





Diameter		M30 x 1,5	M45 x 1,5
Nut	Size	SW36	SW55
	Thickness mm	5	5
Max tightening torque Nm		80	70

Materials:

- Cable: 2 m PVC CEI 20 - 22 II; 90°C; 300 V; O.R.
- Housing: nickel plated brass
- Sensing face: plastic

Technical data:

- Supply voltage (U_B): 7 ÷ 60 Vdc
- Max ripple: 10%
- No-load supply current (I_o): ≤ 10 mA
- Voltage drop (U_d): ≤ 2,2 V
- Temperature range: - 25° ÷ + 75°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Cable conductor cross section: 0,50 mm²
- Protected against short-circuit and overload
- Protected against any wrong connection
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

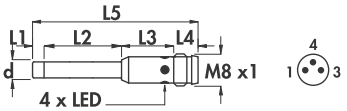
Housing	Flush mounting / Non flush mounting	L1	L2	L3	L4	L5	Cable diameter	Body diameter (d)	Max switching frequency (f)	No-load supply current (I_o)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES PNP (positive switching) NO	NC	NO + NC
		mm	mm	mm	mm	mm	mm	mm	KHz	mA	mm			
G	•	-	50	10	-	60	6	M30 x 1,5	0,8	400	10	**DCA30/4609KS**	**DCA30/4619KS**	**DCA30/4629KS**
D-2	•	-	65	10	20	95	6	M30 x 1,5	0,8	400	10	**DCA30/4709KS**	**DCA30/4719KS**	**DCA30/4729KS**
G	•	15	35	10	-	60	6	M30 x 1,5	0,4	400	15	**DCA30/5609KS**	**DCA30/5619KS**	**DCA30/5629KS**
D-2	•	15	50	10	20	95	6	M30 x 1,5	0,4	400	15	**DCA30/5709KS**	**DCA30/5719KS**	**DCA30/5729KS**
G-1	•	-	50	10		60	6	M45 x 1,5	0,15	400	20	**DCA45/4609KS**	**DCA45/4619KS**	**DCA45/4629KS**

NPN (negative switching)

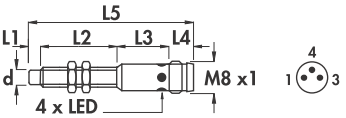
Use the above mentioned part number changing the last number 9 with 8 (ie DCA30/4608KS)

- **Diameters 4 - 5 - 6,5 - 8 mm**
- **Amplified in d.c.**
- Connector output M8 x 1

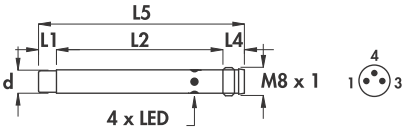
Housing I-3



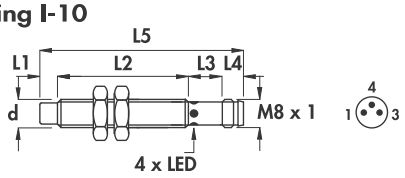
Housing I-4

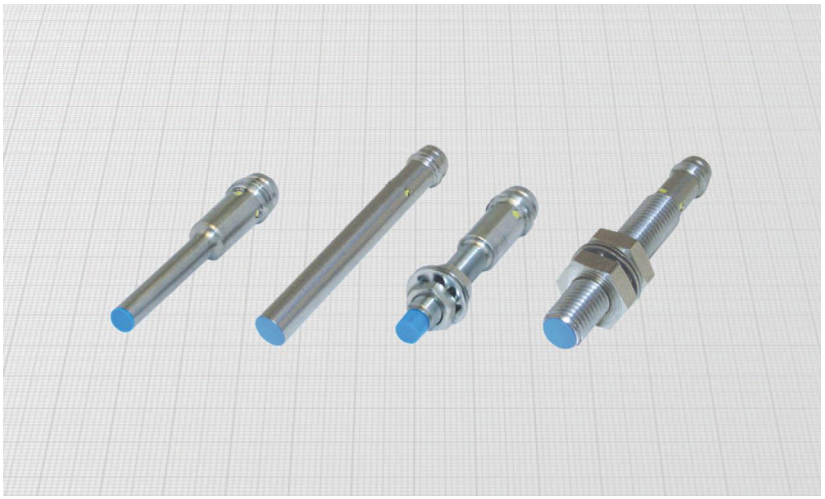


Housing I-5



Housing I-10





Diameter		M5x 0,5	M8 x 1
Nut	Size	SW7	SW13
	Thickness mm	2,5	4
Max tightening torque Nm		2	10

Materials:

- Housing: stainless steel
- Sensing face: plastic

Technical data:

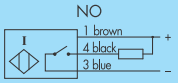
- Supply voltage (U_B): 7 ÷ 30 Vdc
- Max ripple: 10%
- No-load supply current (I_o): ≤ 10 mA
- Voltage drop (U_d): ≤ 1,5 V
- Temperature range: - 25° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Protected against short-circuit and overload
- Protected against any wrong connection
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting	Non flush mounting	L1	L2	L3	L4	L5	Female connector	Body diameter (d)	Max switching frequency (f)	Rated operational current (I_e)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES PNP (positive switching) NO	ORDERING REFERENCES PNP (positive switching) NC
			mm	mm	mm	mm	mm	n°	mm	KHz	mA	mm		
I-3	•		-	22	12	5,5	39,5	11-12	4	5	200	1	**DCA4/4909LKS**	**DCA4/4919LKS**
I-3		•	3	19	12	5,5	39,5	11-12	4	5	200	1,4	**DCA4/5909LKS**	**DCA4/5919LKS**
I-4	•		-	22	12	5,5	39,5	11-12	M5 x 0,5	5	200	1	**DCA5/4909KS**	**DCA5/4919KS**
I-4		•	3	19	12	5,5	39,5	11-12	M5 x 0,5	5	200	1,4	**DCA5/5909KS**	**DCA5/5919KS**
I-5	•		-	48,5	-	5,5	54	11-12	6,5	4	200	1,5	**DCA6,5/4909LKS**	**DCA6,5/4919LKS**
I-5		•	5	43,5	-	5,5	54	11-12	6,5	3	200	2,5	**DCA6,5/5909LKS**	**DCA6,5/5919LKS**
I-10	•		-	40	8,5	5,5	54	11-12	M8 x 1	4	200	1,5	**DCA8/4909KS**	**DCA8/4919KS**
I-10		•	5	35	8,5	5,5	54	11-12	M8 x 1	3	200	2,5	**DCA8/5909KS**	**DCA8/5919KS**

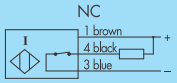
NPN (negative switching)

Use the above mentioned part number changing the last number 9 with 8 (ie. DCA4/4908LKS)

NO



NC



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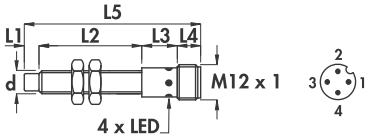
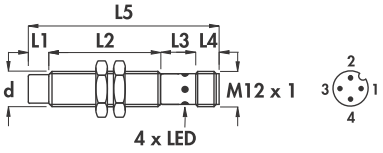
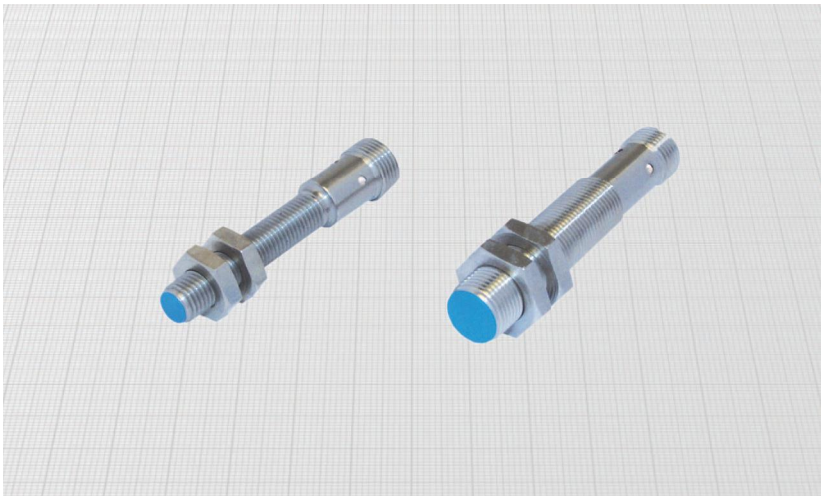
Diameters 8 - 12 mm •
Amplified in d.c. •
Connector output M12 x 1 •

Housing I-11



Housing I-7





Diameter		M8 x 1	M12 x 1
Nut	Size	SW13	SW17
	Thickness mm	4	4
Max tightening torque Nm		10	15

Materials:

- Housing diameter 8 mm: stainless steel
- Housing diameter 12 mm: nickel plated brass
- Sensing face: plastic

Technical data:

- Supply voltage (U_B): diameter 8 mm 7 ÷ 30 Vdc; diameter 12 mm 5 ÷ 40 Vdc
- Max ripple: 10%
- No-load supply current (I_o): ≤ 10 mA
- Voltage drop (U_d): ≤ 1,5 V
- Temperature range: - 25° ÷ + 75°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Protected against short-circuit and overload
- Protected against any wrong connection
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting Non flush mounting	L1	L2	L3	L4	L5	Female connector	Body diameter (d)	Max switching frequency (f)	Rated operational current (I_e)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES PNP (positive switching) NO	NC	NO + NC
		mm	mm	mm	mm	mm	n°	mm	KHz	mA	mm			
I-11	•	-	40	12	8	60	6 - 8B - 10	M8 x 1	4	200	1,5	**DCA8/4309KS**	**DCA8/43C9KS**	**DCA8/4329KS**
I-11	•	5	35	12	8	60	6 - 8B - 10	M8 x 1	3	200	2,5	**DCA8/5309KS**	**DCA8/53C9KS**	**DCA8/5329KS**
I-7	•	-	43	15	8	66	6 - 8B - 10	M12 x 1	2	200	2	**DCA12/4309KS**	**DCA12/43C9KS**	**DCA12/4329KS**
I-7	•	7	36	15	8	66	6 - 8B - 10	M12 x 1	1,5	200	4	**DCA12/5309KS**	**DCA12/53C9KS**	**DCA12/5329KS**

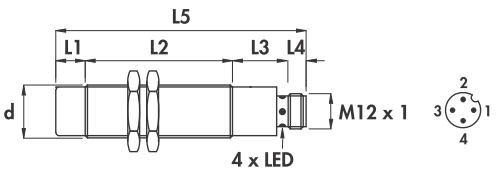
NPN (negative switching)

Use the above mentioned part number changing the last number 9 with 8 (ie DCA8/4308KS)

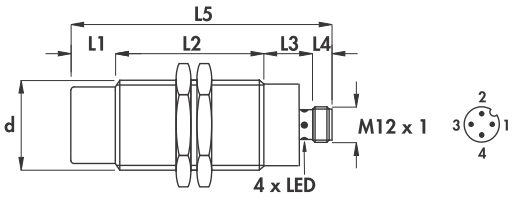
NO: 1 brown, 4 black, 3 blue — NC: 1 brown, 2 white, 3 blue — NO + NC: 1 brown, 4 black, 2 white, 3 blue

- **Diameters 18 - 30 - 45 mm**
- **Amplified in d.c.**
- Connector output M12 x 1

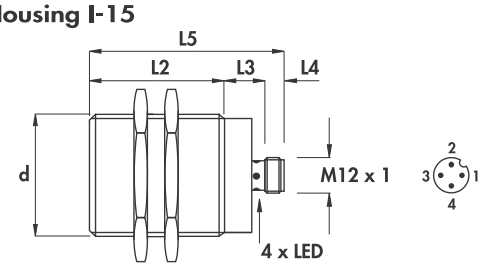
Housing I-12

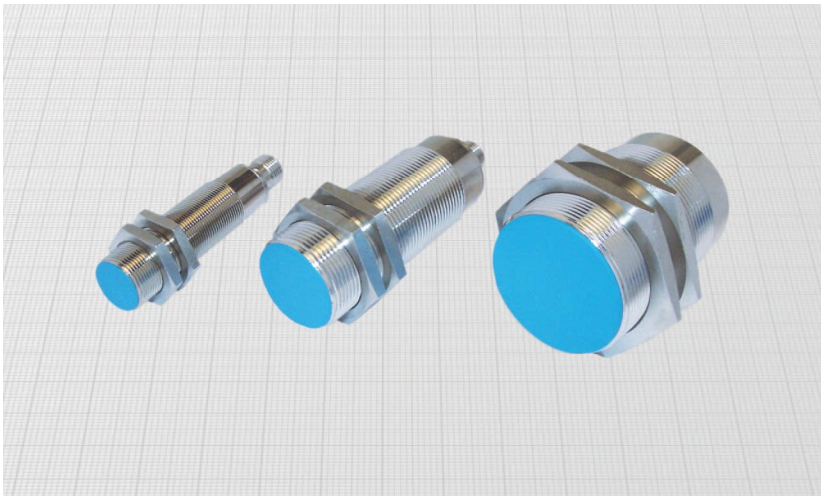


Housing I-2



Housing I-15





Diameter		M18 x 1	M30 x 1,5	M45 x 1,5
Nut	Size	SW24	SW36	SW55
	Thickness mm	4	5	5
Max tightening torque Nm		35	80	70

Materials:

- Housing: nickel plated brass
- Sensing face: plastic

Technical data:

- Supply voltage (U_B): diameter 18 mm 5 ÷ 60 Vdc; diameters 30 and 45 mm 7 ÷ 60 Vdc
- Max ripple: 10%
- No-load supply current (I_o): ≤ 10 mA
- Voltage drop (U_d): ≤ 2,2 V
- Temperature range: - 25° ÷ + 75°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Protected against short-circuit and overload
- Protected against any wrong connection
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting	Non flush mounting	L1	L2	L3	L4	L5	Female connector	Body diameter (d)	Max switching frequency (f)	Rated operational current (I_e)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES PNP (positive switching) NO	NC	NO + NC
			mm	mm	mm	mm	mm	n°	mm	KHz	mA	mm			
I-12	•		-	50	19	8	77	6-8B-10	M18 x 1	1	400	5	**DCA18/4309KS**	**DCA18/43C9KS**	**DCA18/4329KS**
I-12		•	10	50	19	8	87	6-8B-10	M18 x 1	1	400	8	**DCA18/5309KS**	**DCA18/53C9KS**	**DCA18/5329KS**
I-2	•		-	65	17	8	90	6-8B-10	M30 x 1,5	0,8	400	10	**DCA30/4309KS**	**DCA30/43C9KS**	**DCA30/4329KS**
I-2		•	15	50	17	8	90	6-8B-10	M30 x 1,5	0,4	400	15	**DCA30/5309KS**	**DCA30/53C9KS**	**DCA30/5329KS**
I-15	•		-	50	19	8	77	6-8B-10	M45 x 1,5	0,15	400	20	**DCA45/4309KS**	**DCA45/43C9KS**	**DCA45/4329KS**

NPN (negative switching)

Use the above mentioned part number changing the last number 9 with 8 (ie DCA18/4308KS)

NO NC NO + NC

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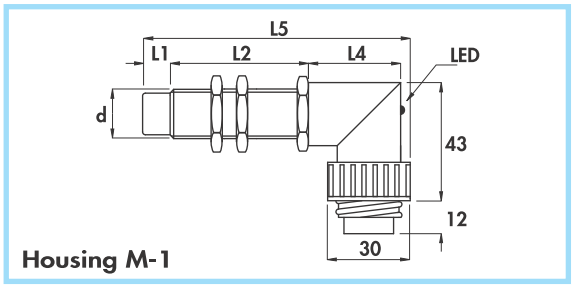
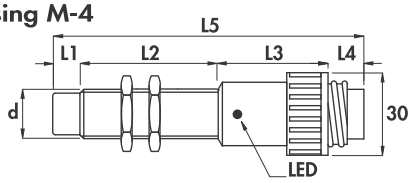
Diameter 18 mm •
Amplified in d.c. •
Connector output C1 - C2 •

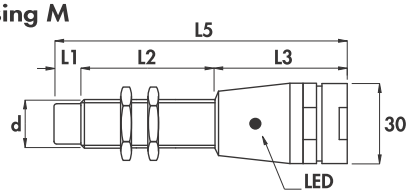


Housing M-1

Housing M-4

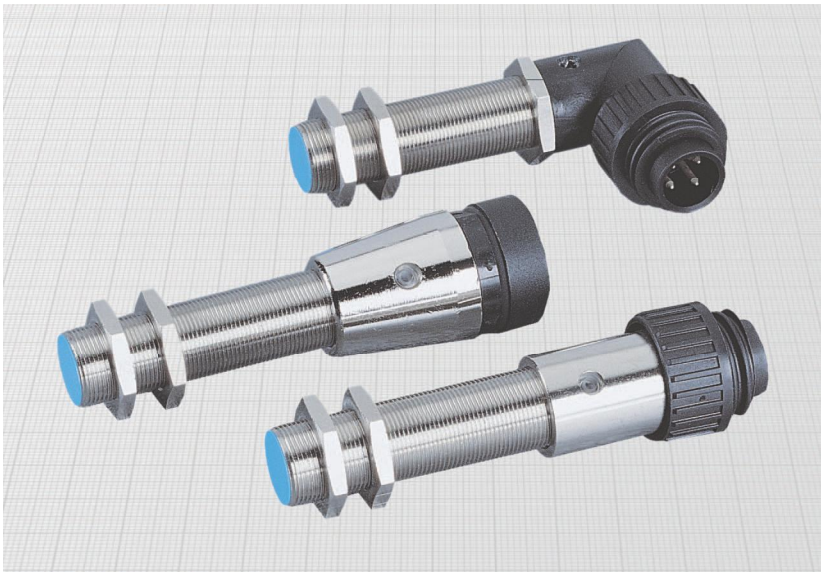


Housing M



Diameter		M18 x 1
Nut	Size	SW24
	Thickness mm	4
Max tightening torque Nm		35

Materials:
- Housing: nickel plated brass
- Sensing face and socket connerctor: plastic



Technical data:
- Supply voltage (U_B): 5 ÷ 60 Vdc
- Max ripple: 10%
- No-load supply current (I_o): ≤ 10 mA
- Voltage drop (U_d): ≤ 2,2 V
- Temperature range: - 25° ÷ + 75°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP65
- Switch status indicator: yellow LED
- Protected against short-circuit and overload
- Protected against any wrong connection
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting / Non flush mounting	L1	L2	L3	L4	L5	Female connector	Body diameter (d)	Max switching frequency (f)	Rated operational current (I_e)	Nominal sensing distance (S_n) ±10%	ORDERING REFERENCES PNP (positive switching) NO	PNP (positive switching) NC
		mm	mm	mm	mm	mm	n°	mm	KHz	mA	mm		
M - 1	•	-	60	-	33	96	1	M18 x 1	1	400	5	**DCA18/4209KS**	**DCA18/4219KS**
M - 4	•	-	60	40	13	113	1	M18 x 1	1	400	5	**DCA18/4409KS**	**DCA18/4419KS**
M - 1	•	10	50	-	33	96	1	M18 x 1	1	400	8	**DCA18/5209KS**	**DCA18/5219KS**
M - 4	•	10	50	40	13	113	1	M18 x 1	1	400	8	**DCA18/5409KS**	**DCA18/5419KS**

NPN (negative switching)
Use the above mentioned part number changing the last number 9 with 8 (ie DCA18/4208KS)

NO NC

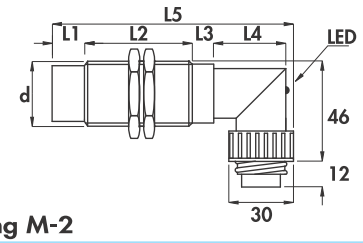
PNP (positive switching)

		mm	mm	mm	mm	mm	n°	mm	KHz	mA	mm	NO	NC	NO + NC
M	•	-	60	50	-	110	2	M18 x 1	1	400	5	**DCA18/4E09KS**	**DCA18/4E19KS**	**DCA18/4E29KS**
M	•	10	50	50	-	110	2	M18 x 1	1	400	8	**DCA18/5E09KS**	**DCA18/5E19KS**	**DCA18/5E29KS**

NPN (negative switching)
Use the above mentioned part number changing the last number 9 with 8 (ie DCA18/4E08KS)

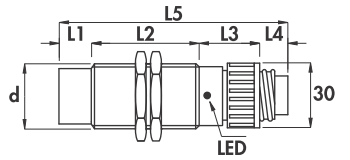
NO NC NO + NC

- **Diameter 30 mm**
- **Amplified in d.c.**
- Connector output C1 - C2

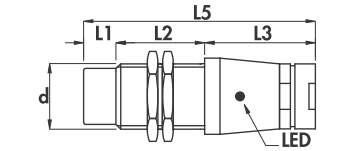


Housing M-2

Housing M-5



Housing M-6



Diameter		M30 x 1,5
Nut	Size	SW36
	Thickness mm	5
Max tightening torque Nm		80

Materials:

- Housing: nickel plated brass
- Sensing face and socket connerctor: plastic

Technical data:

- Supply voltage (U_B): 7 ÷ 60 Vdc
- Max ripple: 10%
- No-load supply current (I_o): ≤ 10 mA
- Voltage drop (U_d): ≤ 2,2 V
- Temperature range: - 25° ÷ + 75°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP65
- Switch status indicator: yellow LED
- Protected against short-circuit and overload
- Protected against any wrong connection
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting / Non flush mounting	L1	L2	L3	L4	L5	Female connector	Body diameter (d)	Max switching frequency (f)	No-load supply current (I_o)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES PNP (positive switching) NO	PNP (positive switching) NC
		mm	mm	mm	mm	mm	n°	mm	KHz	mA	mm		
M-2	•	-	65	10	40	115	1	M30 x 1,5	0,8	400	10	**DCA30/4209KS**	**DCA30/4219KS**
M-5	•	-	65	28	13	106	1	M30 x 1,5	0,8	400	10	**DCA30/4409KS**	**DCA30/4419KS**
M-2		•	15	50	10	40	115	1	M30 x 1,5	0,4	400	15	**DCA30/5209KS**	**DCA30/5219KS**
M-5		•	15	50	28	13	106	1	M30 x 1,5	0,4	400	15	**DCA30/5409KS**	**DCA30/5419KS**

NPN (negative switching)
Use the above mentioned part number changing the last number 9 with 8 (ie DCA30/4208KS)

NO NC

												PNP (positive switching) NO	NC	NO + NC
		mm	mm	mm	mm	mm	n°	mm	KHz	mA	mm			
M-6	•	-	56	51	-	107	2	M30 x 1,5	0,8	400	10	**DCA30/4E09KS**	**DCA30/4E19KS**	**DCA30/4E29KS**
M-6		•	15	41	51	-	107	2	M30 x 1,5	0,4	400	15	**DCA30/5E09KS**	**DCA30/5E19KS**	**DCA30/5E29KS**

NPN (negative switching)
Use the above mentioned part number changing the last number 9 with 8 (ie. DCA30/4E08KS)

NO NC NO + NC

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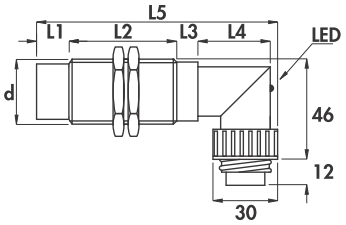
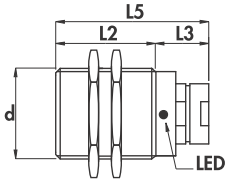
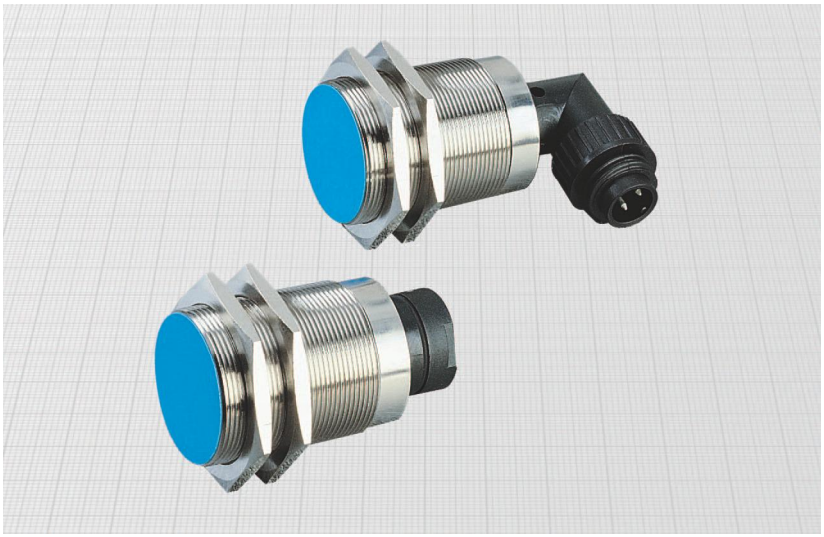
Diameter 45 mm •
Amplified in d.c. •
Connector output C1 - C2 •



