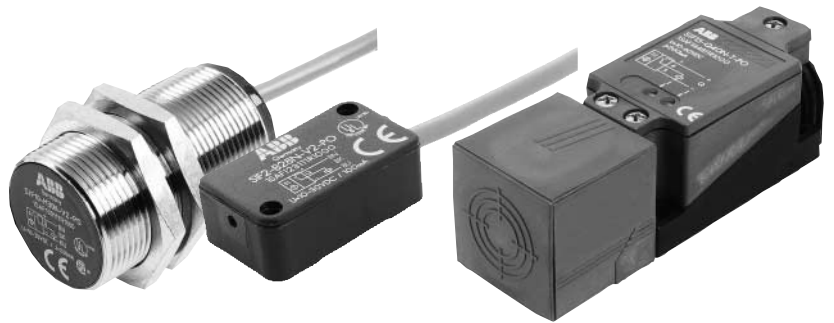




Proximity Sensors Inductive



General information

- Non-contact sensing
- Extremely long life
- High speed switching frequency
- Short circuit protection
- AC & DC models
- Metallic objects only
- Sensing distances from 0.8 to 50 mm
- Large selection of 2 wire, 3 wire and 4 wire models
- Choice of quick disconnect, cable or terminal connection
- Stainless steel, Nickel-plated brass or Crastin housings

Inductive Sensors

Descriptions	1.2
Technical Data	1.4
Special Sensors	1.30

Inductive Sensors Description

Applications

Inductive Sensors are standardised and easy to use owing to their clearly defined characteristics and operating conditions. They detect metallic objects and feature a precisely outlined sensing range. They are not impaired by light, noise or non-conductive dust or fluids such as oil, operating reliably and detecting precisely without the need for adjustment. Inductive sensors also offer largely standardised parameters.

Description

The Inductive sensors are available in 4 different housings :

Block Housing
B 28 - B 45 Series



Cylindrical Housing
Ø 4 - 6 - 8 - 12 - 18 - 30 mm



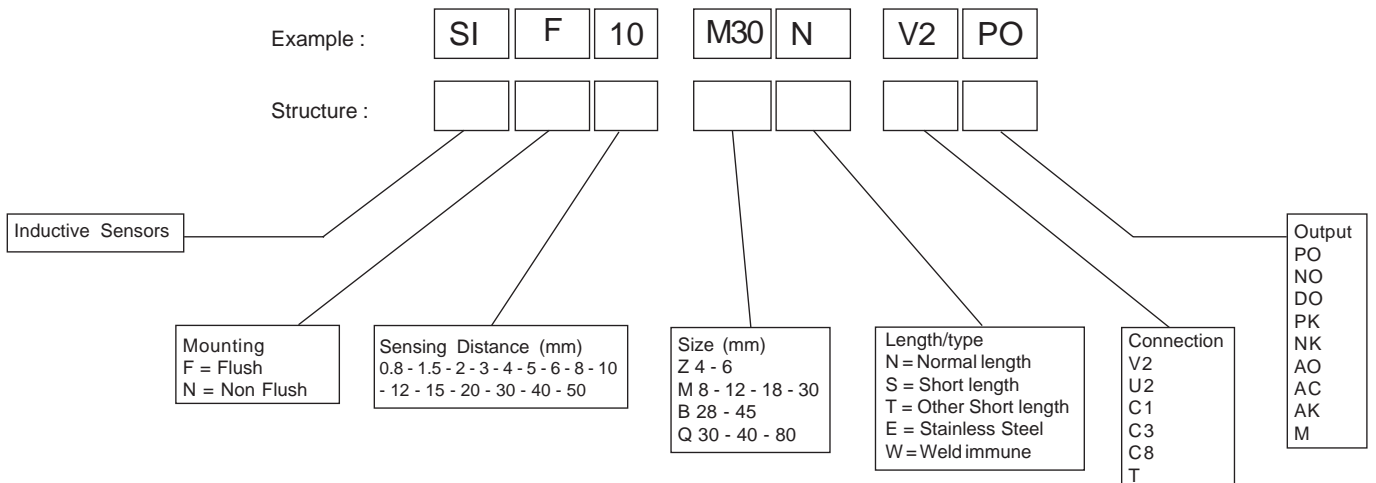
Square Block Housing
Q 80 Series



Square block Housing
Q 30 - Q 40 Series



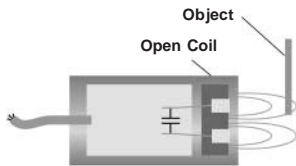
Part N° Structure



Inductive Sensors Description

Basic Mode of Operation

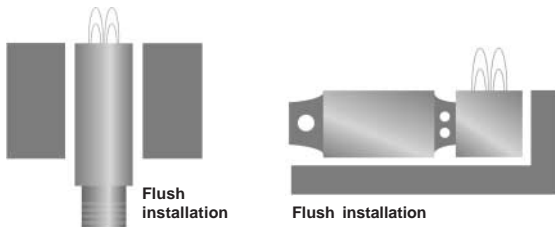
The essential component of the inductive sensors is its oscillator with open coil. When a metallic object approaches the sensor, the oscillation is initially attenuated and ultimately interrupted. This effect is detected by a trigger circuit and is forwarded as an output signal.



Installation Options

Either flush or non-flush inductive sensors may be fitted, depending on local conditions.

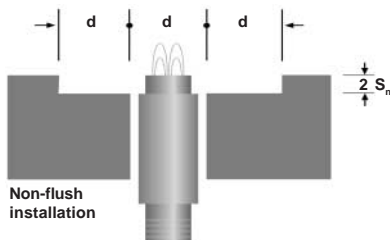
Flush sensors are shielded and can thus be fitted easily with no major requirements. Flush installation also protects the sensor.



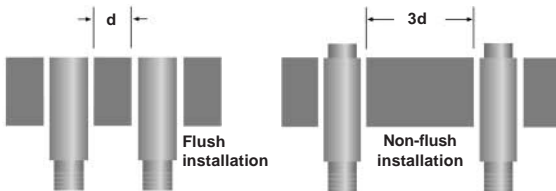
Non-flush sensors offer maximum possible operating distance. A minimum recess is required in the surrounding material. The following applies:

Lateral clearance = sensor diameter

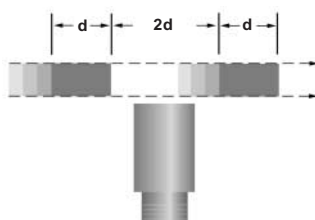
Depth = twice nominal operating distance



Sensors fitted too close together have a mutual influence on each other. Consequently, minimum clearances must be observed, in particular in the case of the non-flush sensor type.

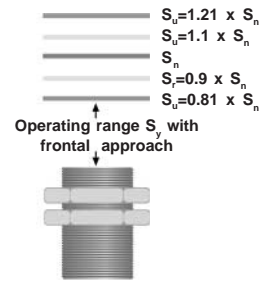


The higher switching frequency is one of the most important advantage of sensors by comparison with mechanical limit switches. Certain lug sizes and clearances must be observed in order to achieve the values specified in the ABB catalogue.



Operating Distance

The distance between the sensor and the object plays a crucial role in achieving reliable results. The operating distance is differentiated and follows in order to allow for various operating conditions:



Nominal distance S_n :

Typical operating distance under the measurement conditions defined in the Standard. This involves a defined target made of steel ST37 with a minimum thickness of 1 mm and a minimum size approaching the sensor. The following apply:

Diameter of target = diameter of sensor front face or

Diameter of target = three times nominal operating distance

The higher value counts.

Examples of target size:

Sensor	SIF5-M18N-V2-PO	SIN6-M12N-V2-PO
Nominal op. distance :	5 mm	6 mm
Sensor diameter :	18 mm	12 mm
Target diameter :	18 mm	18 mm
	(= Sensor diameter)	(= x nominal operating distance)

Effective Operating Distance S_r :

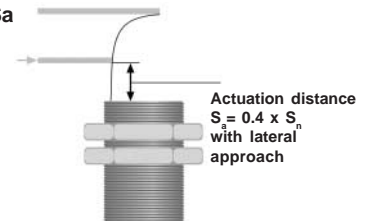
This allows for manufacturing tolerances of individual sensors and may be up to 10% above or below the nominal operating distance.

Usable Operating Distance S_u :

This includes influences resulting from operating voltage tolerances and temperature range and lies a further 10% above or below the effective operating distance, i.e. at 81% to 121% of the nominal operating distance.