Housing M-2

Housing M-3





Diameter		M45 x 1,5
Nut	Size	SW55
	Thickness mm	5
Max tightening torque Nm		70

Materials:

- Housing: nickel plated brass
- Sensing face and socket connerctor: plastic

Technical data:

- Supply voltage (U_B): 7 ÷ 60 Vdc
- Max ripple: 10%
- No-load supply current (I_o): ≤ 10 mA
- Voltage drop (U_d): ≤ 2,2 V
- Temperature range: - 25° ÷ + 75°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP65
- Switch status indicator: yellow LED
- Protected against short-circuit and overload
- Protected against any wrong connection
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting Non flush mounting	L1	L2	L3	L4	L5	Female connector	Body diameter (d)	Max switching frequency (f)	Rated operational current (I_e)	Nominal sensing distance (S_n) ±10%	ORDERING REFERENCES PNP (positive switching) NO	NC
		mm	mm	mm	mm	mm	n°	mm	KHz	mA	mm		
M - 2	•	-	50	10	42	102	1	M45 x 1,5	0,15	400	20	**DCA45/4209KS**	**DCA45/4219KS**

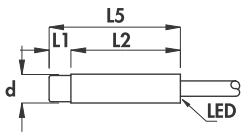
NPN (negative switching)
Use the above mentioned part number changing the last number 9 with 8 (ie DCA45/4208KS)

												PNP (positive switching) NO	NC	NO + NC
		mm	mm	mm	mm	mm	n°	mm	KHz	mA	mm			
M - 3	•	-	50	28	-	78	2	M45 x 1,5	0,15	400	20	**DCA45/4E09KS**	**DCA45/4E19KS**	**DCA45/4E29KS**

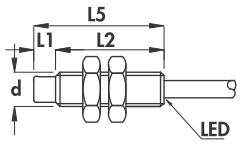
NPN (negative switching)
Use the above mentioned part number changing the last number 9 with 8 (ie DCA45/4E08KS)

• SHORT SERIES
• Amplified in d.c. 3-wire
• Cable output

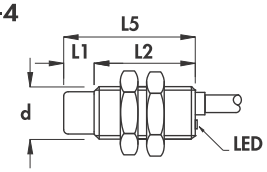
Housing A



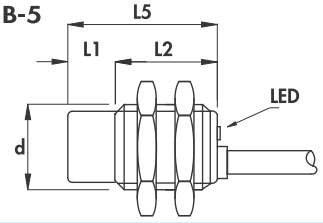
Housing B

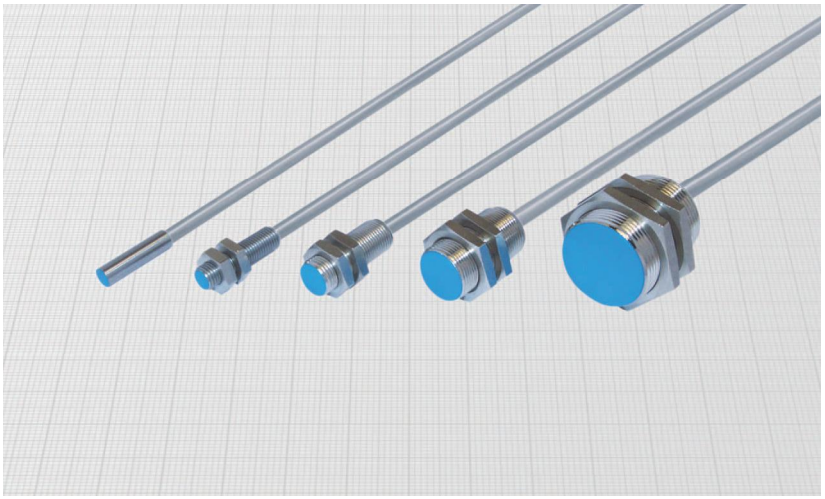


Housing B-4



Housing B-5





Diameter		M8 x 1	M12 x 1	M18 x 1	M30 x 1,5
Nut	Size	SW13	SW17	SW24	SW36
	Thickness mm	4	4	4	5
Max tightening torque Nm		10	15	35	80

Materials:

- Cable: 2 m PVC CEI 20 - 22 II; 90°C; 300 V; O.R.
- Housing 6,5 and 8 mm: stainless steel
- Housing 12 ÷ 30 mm: nickel plated brass
- Sensing face: plastic

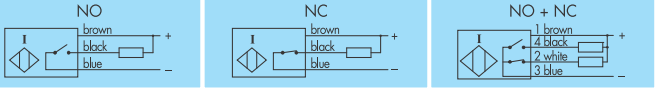
Technical data:

- Supply voltage (U_B): see ordering references
- Max ripple: 10%
- No-load supply current (I_o): ≤ 10 mA
- Voltage drop (U_d): ≤ 1,5 V
- Temperature range: - 25° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Cable conductor cross section: 0,22 mm² on 6,5 and 8 mm
  0,35 mm² on 12 mm
  0,50 mm² on 18 and 30 mm
- Protected against short-circuit and overload
- Protected against any wrong connection
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting	Non flush mounting	L1	L2	L5	Cable diameter	Body diameter (d)	Supply voltage (U_B)	Max switching frequency (f)	No-load supply current (I_e)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES PNP (positive switching) NO	NC	NO + NC
			mm	mm	mm	mm	mm	V (min - max)	KHz	mA	mm			
A	•		-	30	30	3,5	6,5	7 ÷ 30	4	200	1,5	**DSA6,5/4609LKS**	**DSA6,5/4619LKS**	-
A		•	5	25	30	3,5	6,5	7 ÷ 30	3	200	2,5	**DSA6,5/5609LKS**	**DSA6,5/5619LKS**	-
B	•		-	30	30	3,5	M8 x 1	7 ÷ 30	4	200	1,5	**DSA8/4609KS**	**DSA8/4619KS**	-
B		•	5	25	30	3,5	M8 x 1	7 ÷ 30	3	200	2,5	**DSA8/5609KS**	**DSA8/5619KS**	-
B - 4	•		-	30	30	4	M12 x 1	7 ÷ 40	2	200	2	**DSA12/4609KS**	**DSA12/4619KS**	**DSA12/4629KS**
B - 4		•	7	23	30	4	M12 x 1	7 ÷ 40	1,5	200	4	**DSA12/5609KS**	**DSA12/5619KS**	**DSA12/5629KS**
B - 5	•		-	30	30	5	M18 x 1	7 ÷ 40	0,8	200	5	**DSA18/4609KS**	**DSA18/4619KS**	**DSA18/4629KS**
B - 5		•	10	20	30	5	M18 x 1	7 ÷ 40	0,6	200	8	**DSA18/5609KS**	**DSA18/5619KS**	**DSA18/5629KS**
B - 5	•		-	35	35	6	M30 x 1,5	7 ÷ 40	0,8	200	10	**DSA30/4609KS**	**DSA30/4619KS**	**DSA30/4629KS**
B - 5		•	15	20	35	6	M30 x 1,5	7 ÷ 40	0,4	200	15	**DSA30/5609KS**	**DSA30/5619KS**	**DSA30/5629KS**

NPN (negative switching)

Use the above mentioned part number changing the last number 9 with 8 (ie. DSA6,5/4608LKS)



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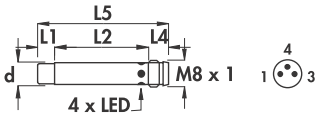
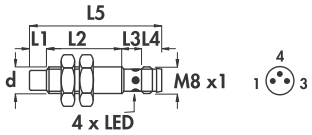
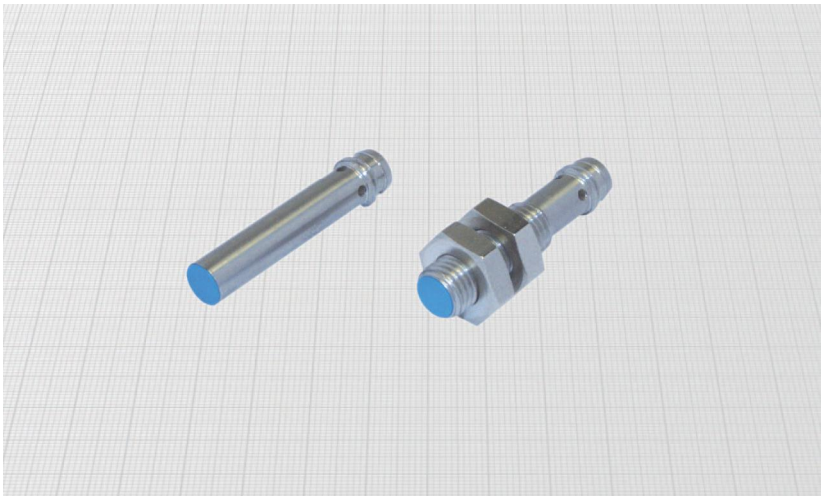
SHORT SERIES - diameters 6,5 - 8 mm •
Amplified in d.c. •
Connector output M8 x 1 •

Housing I-8



Housing I-6





Diameter		M8 x 1
Nut	Size	SW13
	Thickness mm	4
Max tightening torque Nm		10

Materials:

- Housing: stainless steel
- Sensing face: plastic

Technical data:

- Supply voltage (U_B): 7 ÷ 30 Vdc
- Max ripple: 10%
- No-load supply current (I_o): ≤ 10 mA
- Voltage drop (U_d): ≤ 1,5 V
- Temperature range: - 25° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Protected against short-circuit and overload
- Protected against any wrong connection
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

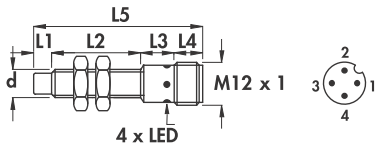
Housing	Flush mounting / Non flush mounting	L1	L2	L3	L4	L5	Female connector	Body diameter (d)	Max switching frequency (f)	Rated operational current (I_e)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES PNP (positive switching) NO	ORDERING REFERENCES PNP (positive switching) NC
		mm	mm	mm	mm	mm	n°	mm	KHz	mA	mm		
I-8	•	-	29,5	-	5,5	35	11 - 12	6,5	4	200	1,5	**DSA6,5/4909LKS**	**DSA6,5/4919LKS**
I-8	•	5	24,5	-	5,5	35	11 - 12	6,5	3	200	2,5	**DSA6,5/5909LKS**	**DSA6,5/5919LKS**
I-6	•	-	21	8,5	5,5	35	11 - 12	M8 x 1	4	200	1,5	**DSA8/4909KS**	**DSA8/4919KS**
I-6	•	5	16	8,5	5,5	35	11 - 12	M8 x 1	3	200	2,5	**DSA8/5909KS**	**DSA8/5919KS**

NPN (negative switching)

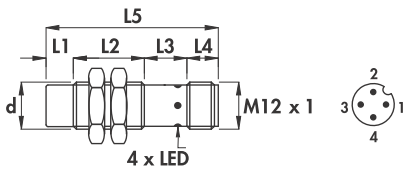
Use the above mentioned part number changing the last number 9 with 8 (ie. DCA45/4E08KS)

• SHORT SERIES - diameters 8 - 12 - 18 - 30 mm
• Amplified in d.c.
• Connector output M12 x 1

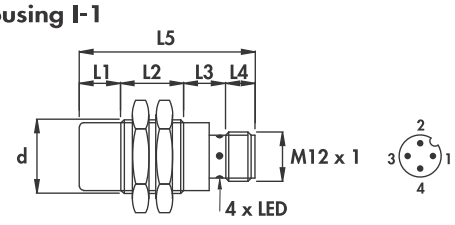
Housing I

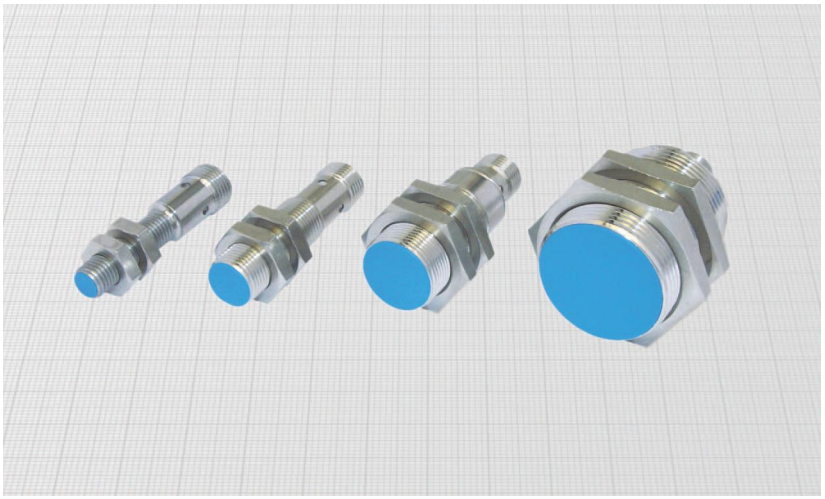


Housing I-9



Housing I-1





Diameter		M8 x 1	M12 x 1	M18 x 1	M30 x 1,5
Nut	Size	SW13	SW17	SW24	SW36
	Thickness mm	4	4	4	5
Max tightening torque Nm		10	15	35	80

Materials:

- Housing 8 mm: stainless steel
- Housing 12 ÷ 30 mm: nickel plated brass
- Sensing face: plastic

Technical data:

- Supply voltage (U_B): see ordering references
- Max ripple: 10%
- No-load supply current (I_o): ≤ 10 mA
- Rated operational current (I_e): ≤ 200 mA
- Voltage drop (U_d): ≤ 1,5 V
- Temperature range: - 25° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Protected against short-circuit and overload
- Protected against any wrong connection
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting	Non flush mounting	L1	L2	L3	L4	L5	Female connector	Body diameter (d)	Supply voltage (U_B)	Max switching frequency (f)	Nominal sensing distance (S_n) ±10%	ORDERING REFERENCES PNP (positive switching) NO	NC	NO + NC
			mm	mm	mm	mm	mm	n°	mm	V (min - max)	KHz	mm			
I	•		-	26	13	8	47	6 - 8B - 10	M8 x 1	7 ÷ 30	4	1,5	**DSA8/4309KS**	**DSA8/43C9KS**	-
I		•	5	21	13	8	47	6 - 8B - 10	M8 x 1	7 ÷ 30	3	2,5	**DSA8/5309KS**	**DSA8/53C9KS**	-
I - 9	•		-	30	10	8	48	6 - 8B - 10	M12 x 1	7 ÷ 40	2	2	**DSA12/4309KS**	**DSA12/43C9KS**	**DSA12/4329KS**
I - 9		•	7	23	10	8	48	6 - 8B - 10	M12 x 1	7 ÷ 40	1	4	**DSA12/5309KS**	**DSA12/53C9KS**	**DSA12/5329KS**
I - 1	•		-	25	16	8	49	6 - 8B - 10	M18 x 1	7 ÷ 40	0,8	5	**DSA18/4309KS**	**DSA18/43C9KS**	**DSA18/4329KS**
I - 1		•	10	15	16	8	49	6 - 8B - 10	M18 x 1	7 ÷ 40	0,6	8	**DSA18/5309KS**	**DSA18/53C9KS**	**DSA18/5329KS**
I - 1	•		-	25	17	8	50	6 - 8B - 10	M30 x 1,5	7 ÷ 40	0,8	10	**DSA30/4309KS**	**DSA30/43C9KS**	**DSA30/4329KS**
I - 1		•	15	25	17	8	65	6 - 8B - 10	M30 x 1,5	7 ÷ 40	0,4	15	**DSA30/5309KS**	**DSA30/53C9KS**	**DSA30/5329KS**

NPN (negative switching)

Use the above mentioned part number changing the last number 9 with 8 (ie. DSA8/4308KS)

NO: 1 brown, 4 black, 3 blue — NC: 1 brown, 2 white, 3 blue — NO + NC: 1 brown, 4 black, 2 white, 3 blue

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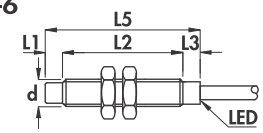
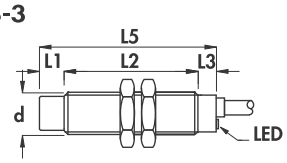
Extended sensing distance - diameters 8 - 12 mm •
Amplified in d.c. 3-wire •
Cable output •

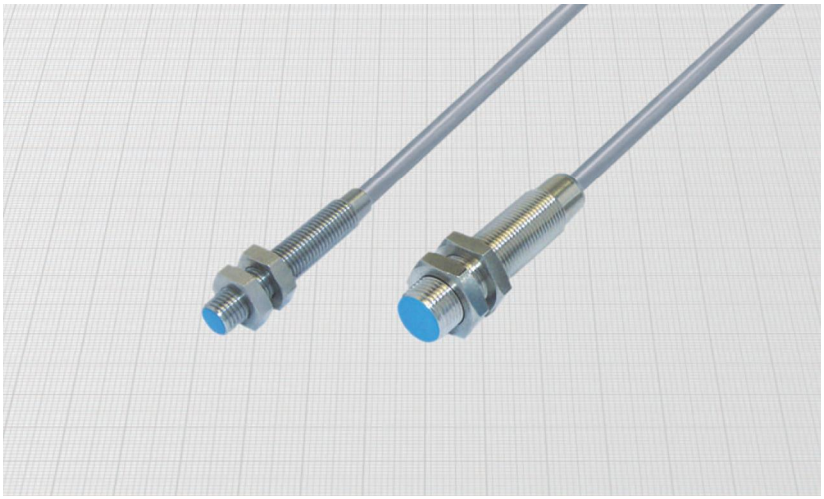
Housing B-6



Housing B-3



Diameter		M8 x 1	M12 x 1
Nut	Size	SW13	SW17
	Thkns mm	4	4
Max tightening torque Nm		10	15



Materials:

- Cable: 2 m PVC CEI 20 - 22 II; 90°C; 300 V; O.R.
- Housing 8 mm: stainless steel
- Housing 12 mm: nickel plated brass
- Sensing face: plastic

Technical data:

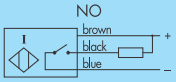
- Supply voltage (U_B): see ordering references
- Max ripple: 10%
- No-load supply current (I_o): ≤ 10 mA
- Voltage drop (U_d): ≤ 1,5 V
- Temperature range: - 20° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 4%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Cable conductor cross section: 0,22 mm² on 8 mm
  0,35 mm² on 12 mm
- Protected against short-circuit and overload
- Protected against any wrong connection
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting (*)	Non flush mounting	L1	L2	L3	L4	L5	Cable diameter	Body diameter (d)	Supply voltage (U_B)	Max switching frequency (f)	Rated operational current (I_e)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES PNP (positive switching) NO	ORDERING REFERENCES PNP (positive switching) NC
			mm	mm	mm	mm	mm	mm	mm	V (min - max)	Hz	mA	mm		
B - 6	•		-	40	5	-	45	3,5	M8 x 1	7÷30	800	200	2	**DCAE8/4609KS**	**DCAE8/4619KS**
B - 6	•		-	40	5	-	45	3,5	M8 x 1	7÷30	800	200	3	**DCE8/4609KS**	**DCE8/4619KS**
B - 6		•	5	35	5	-	45	3,5	M8 x 1	7÷30	400	200	4	**DCE8/5609KS**	**DCE8/5619KS**
B - 3	•		-	43	7	-	50	4	M12 x 1	7÷40	800	200	3	**DCAE12/4609KS**	**DCAE12/4619KS**
B - 3	•		-	43	7	-	50	4	M12 x 1	7÷40	800	200	4	**DCE12/4609KS**	**DCE12/4619KS**
B - 3		•	7	36	7	-	50	4	M12 x 1	7÷40	600	200	5	**DCAE12/5609KS**	**DCAE12/5619KS**
B - 3		•	7	36	7	-	50	4	M12 x 1	7÷40	600	200	6	**DCE12/5609KS**	**DCE12/5619KS**

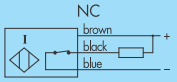
(*) Note: See mounting precautions (pag. 22)

NPN (negative switching)
Use the above mentioned part number changing the last number 9 with 8 (ie. DCE8/4608KS)

NO

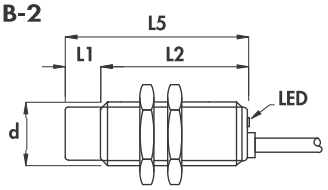


NC

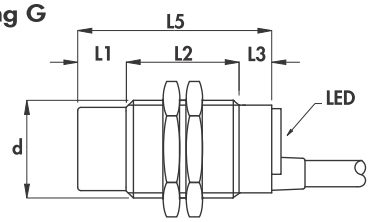


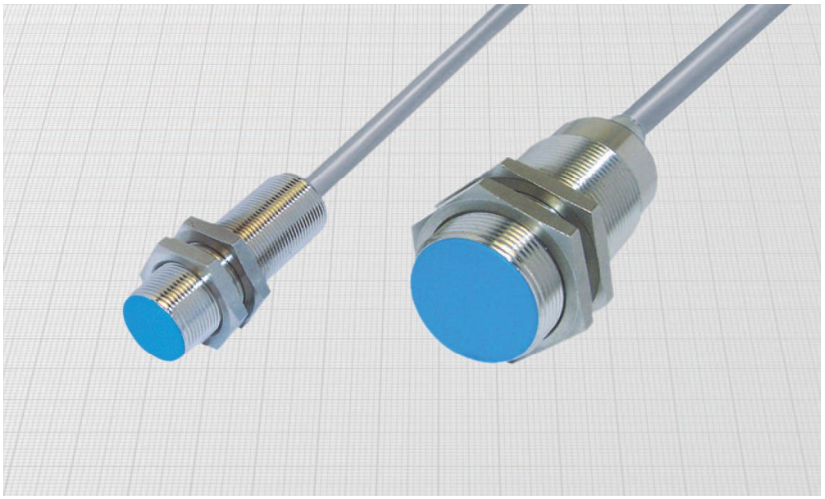
• Extended sensing distance - diameters 18 - 30 mm
• Amplified in d.c. 3-wire
• Cable output

Housing B-2



Housing G





Diameter		M18 x 1	M30 x 1,5
Nut	Size	SW24	SW36
	Thkns mm	4	5
Max tightening torque Nm		35	80

Materials:

- Cable: 2 m PVC CEI 20 - 22 II; 90°C; 300 V; O.R.
- Housing: nickel plated brass
- Sensing face: plastic

Technical data:

- Supply voltage (U_B): see ordering references
- Max ripple: 10%
- No-load supply current (I_o): ≤ 10 mA
- Voltage drop (U_d): ≤ 1,5 V
- Temperature range: - 20° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 4%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Cable conductor cross section: 0,50 mm²
- Protected against short-circuit and overload
- Protected against any wrong connection
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting (*) Non flush mounting	L1	L2	L3	L4	L5	Cable diameter	Body diameter (d)	Supply voltage (U_B)	Max switching frequency (f)	Rated operational current (I_e)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES PNP (positive switching) NO	ORDERING REFERENCES PNP (positive switching) NC
		mm	mm	mm	mm	mm	mm	mm	V (min - max)	Hz	mA	mm		
B - 2	•	-	50	-	-	50	5	M18 x 1	7÷40	300	200	8	**DCAE18/4A09KS**	**DCAE18/4A19KS**
B - 2	•	-	50	-	-	50	5	M18 x 1	7÷40	300	200	10	**DCE18/4A09KS**	**DCE18/4A19KS**
B - 2	•	10	40	-	-	50	5	M18 x 1	7÷40	200	200	12	**DCAE18/5A09KS**	**DCAE18/5A19KS**
B - 2	•	10	40	-	-	50	5	M18 x 1	7÷40	200	200	14	**DCE18/5A09KS**	**DCE18/5A19KS**
G	•	-	50	10	-	60	6	M30 x 1,5	7÷40	100	200	15	**DCAE30/4609KS**	**DCAE30/4619KS**
G	•	-	50	10	-	60	6	M30 x 1,5	7÷40	100	200	20	**DCE30/4609KS**	**DCE30/4619KS**
G	•	15	35	10	-	60	6	M30 x 1,5	7÷40	100	200	20	**DCAE30/5609KS**	**DCAE30/5619KS**
G	•	15	35	10	-	60	6	M30 x 1,5	7÷40	100	200	28	**DCE30/5609KS**	**DCE30/5619KS**

(*) Note: See mounting precautions (pag. 22)

NPN (negative switching)

Use the above mentioned part number changing the last number 9 with 8 (ie. DCE8/4608KS)