Recommended Actuation Distance S_a

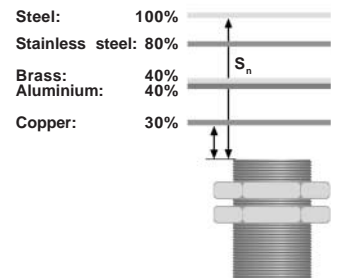
This is less than 81% of the nominal operating distance in the case of frontal approach to the object. The distance should be around 40% of the nominal operating distance in the case of lateral approach.



Sensors Distance with Various Material

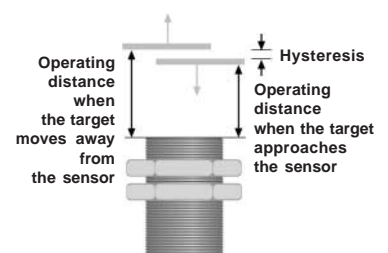
If materials other than steel are used, the operating distances are almost always less. For instance:

Metal foils and special target versions require test measurements.



Hysteresis

A hysteresis is required for all switching-type sensors in order to avoid electrical chattering of the outputs. In the case of inductive proximity switches, the hysteresis results from the difference between the operating distances when the target is approaching and when the target is moving away and is approx. 5% of the nominal operating distance.

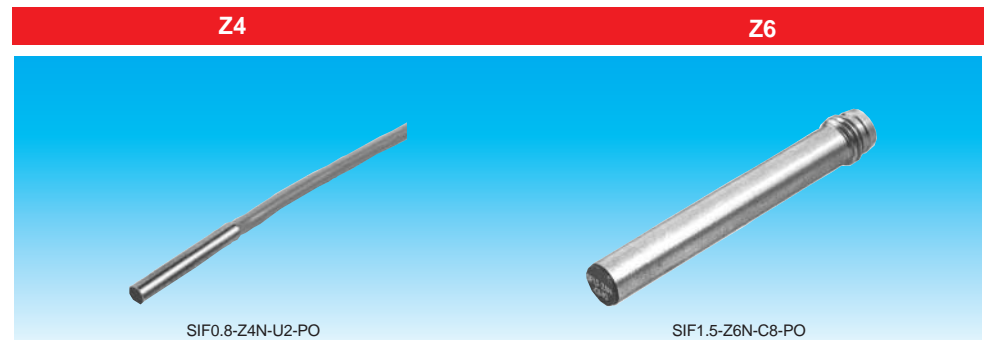


Inductive Proximity Sensors

Cylindrical $\varnothing 4, 6.5$ mm

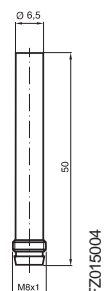
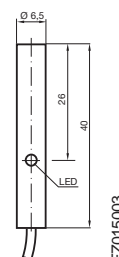
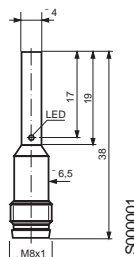
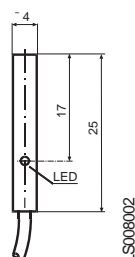
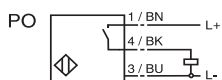
Technical Data

Size



Size		Z4	Z6
Operating dist. S_n, mounting		0.8 mm embeddable	0.8 mm embeddable
PNP	Normally open	SIF0.8-Z4N-U2-PO	SIF0.8-Z4N-C8-PO
	Normally closed		
	NO/NC		
NPN	Normally open		
	NO/NC		
DC 2-wire	Normally open		
AC	Normally open		
	Normally closed		
	NO/NC		
Assured operat. dist. S_a	[mm]	0 ... 0.648	0 ... 0.648
Reduction factor	r_{V2A}	0.85	0.85
	r_{AL}	0.45	0.4
	r_{Cu}	0.4	0.3
Operating voltage	[V]	10 ... 30	10 ... 30
Operating current	[mA]		200
Switching frequency	[Hz]	3000	3000
No load supply current	[mA]	10	10
Voltage drop U_d	[V]	2	2
Short polarity protection		pulsing	pulsing
Reverse polarity protection		yes	yes
Indication	Output	LED yellow	LED yellow
	Voltage	-	-
Operating temperature	[°C]	-25 ... 70	-25 ... 70
In compliance with		EN60947-5-2	EN60947-5-2
Protection to DIN 40050		IP67	IP67
Connection		2 m, PVC-cable	Connector M8
Conductor cross section		0.14 mm ²	-
Housing material		High grade steel	High grade steel
Sensing face		PBT (Crastin)	PBT (Crastin)
Drawing No.		LS008002	LS000001

Wiring diagram



Inductive Proximity Sensors

Cylindrical $\varnothing 8$ mm

Technical Data

NEW

Size

M8x1

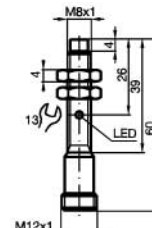
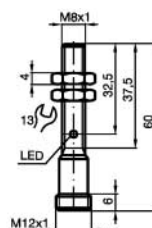
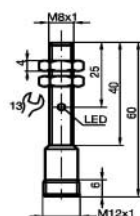
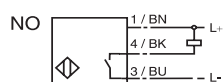
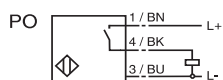


SIF1.5-M8E-C1-PO

SIN2-M8E-C1-PO

Operating dist. S_n , mounting		1.5 mm embeddable	1.5 mm embeddable	2 mm non embedd.
PNP	Normally open	SIF1.5-M8E-C1-PO		SIN2-M8E-C1-PO
	Normally closed			
	NO/NC			
NPN	Normally open		SIF1.5-M8E-C1-NO	
	NO/NC			
DC 2-wire	Normally open			
AC	Normally open			
	Normally closed			
	NO/NC			
Assured operat. dist. S_a (mm)	[mm]	0 ... 1.215	0 ... 1.215	0 ... 1.62
Reduction factor	r_{V2A}	0.7	0.67	0.7
	r_{AL}	0.25	0.24	0.4
	r_{Cu}	0.2	0.21	0.35
Operating voltage	[V]	10 ... 60	10 ... 60	10 ... 60
Operating current I_L	[mA]	100	100	100
Switching frequency	[Hz]	500	5000	400
No load supply current	[mA]	15	10	15
Voltage drop U_d	[V]	3	2.6	3
Short polarity protection		pulsing	pulsing	pulsing
Reverse polarity protection		yes	yes	yes
Indication	Output	LED yellow	LED yellow	LED yellow
	Voltage	-	-	-
Operating temperature	[°C]	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN60947-5-2	EN60947-5-2	EN60947-5-2
Protection to DIN 40050		IP67	IP67	IP67
Connection		Connector M12	Connector M12	Connector M12
Conductor cross section		-	-	-
Housing material		High grade steel	High grade steel	High grade steel
Sensing face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)

Wiring diagrams



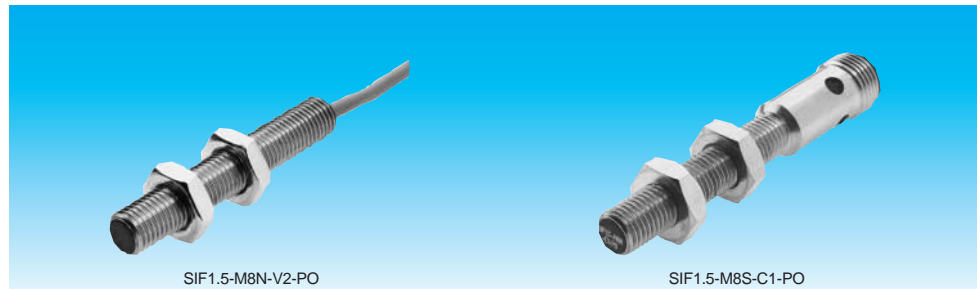
Inductive Proximity Sensors

Cylindrical $\varnothing 8$ mm

Technical Data

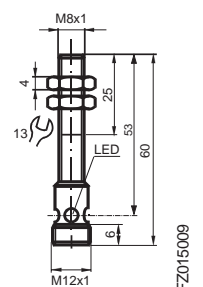
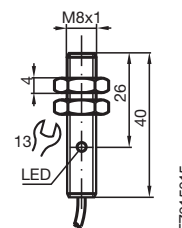
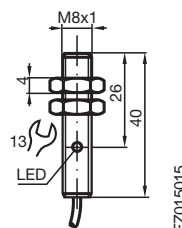
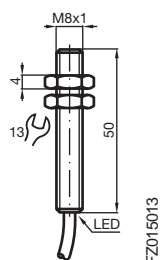
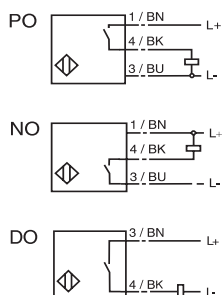
Size