NO: brown, black, blue — NC: brown, black, blue

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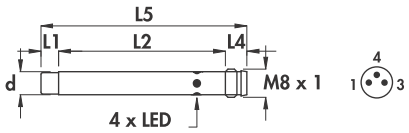
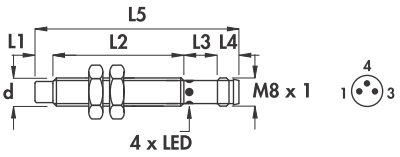
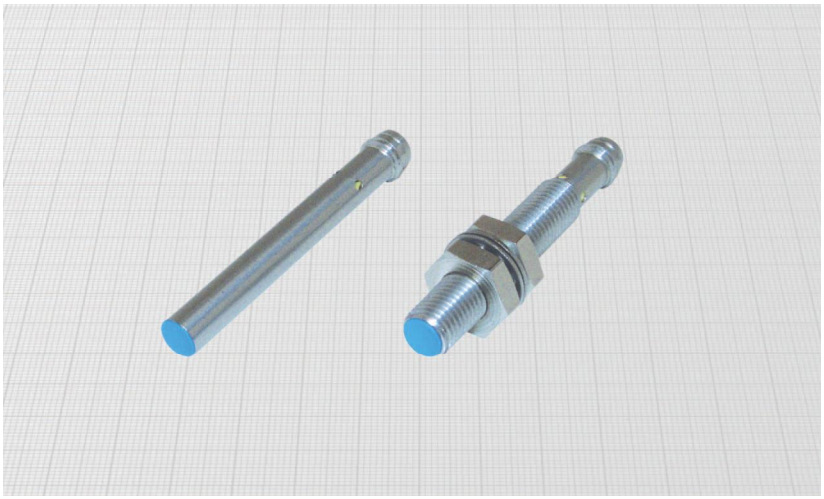
Extended sensing distance - diameters 6,5 - 8 mm •
Amplified in d.c. •
Connector output M8 x 1 •

Housing I-5



Housing I-10





Diameter		M8 x 1
Nut	Size	SW13
	Thickness mm	4
Max tightening torque Nm		10

Materials:

- Housing: stainless steel
- Sensing face: plastic

Technical data:

- Supply voltage (U_B): 7 ÷ 30 Vdc
- Max ripple: 10%
- No-load supply current (I_o): ≤ 10 mA
- Voltage drop (U_d): ≤ 1,5 V
- Temperature range: - 20° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 4%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Protected against short-circuit and overload
- Protected against any wrong connection
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting (*)	Non flush mounting	L1	L2	L3	L4	L5	Female connector	Body diameter (d)	Max switching frequency (f)	Rated operational current (I_e)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES PNP (positive switching) NO	ORDERING REFERENCES PNP (positive switching) NC
			mm	mm	mm	mm	mm	n°	mm	Hz	mA	mm		
I-5	•		-	48,5	-	5,5	54	11 - 12	6,5	800	200	2	**DCAE6,5/4909LKS**	**DCAE6,5/4919LKS**
I-5	•		-	48,5	-	5,5	54	11 - 12	6,5	800	200	3	**DCE6,5/4909LKS**	**DCE6,5/4919LKS**
I-5		•	5	43,5	-	5,5	54	11 - 12	6,5	400	200	4	**DCE6,5/5909LKS**	**DCE6,5/5919LKS**
I-10	•		-	40	8,5	5,5	54	11 - 12	M8 x 1	800	200	2	**DCAE8/4909KS**	**DCAE8/4919KS**
I-10	•		-	40	8,5	5,5	54	11 - 12	M8 x 1	800	200	3	**DCE8/4909KS**	**DCE8/4919KS**
I-10		•	5	35	8,5	5,5	54	11 - 12	M8 x 1	400	200	4	**DCE8/5909KS**	**DCE8/5919KS**

(*) Note: See mounting precautions (pag. 22)

NPN (negative switching)

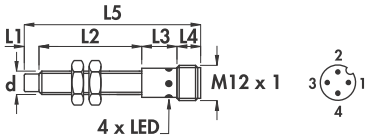
Use the above mentioned part number changing the last number 9 with 8 (ie. DCAE6,5/4908LKS)

NO: 1 brown, 4 black, 3 blue

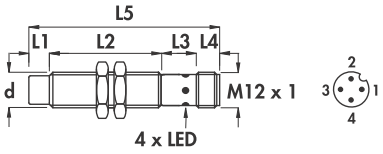
NC: 1 brown, 4 black, 3 blue

• Extended sensing distance - diameter 8 - 12 mm
• Amplified in d.c.
• Connector output M12 x 1

Housing I-11



Housing I-7



Diameter		M8 x 1	M12 x 1
Nut	Size	SW13	SW17
	Thkns mm	4	4
Max tightening torque Nm		10	15

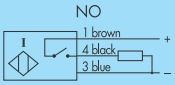
Materials:

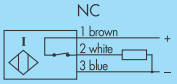
- Housing 8 mm: stainless steel
- Housing 12 mm: nickel plated brass
- Sensing face: plastic

Technical data:

- Supply voltage (U_B): see ordering references
- Max ripple: 10%
- Rated operational current (I_e): 200 mA
- No-load supply current (I_o): ≤ 10 mA
- Voltage drop (U_d): ≤ 1,5 V
- Temperature range: - 20° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 4%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Protected against short-circuit and overload
- Protected against any wrong connection
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting (*)	Non flush mounting	L1	L2	L3	L4	L5	Female connector	Body diameter (d)	Supply voltage (U_B)	Max switching frequency (f)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES PNP (positive switching) NO	ORDERING REFERENCES PNP (positive switching) NC
			mm	mm	mm	mm	mm	n°	mm	V (min - max)	Hz	mm		
I-11	•		-	40	12	8	60	6-8B-10	M8 x 1	7 ÷ 30	800	2	**DCAE8/4309KS**	**DCAE8/43C9KS**
I-11	•		-	40	12	8	60	6-8B-10	M8 x 1	7 ÷ 30	800	3	**DCE8/4309KS**	**DCE8/43C9KS**
I-11		•	5	35	12	8	60	6-8B-10	M8 x 1	7 ÷ 30	400	4	**DCE8/5309KS**	**DCE8/53C9KS**
I-7	•		-	43	15	8	66	6-8B-10	M12 x 1	7 ÷ 40	800	3	**DCAE12/4309KS**	**DCAE12/43C9KS**
I-7	•			43	15	8	66	6-8B-10	M12 x 1	7 ÷ 40	800	4	**DCE12/4309KS**	**DCE12/43C9KS**
I-7		•	7	36	15	8	66	6-8B-10	M12 x 1	7 ÷ 40	600	5	**DCAE12/5309KS**	**DCAE12/53C9KS**
I-7		•	7	36	15	8	66	6-8B-10	M12 x 1	7 ÷ 40	600	6	**DCE12/5309KS**	**DCE12/53C9KS**

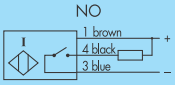


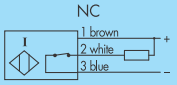


(*) Note: See mounting precautions (pag. 22)

NPN (negative switching)

Use the above mentioned part number changing the last number 9 with 8 (ie. DCE8/4308KS)





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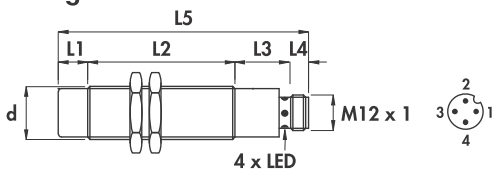
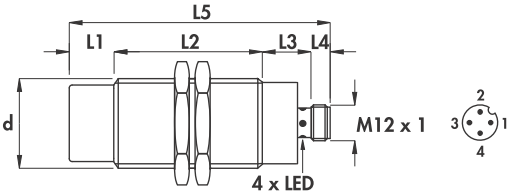
Extended sensing distance - diameters 18 - 30 mm •
Amplified in d.c. •
Connector output M12 x 1 •

Housing I-12



Housing I-2



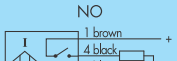
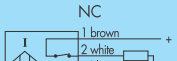
Diameter		M18 x 1	M30 x 1,5
Nut	Size	SW24	SW36
	Thkns mm	4	5
Max tightening torque Nm		35	80

Materials:

- Housing: nickel plated brass
- Sensing face: plastic

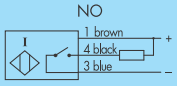
Technical data:

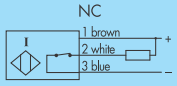
- Supply voltage (U_B): see ordering references
- Max ripple: 10%
- Rated operational current (I_e): 200 mA
- No-load supply current (I_o): ≤ 10 mA
- Voltage drop (U_d): ≤ 1,5 V
- Temperature range: - 20° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 4%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Protected against short-circuit and overload
- Protected against any wrong connection
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting (*) Non flush mounting	L1	L2	L3	L4	L5	Female connector	Body diameter (d)	Supply voltage (U_B)	Max switching frequency (f)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES PNP (positive switching) NO	ORDERING REFERENCES PNP (positive switching) NC
		mm	mm	mm	mm	mm	n°	mm	V (min - max)	Hz	mm		
I - 12	•	-	50	19	8	77	6 - 8B -10	M18 x 1	7 ÷ 40	300	8	**DCAE18/4309KS**	**DCAE18/43C9KS**
I - 12	•	-	50	19	8	77	6 - 8B -10	M18 x 1	7 ÷ 40	300	10	**DCE18/4309KS**	**DCE18/43C9KS**
I - 12	•	10	50	19	8	87	6 - 8B -10	M18 x 1	7 ÷ 40	200	12	**DCAE18/5309KS**	**DCAE18/53C9KS**
I - 12	•	10	50	19	8	87	6 - 8B -10	M18 x 1	7 ÷ 40	200	14	**DCE18/5309KS**	**DCE18/53C9KS**
I - 2	•	-	65	17	8	90	6 - 8B -10	M30 x 1,5	7 ÷ 40	100	15	**DCAE30/4309KS**	**DCAE30/43C9KS**
I - 2	•	-	65	17	8	90	6 - 8B -10	M30 x 1,5	7 ÷ 40	100	20	**DCE30/4309KS**	**DCE30/43C9KS**
I - 2	•	15	50	17	8	90	6 - 8B -10	M30 x 1,5	7 ÷ 40	100	20	**DCAE30/5309KS**	**DCAE30/53C9KS**
I - 2	•	15	50	17	8	90	6 - 8B -10	M30 x 1,5	7 ÷ 40	100	28	**DCE30/5309KS**	**DCE30/53C9KS**

(*) Note: See mounting precautions (pag. 22)

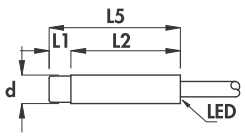
NPN (negative switching)
Use the above mentioned part number changing the last number 9 with 8 (ie. DCE8/4308KS)



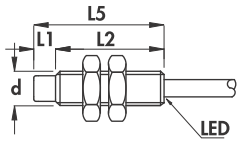


• SHORT SERIES - Extended sensing distance - diameters 6,5 - 30 mm
• Amplified in d.c. 3-wire
• Cable output

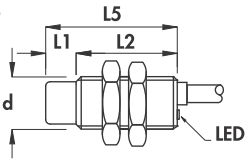
Housing A



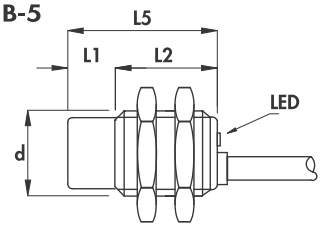
Housing B

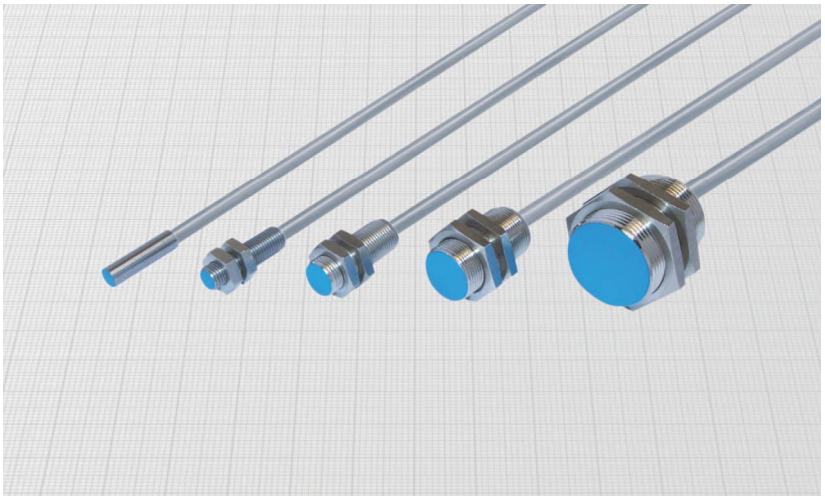


Housing B-4



Housing B-5





Diameter		M8 x 1	M12 x 1	M18 x 1	M30 x 1,5
Nut	Size	SW13	SW17	SW24	SW36
	Thickness mm	4	4	4	5
Max tightening torque Nm		10	15	35	80

Materials:

- Cable: 2 m PVC CEI 20 - 22 II; 90°C; 300 V; O.R.
- Housing 6,5 and 8 mm: stainless steel
- Housing 12 ÷ 30 mm: nickel plated brass
- Sensing face: plastic

Technical data:

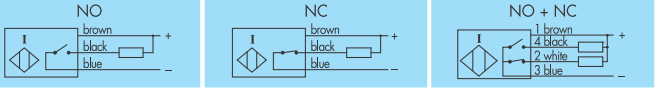
- Supply voltage (U_B): see ordering references
- Max ripple: 10%
- No-load supply current (I_o): ≤ 10 mA
- Voltage drop (U_d): ≤ 1,5 V
- Temperature range: - 20° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 4%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Cable conductor cross section: 0,22 mm² on 6,5 and 8 mm
  0,35 mm² on 12 mm
  0,50 mm² on 18 and 30 mm
- Protected against short-circuit and overload
- Protected against any wrong connection
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting (*)	Non flush mounting	L1	L2	L5	Cable diameter	Body diameter (d)	Supply voltage (U_B)	Max switching frequency (f)	Rated operational current (I_e)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES PNP (positive switching) NO	NC	NO + NC
			mm	mm	mm	mm	mm	V (min - max)	Hz	mA	mm			
A	•		-	30	30	3,5	6,5	7 ÷ 30	800	200	3	**DSE6,5/4609LKS**	**DSE6,5/4619LKS**	-
B	•		-	30	30	3,5	M8 x 1	7 ÷ 30	800	200	3	**DSE8/4609KS**	**DSE8/4619KS**	-
B - 4	•		-	30	30	4	M12 x 1	7 ÷ 30	800	200	4	**DSE12/4609KS**	**DSE12/4619KS**	**DSE12/4629KS**
B - 4		•	7	23	30	4	M12 x 1	7 ÷ 30	600	200	6	**DSE12/5609KS**	**DSE12/5619KS**	**DSE12/5629KS**
B - 5	•		-	35	35	5	M18 x 1	7 ÷ 40	300	200	10	**DSE18/4609KS**	**DSE18/4619KS**	**DSE18/4629KS**
B - 5		•	10	25	35	5	M18 x 1	7 ÷ 40	200	200	14	**DSE18/5609KS**	**DSE18/5619KS**	**DSE18/5629KS**
B - 5	•		-	35	35	6	M30 x 1,5	7 ÷ 40	100	200	20	**DSE30/4609KS**	**DSE30/4619KS**	**DSE30/4629KS**
B - 5		•	15	20	35	6	M30 x 1,5	7 ÷ 40	100	200	28	**DSE30/5609KS**	**DSE30/5619KS**	**DSE30/5629KS**

(*) Note: See mounting precautions (pag. 22)

NPN (negative switching)

Use the above mentioned part number changing the last number 9 with 8 (ie. DSE6,5/4608LKS)



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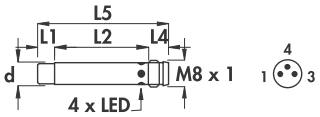
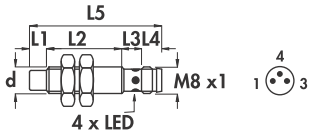
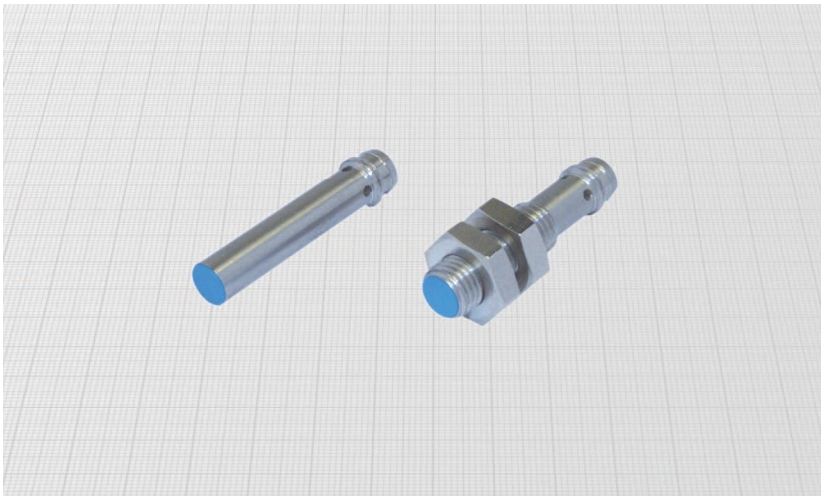
SHORT SERIES - Extended sensing distance - diameters 6,5 - 8 mm • Amplified in d.c. • Connector output M8 x 1 •

Housing I-8



Housing I-6





Diameter		M8 x 1
Nut	Size	SW13
	Thickness mm	4
Max tightening torque Nm		10

Materials:

- Housing: stainless steel
- Sensing face: plastic

Technical data:

- Supply voltage (U_B): 7 ÷ 30 Vdc
- Max ripple: 10%
- No-load supply current (I_o): ≤ 10 mA
- Voltage drop (U_d): ≤ 1,5 V
- Temperature range: - 20° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 4%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Protected against short-circuit and overload
- Protected against any wrong connection
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting (*) Non flush mounting	L1	L2	L3	L4	L5	Female connector	Body diameter (d)	Max switching frequency (f)	Rated operational current (I_e)	Nominal sensing distance (S_n) ±10%	ORDERING REFERENCES PNP (positive switching) NO	ORDERING REFERENCES PNP (positive switching) NC
		mm	mm	mm	mm	mm	n°	mm	Hz	mA	mm		
I-8	•	-	29,5	-	5,5	35	11 - 12	6,5	800	200	3	**DSE6,5/4909LKS**	**DSE6,5/4919LKS**
I-6	•	-	21	8,5	5,5	35	11 - 12	M8 x 1	800	200	3	**DSE8/4909KS**	**DSE8/4919KS**

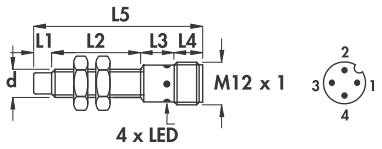
(*) Note: See mounting precautions (pag. 22)

NPN (negative switching)

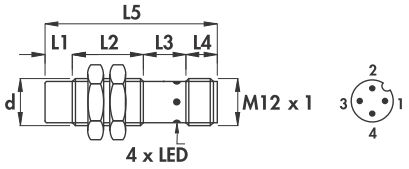
Use the above mentioned part number changing the last number 9 with 8 (ie. DSE6,5/4908LKS)

• SHORT SERIES - Extended sensing distance - diameters 8 - 30 mm
• Amplified in d.c.
• Connector output M12 x 1

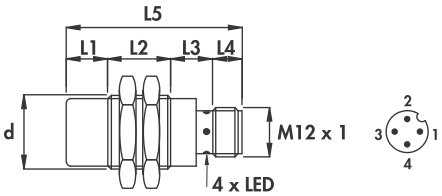
Housing I



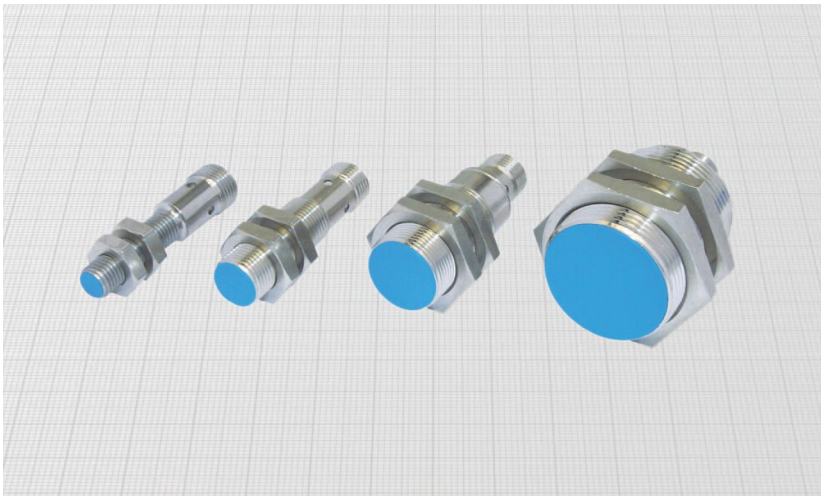
Housing I-9



Housing I-1



Diameter		M8 x 1	M12 x 1	M18 x 1	M30 x 1,5
Nut	Size	SW13	SW17	SW24	SW36
	Thickness mm	4	4	4	5
Max tightening torque Nm		10	15	35	80



Materials:

- Housing 8 mm: stainless steel
- Housing 12 ÷ 30 mm: nickel plated brass
- Sensing face: plastic

Technical data:

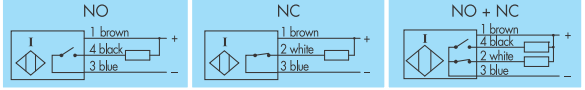
- Supply voltage (U_B): see ordering references
- Max ripple: 10%
- Rated operational current (I_e): 200 mA
- No-load supply current (I_o): ≤ 10 mA
- Voltage drop (U_d): ≤ 1,5 V
- Temperature range: - 20° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 4%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Protected against short-circuit and overload
- Protected against any wrong connection
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting (*) Non flush mounting	L1	L2	L3	L4	L5	Female connector	Body diameter (d)	Supply voltage (U_B)	Max switching frequency (f)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES PNP (positive switching) NO	NC	NO + NC
		mm	mm	mm	mm	mm	n°	mm	V (min - max)	Hz	mm			
I	•	-	26	13	8	47	6 - 8B - 10	M8 x 1	7 ÷ 30	800	3	**DSE8/4309KS**	**DSE8/43C9KS**	-
I	•	5	21	13	8	47	6 - 8B - 10	M8 x 1	7 ÷ 30	400	4	**DSE8/5309KS**	**DSE8/53C9KS**	-
I - 9	•	-	30	10	8	48	6 - 8B - 10	M12 x 1	7 ÷ 30	800	4	**DSE12/4309KS**	**DSE12/43C9KS**	**DSE12/4329KS**
I - 9	•	7	23	10	8	48	6 - 8B - 10	M12 x 1	7 ÷ 30	600	6	**DSE12/5309KS**	**DSE12/53C9KS**	**DSE12/5329KS**
I - 1	•	-	30	19	8	57	6 - 8B - 10	M18 x 1	7 ÷ 40	300	10	**DSE18/4309KS**	**DSE18/43C9KS**	**DSE18/4329KS**
I - 1	•	10	25	15	8	58	6 - 8B - 10	M18 x 1	7 ÷ 40	200	14	**DSE18/5309KS**	**DSE18/53C9KS**	**DSE18/5329KS**
I - 1	•	-	25	17	8	50	6 - 8B - 10	M30 x 1,5	7 ÷ 40	100	20	**DSE30/4309KS**	**DSE30/43C9KS**	**DSE30/4329KS**
I - 1	•	15	25	17	8	65	6 - 8B - 10	M30 x 1,5	7 ÷ 40	100	28	**DSE30/5309KS**	**DSE30/53C9KS**	**DSE30/5329KS**

(*) Note: See mounting precautions (pag. 22)

NPN (negative switching)

Use the above mentioned part number changing the last number 9 with 8 (ie. DSE8/4308KS)



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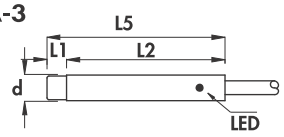
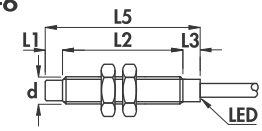
With extended temperature range (- 40° ÷ + 85°C) - diameters 6,5 - 45 mm • Amplified in d.c. 3 and 4-wire • Cable output •