M8x1



Operating dist. S_n , mounting		1.5 mm embeddable	1.5 mm embeddable	1.5 mm embeddable	1.5 mm embeddable
PNP	Normally open	SIF1.5-M8N-V2-PO		SIF1.5-M8S-U2-PO	SIF1.5-M8S-C1-PO
	Normally closed				
	NO/NC				
NPN	Normally open	SIF1.5-M8N-V2-NO			SIF1.5-M8S-C1-NO
	NO/NC				
DC 2-wire	Normally open		SIF1.5-M8N-V2-DO		
AC	Normally open				
	Normally closed				
	NO/NC				
Assured operat. dist. S_a (mm)	[mm]	0 ... 1.215	0 ... 1.21	0 ... 1.215	0 ... 1.215
Reduction factor	r_{V2A}	0.75	0.8	0.7	0.75
	r_{AL}	0.45	0.4	0.25	0.45
	r_{Cu}	0.35	0.35	0.2	0.35
Operating voltage	[V]	10 ... 30	6 ... 60	10 ... 60	10 ... 30
Operating current I_L	[mA]	100	4 ... 100	100	100
Switching frequency	[Hz]	1500	2000	500	1500
No load supply current	[mA]	15	0.7	15	15
Voltage drop U_d	[V]	3	6	3	3
Short polarity protection		pulsing	no	pulsing	pulsing
Reverse polarity protection		yes	yes	yes	yes
Indication	Output	LED yellow	LED yellow	LED yellow	ring LED yellow
	Voltage	-	-	-	-
Operating temperature	[°C]	-25 ... 70	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN60947-5-2	EN60947-5-2	EN60947-5-2	EN60947-5-2
Protection to DIN 40050		IP67	IP67	IP67	IP67
Connection		2 m, PVC-cable	2 m, PVC-cable	2 m, PUR-Kabel	Connector M12
Conductor cross section		0.14 mm ²	0.14 mm ²	0.14 mm ²	-
Housing material		Nickel plated brass	Nickel plated brass	Highgrade steel	Nickel plated brass
Sensing face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Drawing No.		FZ015013	FZ015015	FZ015015	FZ015009

Wiring diagrams



Inductive Proximity Sensors

Cylindrical $\varnothing 8$ mm

Technical Data

Size

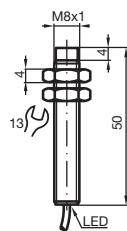
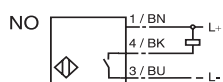
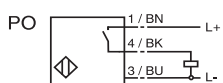
M8x1



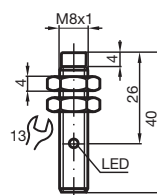
SIN2-M8N-C1-PO

Operating dist. S_n , mounting		2 mm non embedd.	2 mm non embedd.	2 mm non embedd.	3 mm non embedd.
PNP	Normally open	SIN2-M8N-V2-PO	SIN2-M8S-U2-PO	SIN2-M8N-C1-PO	SIN3-M8N-V2-PO
	Normally closed				
	NO/NC				
NPN	Normally open	SIN2-M8N-V2-NO		SIN2-M8N-C1-NO	
	NO/NC				
DC 2-wire	Normally open				
AC	Normally open				
	Normally closed				
	NO/NC				
Assured operat. dist. S_a (mm)	[mm]	0 ... 1.62	0 ... 1.62	0 ... 1.62	0 ... 2.43
Reduction factor	r_{V2A}	0.75	0.7	0.75	0.77
	r_{AL}	0.45	0.4	0.45	0.36
	r_{Cu}	0.35	0.35	0.35	0.27
Operating voltage	[V]	10 ... 30	10...60	10 ... 30	10 ... 30
Operating current I_L	[mA]	100	100	100	200
Switching frequency	[Hz]	1500	400	1500	1000
No load supply current	[mA]	15	15	15	10
Voltage drop U_d	[V]	3	3	3	2
Short polarity protection		pulsing	pulsing	pulsing	no
Reverse polarity protection		yes	yes	yes	yes
Indication	Output	LED yellow	LED yellow	ring LED yellow	LED yellow
	Voltage	-	-	-	-
Operating temperature	[°C]	-25 ... 70	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN60947-5-2	EN60947-5-2	EN60947-5-2	EN60947-5-2
Protection to DIN 40050		IP67	IP67	IP67	IP67
Connection		2 m, PVC-cable	2 m, PUR-Kabel	Connector M12	2 m, PUR-cable
Conductor cross section		0.14 mm ²	0.14 mm ²	-	0.14 mm ²
Housing material		Nickel plated brass	Highgrade steel	Nickel plated brass	chrom plated brass
Sensing face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Drawing No.		FZ020038	LS020002	FZ015032	FZ030001

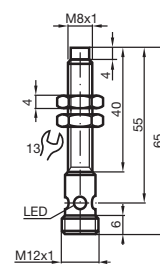
Wiring diagrams



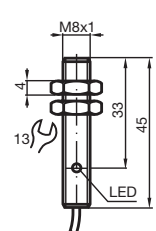
FZ020038



LS020002



FZ015032



FZ030001

Inductive Proximity Sensors

Cylindrical $\varnothing 8$ mm

Technical Data

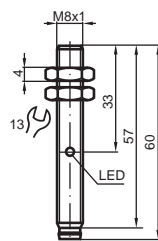
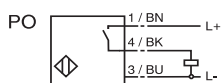
Size

M8x1



Operating dist. Sn, mounting		3 mm non embedd.		
PNP	Normally open	SIN3-M8N-C8-PO		
	Normally closed			
	NO/NC			
NPN	Normally open			
	NO/NC			
DC 2-wire	Normally open			
AC	Normally open			
	Normally closed			
	NO/NC			
Assured operat. dist. Sa (mm)	[mm]	0 ... 2.43		
Reduction factor	r_{V2A}	0.77		
	r_{AL}	0.36		
	r_{Cu}	0.27		
Operating voltage		[V] 10 ... 30		
Operating current I_L	[mA]	200		
Switching frequency	[Hz]	1000		
No load supply current	[mA]	10		
Voltage drop U_d	[V]	2		
Short polarity protection		no		
Reverse polarity protection		yes		
	Output	LED yellow		
	Voltage	-		
Operating temperature	[°C]	-25 ... 70		
In compliance with		EN60947-5-2		
Protection to DIN 40050		IP67		
Connection		Connector M8		
Conductor cross section		-		
Housing material		chrom plated brass		
Sensing face		PBT (Crastin)		
Drawing No.		FZ030002		

Wiring diagram



FZ030002

Inductive Position Sensors

Cylindrical $\varnothing 12$ mm

Technical Data

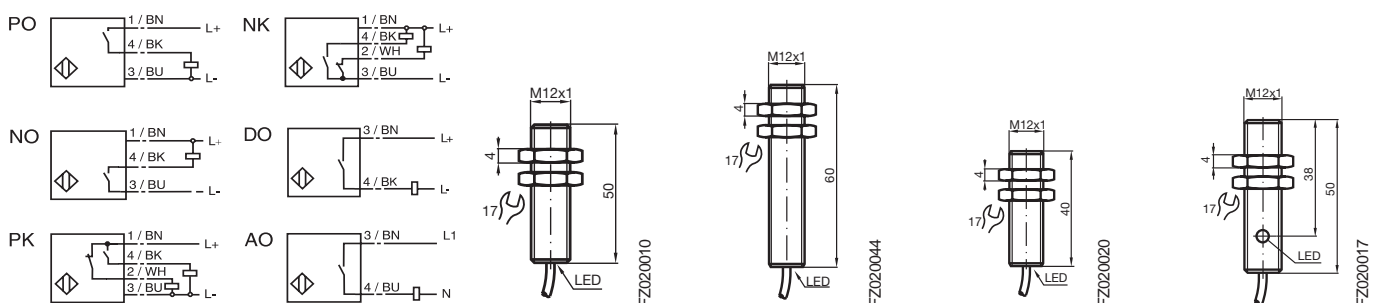
Size

M12x1



Operating dist. S_n	mounting	2 mm embeddable	2 mm embeddable	2 mm embeddable	2 mm embeddable
PNP	Normally open	SIF2-M12N-V2-PO			
	Normally closed				
	NO/NC		SIF2-M12N-V2-PK		
NPN	Normally open	SIF2-M12N-V2-NO			
	NO/NC		SIF2-M12N-V2-NK		
DC 2-wire	Normally open			SIF2-M12N-V2-DO	
AC	Normally open				SIF2-M12N-V2-AO
	Normally closed				
	NO/NC				
Assured operat. dist. S_a (mm)	[mm]	0 ... 1.62	0 ... 1.62	0 ... 1.62	0 ... 1.62
Reduction factor	r_{V2A}	0.7	0.66	0.67	0.65
	r_{AL}	0.3	0.25	0.18	0.15
	r_{Cu}	0.2	0.15	0.12	0.1
Operating voltage	[V]		10 ... 30	10 ... 30	6 ... 60 20 ... 253
Operating current I_L	[mA]	200	200	4 ... 100	5 ... 200
Switching frequency	[Hz]	1500	1000	2000	25
No load supply current	[mA]	17	20	0.7	0.8
Voltage drop U_d	[V]	3	3	6	5
Short polarity protection		pulsing	pulsing	no	no
Reverse polarity protection		yes	yes	yes	no
Indication	Output	LED yellow	LED yellow	LED yellow	LED red
	Voltage	-	-	-	-
Operating temperature	[°C]	-25 ... 70	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN60947-5-2	EN60947-5-2	EN60947-5-2	EN60947-5-2
Protection to DIN 40050		IP67	IP67	IP67	IP67
Connection		2 m, PVC-cable	2 m, PVC-cable	2 m, PVC-cable	2 m, PVC-cable
Conductor cross section		0.14 mm ²	0.14 mm ²	0.14 mm ²	0.34 mm ²
Housing material		Nickel plated brass	Nickel plated brass	Nickel plated brass	Highgrade steel
Sensing face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Drawing No.		FZ020010	FZ020044	FZ020020	FZ020017

Wiring diagrams



Inductive Position Sensors

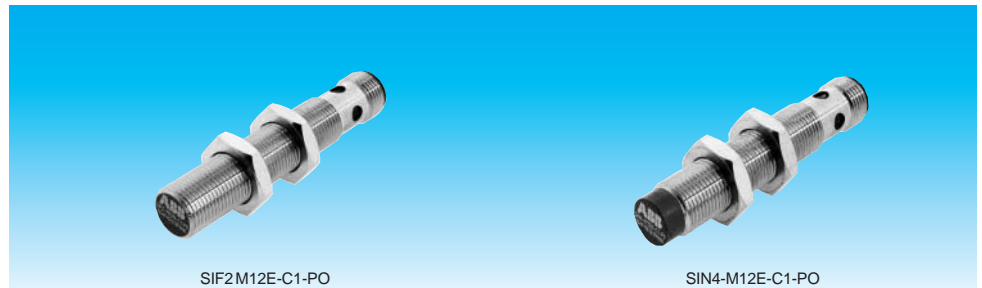
Cylindrical $\varnothing 12$ mm

Technical Data

NEW

Size

M12x1

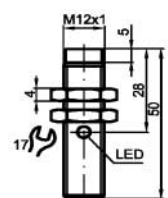
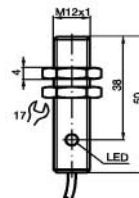
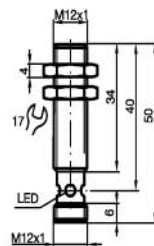
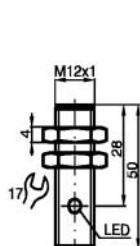
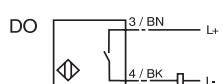
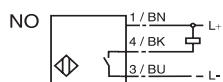
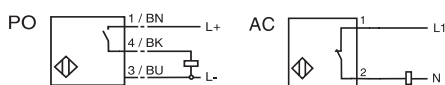


SIF2-M12E-C1-PO

SIN4-M12E-C1-PO

Operating dist. S_n , mounting		2 mm embeddable	2 mm embeddable	2 mm embeddable	4 mm non embedd.
PNP	Normally open	SIF2-M12E-C1-PO			SIN4-M12E-C1-PO
	Normally closed				
	NO/NC				
NPN	Normally open	SIF2-M12E-C1-NO			SIN4-M12E-C1-NO
	NO/NC				
DC 2-wire	Normally open		SIF2-M12E-C1-DO		
AC	Normally open				
	Normally closed			SIF2-M12E-V2-AC	
	NO/NC				
Assured operat. dist. S_a (mm)	[mm]	0 ... 1.62	0 ... 1.62	0 ... 1.62	0 ... 3.24
Reduction factor	r_{V2A}	0.7	0.7	0.65	0.74
	r_{AL}	0.23	0.23	0.15	0.37
	r_{Cu}	0.21	0.21	0.1	0.36
Operating voltage	[V]	10 ... 60	5 ... 60	20 ... 253	10 ... 60
Operating current I_L	[mA]	200	100	200	200
Switching frequency	[Hz]	3000	2000	25	2000
No load supply current	[mA]	11	0.7	0.8	11
Voltage drop U_d	[V]	3	5	5	3
Short polarity protection		pulsing	pulsing	no	pulsing
Reverse polarity protection		yes	yes	no	yes
Indication	Output	LED yellow	LED yellow	LED red	LED yellow
	Voltage	-	-	-	-
Operating temperature	[°C]	-25 ... 70	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN60947-5-2	EN60947-5-2	EN60947-5-2	EN60947-5-2
Protection to DIN 40050		IP67	IP67	IP67	IP67
Connection		Connector M12	Connector M12	2 m, PVC-cable	Connector M12
Conductor cross section		-	-	0.34 mm ²	-
Housing material		High grade steel	High grade steel	High grade steel	High grade steel
Sensing face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)	PBT (Crastin)

Wiring diagrams



Inductive Proximity Sensors

Cylindrical $\varnothing 12$ mm

Technical Data

Size

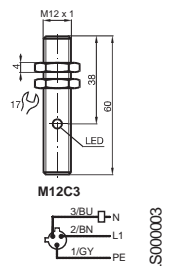
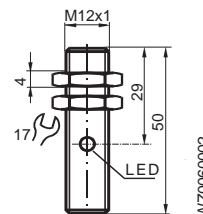
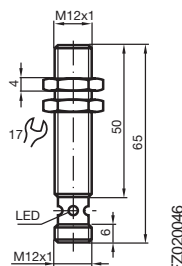
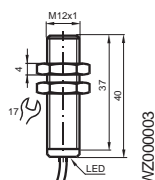
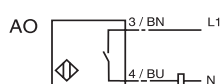
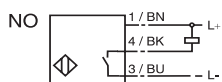
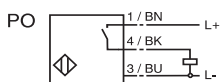
M12x1



SIF2-M12N-C1-PO

Operating dist. S_n	mounting	2 mm embeddable	2 mm embeddable	2 mm embeddable	2 mm embeddable
PNP	Normally open	SIF2-M12S-U2-PO	SIF2-M12N-C1-PO	SIF2-M12S-C1-PO	
	Normally closed				
	NO/NC				
NPN	Normally open		SIF2-M12N-C1-NO		
	NO/NC				
DC 2-wire	Normally open				
AC	Normally open				SIF2-M12N-C3-AO
	Normally closed				
	NO/NC				
Assured operat. dist. S_a (mm)	[mm]	0 ... 1.62	0 ... 1.62	0 ... 1.62	0 ... 1.62
Reduction factor	r_{V2A}	0.7	0.7	0.6	0.65
	r_{AL}	0.3	0.3	0.15	0.15
	r_{Cu}	0.2	0.2	0.1	0.1
Operating voltage	[V]		10 ...30	10 ...30	10...30 20 ... 253
Operating current I_L	[mA]	100	200	200	5 ... 200
Switching frequency	[Hz]	1000	1500	1000	25
No load supply current	[mA]	15	17	15	0.8
Voltage drop U_d	[V]	3	3	3	3
Short polarity protection		pulsing	pulsing	pulsing	no
Reverse polarity protection		yes	yes	yes	no
Indication	Output	LED yellow	ring LED yellow	LED yellow	LED red
	Voltage	-	-	-	-
Operating temperature	[°C]	-25 ... 70	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN60947-5-2	EN60947-5-2	EN60947-5-2	EN60947-5-2
Protection to DIN 40050		IP67	IP67	IP67	IP67
Connection		2 m, PVC-cable	Connector M12	Connector M12	Connector M12
Conductor cross section		0.14 mm ²	-	-	-
Housing material		Nickel plated brass	Nickel plated brass	Nickel plated brass	Highgrade steel
Sensing face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Drawing No.		WZ000003	FZ020046	WZ060002	LS000003