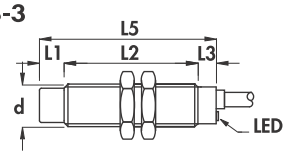
Housing A-3



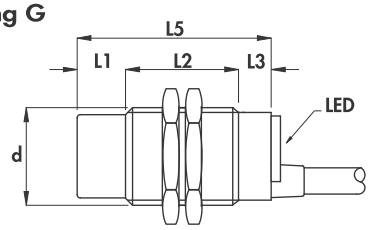
Housing B-6



Housing B-3



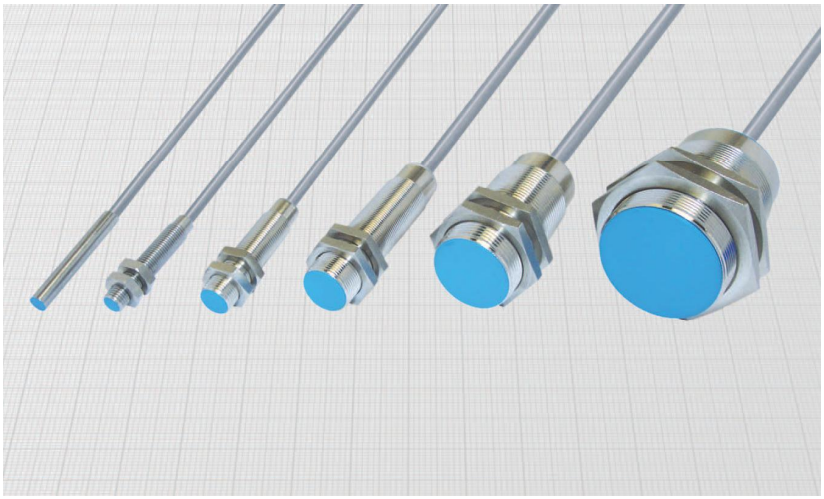
Housing G



Diameter		M8 x 1	M12 x 1	M18 x 1	M30 x 1,5	M45 x 1,5
Nut	Size	SW13	SW17	SW24	SW36	SW55
	Thkns mm	4	4	4	5	5
Max tightening torque Nm		10	15	35	80	70

Materials:

- Cable: 2 m thermoplastic 140°C; 300 V; O.R.
- Housing 6,5 and 8 mm: stainless steel
- Housing 12 ÷ 45 mm: nickel plated brass
- Sensing face: plastic



Technical data:

- Supply voltage (U_B): 10 ÷ 30 Vdc
- Max ripple: 10%
- No-load supply current (I_o): ≤ 10 mA
- Voltage drop (U_d): see ordering references
- Temperature range: - 40° ÷ + 85°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Cable conductor cross section: 0,35 mm² on 6,5 - 8 - 12 mm
  0,50 mm² on 18, 30 and 45 mm
- Protected against short-circuit and overload
- Protected against any wrong connection
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting Non flush mounting	L2	L3	L5	Cable diameter	Body diameter (d)	Voltage drop (U_d)	Max switching frequency (f)	Rated operational current (I_e)	Nominal sensing distance (S_n) ±10%	ORDERING REFERENCES PNP (positive switching) NO	NC	NO + NC
		mm	mm	mm	mm	mm	V	KHz	mA	mm			
A - 3	•	45	-	45	4	6,5	1,5	4	150	1,5	**DCA6,5/4609LKST**	**DCA6,5/4619LKST**	-
B - 6	•	40	5	45	4	M8 x 1	1,5	4	150	1,5	**DCA8/4609KST**	**DCA8/4619KST**	-
B - 3	•	43	7	50	4	M12 x 1	1,5	2	150	2	**DCA12/4609KST**	**DCA12/4619KST**	-
B - 3	•	58	12	70	5	M18 x 1	2,2	1	250	5	**DCA18/4609KST**	**DCA18/4619KST**	**DCA18/4629KST**
G	•	50	10	60	6	M30 x 1,5	2,2	0,8	250	10	**DCA30/4609KST**	**DCA30/4619KST**	**DCA30/4629KST**
G	•	50	10	60	6	M45 x 1,5	2,2	0,15	250	20	**DCA45/4609KST**	**DCA45/4619KST**	**DCA45/4629KST**

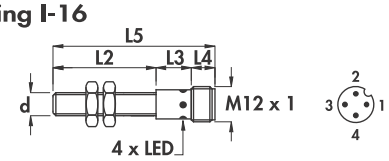
NPN (negative switching)

Use the above mentioned part number changing the last number 9 with 8 (ie. DCA6,5/4608LKST)

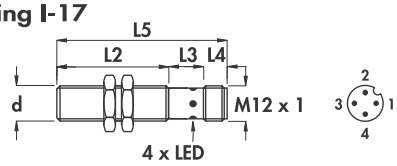
NO: brown, black, blue — NC: brown, black, blue — NO + NC: brown, black, white, blue

• With extended temperature range (-40° ÷ + 85°C) - diameters 8 - 45 mm
• Amplified in d.c. 3 and 4-wire
• Connector output M12 x 1

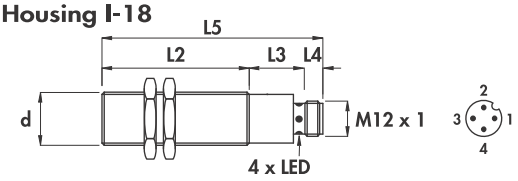
Housing I-16



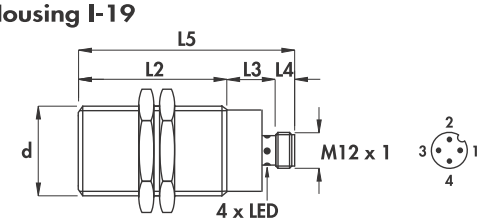
Housing I-17



Housing I-18



Housing I-19



Diameter		M8 x 1	M12 x 1	M18 x 1	M30 x 1,5	M45 x 1,5
Nut	Size	SW13	SW17	SW24	SW36	SW55
	Thkns mm	4	4	4	5	5
Max tightening torque Nm		10	15	35	80	70

Materials:

- Housing 8 mm: stainless steel
- Housing 12 ÷ 45 mm: nickel plated brass
- Sensing face: plastic

Technical data:

- Supply voltage (U_B): 10 ÷ 30 Vdc
- Max ripple: 10%
- No-load supply current (I_o): ≤ 10 mA
- Voltage drop (U_d): see ordering references
- Temperature range: - 40° ÷ + 85°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Protected against short-circuit and overload
- Protected against any wrong connection
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting Non flush mounting	L2	L3	L4	L5	Female connector (see pag. H - 1)	Body diameter (d)	Voltage drop (U_d)	Max switching frequency (f)	Rated operational current (I_e)	Nominal sensing dist. (S_n) ± 10%	ORDERING REFERENCES PNP (positive switching) NO	NC	NO + NC
		mm	mm	mm	mm	n°	mm	V	KHz	mA	mm			
I - 16	•	40	12	8	60	8B -10...T	M8 x 1	1,5	4	150	1,5	**DCA8/4309KST**	**DCA8/43C9KST**	-
I - 17	•	43	15	8	66	8B -10...T	M12 x 1	1,5	2	150	2	**DCA12/4309KST**	**DCA12/43C9KST**	**DCA12/4329KST**
I - 18	•	50	19	8	77	8B -10...T	M18 x 1	2,2	1	250	5	**DCA18/4309KST**	**DCA18/43C9KST**	**DCA18/4329KST**
I - 19	•	65	17	8	90	8B -10...T	M30 x 1,5	2,2	0,8	250	10	**DCA30/4309KST**	**DCA30/43C9KST**	**DCA30/4329KST**
I - 19	•	50	19	8	77	8B -10...T	M45 x 1,5	2,2	0,15	250	20	**DCA45/4309KST**	**DCA45/43C9KST**	**DCA45/4329KST**

NPN (negative switching)

Use the above mentioned part number changing the last number 9 with 8 (ie. DCA8/4308KST)

NO: 1 brown, 4 black, 3 blue — NC: 1 brown, 2 white, 3 blue — NO + NC: 1 brown, 4 black, 2 white, 3 blue

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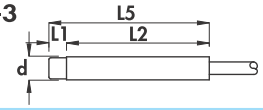
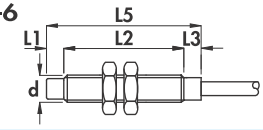
For high temperatures (-25° ÷ +125°C) - diameters 6,5 - 45 mm • Amplified in d.c. 3 and 4-wire • Cable output •

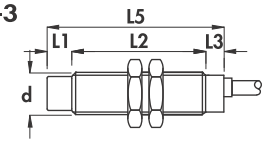
Housing A-3



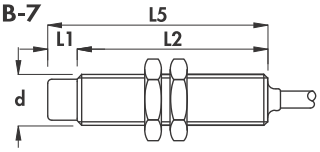
Housing B-6



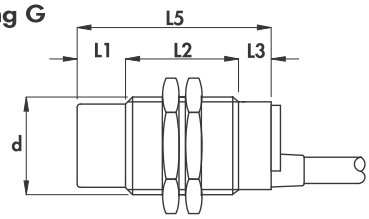
Housing B-3



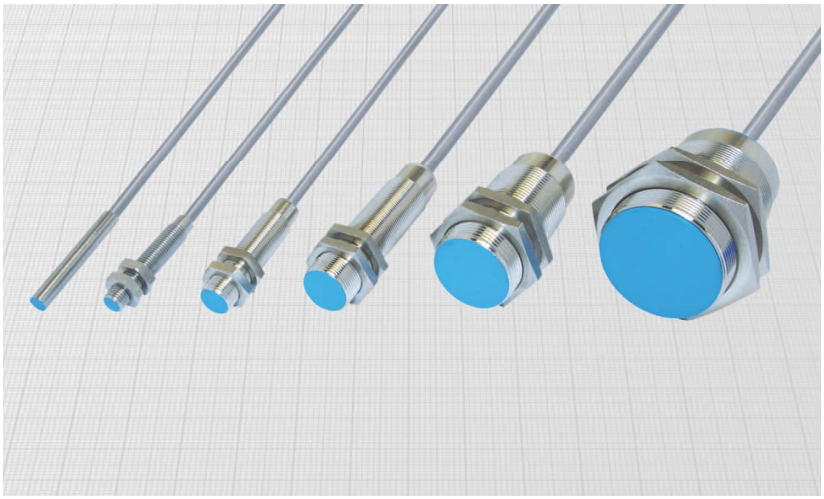
Housing B-7



Housing G



Diameter		M8 x 1	M12 x 1	M18 x 1	M30 x 1,5	M45 x 1,5
Nut	Size	SW13	SW17	SW24	SW36	SW55
	Thickness mm	4	4	4	5	5
Max tightening torque Nm		10	15	35	80	70



Technical data:

- Supply voltage (U_B): 10 ÷ 30 Vdc
- Max ripple: 10%
- No-load supply current (I_o): ≤ 10 mA
- Voltage drop (U_d): see ordering references
- Temperature range: - 25° ÷ +125°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Cable conductor cross section: 0,35 mm² on 6,5 - 8 - 12 mm
  0,50 mm² on 18 - 30 - 45 mm
- Protected against short-circuit and overload
- Protected against any wrong connection
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Materials:

- Cable: 2 m thermoplastic 140°C; 300 V; O.R.
- Housing 6,5 and 8 mm: stainless steel
- Housing 12 ÷ 45 mm: nickel plated brass
- Sensing face: plastic

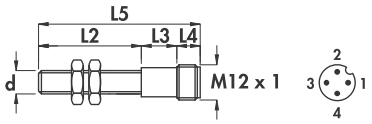
Housing	Flush mounting / Non flush mounting	L2	L3	L5	Cable diameter	Body diameter (d)	Voltage drop (U_d)	Max switching frequency (f)	Rated operational current (I_e)	Nominal sensing distance (S_n) ±10%	ORDERING REFERENCES PNP (positive switching) NO	NO	NC	NO + NC
		mm	mm	mm	mm	mm	V	KHz	mA	mm				
A - 3	•	45	-	45	4	6,5	1,5	4	150	1,5	**DCA6,5/4609LKT**	**DCA6,5/4619LKT**	-
B - 6	•	40	5	45	4	M8 x 1	1,5	4	150	1,5	**DCA8/4609KT**	**DCA8/4619KT**	-
B - 3	•	43	7	50	4	M12 x 1	1,5	2	150	2	**DCA12/4609KT**	**DCA12/4619KT**	-
B - 7	•	65	-	65	5	M18 x 1	2,2	1	250	5	**DCA18/4609KT**	**DCA18/4619KT**	**DCA18/4629KT**
G	•	50	10	60	6	M30 x 1,5	2,2	0,8	250	10	**DCA30/4609KT**	**DCA30/4619KT**	**DCA30/4629KT**
G	•	50	10	60	6	M45 x 1,5	2,2	0,15	250	20	**DCA45/4609KT**	**DCA45/4619KT**	**DCA45/4629KT**

NPN (negative switching)
Use the above mentioned part number changing the last number 9 with 8 (ie. DCA6,5/4608LKT)

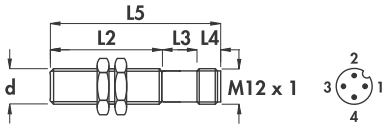
NO: brown, black, blue — NC: brown, black, blue — NO + NC: brown, black, white, blue

- **For high temperatures (-25° ÷ + 120°C) - diameters 8 - 45 mm**
- **Amplified in d.c. 3 and 4-wire**
- Connector output M12 x 1

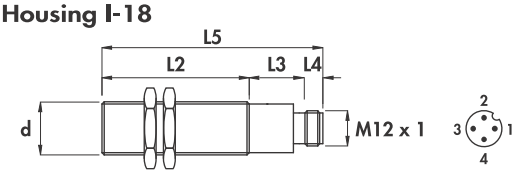
Housing I-16



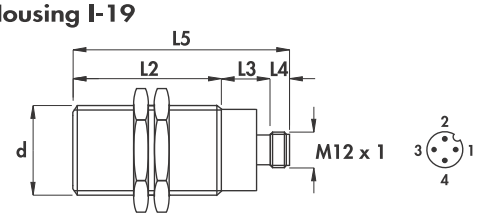
Housing I-17



Housing I-18



Housing I-19



Diameter		M8 x 1	M12 x 1	M18 x 1	M30 x 1,5
Nut	Size	SW13	SW17	SW24	SW36
	Thickness mm	4	4	4	5
Max tightening torque Nm		10	15	35	80

Materials:

- Housing 8 mm: stainless steel
- Housing 12 ÷ 45 mm: nickel plated brass
- Sensing face: plastic

Technical data:

- Supply voltage (U_B): 10 ÷ 30 Vdc
- Max ripple: 10%
- No-load supply current (I_o): ≤ 10 mA
- Voltage drop (U_d): see ordering references
- Temperature range: - 25° ÷ +120° C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Protected against short-circuit and overload
- Protected against any wrong connection
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting Non flush mounting	L2	L3	L4	L5	Female connector (see pag. H - 1)	Body diameter (d)	Voltage drop (U_d)	Max switching frequency (f)	Rated operational current (I_e)	Nominal sensing dist. (S_n) ± 10%	ORDERING REFERENCES PNP (positive switching) NO	NC	NO + NC
		mm	mm	mm	mm	n°	mm	V	KHz	mA	mm			
I - 16	•	40	12	8	60	8B -10...T	M8 x 1	1,5	4	150	1,5	**DCA8/4309KT**	**DCA8/43C9KT**	-
I - 17	•	43	15	8	66	8B -10...T	M12 x 1	1,5	2	150	2	**DCA12/4309KT**	**DCA12/43C9KT**	**DCA12/4329KT**
I - 18	•	50	19	8	77	8B -10...T	M18 x 1	2,2	1	250	5	**DCA18/4309KT**	**DCA18/43C9KT**	**DCA18/4329KT**
I - 19	•	65	17	8	90	8B -10...T	M30 x 1,5	2,2	0,8	250	10	**DCA30/4309KT**	**DCA30/43C9KT**	**DCA30/4329KT**
I - 19	•	50	19	8	77	8B -10...T	M45 x 1,5	2,2	0,15	250	20	**DCA45/4309KT**	**DCA45/43C9KT**	**DCA45/4329KT**

NPN (negative switching)

Use the above mentioned part number changing the last number 9 with 8 (ie. DCA8/4308KT)

NO: 1 brown, 4 black, 3 blue — NC: 1 brown, 2 white, 3 blue — NO + NC: 1 brown, 4 black, 2 white, 3 blue

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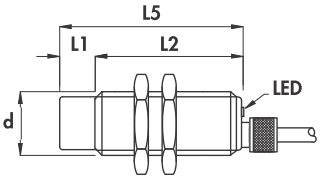
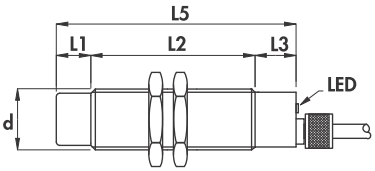
Degree of protection IP68 - diameter 18 mm •
Amplified in d.c. 3 and 4-wire •
Cable and connector output M12 x 1 •

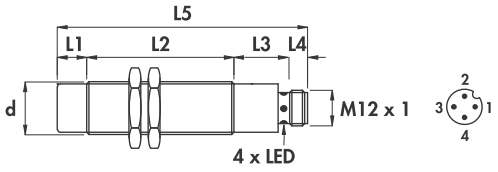
Housing J-1



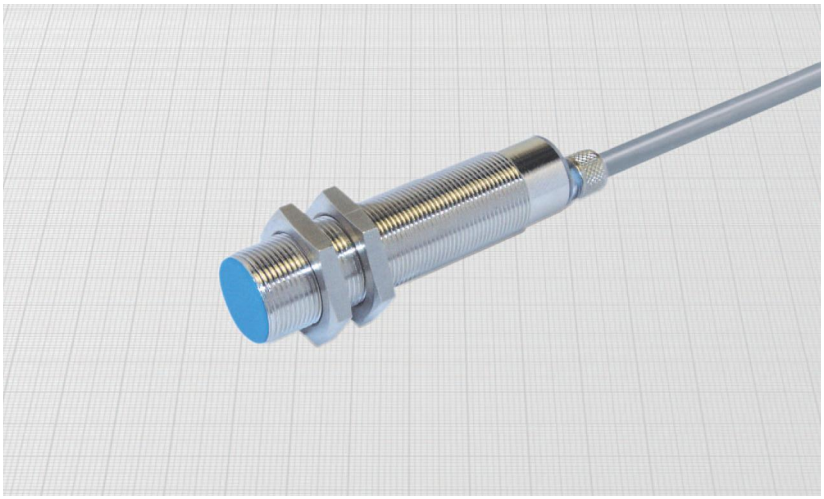
Housing J-2



Housing I-12



Diameter		M18 x 1
Nut	Size	SW24
	Thickness mm	4
Max tightening torque Nm		35



Materials:
- Cable: 2 m PVC CEI 20 - 22 II; 90°C; 300 V; O.R.
- Housing and gland: nickel plated brass
- Sensing face: plastic

General Features:
This new series solves definitively the problem of the ingress of liquids to the inner parts of the sensors. Thanks to the inner hermetic sealing they can be subjected to non-stop jets of liquids under pressure even in presence of temperature changes.
They find applications in automatic washing machinery, in machines subject to water jets and in continuous immersion applications.

Technical data:
- Supply voltage (U_B): 7 ÷ 60 Vdc
- Max ripple: 10%
- Rated operational current (I_e): 400 mA
- No-load supply current (I_o): ≤ 10 mA
- Voltage drop (U_d): ≤ 2,2 V
- Temperature range: - 25° ÷ + 75°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP68
- Switch status indicator: yellow LED
- Cable conductor cross section: 0,50 mm²
- Protected against short-circuit and overload
- Protected against any wrong connection
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

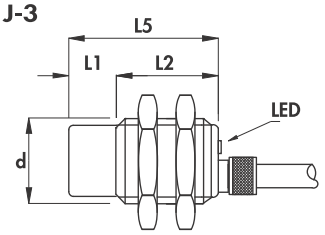
Housing	Flush mounting	Non flush mounting	L1	L2	L3	L4	L5	Cable diameter	Female connector	Body diameter (d)	Max switching frequency (f)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES PNP (positive switching) NO	NC	NO + NC
			mm	mm	mm	mm	mm	mm	n°	mm	KHz	mm		(*) Note: In versions with connector use the white wire.	
J-1	•		-	50	-	-	50	5	-	M18 x 1	1	5	**DCA18/4A09KSJ**	**DCA18/4A19KSJ**	**-**
J-1		•	10	40	-	-	50	5	-	M18 x 1	1	8	**DCA18/5A09KSJ**	**DCA18/5A19KSJ**	**-**
J-2	•		-	58	12	-	70	5	-	M18 x 1	1	5	**DCA18/4609KSJ**	**DCA18/4619KSJ**	**DCA18/4629KSJ**
J-2		•	10	48	12	-	70	5	-	M18 x 1	1	8	**DCA18/5609KSJ**	**DCA18/5619KSJ**	**DCA18/5629KSJ**
I-12	•		-	50	19	8	77	-	6 - 8B - 10	M18 x 1	1	5	**DCA18/4309KSJ**	**DCA18/43C9KSJ**	**DCA18/4329KSJ**
I-12		•	10	50	19	8	87	-	6 - 8B - 10	M18 x 1	1	8	**DCA18/5309KSJ**	**DCA18/53C9KSJ**	**DCA18/5329KSJ**

NPN (negative switching)
Use the above mentioned part number changing the last number 9 with 8 (ie. DCA18/4A08KSJ)

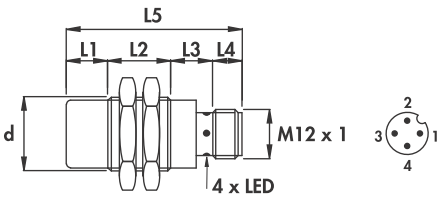
NO: 1 brown, 4 black, 3 blue (+ / −)
NC: 1 brown, 2 black (*), 3 blue (+ / −) — (*) Note: In versions with connector use the white wire.
NO + NC: 1 brown, 4 black, 2 white, 3 blue (+ / −)

• SHORT SERIES - degree of protection IP68 - diameter 18 mm
• Amplified in d.c. 3-wire
• Cable and connector output M12 x 1

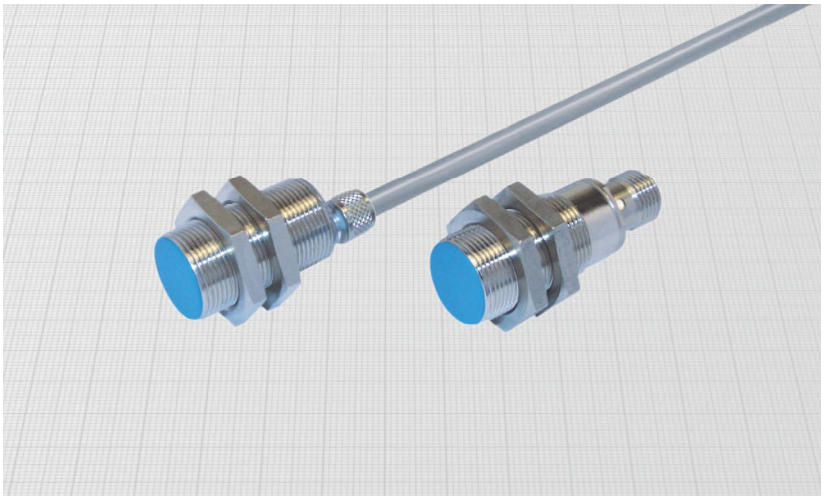
Housing J-3



Housing I-1



Diameter		M18 x 1
Nut	Size	SW24
	Thickness mm	4
Max tightening torque Nm		35



Materials:

- Cable: 2 m PVC CEI 20 - 22 II; 90°C; 300 V; O.R.
- Housing and gland: nickel plated brass
- Sensing face: plastic

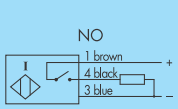
General Features:

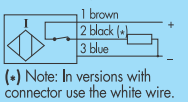
This new series solves definitively the problem of the ingress of liquids to the inner parts of the sensors. Thanks to the inner hermetic sealing they can be subjected to no-stop jets of liquids under pressure even in presence of temperature changes.
They find applications in automatic washing machinery, in machines subject to water jets and in continuous immersion applications.

Technical data:

- Supply voltage (U_B): 5 ÷ 40 Vdc
- Max ripple: 10%
- No-load supply current (I_o): ≤ 10 mA
- Voltage drop (U_d): ≤ 1,5 V
- Temperature range: - 25° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP68
- Switch status indicator: yellow LED
- Cable conductor cross section: 0,50 mm²
- Protected against short-circuit and overload
- Protected against any wrong connection
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting	Non flush mounting	L1	L2	L3	L4	L5	Cable diameter	Female connector	Body diameter (d)	Max switching frequency (f)	Rated operational current (I_e)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES PNP (positive switching) NO	ORDERING REFERENCES PNP (positive switching) NC
			mm	mm	mm	mm	mm	mm	n°	mm	KHz	mA	mm		
J - 3	•		-	30	-	-	30	5	-	M18 x 1	0,8	200	5	**DSA18/4609KSJ**	**DSA18/4619KSJ**
J - 3		•	10	20	-	-	30	5	-	M18 x 1	0,6	200	8	**DSA18/5609KSJ**	**DSA18/5619KSJ**
I - 1	•		-	25	15	8	48	-	6 - 8B -10	M18 x 1	0,8	200	5	**DSA18/4309KSJ**	**DSA18/43C9KSJ**
I - 1		•	10	15	15	8	48	-	6 - 8B -10	M18 x 1	0,6	200	8	**DSA18/5309KSJ**	**DSA18/53C9KSJ**

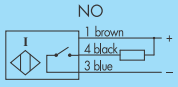


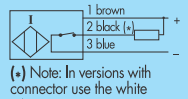


(•) Note: In versions with connector use the white wire.