Wiring diagrams



Inductive Position Sensors

Cylindrical $\varnothing 12$ mm

Technical Data

Size

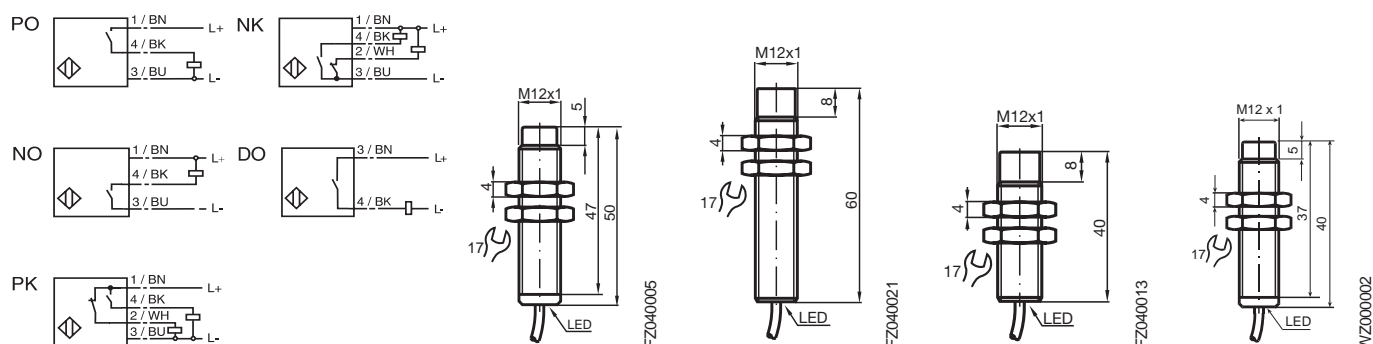
M12x1



SIN4-M12N-V2-PO

Operating dist. S_n , mounting		4 mm non embedd.	4 mm non embedd.	4 mm non embedd.	4 mm non embedd.
PNP	Normally open	SIN4-M12N-V2-PO			SIN4-M12S-U2-PO
	Normally closed				
	NO/NC		SIN4-M12N-V2-PK		
NPN	Normally open	SIN4-M12N-V2-NO			
	NO/NC		SIN4-M12N-V2-NK		
DC 2-wire	Normally open			SIN4-M12N-V2-DO	
AC	Normally open				
	Normally closed				
	NO/NC				
Assured operat. dist. S_a (mm)	[mm]	0 ... 3.24	0 ... 3.24	0 ... 3.24	0 ... 3.24
Reduction factor	r_{V2A}	0.8	0.75	0.74	0.75
	r_{AL}	0.5	0.45	0.37	0.45
	r_{Cu}	0.4	0.4	0.36	0.4
Operating voltage	[V]		10 ... 30	10 ... 30	6 ... 60 10 ... 30
Operating current I_L	[mA]	200	200	4 ... 100	100
Switching frequency	[Hz]	1200	1000	2000	800
No load supply current	[mA]	17	20	0.7	15
Voltage drop U_d	[V]	3	3	6	3
Short polarity protection		pulsing	pulsing	no	pulsing
Reverse polarity protection		yes	yes	yes	yes
Indication	Output	LED yellow	LED yellow	LED yellow	LED yellow
	Voltage	-	-	-	-
Operating temperature	[°C]	-25 ... 70	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN60947-5-2	EN60947-5-2	EN60947-5-2	EN60947-5-2
Protection to DIN 40050		IP67	IP67	IP67	IP67
Connection		2 m, PVC-cable	2 m, PVC-cable	2 m, PVC-cable	2 m, PUR-cable
Conductor cross section		0.14 mm ²	0.14 mm ²	0.14 mm ²	0.14 mm ²
Housing material		Nickel plated brass	Nickel plated brass	Nickel plated brass	Nickel plated brass
Sensing face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Drawing No.		FZ040005	FZ040021	FZ040013	WZ000002

Wiring diagrams



Inductive Proximity Sensors

Cylindrical $\varnothing 12$ mm

Technical Data

NEW

Size

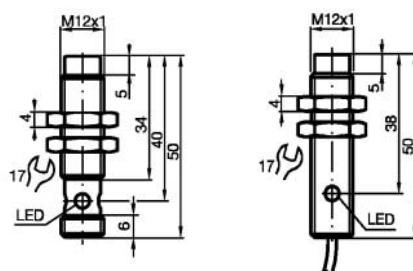
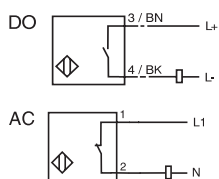
M12x1



SIN4-M12N-C1-DO

Operating dist. S_n , mounting		4 mm non embedd.	4 mm non embedd.		
PNP	Normally open				
	Normally closed				
	NO/NC				
NPN	Normally open				
	NO/NC				
DC 2-wire	Normally open	SIN4-M12E-C1-DO			
AC	Normally open				
	Normally closed		SIN4-M12E-V2-AC		
	NO/NC				
Assured operat. dist. S_a (mm)	[mm]	0 ... 3.24	0 ... 3.24		
Reduction factor	r_{V2A}	0.74	0.8		
	r_{AL}	0.37	0.45		
	r_{Cu}	0.36	0.4		
Operating voltage	[V]	5 ...60	20 ...253		
Operating current I_L	[mA]	100	200		
Switching frequency	[Hz]	2000	25		
No load supply current	[mA]	0.7	0.8		
Voltage drop U_d	[V]	5	5		
Short polarity protection		pulsing	no		
Reverse polarity protection		yes	no		
Indication	Output	LED yellow	LED red		
	Voltage	-	-		
Operating temperature	[°C]	-25 ... 70	-25 ... 70		
In compliance with		EN60947-5-2	EN60947-5-2		
Protection to DIN 40050		IP67	IP67		
Connection		Connector M12	2 m, PVC-cable		
Conductor cross section		-	0.34 mm ²		
Housing material		High grade steel	High grade steel		
Sensing face		PBT (Crastin)	PBT (Crastin)		

Wiring diagrams



Inductive Proximity Sensors

Cylindrical $\varnothing 12$ mm

Technical Data

Size

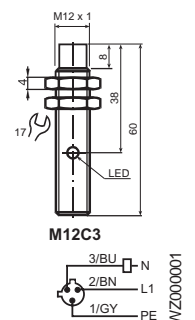
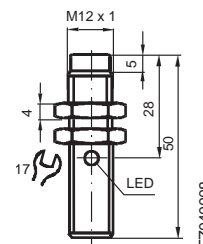
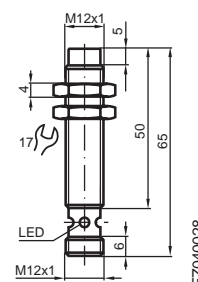
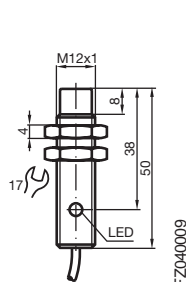
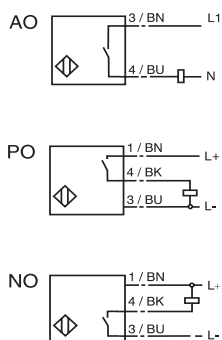
M12x1



SIN4-M12N-C1-PO

Operating dist. S_n , mounting		4 mm non embedd.	4 mm non embedd.	4 mm non embedd.	4 mm non embedd.
PNP	Normally open		SIN4-M12N-C1-PO	SIN4-M12S-C1-PO	
	Normally closed				
	NO/NC				
NPN	Normally open		SIN4-M12N-C1-NO		
	NO/NC				
DC 2-wire	Normally open				
AC	Normally open	SIN4-M12N-V2-AO			SIN4-M12N-C3-AO
	Normally closed				
	NO/NC				
Assured operat. dist. S_a (mm)	[mm]	0 ... 3.24	0 ... 3.24	0 ... 3.24	0 ... 3.24
Reduction factor	r_{V2A}	0.8	0.8	0.75	0.8
	r_{AL}	0.45	0.5	0.45	0.45
	r_{Cu}	0.4	0.4	0.4	0.4
Operating voltage	[V]		20 ... 253	10 ... 30	10 ... 30 20 ... 253
Operating current I_L	[mA]	5 ... 200	200	200	5 ... 200
Switching frequency	[Hz]	25	1200	1000	25
No load supply current	[mA]	0.8	17	15	0.8
Voltage drop U_d	[V]	5	3	3	5
Short polarity protection		no	pulsing	pulsing	no
Reverse polarity protection		no	yes	yes	no
Indication	Output	LED red	ring LED yellow	LED yellow	LED red
	Voltage	-	-	-	-
Operating temperature	[°C]	-25 ... 70	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN60947-5-2	EN60947-5-2	EN60947-5-2	EN60947-5-2
Protection to DIN 40050		IP67	IP67	IP67	IP67
Connection		2 m, PVC-cable	Connector M12	Connector M12	Connector M12
Conductor cross section		0.34 mm ²	-	-	-
Housing material		Highgrade steel	Nickel plated brass	Nickel plated brass	Highgrade steel
Sensing face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Drawing No.		FZ040009	FZ040028	FZ040008	WZ000001

Wiring diagrams



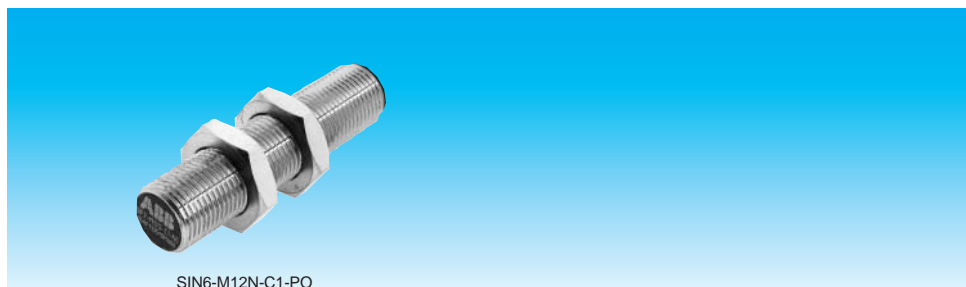
Inductive Proximity Sensors

Cylindrical $\varnothing 12$ mm

Technical Data

Size

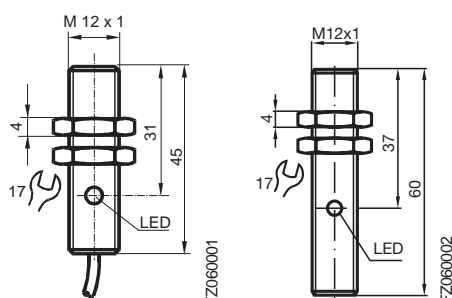
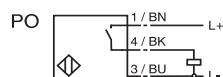
M12x1



SIN6-M12N-C1-PO

Operating dist. S_n , mounting		6 mm non embedd.	6 mm non embedd.		
PNP	Normally open	SIN6-M12N-V2-PO	SIN6-M12N-C1-PO		
	Normally closed				
	NO/NC				
NPN	Normally open				
	NO/NC				
DC 2-wire	Normally open				
AC	Normally open				
	Normally closed				
	NO/NC				
Assured operat. dist. S_a	[mm]	0 ... 4,86	0 ... 4,86		
Reduction factor	r_{V2A}	0.67	0.67		
	r_{AL}	0.28	0.28		
	r_{Cu}	0.2	0.2		
Operating voltage	[V]		10 ... 30	10 ... 30	
Operating current	[mA]		200	200	
Switching frequency	[Hz]	800	800		
No load supply current	[mA]	10	10		
Voltage drop U_d	[V]	2	2		
Short polarity protection		no	no		
Reverse polarity protection		yes	yes		
Indication	Output	LED yellow	LED yellow		
	Voltage	-	-		
Operating temperature	[°C]	-25 ... 70	-25 ... 70		
In compliance with		EN 60947-5-2	EN 60947-5-2		
Protection to DIN 40050		IP 67	IP 67		
Connection		2 m, PVC-cable	Connector M12		
Conductor cross section		0.34 mm ²	-		
Housing material		Chrom plated brass	Chrom plated brass		
Sensing face		PBT (Crastin)	PBT (Crastin)		
Drawing No.		FZ060001	FZ060002		

Wiring diagram



Inductive Proximity Sensors

Cylindrical $\varnothing 18$ mm

Technical Data

Size

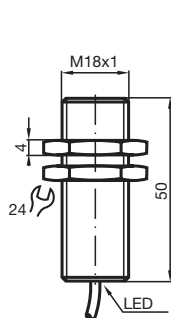
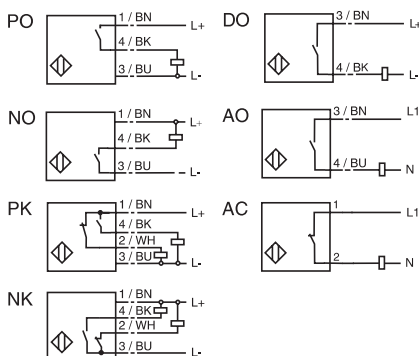
M18x1



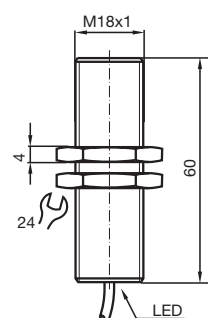
SIF5-M18N-V2-AO

Operating dist. S_n , mounting		5 mm embeddable	5 mm embeddable	5 mm embeddable	5 mm embeddable
PNP	Normally open	SIF5-M18N-V2-PO			
	Normally closed				
	NO/NC		SIF5-M18N-V2-PK		
NPN	Normally open	SIF5-M18N-V2-NO			
	NO/NC		SIF5-M18N-V2-NK		
DC 2-wire	Normally open			SIF5-M18N-V2-DO	
AC	Normally open				SIF5-M18N-V2-AO
	Normally closed				SIF5-M18N-V2-AC
	NO/NC				
Assured operat. dist. S_a	[mm]	0 ... 4.05	0 ... 4.05	0 ... 4.05	0 ... 4.05
Reduction factor	r_{V2A}	0.7	0.66	0.72	0.62
	r_{AL}	0.3	0.25	0.34	0.2
	r_{Cu}	0.3	0.15	0.31	0.15
Operating voltage	[V]		10 ... 30	10 ... 30	6 ... 60 20 ... 253
Operating current	[mA]		200	200	4 ... 100 200
Switching frequency	[Hz]	800	800	1500	20
No load supply current	[mA]	20	20	0.7 (off-state current)	1.7 (off-state current)
Voltage drop U_d	[V]	3	3	6	8
Short polarity protection		pulsing	pulsing	no	no
Reverse polarity protection		yes	yes	yes	no
Indication	Output	LED yellow	LED yellow	LED yellow	LED yellow
	Voltage	-	-	-	-
Operating temperature	[°C]	-25 ... 70	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN 60947-5-2	EN 60947-5-2	EN 60947-5-2	EN 60947-5-2
Protection to DIN 40050		IP 67	IP 67	IP 67	IP 67
Connection		2 m, PVC-cable	2 m, PVC-cable	2 m, PVC-cable	2 m, PVC-cable
Conductor cross section		0.34 mm ²	0.34 mm ²	0.34 mm ²	0.34 mm ²
Housing material		Nickel plated brass	Nickel plated brass	Nickel plated brass	Nickel plated brass
Sensing face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Drawing No.		FZ050008	FZ050020	FZ050008	FZ050020