NPN (negative switching)

Use the above mentioned part number changing the last number 9 with 8 (ie. DSA18/4608KSJ)





(•) Note: In versions with connector use the white wire.

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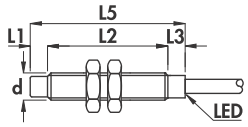
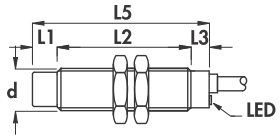
Non polarized - diameters 8 - 30 mm •
Amplified in d.c. 2-wire •
Cable output •

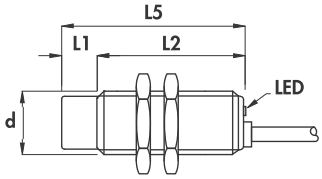
Housing B-6



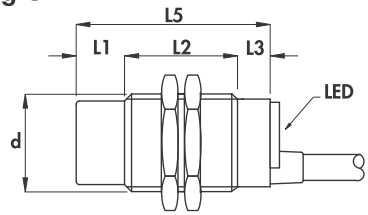
Housing B-3



Housing B-2



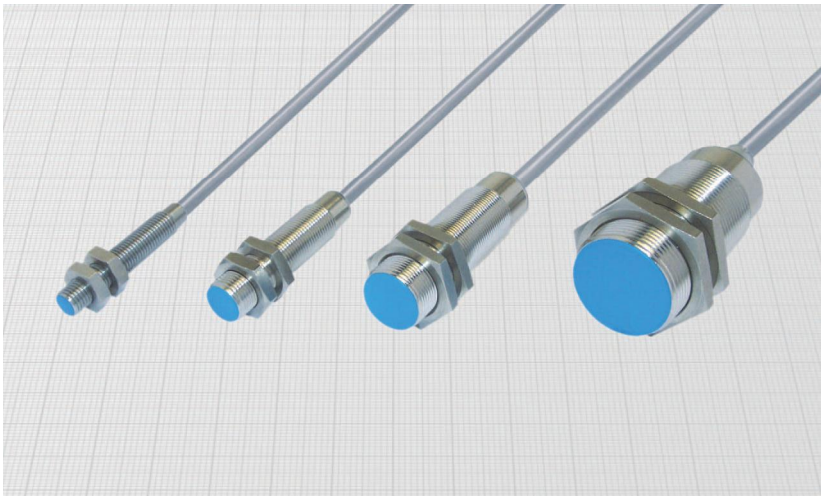
Housing G



Diameter		M8 x 1	M12 x 1	M18 x 1	M30 x 1,5
Nut	Size	SW13	SW17	SW24	SW36
	Thickness mm	4	4	4	5
Max tightening torque Nm		10	15	35	80

Materials:

- Cable: 2 m PVC CEI 20 - 22 II; 90°C; 300 V; O.R.
- Housing 8 mm: stainless steel
- Housing 12-18-30 mm: nickel plated brass
- Sensing face: plastic PBT



General Features:

These sensors are not polarized and therefore the load can be connected on either the positive or negative lead (function PNP or NPN).
So they can replace traditional mechanical microswitches in many applications.

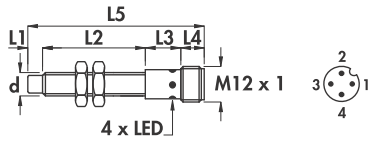
Technical data:

- Supply voltage (U_B): see ordering refences
- Max ripple: 10%
- Off-state current (I_r): ≤ 0,5 mA
- Minimum operational current (I_m): 4 mA
- Voltage drop (U_d): ≤ 3,6 V
- Temperature range: - 25° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Cable conductor cross section: 0,34 mm² on 8 and 12 mm
  0,50 mm² on 18 mm
  0,75 mm² on 30 mm
- Protected against short-circuit and overload (versions with letter K)
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

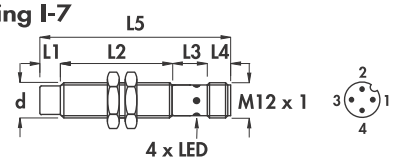
Housing	Flush mounting	Non flush mounting	L1	L2	L3	L4	L5	Cable diameter	Body diameter (d)	Nominal sensing distance (S_n) ±10%	Supply voltage (U_B)	Max switching frequency (f)	Rated operational current (I_e)	ORDERING REFERENCES NO	ORDERING REFERENCES NC
			mm	mm	mm	mm	mm	mm	mm	mm	V (min - max)	Hz	mA		
B-6	•		-	40	5	-	45	4	M8 x 1	1,5	10 ÷ 40	1200	100	**DCM8/4600S**	**DCM8/4610S**
B-6		•	5	35	5	-	45	4	M8 x 1	2,5	10 ÷ 40	1000	100	**DCM8/5600S**	**DCM8/5610S**
B-3	•		-	43	7	-	50	4	M12 x 1	2	10 ÷ 40	1200	200	**DCM12/4600KS**	**DCM12/4610KS**
B-3		•	7	36	7	-	50	4	M12 x 1	4	10 ÷ 40	1000	200	**DCM12/5600KS**	**DCM12/5610KS**
B-2	•		-	50	-	-	50	5	M18 x 1	5	10 ÷ 60	1100	250	**DCM18/4A00KS**	**DCM18/4A10KS**
B-2		•	10	40	-	-	50	5	M18 x 1	8	10 ÷ 60	700	250	**DCM18/5A00KS**	**DCM18/5A10KS**
G	•		-	50	10	-	60	6	M30 x 1,5	10	10 ÷ 60	800	250	**DCM30/4600KS**	**DCM30/4610KS**
G		•	15	35	10	-	60	6	M30 x 1,5	15	10 ÷ 60	400	250	**DCM30/5600KS**	**DCM30/5610KS**

• Non polarized - diameters 8 - 30 mm
• Amplified in d.c. 2-wire
• Connector output

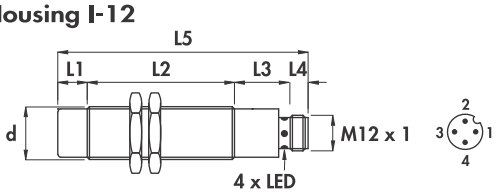
Housing I-11



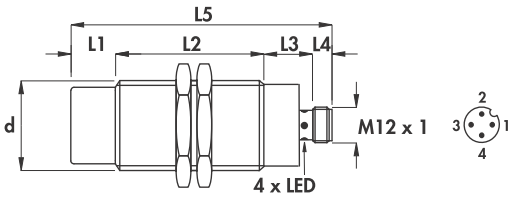
Housing I-7



Housing I-12



Housing I-2



Diameter		M8 x 1	M12 x 1	M18 x 1	M30 x 1,5
Nut	Size	SW13	SW17	SW24	SW36
	Thickness mm	4	4	4	5
Max tightening torque Nm		10	15	35	80

Materials:

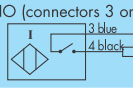
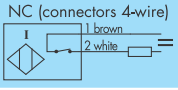
- Housing 8 mm: stainless steel
- Housing 12- 18 - 30 mm: nickel plated brass
- Sensing face: plastic PBT

General Features:

These sensors are not polarized and therefore the load can be connected either in the positive or negative leads (function PNP or NPN).
So they can replace traditional mechanical microswitches in many applications. The use of making connectors without LED is recommended.

Technical data:

- Supply voltage (U_B): see ordering refences
- Max ripple: 10%
- Off-state current (I_r): ≤ 0,5 mA
- Minimum operational current (I_m): 4 mA
- Voltage drop (U_d): ≤ 3,6 V
- Temperature range: - 25° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Cable conductor cross section: 0,34 mm² on 8 and 12 mm
  0,50 mm² on 18 mm
  0,75 mm² on 30 mm
- Protected against short-circuit and overload (versions with letter K)
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting / Non flush mounting	L1	L2	L3	L4	L5	Female connector	Body diameter (d)	Nominal sensing distance (S_n) ±10%	Supply voltage (U_B)	Max switching frequency (f) in d.c.	Rated operational current (I_e)	ORDERING REFERENCES NO (connectors 3 or 4-wire)	ORDERING REFERENCES NC (connectors 4-wire)
		mm	mm	mm	mm	mm	n°	mm	mm	V (min - max)	Hz	mA		
I - 11	•	-	40	12	8	60	6 - 8B - 10	M8 x 1	1,5	10 ÷ 40	1200	100	**DCM8/4300S**	**DCM8/4310S**
I - 11	•	5	35	12	8	60	6 - 8B - 10	M8 x 1	2,5	10 ÷ 40	1000	100	**DCM8/5300S**	**DCM8/5310S**
I - 7	•	-	43	15	8	66	6 - 8B - 10	M12 x 1	2	10 ÷ 40	1200	200	**DCM12/4300KS**	**DCM12/4310KS**
I - 7	•	7	36	15	8	66	6 - 8B - 10	M12 x 1	4	10 ÷ 40	1000	200	**DCM12/5300KS**	**DCM12/5310KS**
I - 12	•	-	50	19	8	77	6 - 8B - 10	M18 x 1	5	10 ÷ 60	1100	250	**DCM18/4300KS**	**DCM18/4310KS**
I - 12	•	10	50	19	8	87	6 - 8B - 10	M18 x 1	8	10 ÷ 60	700	250	**DCM18/5300KS**	**DCM18/5310KS**
I - 2	•	-	65	17	8	90	6 - 8B - 10	M30 x 1,5	10	10 ÷ 60	800	250	**DCM30/4300KS**	**DCM30/4310KS**
I - 2	•	15	50	17	8	90	6 - 8B - 10	M30 x 1,5	15	10 ÷ 60	400	250	**DCM30/5300KS**	**DCM30/5310KS**
I - 2	•	-	50	19	8	77	6 - 8B - 10	M45 x 1,5	20	10 ÷ 60	150	250	**DCM45/4300KS**	**DCM45/4310KS**

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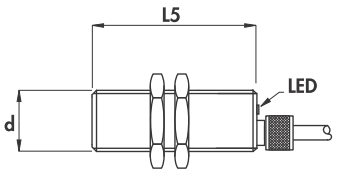
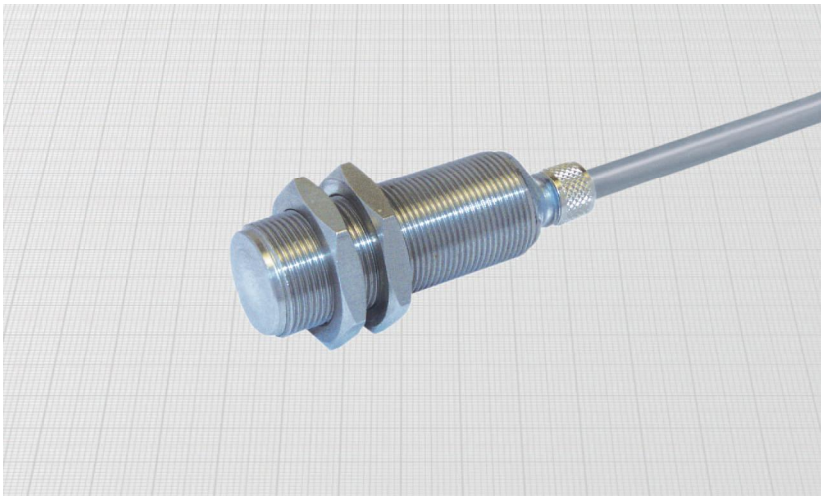
Stainless steel sensing face - diameter 18 mm •
Amplified in d.c. 3-wire •
Cable output •

Housing B-8



Diameter		M18 x 1
Nut	Size	SW24
	Thickness mm	4
Max tightening torque Nm		35



Materials:

- Cable: 2 m PVC CEI 20 - 22 II; 90°C; 300 V; O.R.
- Housing: stainless steel
- Sensing face: stainless steel

General Features:

This particular type of sensor has increased mechanical and chemical resistance:

- **fluid ingress resistant**
- **pressure resistant**
- **corrosion resistant**
- **impact resistant**
- **vibration resistant**
- **abrasion and incandescent objects resistant**

These particulars characteristics are mainly dependent by the construction of the housing, which is made from a single solid piece of stainless steel. The absence of junctions prevents fluid ingress through the sensing face. A very special sealing system on the rear side makes of this sensor the ideal solution for the most critical applications.

Technical data:

- Supply voltage (U_B): 7 ÷ 40 Vdc
- Max ripple: 10%
- No-load supply current (I_o): ≤ 10 mA
- Voltage drop (U_d): ≤ 1,5 V
- Temperature range: - 25° ÷ + 75°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP68
- Max pressure on the front side: 50 bar
- Switch status indicator: yellow LED
- Cable conductor cross section: 0,50 mm²
- Protected against short-circuit and overload
- Protected against any wrong connection
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting (*) Non flush mounting	L1	L2	L3	L4	L5	Cable diameter	Body diameter (d)	Max switching frequency (f)	Rated operational current (I_e)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES PNP (positive switching) NO	ORDERING REFERENCES PNP (positive switching) NC
		mm	mm	mm	mm	mm	mm	mm	Hz	mA	mm		
B - 8	•	-	-	-	-	45	5	M18 x 1	50	200	5	**DCA18/4609MKSJ**	**DCA18/4619MKSJ**

(*) Note: See mounting precautions (pag. 22)

NPN (negative switching)

Use the above mentioned part number changing the last number 9 with 8 (ie. DCA18/4608MKSJ)

- **Amplified in d.c. 3-wire - diameter 5 mm**
- **High precision**
- **Switching hysteresis < 1 µm**
- Cable output

General Features:

This unique sensor enables the detection of metallic targets with extremely high precision without contact. By using an implemented software algorithm and a laser working process it has a very stable and precise switching point with a hysteresis lower than 1 µm.

Applications:

- Semiconductors industry
- Quality control instruments
- High precision mechanical devices
- Calibration equipment

Technical data:

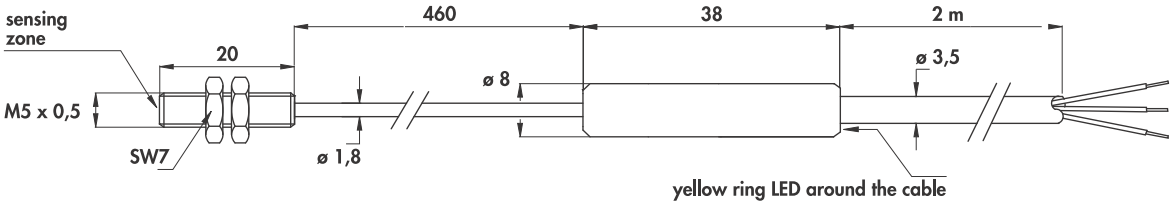
- Supply voltage (U_B): 5 ÷ 13 Vdc
- Consumption: ≤ 10 mA
- Voltage drop (I_o =10 mA): ≤ 0.5 V
- Voltage drop (I_o =100 mA): ≤ 1 V
- Output polarity: NPN open collector
- Output logic: normally open
- Repeat accuracy (R): < ± 2 µm
- Switch hysteresis (H): < 1 µm
- Temperature range: 10 ÷ 40°C
- Degree of protection: IP67
- Cable conductor cross section: 0,22 mm²
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Diameter		M5 x 0,5
Nut	Size	SW7
	Thickness mm	2,5
Max tightening torque Nm		2

Materials:

- Cable: 2 m PVC CEI 20 - 22 II; 90°C
- Housing sensor and amplifier: stainless steel

Sensor **Amplifier (smooth body)**



Flush mounting Non flush mounting	Cable diameter	Sensor diameter	Amplifier diameter	Rated operational current (I_{el})	Max switching frequency (f)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES NPN (negative switching)
	mm	mm	mm	mA	Hz	mm	NO brown black blue
•	3,5	M5 x 0,5	8	100	100	0,9	**IPS05/4608KS**

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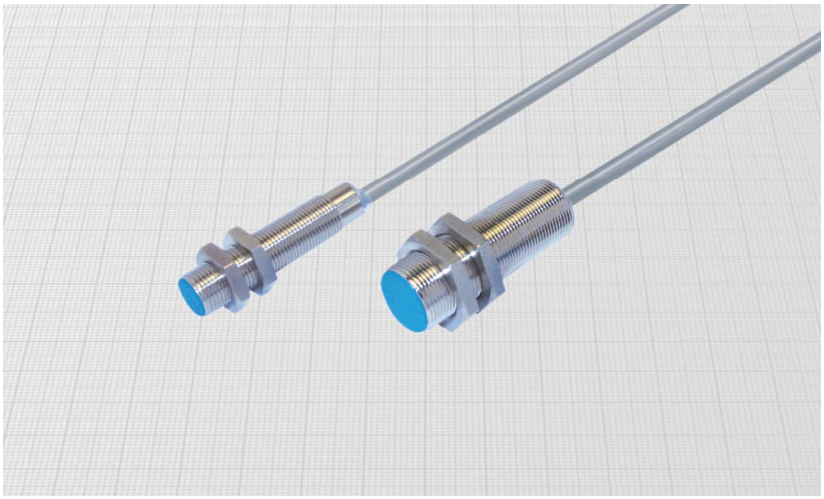
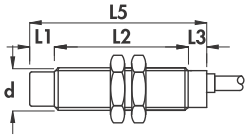
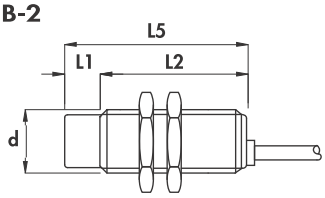
Diameters 12 - 18 mm •
Analogue with linear current output •
Cable output •



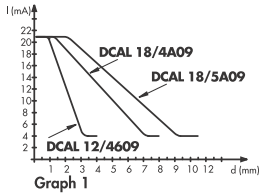
Housing B-3



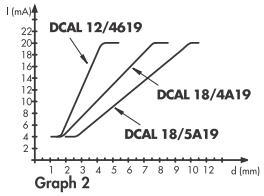
Housing B-2



Typical curves

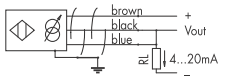


Graph 1



Graph 2

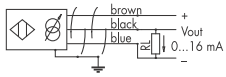
2-wire connection



Vout (V)	RL (ohm)	Vdc (min)
0,4 ... 2	100	12
2 ... 10	500	20
4 ... 20	1000	30

RL (max) = $\frac{(Vdc-10)}{20}$ KΩ

3-wire connection



Vout (V)	RL (ohm)	Vdc (min)
0 ... 1	62,5	11
0 ... 10	625	15
0 ... 16	1000	21
0 ... 20	1250	25
0 ... 30	1875	35

RL (max) = $\frac{(Vdc-5)}{16}$ KΩ

Diameter		M12 x 1	M18 x 1
Nut	Size	SW17	SW24
	Thickness mm	4	4
Max tightening torque Nm		15	35

Materials:

- Cable: 2 m PVC CEI 20 - 22 II; 90°C; 300 V; O.R. shielded
- Housing: nickel plated brass
- Sensing face: plastic

General Features:

These inductive proximity sensors provide an output current directly or reversely proportional to the distance between the sensing face and the metal target. The output current is also dependent on the material of the target, so they can be used not only to detect distances, displacement, vibration and smoothness but also to recognize the composition of metals and alloys. In the two wires configuration, they are reversal polarity and short circuit protected devices compliant to the 4-20 mA industrial standard.

Use of the sensor:

The output current flows through the external load RL generating a voltage (V_o) used to drive the input stage of the measuring instrument. The correct value of RL can be chosen accordingly to the values of power supply Vdc and the required Vout range as per the data in the tables.

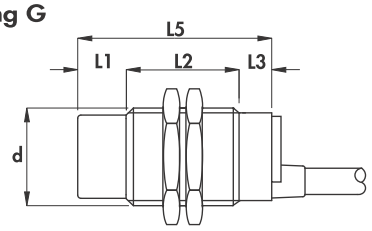
Technical data:

- Supply voltage: 10 ÷ 40 Vdc
- Max ripple: 20%
- Output current range: 0 ÷ 16 mA or 4 ÷ 20 mA
- Temperature range: - 10° ÷ + 70°C
- Max thermal drift: < 10%
- Degree of protection: IP67
- Cable conductor cross section: 0,22 mm² + shield on 12 mm
  0,35 mm² + shield on 18 mm
- Electromagnetic compatibility (EMC) according to EN61000-6-2/-4 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

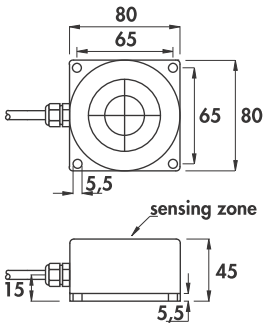
Housing	Flush mounting / Non flush mounting	L1	L2	L3	L5	Cable diameter	Body diameter (d)	Linearity error max	No-load supply current	Max switching frequency (f)	Repeat accuracy (R)	Measurement range	ORDERING REFERENCES	
													INVERSELY PROPORTIONAL Graph 1	DIRECTLY PROPORTIONAL Graph 2
		mm	mm	mm	mm	mm	mm	%	mA	Hz	%	mm		
B - 3	•	-	43	7	50	4	M12 x 1	5	4	250	0,5	1 ÷ 4	**DCAL12/4609**	**DCAL12/4619**
D - 1	•	-	50	-	50	5	M18 x 1	3	4	250	0,5	2 ÷ 7	**DCAL18/4A09**	**DCAL18/4A19**
D - 1	•	10	40	-	50	5	M18 x 1	3	4	250	0,5	3 ÷ 9	**DCAL18/5A09**	**DCAL18/5A19**

- **Diameters 30 - 80 mm**
- **Analogue with linear current output**
- Cable output

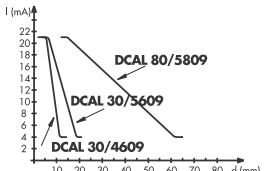
Housing G



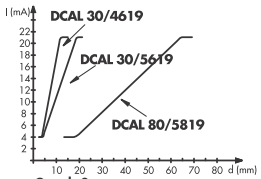
Housing P



Typical curves

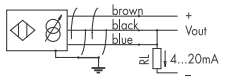


Graph 1



Graph 2

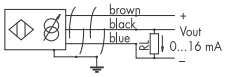
2-wire connection



Vout (V)	RL (ohm)	Vdc (min)
0,4 ... 2	100	15
2 ... 10	500	20
4 ... 20	1000	30

RL (max) = $\frac{(Vdc-10)}{20}$ KΩ

3-wire connection



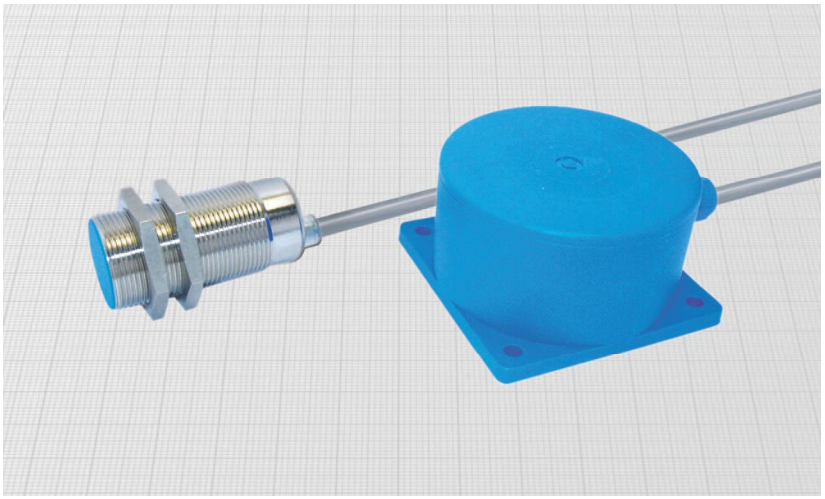
Vout (V)	RL (ohm)	Vdc (min)
0 ... 1	62,5	11
0 ... 10	625	15
0 ... 16	1000	21
0 ... 20	1250	25
0 ... 30	1875	35

RL (max) = $\frac{(Vdc-5)}{16}$ KΩ

Diameter		M30 x 1,5
Nut	Size	SW36
	Thickness mm	5
Max tightening torque Nm		80

Materials:

- Cable: 2 m PVC CEI 20 - 22 II; 90°C; 300 V; O.R. shielded
- Housing 30 mm: nickel plated brass
- Housing 80 mm: plastic
- Sensing face: plastic



General Features:

These inductive proximity sensors provide an output current directly or reversely proportional to the distance between the sensing face and the metal target. The output current is also dependent on the material of the target, so they can be used not only to detect distances, displacement, vibration and smoothness but also to recognize the composition of metals and alloys. In the two wires configuration, they are reversal polarity and short circuit protected devices compliant to the 4-20 mA industrial standard.