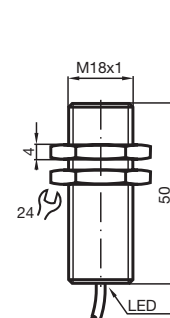
Wiring diagrams



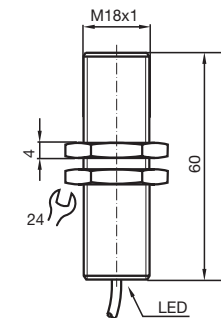
FZ050008



FZ050020



FZ050008



FZ050020

Inductive Proximity Sensors

Cylindrical \varnothing 18 mm

Technical Data

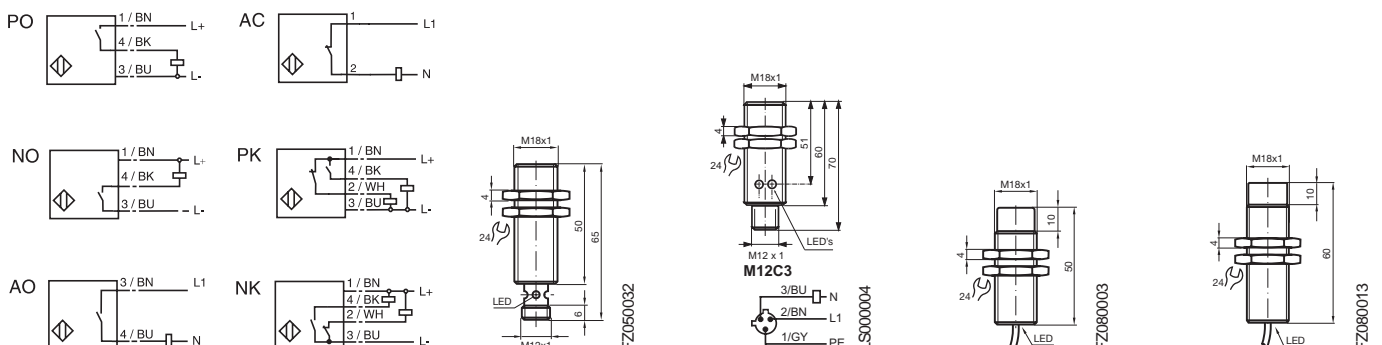
Size

M18x1



Operating dist. S_n , mounting		5 mm embeddable	5 mm embeddable	8 mm non embedd.	8 mm non embedd.
PNP	Normally open	SIF5-M18N-C1-PO		SIN8-M18N-V2-PO	
	Normally closed				
	NO/NC				SIN8-M18N-V2-PK
NPN	Normally open	SIF5-M18N-C1-NO		SIN8-M18N-V2-NO	
	NO/NC				SIN8-M18N-V2-NK
DC 2-wire	Normally open				
AC	Normally open		SIF5-M18N-C3-AO		
	Normally closed		SIF5-M18N-C3-AC		
	NO/NC				
Assured operat. dist. S_a	[mm]	0 ... 4,05	0 ... 4,05	0 ... 6,48	0 ... 6,48
Reduction factor	r_{V2A}	0.7	0.62	0.7	0.75
	r_{AL}	0.3	0.2	0.5	0.45
	r_{Cu}	0.3	0.15	0.4	0.4
Operating voltage	[V]		10 ... 30	20 ... 253	10 ... 30 10 ... 30
Operating current	[mA]		200	200	200 200
Switching frequency	[Hz]	800	20	500	700
No load supply current	[mA]	20	1.7 (off-state current)	18	20
Voltage drop U_d	[V]	3	5	3	3
Short polarity protection		pulsing	no	pulsing	pulsing
Reverse polarity protection		yes	no	yes	yes
Indication	Output	ring-LED yellow	LED yellow	LED yellow	LED yellow
	Voltage	-	-	-	-
Operating temperature	[°C]	-25 ... 70	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN 60947-5-2	EN 60947-5-2	EN 60947-5-2	EN 60947-5-2
Protection to DIN 40050		IP 67	IP 67	IP 67	IP 67
Connection		Connector M12	Connector M12	2m, PVC-cable	2m, PVC-cable
Conductor cross section		-	-	0.34 mm ²	0.34 mm ²
Housing material		Nickel plated brass	Nickel plated brass	Nickel plated brass	Nickel plated brass
Sensing face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Drawing No.		FZ050032	LS000004	FZ080003	FZ080013

Wiring diagrams



Inductive Proximity Sensors

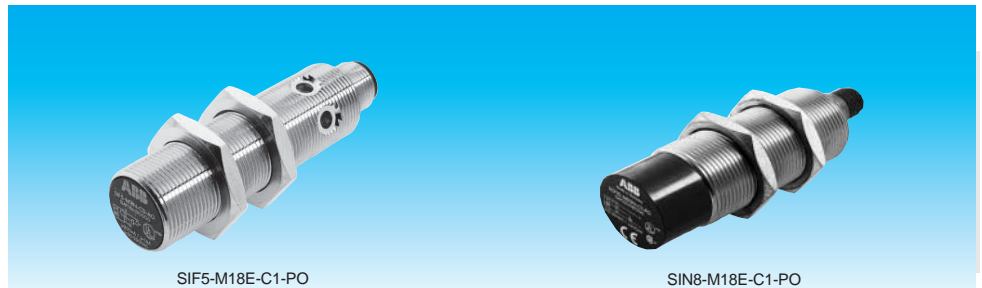
Cylindrical \varnothing 18 mm

Technical Data

NEW

Size

M18x1

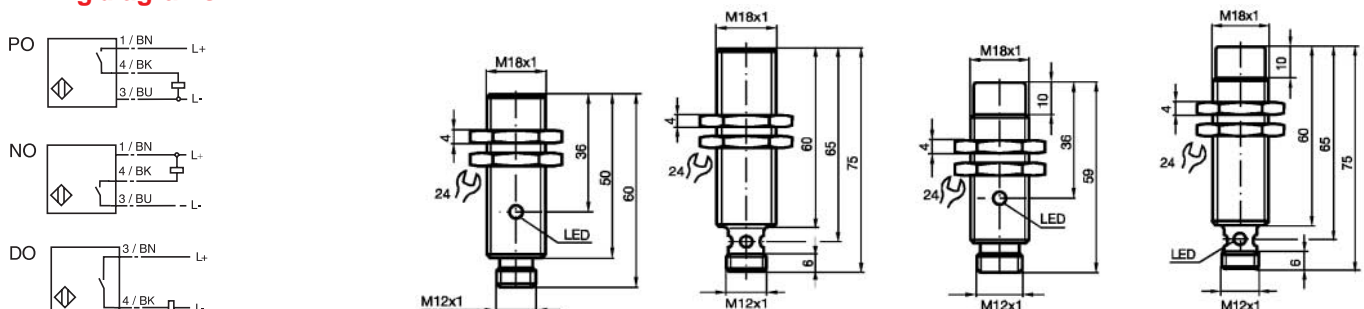


SIF5-M18E-C1-PO

SIN8-M18E-C1-PO

Operating dist. S_n , mounting		5 mm embeddable	5 mm embeddable	8 mm non embedd.	8 mm non embedd.
PNP	Normally open	SIF5-M18E-C1-PO		SIN8-M18E-C1-PO	
	Normally closed				
	NO/NC				
NPN	Normally open	SIF5-M18E-C1-NO			
	NO/NC				
DC 2-wire	Normally open		SIF5-M18E-C1-DO		SIN8-M18E-C1-DO
AC	Normally open				
	Normally closed				
	NO/NC				
Assured operat. dist. S_a	[mm]	0 ... 4.05	0 ... 4.05	0 ... 6.48	0 ... 6.48
Reduction factor	r_{V2A}	0.62	0.62	0.72	0.72
	r_{AL}	0.2	0.2	0.42	0.42
	r_{Cu}	0.15	0.15	0.4	0.4
Operating voltage	[V]	10 ... 60	5 ... 60	10 ... 60	5 ... 60
Operating current	[mA]	200	100	200	100
Switching frequency	[Hz]	1500	500	1000	500
No load supply current	[mA]	8.5	0.7	8.5	0.7
Voltage drop U_d	[V]	3	5	3	5
Short polarity protection		pulsing	pulsing	pulsing	pulsing
Reverse polarity protection		yes	yes	yes	yes
Indication	Output	LED yellow	LED yellow	LED yellow	LED yellow
	Voltage	-	-	-	-
Operating temperature	[°C]	-25 ... 70	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN 60947-5-2	EN 60947-5-2	EN 60947-5-2	EN 60947-5-2
Protection to DIN 40050		IP 67	IP 67	IP 67	IP 67
Connection		Connector M12	Connector M12	Connector M12	Connector M12
Conductor cross section		-	-	-	-
Housing material		High grade steel	High grade steel	High grade steel	High grade steel
Sensing face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)	PBT (Crastin)