Use of the sensor:

The output current flows through the external load RL generating a voltage (V_o) used to drive the input stage of the measuring instrument. The correct value of RL can be chosen accordingly to the values of power supply Vdc and the required Vout range as per the data in the tables.

Technical data:

- Supply voltage: 10 ÷ 40 Vdc
- Max ripple: 20%
- Output current range: 0 ÷ 16 mA or 4 ÷ 20 mA
- Temperature range: - 10° ÷ + 70°C
- Max thermal drift: < 10%
- Degree of protection: IP67
- Electromagnetic compatibility (EMC) according to EN61000-6-2/-4 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting	Non flush mounting	L1	L2	L3	L4	L5	Cable diameter	Body diameter (d)	Max switching frequency (f)	Repeat accuracy (R)	Maximum linearity error	No-load supply current	Measurement range	ORDERING REFERENCES	
															INVERSELY PROPORTIONAL Graph 1	DIRECTLY PROPORTIONAL Graph 2
			mm	mm	mm	mm	mm	mm	mm	Hz	%	%	mA	mm		
G	•		-	50	10	-	60	5	M30 x 1,5	250	0,5	5	4	4 ÷ 12	**DCAL30/4609**	**DCAL30/4619**
G		•	15	35	10	-	60	5	M30 x 1,5	250	0,5	5	4	5 ÷ 18	**DCAL30/5609**	**DCAL30/5619**
P	•		-	-	-	-	-	5	80	250	0,5	5	4	20 ÷ 60	**DCAL80/5809**	**DCAL80/5819**

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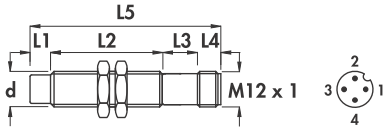
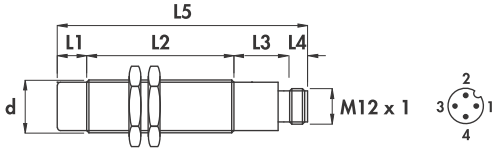
Diameters 12 - 18 mm •
Analogue with linear current output •
Connector output M12 x 1 •

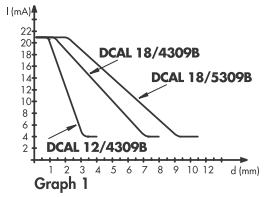
Housing A-7



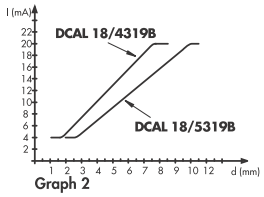
Housing I-12



Typical curves

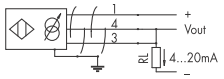


Graph 1



Graph 2

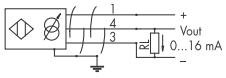
2-wire connection



Vout (V)	RL (ohm)	Vdc (min)
0,4 ... 2	100	15
2 ... 10	500	20
4 ... 20	1000	30

RL (max) = $\frac{(Vdc-10)}{20}$ KΩ

3-wire connection



Vout (V)	RL (ohm)	Vdc (min)
0 ... 1	62,5	11
0 ... 10	625	15
0 ... 16	1000	21
0 ... 20	1250	25
0 ... 30	1875	35

RL (max) = $\frac{(Vdc-5)}{16}$ KΩ

Diameter		M12 x 1	M18 x 1
Nut	Size	SW17	SW24
	Thickness mm	4	4
Max tightening torque Nm		15	35

Materials:

- Housing: nickel plated brass
- Sensing face: plastic

General Features:

These inductive proximity sensors provide an output current directly or reversely proportional to the distance between the sensing face and the metal target. The output current is also dependent on the material of the target, so they can be used not only to detect distances, displacement, vibration and smoothness but also to recognize the composition of metals and alloys. In the two wires configuration, they are reversal polarity and short circuit protected devices compliant to the 4-20 mA industrial standard.
It is recommended the use of connectors without LED.
For applications subjected to high levels of electromagnetic interferences, it is recommended the use of the straight connector with shielded cable type C10/00...VS which offers a 360° shielding.

Use of the sensor:

The output current flows through the external load RL generating a voltage (V_o) used to drive the input stage of the measuring instrument. The correct value of RL can be chosen accordingly to the values of power supply Vdc and the required Vout range as per the data in the tables.

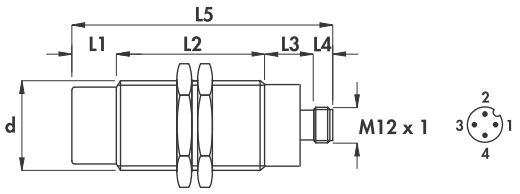
Technical data:

- Supply voltage: 10 ÷ 40 Vdc
- Max ripple: 20%
- Output current range: 0 ÷16 mA or 4 ÷ 20 mA
- Temperature range: - 10° ÷ + 70°C
- Max thermal drift: < 10%
- Degree of protection: IP67
- Electromagnetic compatibility (EMC) according to EN61000-6-2/-4 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

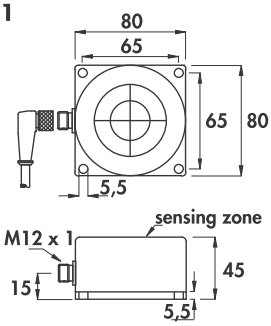
Housing	Flush mounting / Non flush mounting	L1	L2	L3	L4	L5	Female connector	Body diameter (d)	Max switching frequency (f)	Repeat accuracy	Maximum linearity error	No-load supply current	Measurement range	ORDERING REFERENCES	
														INVERSELY PROPORTIONAL Graph 1	DIRECTLY PROPORTIONAL Graph 2
		mm	mm	mm	mm	mm	n°	mm	Hz	%	%	mA	mm		
A-7	•	-	43	15	8	66	6-8B-10	M12 x 1	250	0,5	5	4	1 ÷ 4	**DCAL12/4309B**	-
I-12	•	-	50	14	10	74	6-8B-10	M18 x 1	250	0,5	3	4	2 ÷ 7	**DCAL18/4309B**	**DCAL18/4319B**
I-12	•	10	50	14	10	84	6-8B-10	M18 x 1	250	0,5	3	4	3 ÷ 9	**DCAL18/5309B**	**DCAL18/5319B**

- **Diameters 30 - 80 mm**
- **Analogue with linear current output**
- Connector output M12 x 1

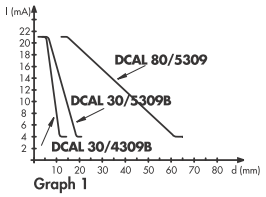
Housing A-2



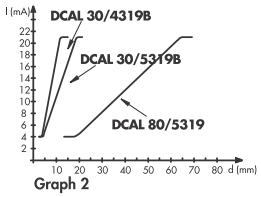
Housing P-1



Typical curves

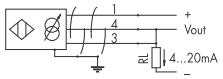


Graph 1



Graph 2

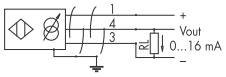
2-wire connection



Vout (V)	RL (ohm)	Vdc (min)
0,4 ... 2	100	15
2 ... 10	500	20
4 ... 20	1000	30

RL (max) = $\frac{(Vdc-10)}{20}$ KΩ

3-wire connection



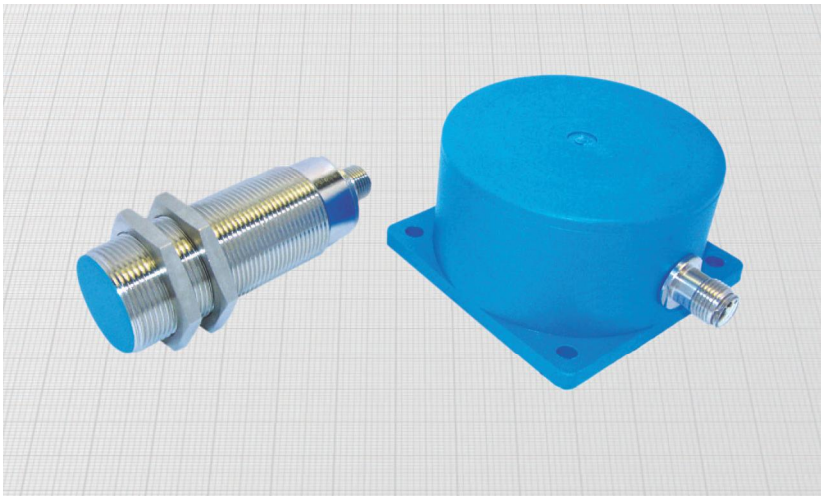
Vout (V)	RL (ohm)	Vdc (min)
0 ... 1	62,5	11
0 ... 10	625	15
0 ... 16	1000	21
0 ... 20	1250	25
0 ... 30	1875	35

RL (max) = $\frac{(Vdc-5)}{16}$ KΩ

Diameter		M30 x 1,5
Nut	Size	SW36
	Thickness mm	5
Max tightening torque Nm		80

Materials:

- Housing 30 mm: nickel plated brass
- Housing 80 mm: plastic
- Sensing face: plastic



General Features:

These inductive proximity sensors provide an output current directly or reversely proportional to the distance between the sensing face and the metal target. The output current is also dependent on the material of the target, so they can be used not only to detect distances, displacement, vibration and smoothness but also to recognize the composition of metals and alloys. In the two wires configuration, they are reversal polarity and short circuit protected devices compliant to the 4-20 mA industrial standard.
It is recommended the use of connectors without LED.
For applications subjected to high levels of electromagnetic interferences, it is recommended the use of the straight connector with shielded cable type C10/00...VS which offers a 360° shielding.

Use of the sensor:

The output current flows through the external load RL generating a voltage (V_o) used to drive the input stage of the measuring instrument. The correct value of RL can be chosen accordingly to the values of power supply Vdc and the required Vout range as per the data in the tables.

Technical data:

- Supply voltage: 10 ÷ 40 Vdc
- Max ripple: 20%
- Output current range: 0 ÷16 mA or 4 ÷ 20 mA
- Temperature range: - 10° ÷ + 70°C
- Max thermal drift: < 10%
- Degree of protection: IP67
- Electromagnetic compatibility (EMC) according to EN61000-6-2/-4 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting	Non flush mounting	L1	L2	L3	L4	L5	Female connector	Body diameter (d)	Max switching frequency (f)	Repeat accuracy	Maximum linearity error	No-load supply current	Measurement range	ORDERING REFERENCES	
															INVERSELY PROPORTIONAL Graph 1	DIRECTLY PROPORTIONAL Graph 2
			mm	mm	mm	mm	mm	n°	mm	Hz	%	%	mA	mm		
A - 2	•		-	65	15	8	88	6 - 8B - 10	M30 x 1,5	250	0,5	5	4	4 ÷ 12	**DCAL30/4309B**	**DCAL30/4319B**
A - 2		•	15	50	15	8	88	6 - 8B - 10	M30 x 1,5	250	0,5	5	4	5 ÷ 18	**DCAL30/5309B**	**DCAL30/5319B**
P - 1		•	-	-	-	-	-	6 - 8B - 10	80	250	0,5	5	4	20 ÷ 60	**DCAL80/5309**	**DCAL80/5319**

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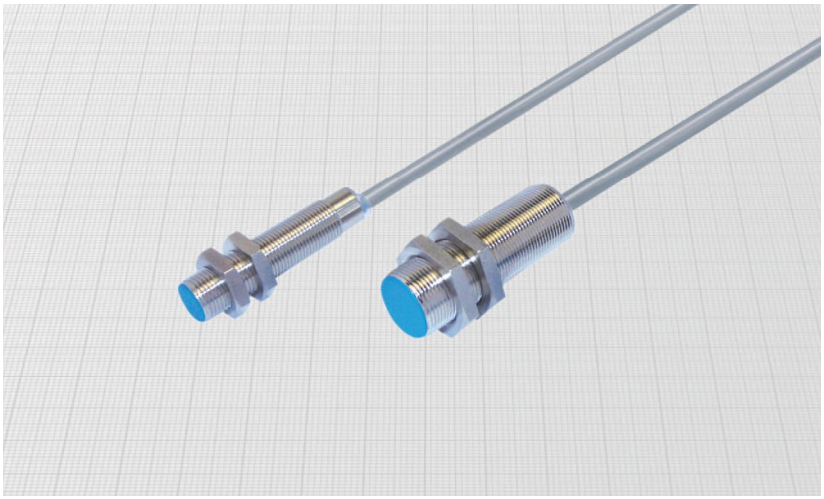
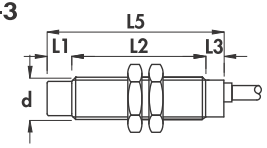
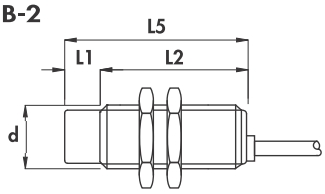
Diameters 12 - 30 mm •
Analogue with linear voltage output •
Cable output •



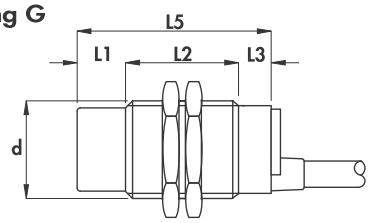
Housing B-3



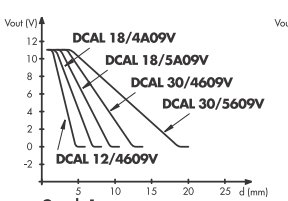
Housing B-2



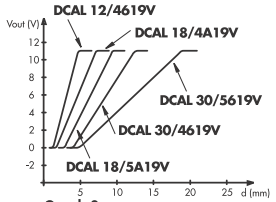
Housing G



Typical curves

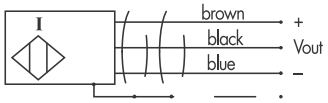


Graph 1



Graph 2

Connections



Diameter		M12 x 1	M18 x 1	M30 x 1,5
Nut	Size	SW17	SW24	SW36
	Thickness mm	4	4	5
Max tightening torque Nm		15	35	80

Materials:

- Cable: 2 m PVC CEI 20 - 22 II; 90°C; 300 V; O.R. shielded
- Housing: nickel plated brass
- Sensing face: plastic

General Features:

These inductive proximity sensors provide an output voltage 0÷10V directly or reversely proportional to the distance between the sensing face and the metal target. The output voltage is also dependent on the material of the target, so they can be used not only to detect distances, displacement, vibration and smoothness but also to recognize the composition of metals and alloys.

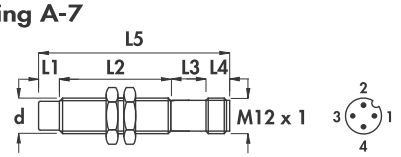
Technical data:

- Supply voltage: 15 ÷ 40 Vdc
- Max ripple: 20%
- Voltage drop output: 0 ÷ 10 V
- Temperature range: - 10° ÷ + 70°C
- Max thermal drift: < 10%
- Degree of protection: IP67
- Cable conductor cross section: 0,22 mm² + shield on 12 mm
  0,35 mm² + shield on 18 - 30 mm
- Electromagnetic compatibility (EMC) according to EN61000-6-2/-4 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

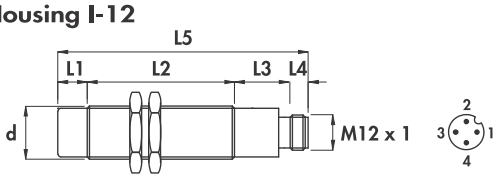
Housing	Flush mounting / Non flush mounting	L1	L2	L3	L5	Cable diameter	Body diameter (d)	Max switching frequency (f)	Repeat accuracy	Maximum linearity error	No-load supply current	Measurement range	ORDERING REFERENCES	
													INVERSELY PROPORTIONAL Graph 1	DIRECTLY PROPORTIONAL Graph 2
		mm	mm	mm	mm	mm	mm	Hz	%	%	mA	mm		
B - 3	•	-	43	7	50	4	M12 x 1	250	0,5	3	4	1 ÷ 4	**DCAL12/4609V**	**DCAL12/4619V**
B - 2	•	-	50	-	50	5	M18 x 1	250	0,5	3	4	2 ÷ 7	**DCAL18/4A09V**	**DCAL18/4A19V**
B - 2	•	10	40	-	50	5	M18 x 1	250	0,5	3	4	3 ÷ 9	**DCAL18/5A09V**	**DCAL18/5A19V**
G	•	-	50	10	60	5	M30 x 1,5	250	0,5	5	4	4 ÷ 12	**DCAL30/4609V**	**DCAL30/4619V**
G	•	15	35	10	60	5	M30 x 1,5	250	0,5	5	4	5 ÷ 18	**DCAL30/5609V**	**DCAL30/5619V**

- **Diameters 12 - 30 mm**
- **Analogue with linear voltage output**
- Connector output M12 x 1

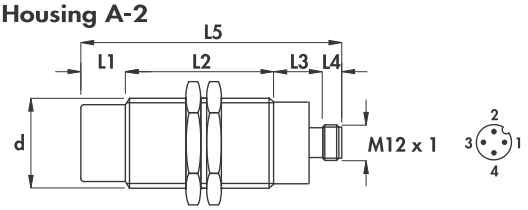
Housing A-7



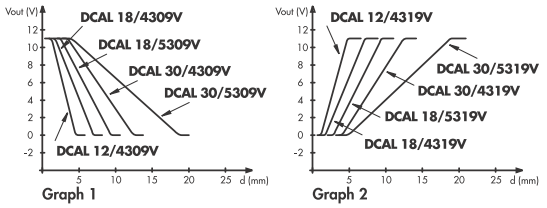
Housing I-12



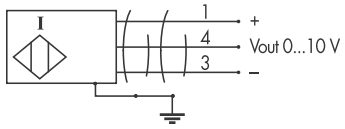
Housing A-2



Typical curves



Connections



Diameter		M12 x 1	M18 x 1	M30 x 1,5
Nut	Size	SW17	SW24	SW36
	Thickness mm	4	4	5
Max tightening torque Nm		15	35	80

Materials:

- Housing: nickel plated brass
- Sensing face: plastic

General Features:

These inductive proximity sensors provide an output voltage 0÷10V directly or reversely proportional to the distance between the sensing face and the metal target. The output voltage is also dependent on the material of the target, so they can be used not only to detect distances, displacement, vibration and smoothness but also to recognize the composition of metals and alloys.
It is recommended the use of connectors without LED.
For applications subjected to high levels of electromagnetic interferences, it is recommended the use of the straight connector with shielded cable type C10/00...VS which offers a 360° shielding.

Technical data:

- Supply voltage: 15 ÷ 40 Vdc
- Max ripple: 20%
- Output current range: 0 ÷ 10 V
- Temperature range: - 10° ÷ + 70°C
- Max thermal drift: < 10%
- Degree of protection: IP67
- Electromagnetic compatibility (EMC) according to EN61000-6-2/-4 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting / Non flush mounting	L1	L2	L3	L4	L5	Female connector	Body diameter (d)	Max switching frequency (f)	Repeat accuracy	Maximum linearity error	No-load supply current	Measurement range	ORDERING REFERENCES	
														INVERSELY PROPORTIONAL Graph 1	DIRECTLY PROPORTIONAL Graph 2
		mm	mm	mm	mm	mm	n°	mm	Hz	%	%	mA	mm		
A-7	•	-	43	15	8	66	6-8B-10	M12 x 1	250	0,5	5	4	1 ÷ 4	**DCAL12/4309V**	**DCAL12/4319V**
I-12	•	-	50	14	10	74	6-8B-10	M18 x 1	250	0,5	3	4	2 ÷ 7	**DCAL18/4309V**	**DCAL18/4319V**
I-12	•	10	50	14	10	84	6-8B-10	M18 x 1	250	0,5	3	4	3 ÷ 9	**DCAL18/5309V**	**DCAL18/5319V**
A-2	•	-	65	15	8	88	6-8B-10	M30 x 1,5	250	0,5	5	4	4 ÷ 12	**DCAL30/4309V**	**DCAL30/4319V**
A-2	•	15	50	15	8	88	6-8B-10	M30 x 1,5	250	0,5	5	4	5 ÷ 18	**DCAL30/5309V**	**DCAL30/5319V**

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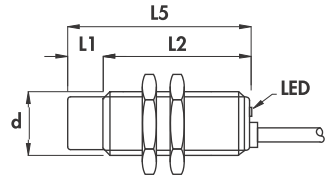
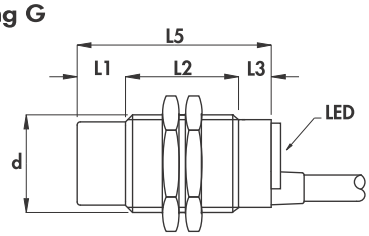
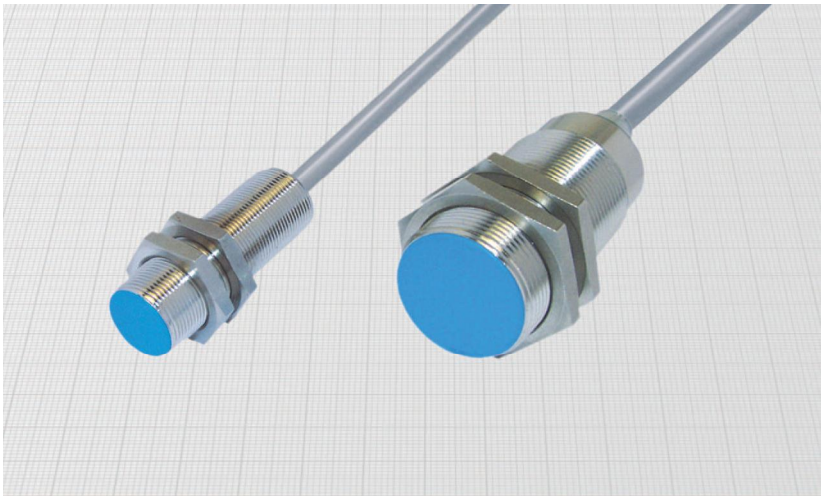
5 output functions •
Amplified in d.c. + a.c. 2-wire •
Cable output •

Housing B-2



Housing G





Diameter		M18 x 1	M30 x 1,5
Nut	Size	SW24	SW36
	Thickness mm	4	5
Max tightening torque Nm		35	80

Materials:

- Cable: 2 m PVC CEI 20 - 22 II; 90°C; 300 V; O.R.
- Housing: nickel plated brass
- Sensing face: plastic

General Features:

When used in a.c. they work as normally open devices. When used in d.c. they can work either as normally open or normally closed simply by reversing the connection wires.
The load can be connected either on the positive or on the negative pole. These sensors provide the four functions of traditional 3-wire amplified sensors: PNP - NO; PNP - NC; NPN - NO; NPN - NC. Except for a.c. working in many applications they can replace directly electromechanical microswitches.

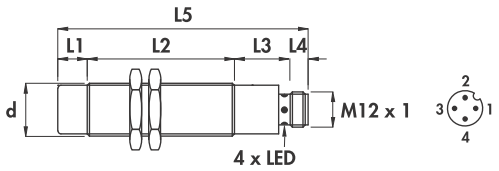
Technical data:

- Supply voltage (U_B): 10 ÷ 60 Vdc/Vac
- Electrical system frequency: 40 ÷ 60 Hz
- Max ripple: 10%
- Off-state current (I_r): ≤ 0,6 mA
- Minimum operational current (I_m): 5 mA
- Rated operational current (I_e): 400 mA
- Voltage drop (U_d): ≤ 4 V
- Temperature range: - 20° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- LED indication: yellow = output state; blinking red = output short circuit
- Cable conductor cross section: 0,75 mm²
- Protected against short-circuit and overload
- Suppression of initial false impulse
- Class 2 equipment according to EN61140
- Shock and vibration according to EN60068-2-27 EN60068-2-6
- Electromagnetic compatibility (EMC) according to EN61000-6-2/- 4 CE

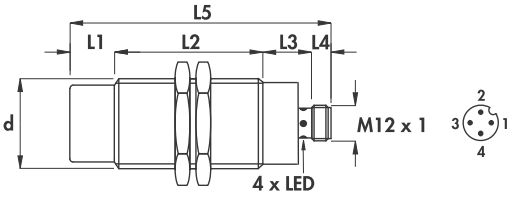
Housing	Flush mounting / Non flush mounting	L1	L2	L3	L5	Cable diameter	Body diameter (d)	Max switching frequency (f)	Nominal sensing distance (S_n) ±10%	ORDERING REFERENCES PNP NO	PNP NC	NPN NO	NPN NC	A.C. NO
		mm	mm	mm	mm	mm	mm	Hz	mm					
B-2	•	-	50	-	50	5	M18 x 1	800	5	**DX18/4A5XKS**				
B-2	•	10	40	-	50	5	M18 x 1	400	8	**DX18/5A5XKS**				
G	•	-	50	10	60	5	M30 x 1,5	600	10	**DX30/465XKS**				
G	•	15	35	10	60	5	M30 x 1,5	300	15	**DX30/565XKS**				

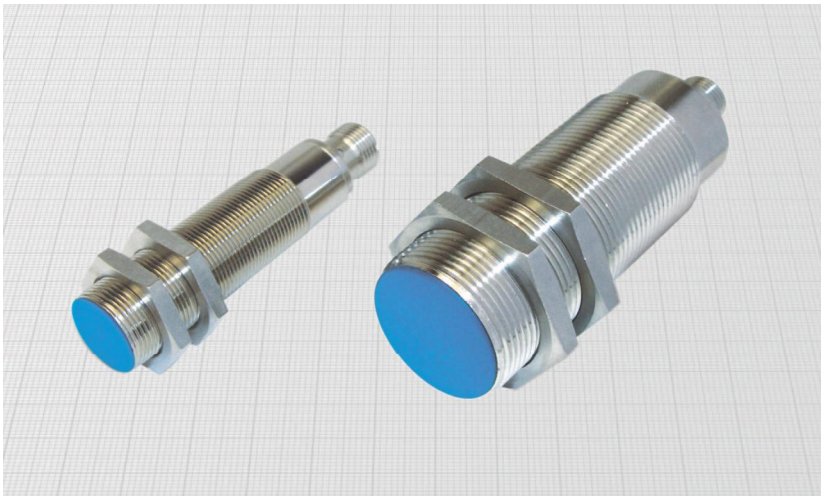
- **5 output functions**
- **Amplified in d.c. + a.c. 2-wire**
- Connector output M12 x 1

Housing I-12



Housing I-2





Diameter		M18 x 1	M30 x 1,5
Nut	Size	SW24	SW36
	Thickness mm	4	5
Max tightening torque Nm		35	80

Materials:

- Housing: nickel plated brass
- Sensing face: plastic

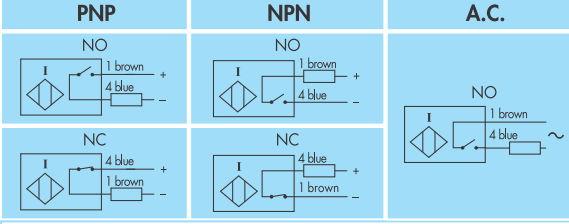
General Features:

When used in a.c. they work as normally open devices. When used in d.c. they can work either as normally open or normally closed simply by reversing the connection wires.
The load can be connected either on the positive or on the negative pole. These sensors provide the four functions of traditional 3-wire amplified sensors except for a.c. working. In many applications they can replace directly electromechanical microswitches.

Technical data:

- Supply voltage (U_B): 10 ÷ 60 Vdc/Vac
- Electrical system frequency: 40 ÷ 60 Hz
- Max ripple: 10%
- Off-state current (I_r): ≤ 0,6 mA
- Minimum operational current (I_m): 5 mA
- Voltage drop (U_d): ≤ 4 V
- Temperature range: - 20° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Protected against short-circuit and overload
- Suppression of initial false impulse
- Class 2 equipment according to EN61140
- Shock and vibration according to EN60068-2-27 EN60068-2-6
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE

Housing	Flush mounting / Non flush mounting	L1	L2	L3	L4	L5	Female connector	Body diameter (d)	Max switching frequency (f)	Rated operational current (I_e)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES PNP	NPN	A.C.
		mm	mm	mm	mm	mm	n°	mm	Hz	mA	mm			
I-12	•	-	50	19	8	77	6 - 8B -10	M18 x 1	800	400	5			
I-12	•	10	50	19	8	87	6 - 8B -10	M18 x 1	400	400	8			
I - 2	•	-	65	17	8	90	6 - 8B -10	M30 x 1,5	600	400	10			
I - 2	•	15	50	17	8	90	6 - 8B -10	M30 x 1,5	300	400	15			



DX18/435XKS
DX18/535XKS
DX30/435XKS
DX30/535XKS

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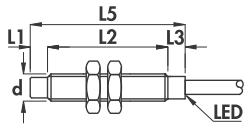
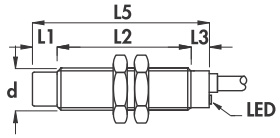
Voltage 10 ÷ 50 V≂ •
Amplified in d.c. + a.c. 2-wire •
Cable output •

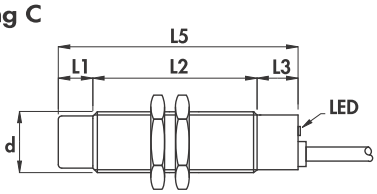
Housing B-6



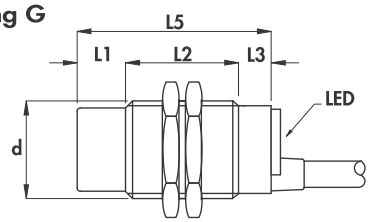
Housing B-3



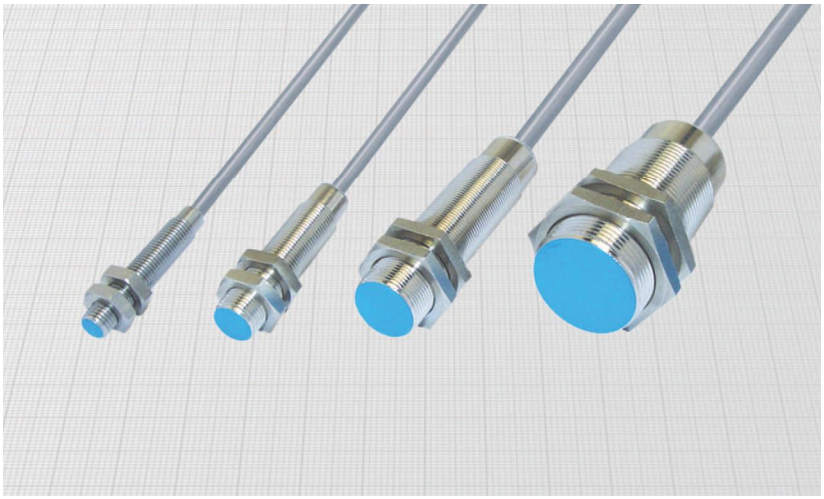
Housing C



Housing G



Diameter		M8 x 1	M12 x 1	M18 x 1	M30 x 1,5
Nut	Size	SW13	SW17	SW24	SW36
	Thickness mm	4	4	4	5
Max tightening torque Nm		10	15	35	80



Materials:

- Cable: 2 m PVC CEI 20 - 22 II; 90°C; 300 V; O.R.
- Housing 8 mm: stainless steel
- Housing 12 - 18 - 30 mm: nickel plated brass
- Sensing face: plastic

General Features:

These sensors are able to work with either direct or alternating current. Voltage drop and residual current are very low. They are not polarized and the load can be connected either of the leads. In many applications they can be used to replace mechanical microswitches.

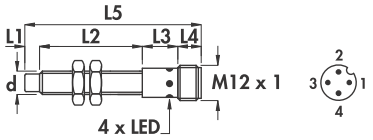
Technical data:

- Supply voltage (U_B): 10 ÷ 50 Vdc/Vac
- Electrical system frequency: 40 ÷ 60 Hz
- Off-state current (I_r): ≤ 1 mA
- Minimum operational current (I_m): 5 mA
- Voltage drop (U_d): ≤ 5 V
- Temperature range: - 25° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Cable conductor cross section: 0,35 mm² on 8 and 12 mm
  0,50 mm² on 18 mm
  0,75 mm² on 30 mm
- Protected against short-circuit and overload (versions with letter K)
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

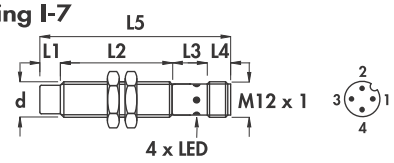
Housing	Flush mounting	Non flush mounting	L1	L2	L3	L4	L5	Cable diameter	Body diameter (d)	Max switching frequency (f) in d.c.	Max switching frequency (f) in a.c.	Rated operational current (I_e)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES NO	ORDERING REFERENCES NC
			mm	mm	mm	mm	mm	mm	mm	Hz	Hz	mA	mm		
B - 6	•		-	40	5	-	45	4	M8 x 1	1000	25	100	1,5	**AXM8/4600S**	**AXM8/4610S**
B - 6		•	5	35	5	-	45	4	M8 x 1	800	25	100	2,5	**AXM8/5600S**	**AXM8/5610S**
B - 3	•		-	43	7	-	50	4	M12 x 1	800	25	100	2	**AXM12/4600KS**	**AXM12/4610KS**
B - 3		•	7	36	7	-	50	4	M12 x 1	600	25	100	4	**AXM12/5600KS**	**AXM12/5610KS**
C	•		-	58	12	-	70	5	M18 x 1	800	25	200	5	**AXM18/4600KS**	**AXM18/4610KS**
C		•	10	48	12	-	70	5	M18 x 1	400	25	200	8	**AXM18/5600KS**	**AXM18/5610KS**
G	•		-	50	10	-	60	6	M30 x 1,5	400	25	200	10	**AXM30/4600KS**	**AXM30/4610KS**
G		•	15	35	10	-	60	6	M30 x 1,5	200	25	200	15	**AXM30/5600KS**	**AXM30/5610KS**

- **Supply 10 ÷ 50 V ≃**
- **Amplified in d.c. + a.c.**
- Connector output M12 x 1

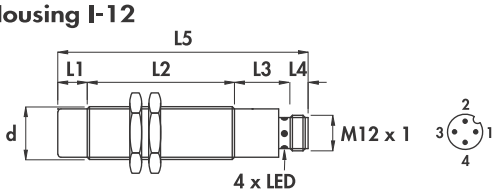
Housing I-11



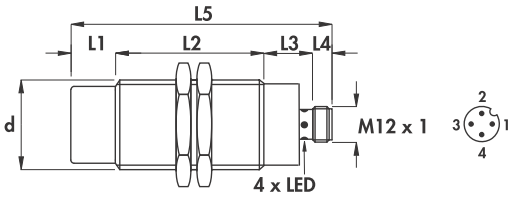
Housing I-7



Housing I-12



Housing I-2



Diameter		M8 x 1	M12 x 1	M18 x 1	M30 x 1,5
Nut	Size	SW13	SW17	SW24	SW36
	Thickness mm	4	4	4	5
Max tightening torque Nm		10	15	35	80

Materials:

- Housing 8 mm: stainless steel
- Housing 12 - 18 - 30 mm: nickel plated brass
- Sensing face: plastic

General Features:

These sensors are able to work with either direct or alternating current. Voltage drop and residual current are very low. They are not polarized and the load can be connected either of the leads. In many applications they can be used to replace mechanical microswitches.

Technical data:

- Supply voltage (U_B): 10 ÷ 50 Vdc/Vac
- Electrical system frequency: 40 ÷ 60 Hz
- Off-state current (I_r): ≤ 1 mA
- Minimum operational current (I_m): 5 mA
- Voltage drop (U_d): ≤ 5 V
- Temperature range: - 25° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Protected against short-circuit and overload (versions with letter K)
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting / Non flush mounting	L1	L2	L3	L4	L5	Female connector	Body diameter (d)	Max switching frequency (f) in d.c.	Max switching frequency (f) in a.c.	Rated operational current (I_e)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES NO	ORDERING REFERENCES NC
		mm	mm	mm	mm	mm	n°	mm	Hz	Hz	mA	mm	3 blue, 4 black	1 brown, 2 white
I-11	•	-	40	12	8	60	6-8B-10	M8 x 1	1000	25	100	1,5	**AXM8/4300S**	**AXM8/4310S**
I-11	•	5	35	12	8	60	6-8B-10	M8 x 1	800	25	100	2,5	**AXM8/5300S**	**AXM8/5310S**
I-7	•	-	43	15	8	66	6-8B-10	M12 x 1	800	25	100	2	**AXM12/4300KS**	**AXM12/4310KS**
I-7	•	7	36	15	8	66	6-8B-10	M12 x 1	600	25	100	4	**AXM12/5300KS**	**AXM12/5310KS**
I-12	•	-	50	19	8	77	6-8B-10	M18 x 1	800	25	200	5	**AXM18/4300KS**	**AXM18/4310KS**
I-12	•	10	50	19	8	87	6-8B-10	M18 x 1	400	25	200	8	**AXM18/5300KS**	**AXM18/5310KS**
I-2	•	-	65	17	8	90	6-8B-10	M30 x 1,5	400	25	200	10	**AXM30/4300KS**	**AXM30/4310KS**
I-2	•	15	50	17	8	90	6-8B-10	M30 x 1,5	200	25	200	15	**AXM30/5300KS**	**AXM30/5310KS**

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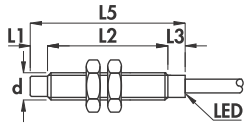
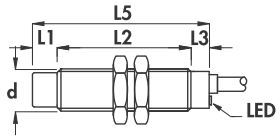
Voltage 20 ÷ 240 V≂ •
Amplified in d.c. + a.c. 2-wire •
Cable output •

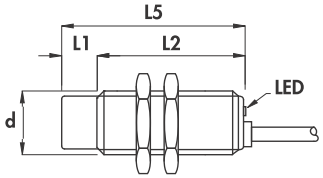
Housing B-6



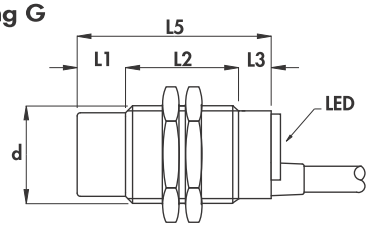
Housing B-3



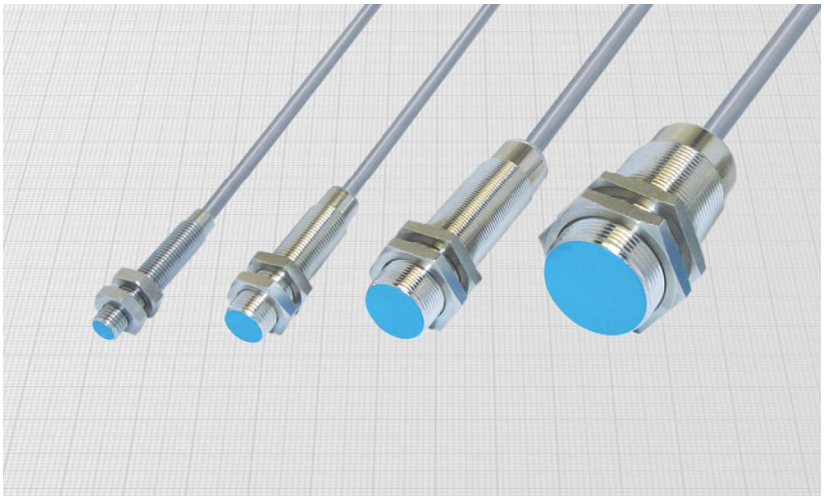
Housing B-2



Housing G



Diameter		M8 x 1	M12 x 1	M18 x 1	M30 x 1,5
Nut	Size	SW13	SW17	SW24	SW36
	Thickness mm	4	4	4	5
Max tightening torque Nm		10	15	35	80



Materials:

- Cable: 2 m PVC CEI 20 - 22 II; 90°C; 300 V; O.R.
- Housing 8 mm: stainless steel
- Housing 12 -18 - 30 mm: nickel plated brass
- Sensing face: plastic

General Features:

These sensors are able to work with either direct or alternating current. Voltage drop and residual current are very low. They are not polarized and the load can be connected either of the leads. In many applications they can be used to replace mechanical microswitches.

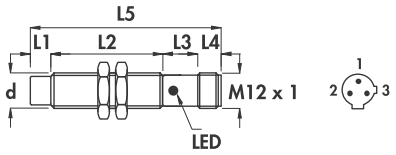
Technical data:

- Supply voltage (U_B): 20 ÷ 240 Vdc/Vac
- Electrical system frequency: 40 ÷ 60 Hz
- Off-state current (I_r) at 24 V: ≤ 1 mA
- Off-state current (I_r) at 220 V: ≤ 1,5 mA
- Minimum operational current (I_m): 5 mA
- Voltage drop (U_d): ≤ 5 V
- Temperature range: - 25° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Cable conductor cross section: 0,35 mm² on 8 and 12 mm
  0,50 mm² on 18 mm
  0,75 mm² on 30 mm
- Protected against short-circuit and overload (versions with letter K)
- Suppression of initial false impulse
- Class 2 equipment according to EN61140
- Shock and vibration according to EN60068-2-27 EN60068-2-6
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE

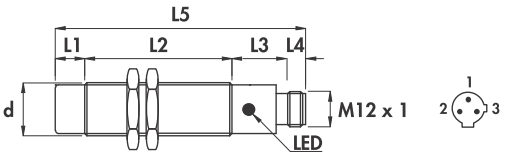
Housing	Flush mounting / Non flush mounting	L1	L2	L3	L4	L5	Cable diameter	Body diameter (d)	Max switching frequency (f) in d.c.	Max switching frequency (f) in a.c.	Rated operational current (I_e)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES NO	ORDERING REFERENCES NC
		mm	mm	mm	mm	mm	mm	mm	Hz	Hz	mA	mm		
B - 6	•	-	40	5	-	45	3,5	M8 x 1	1000	25	100	1,5	**AX8/4609S**	**AX8/4619S**
B - 6	•	5	35	5	-	45	3,5	M8 x 1	800	25	100	2,5	**AX8/5609S**	**AX8/5619S**
B - 3	•	-	43	7	-	50	4	M12 x 1	800	25	100	2	**AX12/4609KS**	**AX12/4619KS**
B - 3	•	7	36	7	-	50	4	M12 x 1	600	25	100	4	**AX12/5609KS**	**AX12/5619KS**
B - 2	•	-	50	-	-	50	5	M18 x 1	800	25	200	5	**AX18/4A09KS**	**AX18/4A19KS**
B - 2	•	10	40	-	-	50	5	M18 x 1	400	25	200	8	**AX18/5A09KS**	**AX18/5A19KS**
G	•	-	50	10	-	60	6	M30 x 1,5	400	25	200	10	**AX30/4609KS**	**AX30/4619KS**
G	•	15	35	10	-	60	6	M30 x 1,5	200	25	200	15	**AX30/5609KS**	**AX30/5619KS**

- **Voltage 20 ÷ 240 V ≃**
- **Amplified in d.c. + a.c.**
- Connector output M12 x 1

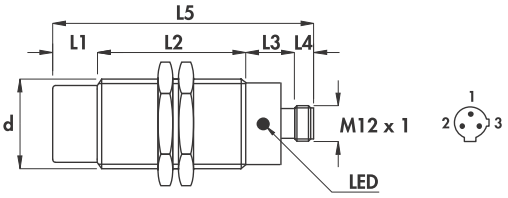
Housing A-7

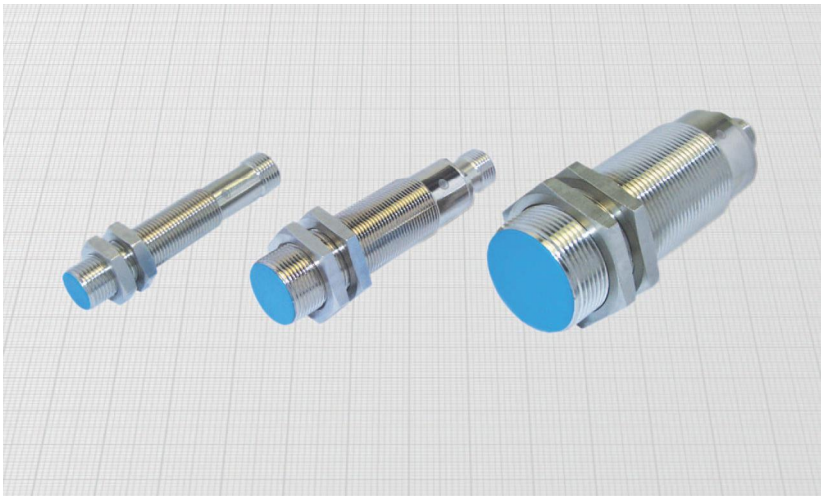


Housing A-1



Housing A-2





Diameter		M12x 1	M18 x 1	M30 x 1,5
Nut	Size	SW17	SW24	SW36
	Thickness mm	4	4	5
Max tightening torque Nm		15	35	80

Materials:

- Housing: nickel plated brass
- Sensing face: plastic

General Features:

These sensors are able to work with either direct or alternating current. Voltage drop and residual current are very low. They are not polarized and the load can be connected either of the leads. In many applications they can be used to replace mechanical microswitches.

Technical data:

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- Electrical system frequency: 40 ÷ 60 Hz
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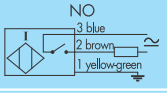
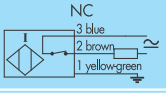
- Off-state current (I_r) at 220 V: ≤ 1,5 mA
- Minimum operational current (I_m): 5 mA
- Voltage drop (U_d): ≤ 5 V
- Temperature range: - 25° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Protected against short-circuit and overload
- Suppression of initial false impulse
- Class 2 equipment according to EN61140
- Shock and vibration according to EN60068-2-27 EN60068-2-6
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE

Housing	Flush mounting / Non flush mounting	L1	L2	L3	L4	L5	Female connector	Body diameter (d)	Max switching frequency (f) in d.c.	Max switching frequency (f) in a.c.	Rated operational current (I_e)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES NO	ORDERING REFERENCES NC
		mm	mm	mm	mm	mm	n°	mm	Hz	Hz	mA	mm		
A-7	•	-	43	15	8	66	17-18	M12 x 1	800	25	100	2	**AX12/4009KS**	**AX12/4019KS**
A-7	•	7	36	15	8	66	17-18	M12 x 1	600	25	100	4	**AX12/5009KS**	**AX12/5019KS**
A-1	•	-	50	19	8	77	17-18	M18 x 1	800	25	200	5	**AX18/4009KS**	**AX18/4019KS**
A-1	•	10	50	19	8	87	17-18	M18 x 1	400	25	200	8	**AX18/5009KS**	**AX18/5019KS**
A-2	•	-	65	17	8	90	17-18	M30 x 1,5	400	25	200	10	**AX30/4009KS**	**AX30/4019KS**
A-2	•	15	50	17	8	90	17-18	M30 x 1,5	200	25	200	15	**AX30/5009KS**	**AX30/5019KS**

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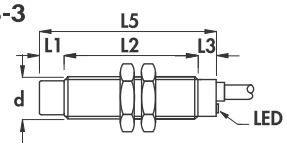
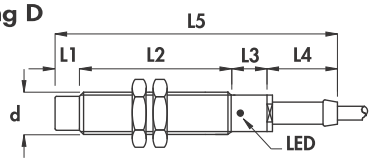
Diameters 12 - 18 mm •
Amplified in a.c. 2-wire •
Cable output •

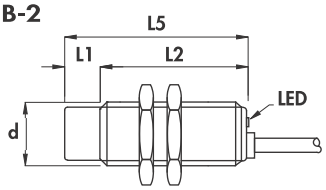
Housing B-3



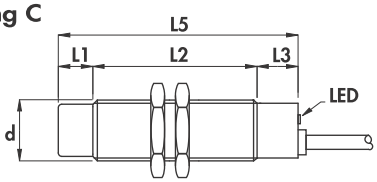
Housing D



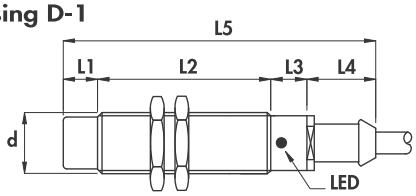
Housing B-2



Housing C



Housing D-1



Diameter		M12 x 1	M18 x 1
Nut	Size	SW17	SW24
	Thickness mm	4	4
Max tightening torque Nm		15	35

Technical data:

- Supply voltage (U_B): 20 ÷ 240 Vac
- Electrical system frequency: 40 ÷ 60 Hz
- Off-state current (I_r): ≤1,5 mA at 110 Vac
- Minimum operational current (I_m): 5 mA
- Voltage drop (U_d): ≤ 5 V
- Temperature range: - 25° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Cable conductor cross section: 0,35 mm² on 12 mm
  0,50 mm² on 18 mm (Housing C)
  0,75 mm² on 18 mm (Housing D - 1)
- Suppression of initial false impulse
- Class 2 equipment according to EN61140
- Shock and vibration according to EN60068-2-27 EN60068-2-6
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE

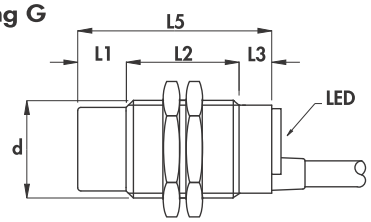
Materials:

- Cable: 2 m PVC CEI 20 - 22 II; 90°C; 300 V; O.R.
- Housing: nickel plated brass
- Sensing face: plastic

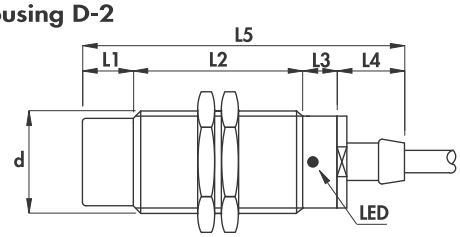
Housing	Flush mounting / Non flush mounting	L1	L2	L3	L4	L5	Cable diameter	Body diameter (d)	Max switching frequency (f)	Rated operational current (I_e)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES NO	ORDERING REFERENCES NC
		mm	mm	mm	mm	mm	mm	mm	Hz	mA	mm		
B-3	•	-	43	7	-	50	4	M12 x 1	25	500	2	**AC12/4609S**	**AC12/4619S**
D	•	-	50	10	20	80	4	M12 x 1	25	500	2	**AC12/4709S**	**AC12/4719S**
B-3	•	7	36	7	-	50	4	M12 x 1	25	500	4	**AC12/5609S**	**AC12/5619S**
D	•	7	43	10	20	80	4	M12 x 1	25	500	4	**AC12/5709S**	**AC12/5719S**
C	•	-	60	10	-	70	5	M18 x 1	25	500	5	**AC18/4609S**	**AC18/4619S**
B-2	•	-	50	-	-	50	5	M18 x 1	25	500	5	**AC18/4A09S**	**AC18/4A19S**
D-1	•	-	60	12	20	92	6	M18 x 1	25	500	5	**AC18/4709S**	**AC18/4719S**
B-2	•	10	40	-	-	50	5	M18 x 1	25	500	8	**AC18/5A09S**	**AC18/5A19S**
D-1	•	10	50	12	20	92	6	M18 x 1	25	500	8	**AC18/5709S**	**AC18/5719S**
C	•	10	50	10	-	70	5	M18 x 1	25	500	8	**AC18/5609S**	**AC18/5619S**

- **Diameters 30 - 45 mm**
- **Amplified in a.c. 2-wire**
- Cable output

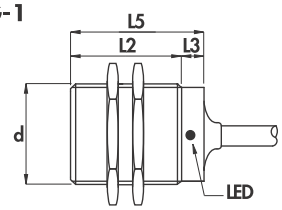
Housing G

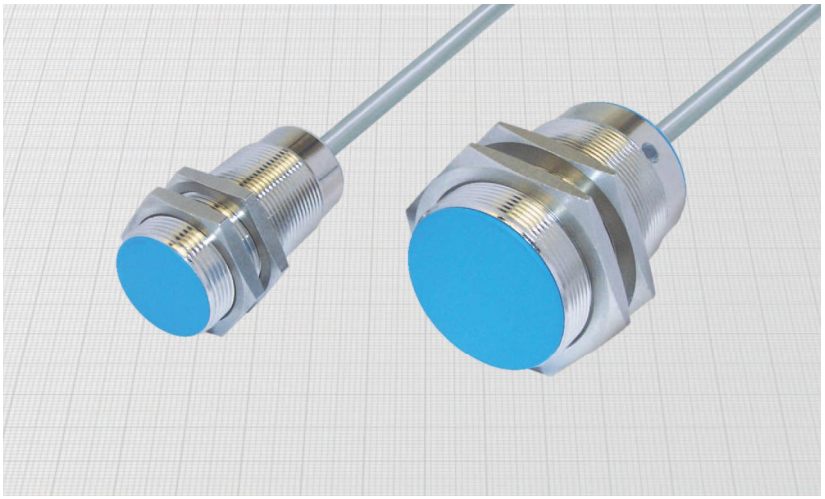


Housing D-2



Housing G-1





Diameter		M30 x 1,5	M45 x 1,5
Nut	Size	SW17	SW36
	Thickness mm	5	5
Max tightening torque Nm		80	70

Materials:

- Cable: 2 m PVC CEI 20 - 22 II; 90°C; 300 V; O.R.
- Housing: nickel plated brass
- Sensing face: plastic

Technical data:

- Supply voltage (U_B): 20 ÷ 240 Vac
- Electrical system frequency: 40 ÷ 60 Hz
- Off-state current (I_r): ≤1,5 mA at 110 Vac
- Minimum operational current (I_m): 5 mA
- Voltage drop (U_d): ≤ 5 V
- Temperature range: - 25° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Cable conductor cross section: 0,75 mm²
- Suppression of initial false impulse
- Class 2 equipment according to EN61140
- Shock and vibration according to EN60068-2-27 EN60068-2-6
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE

Housing	Flush mounting / Non flush mounting	L1	L2	L3	L4	L5	Cable diameter	Body diameter (d)	Max switching frequency (f)	Rated operational current (I_e)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES NO	ORDERING REFERENCES NC
		mm	mm	mm	mm	mm	mm	mm	Hz	mA	mm		
G	•	-	50	10	-	60	6	M30 x 1,5	20	500	10	**AC30/4609S**	**AC30/4619S**
D-2	•	-	65	10	20	95	6	M30 x 1,5	20	500	10	**AC30/4709S**	**AC30/4719S**
G	•	15	35	10	-	60	6	M30 x 1,5	20	500	15	**AC30/5609S**	**AC30/5619S**
D-2	•	15	50	10	20	95	6	M30 x 1,5	20	500	15	**AC30/5709S**	**AC30/5719S**
G-1	•	-	50	10	-	60	6	M45 x 1,5	20	500	20	**AC45/4609S**	**AC45/4619S**

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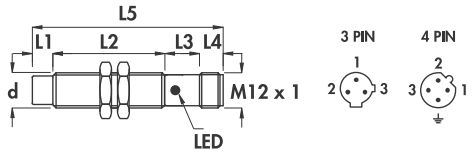
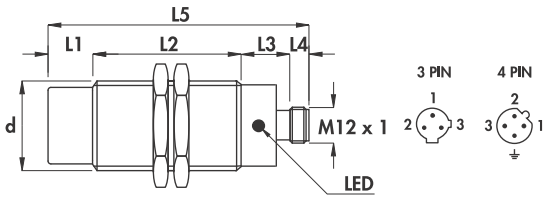
Diameters 12 - 18 mm •
Amplified in a.c. •
Connector output M12 x 1 •

Housing A-7



Housing A-1



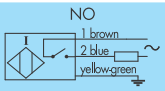
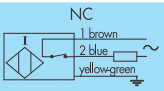
Diameter		M12 x 1	M18 x 1
Nut	Size	SW17	SW24
	Thickness mm	4	4
Max tightening torque Nm		15	35

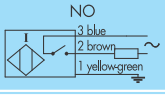
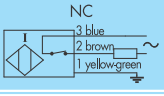
Materials:

- Housing: nickel plated brass
- Sensing face: plastic

Technical data:

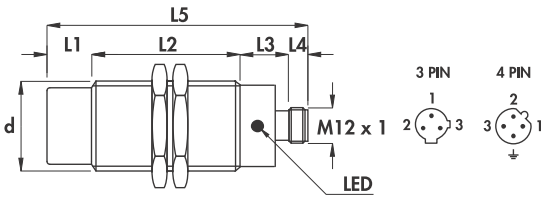
- Supply voltage (U_B): 20 ÷ 240 Vac
- Electrical system frequency: 40 ÷ 60 Hz
- Off-state current (I_r): ≤1,5 mA at 110 Vac
- Minimum operational current (I_m): 5 mA
- Voltage drop (U_d): ≤ 5 V
- Temperature range: - 25° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Suppression of initial false impulse
- Shock and vibration according to EN60068-2-27 EN60068-2-6
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE

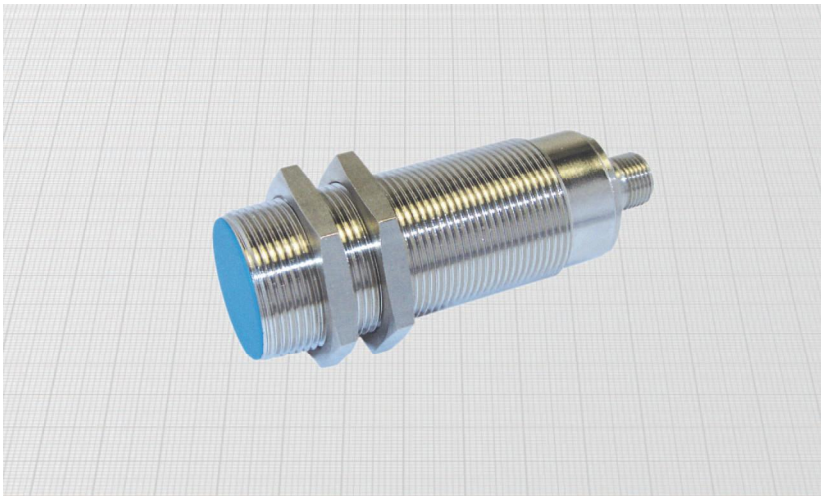
Housing	Flush mounting / Non flush mounting	L1	L2	L3	L4	L5	Female connector	Body diameter (d)	Max switching frequency (f)	Rated operational current (I_e)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES 4 PIN connector NO	ORDERING REFERENCES 4 PIN connector NC
		mm	mm	mm	mm	mm	n°	mm	Hz	mA	mm		
A-7	•	-	43	15	8	66	15 - 16	M12 x 1	25	500	2	**AC12/4109S**	**AC12/4119S**
A-7	•	7	36	15	8	66	15 - 16	M12 x 1	25	500	4	**AC12/5109S**	**AC12/5119S**
A-1	•	-	50	19	8	77	15 - 16	M18 x 1	25	500	5	**AC18/4109S**	**AC18/4119S**
A-1	•	10	50	19	8	87	15 - 16	M18 x 1	25	500	8	**AC18/5109S**	**AC18/5119S**

												3 PIN connector according to EN60947-5-2 NO	3 PIN connector according to EN60947-5-2 NC
		mm	mm	mm	mm	mm	n°	mm	Hz	mA	mm		
A-7	•	-	43	15	8	66	17 - 18	M12 x 1	25	500	2	**AC12/4009S**	**AC12/4019S**
A-7	•	7	36	15	8	66	17 - 18	M12 x 1	25	500	4	**AC12/5009S**	**AC12/5019S**
A-1	•	-	50	19	8	77	17 - 18	M18 x 1	25	500	5	**AC18/4009S**	**AC18/4019S**
A-1	•	10	50	19	8	87	17 - 18	M18 x 1	25	500	8	**AC18/5009S**	**AC18/5019S**

- **Diameter 30 mm**
- **Amplified in a.c.**
- Connector output M12 x 1

Housing A-2





Diameter		M30 x 1,5
Nut	Size	SW36
	Thickness mm	5
Max tightening torque Nm		80

Materials:

- Housing: nickel plated brass
- Sensing face: plastic

Technical data:

- Supply voltage (U_B): 20 ÷ 240 Vac
- Electrical system frequency: 40 ÷ 60 Hz
- Off-state current (I_r): ≤1,5 mA a 110 Vac
- Minimum operational current (I_m): 5 mA
- Voltage drop (U_d): ≤ 5 V
- Temperature range: - 25° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting / Non flush mounting	L1	L2	L3	L4	L5	Female connector	Body diameter (d)	Max switching frequency (f)	Rated operational current (I_e)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES 4 PIN connector NO	ORDERING REFERENCES 4 PIN connector NC
		mm	mm	mm	mm	mm	n°	mm	Hz	mA	mm		
A - 2	•	-	65	17	8	90	15 - 16	M30 x 1,5	20	500	10	**AC30/4109S**	**AC30/4119S**
A - 2	•	15	50	17	8	90	15 - 16	M30 x 1,5	20	500	15	**AC30/5109S**	**AC30/5119S**

												3 PIN connector according to EN60947-5-2 NO	3 PIN connector according to EN60947-5-2 NC
		mm	mm	mm	mm	mm	n°	mm	Hz	mA	mm		
A - 2	•	-	65	17	8	90	17 - 18	M30 x 1,5	20	500	10	**AC30/4009S**	**AC30/4019S**
A - 2	•	15	50	17	8	90	17 - 18	M30 x 1,5	20	500	15	**AC30/5009S**	**AC30/5019S**

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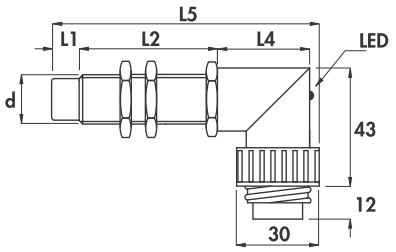
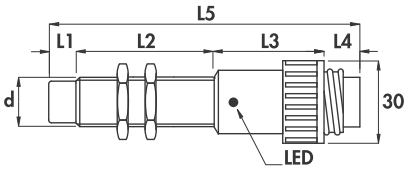
Diameter 18 mm •
Amplified in a.c. •
Connector output C1 - C2 •

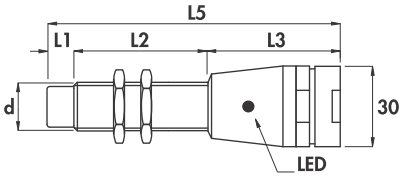
Housing M-1

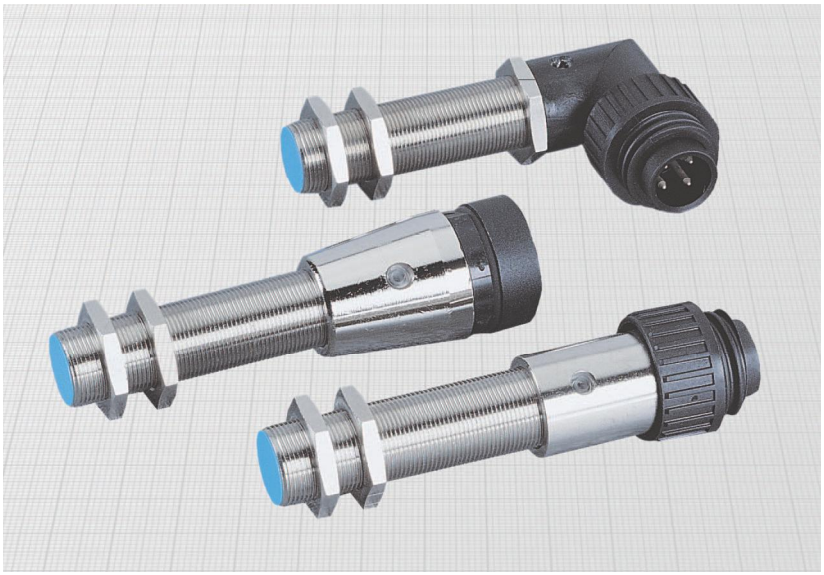


Housing M-4



Housing M





Diameter		M18 x 1
Nut	Size	SW24
	Thickness mm	4
Max tightening torque Nm		35

Materials:

- Housing: nickel plated brass
- Sensing face and connector: plastic

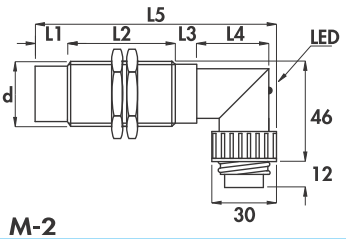
Technical data:

- Supply voltage (U_B): 20 ÷ 240 Vac
- Electrical system frequency: 40 ÷ 60 Hz
- Off-state current (I_r): ≤1,5 mA at 110 Vac
- Minimum operational current (I_m): 5 mA
- Voltage drop (U_d): ≤ 5 V
- Temperature range: - 25° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP65
- Switch status indicator: yellow LED
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting / Non flush mounting	L1	L2	L3	L4	L5	Female connector	Body diameter (d)	Max switching frequency (f)	Rated operational current (I_e)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES NO	ORDERING REFERENCES NC
		mm	mm	mm	mm	mm	n°	mm	Hz	mA	mm		
M-1	•	-	60	-	33	96	1	M18 x 1	25	500	5	**AC18/4209S**	**AC18/4219S**
M-4	•	-	60	40	13	113	1	M18 x 1	25	500	5	**AC18/4409S**	**AC18/4419S**
M-1	•	10	50	-	33	96	1	M18 x 1	25	500	8	**AC18/5209S**	**AC18/5219S**
M-4	•	10	50	40	13	113	1	M18 x 1	25	500	8	**AC18/5409S**	**AC18/5419S**

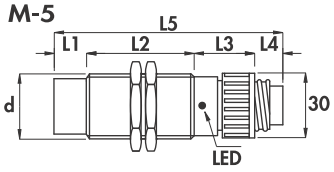
												NO	NC
		mm	mm	mm	mm	mm	n°	mm	Hz	mA	mm		
M	•	-	60	50	-	110	2	M18 x 1	25	500	5	**AC18/4E09S**	**AC18/4E19S**
M	•	10	50	50	-	110	2	M18 x 1	25	500	8	**AC18/5E09S**	**AC18/5E19S**

- **Diameters 30 - 45 mm**
- **Amplified in a.c.**
- Connector output C1 - C2

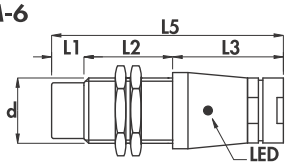


Housing M-2

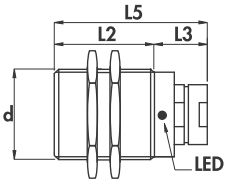
Housing M-5

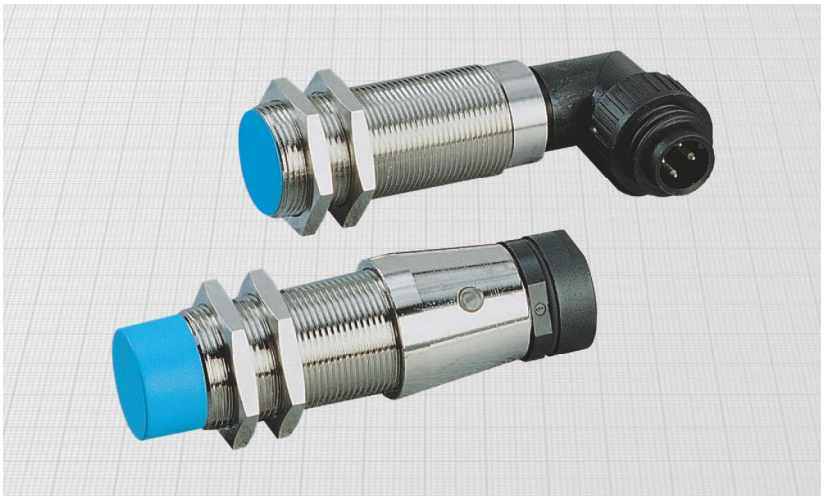


Housing M-6



Housing M-3





Diameter		M30 x 1,5	M45 x 1,5
Nut	Size	SW36	SW55
	Thickness mm	5	5
Max tightening torque Nm		80	70

Materials:

- Housing: nickel plated brass
- Sensing face and connector: plastic

Technical data:

- Supply voltage (U_B): 20 ÷ 240 Vac
- Electrical system frequency: 40 ÷ 60 Hz
- Off-state current (I_r): ≤1,5 mA a 110 Vac
- Minimum operational current (I_m): 5 mA
- Voltage drop (U_d): ≤ 5 V
- Temperature range: - 25° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP65
- Switch status indicator: yellow LED
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting / Non flush mounting	L1	L2	L3	L4	L5	Female connector	Body diameter (d)	Max switching frequency (f_r)	Rated operational current (I_e)	Nominal sensing dist. (S_n) ± 10%	ORDERING REFERENCES NO	ORDERING REFERENCES NC
		mm	mm	mm	mm	mm	n°	mm	Hz	mA	mm		
M-2	•	-	65	10	40	115	1	M30 x 1,5	20	500	10	**AC30/4209S**	**AC30/4219S**
M-5	•	-	65	28	13	106	1	M30 x 1,5	20	500	10	**AC30/4409S**	**AC30/4419S**
M-2	•	15	50	10	40	115	1	M30 x 1,5	20	500	15	**AC30/5209S**	**AC30/5219S**
M-5	•	15	50	28	13	106	1	M30 x 1,5	20	500	15	**AC30/5409S**	**AC30/5419S**
M-2	•	-	50	10	42	102	1	M45 x 1,5	20	500	20	**AC45/4209S**	**AC45/4219S**

												NO	NC
		mm	mm	mm	mm	mm	n°	mm	Hz	mA	mm		
M-6	•	-	56	51	-	107	2	M30 x 1,5	20	500	10	**AC30/4E09S**	**AC30/4E19S**
M-6	•	15	41	51	-	107	2	M30 x 1,5	20	500	15	**AC30/5E09S**	**AC30/5E19S**
M-3	•	-	50	28	-	78	2	M45 x 1,5	20	500	20	**AC45/4E09S**	**AC45/4E19S**

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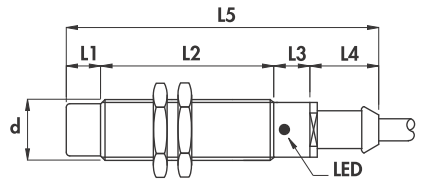
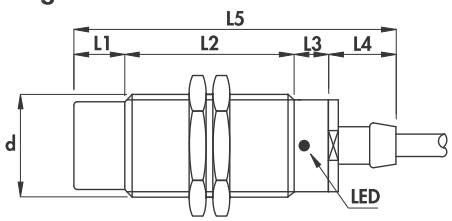
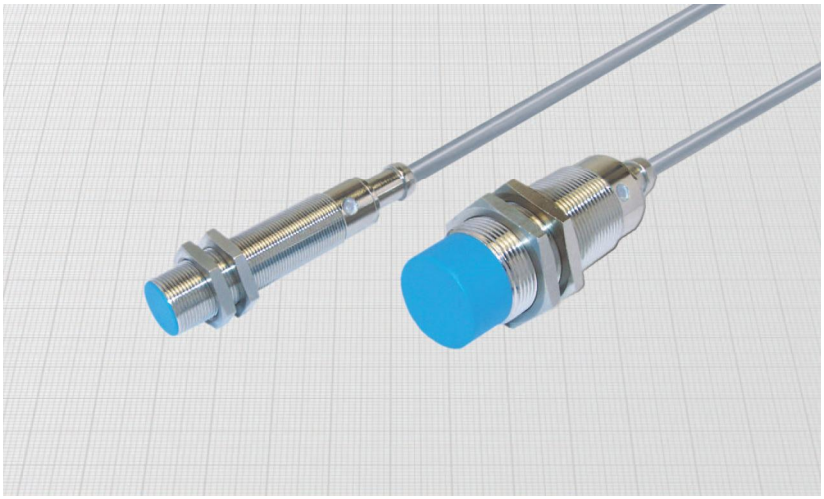
Housing D-1



Housing D-2





Diameter		M18 x 1	M30 x 1,5
Nut	Size	SW24	SW36
	Thickness mm	4	5
Max tightening torque Nm		35	80

Materials:

- Cable: 2 m PVC
- Housing: nickel plated brass
- Sensing face: plastic

General Features:

These sensors have two wires for power supply and one for the load. They are able to drive very low current loads such as some types of PLC with a.c. inputs.

Technical data:

- Supply voltage (U_B): 20 ÷ 240 Vac
- Electrical system frequency: 40 ÷ 60 Hz
- No-load supply current (I_o): ≤ 4 mA
- Minimum operational current (I_m): 0,5 mA
- Voltage drop (U_d): ≤ 3 V
- Temperature range: - 20° ÷ + 70°C
- Max thermal drift of sensing distance S_r: ± 10%
- Repeat accuracy (R): 2%
- Switching hysteresis (H): 10%
- Degree of protection: IP67
- Switch status indicator: yellow LED
- Cable conductor cross section: 0,75 mm²
- Suppression of initial false impulse
- Electromagnetic compatibility (EMC) according to EN60947-5-2 CE
- Shock and vibration resistance according to EN60068-2-27 EN60068-2-6

Housing	Flush mounting / Non flush mounting	L1	L2	L3	L4	L5	Cable diameter	Body diameter (d)	Max switching frequency (f)	Rated operational current (I_e)	Nominal sensing distance (S_n) ± 10%	ORDERING REFERENCES	
												NO	NC
		mm	mm	mm	mm	mm	mm	mm	Hz	mA	mm		
D - 1	•	-	60	12	20	92	6	M18 x 1	20	250	5	**ACB18/4709S**	**ACB18/4719S**
D - 1		10	50	12	20	92	6	M18 x 1	20	250	8	**ACB18/5709S**	**ACB18/5719S**
D - 2	•	-	65	10	20	95	6	M30 x 1,5	20	250	10	**ACB30/4709S**	**ACB30/4719S**
D - 2	•	15	50	10	20	95	6	M30 x 1,5	20	250	15	**ACB30/5709S**	**ACB30/5719S**