Wiring diagrams



Inductive Proximity Sensors

Cylindrical $\varnothing 18$ mm

Technical Data

Size

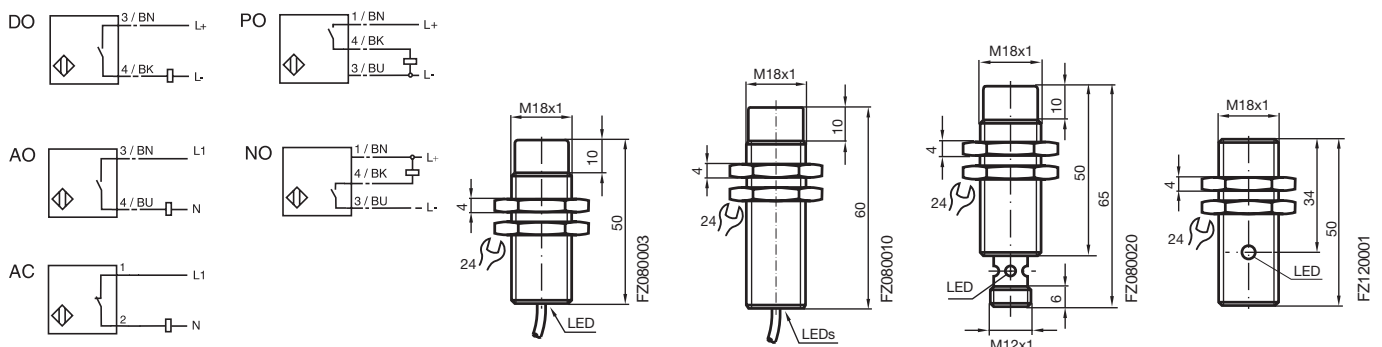
M18x1



SIN8-M18N-V2-AO

Operating dist. S_n , mounting		8 mm non embedd.	8 mm non embedd.	8 mm non embedd.	12 mm non embedd.
PNP	Normally open			SIN8-M18N-C1-PO	SIN12-M18N-V2-PO
	Normally closed				
	NO/NC				
NPN	Normally open			SIN8-M18N-C1-NO	
	NO/NC				
DC 2-wire	Normally open	SIN8-M18N-V2-DO			
AC	Normally open		SIN8-M18N-V2-AO		
	Normally closed		SIN8-M18N-V2-AC		
	NO/NC				
Assured operat. dist. S_a	[mm]	0 ... 6.5	0 ... 6.5	0 ... 6.48	0 ... 9.72
Reduction factor	r_{V2A}	0.73	0.72	0.7	0.63
	r_{AL}	0.43	0.42	0.5	0.26
	r_{Cu}	0.42	0.4	0.4	0.2
Operating voltage	[V]		6 ... 60	20 ... 253	10 ... 30 10 ... 30
Operating current	[mA]		4 ... 100	200	200 200
Switching frequency	[Hz]	1000	20	500	500
No load supply current	[mA]	0.7 (off-state current)	1.7 (off-state current)	18	10
Voltage drop U_d	[V]	6	8	3	2
Short polarity protection		no	no	pulsing	no
Reverse polarity protection		yes	no	yes	yes
Indication	Output	LED yellow	LED yellow	ring LED yellow	LED yellow
	Voltage	-	-	-	-
Operating temperature	[°C]	-25 ... 70	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN 60947-5-2	EN 60947-5-2	EN 60947-5-2	EN 60947-5-2
Protection to DIN 40050		IP 67	IP 67	IP 67	IP 67
Connection		2 m, PVC-cable	2 m, PVC-cable	Connector M12	2 m, PVC-cable
Conductor cross section		0.34 mm ²	0.34 mm ²	-	0.5 mm ²
Housing material		Nickel plated brass	Nickel plated brass	Nickel plated brass	Chrom plated brass
Sensing face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Drawing No.		FZ080003	FZ080010	FZ080020	FZ120001

Wiring diagrams



Inductive Proximity Sensors

Cylindrical \varnothing 18 mm

Technical Data

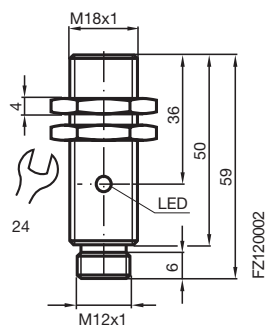
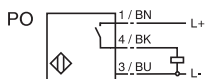
Size

M18x1



Operating dist. S_n, mounting		12 mm non embedd.		
PNP	Normally open	SIN12-M18N-C1-PO		
	Normally closed			
	NO/NC			
NPN	Normally open			
	NO/NC			
DC 2-wire	Normally open			
AC	Normally open			
	Normally closed			
	NO/NC			
Assured operat. dist. S_a	[mm]	0 ... 9.72		
Reduction factor	r_{V2A}	0.63		
	r_{AL}	0.26		
	r_{Cu}	0.2		
Operating voltage		[V] 10 ... 30		
Operating current		[mA] 200		
Switching frequency	[Hz]	500		
No load supply current	[mA]	10		
Voltage drop U_d	[V]	2		
Short polarity protection		no		
Reverse polarity protection		yes		
Indication	Output	LED yellow		
	Voltage	-		
Operating temperature	[°C]	-25 ... 70		
In compliance with		EN 60947-5-2		
Protection to DIN 40050		IP 67		
Connection		Connector M12		
Conductor cross section		-		
Housing material		Chrom plated brass		
Sensing face		PBT (Crastin)		
Drawing No.		FZ120002		

Wiring diagram



Inductive Proximity Sensors

Cylindrical $\varnothing 30$ mm

Technical Data

Size

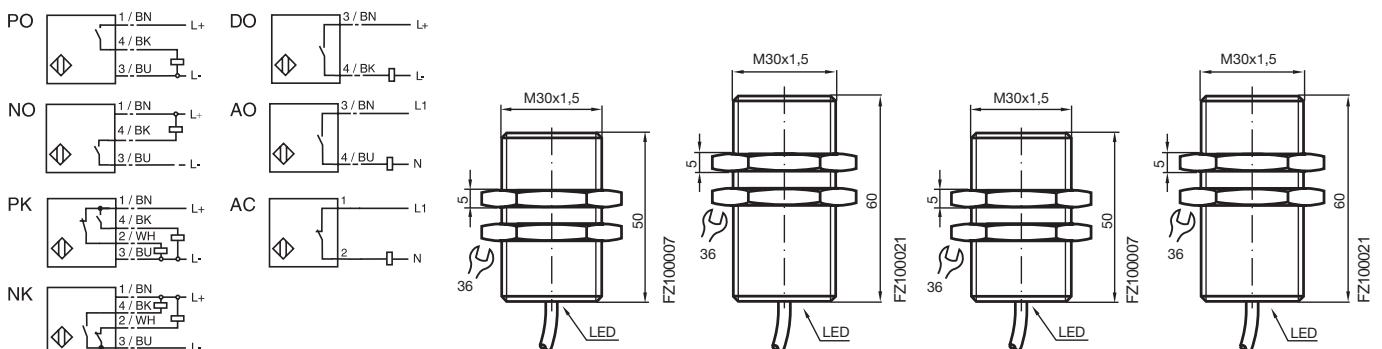
M30x1.5



SIF10-M30N-V2-DO

Operating dist. S_n , mounting		10 mm embeddable	10 mm embeddable	10 mm embeddable	10 mm embeddable
PNP	Normally open	SIF10-M30N-V2-PO			
	Normally closed				
	NO/NC		SIF10-M30N-V2-PK		
NPN	Normally open	SIF10-M30N-V2-NO			
	NO/NC		SIF10-M30N-V2-NK		
DC 2-wire	Normally open			SIF10-M30N-V2-DO	
AC	Normally open				SIF10-M30N-V2-AO
	Normally closed				SIF10-M30N-V2-AC
	NO/NC				
Assured operat. dist. S_a	[mm]	0 ... 8.1	0 ... 8.1	0 ... 8.1	0 ... 8.1
Reduction factor	r_{V2A}	0.8	0.66	0.7	0.71
	r_{AL}	0.3	0.25	0.3	0.29
	r_{Cu}	0.3	0.15	0.25	0.26
Operating voltage	[V]		10 ... 30	10 ... 30	6 ... 60 20 ... 253
Operating current	[mA]		200	200	4 ... 100 5 ... 200
Switching frequency	[Hz]	200	200	700	20
No load supply current	[mA]	20	20	0.7 (off-state current)	1.7 (off-state current)
Voltage drop U_d	[V]	3	3	6	8
Short polarity protection		pulsing	pulsing	no	no
Reverse polarity protection		yes	yes	yes	no
Indication	Output	LED yellow	LED yellow	LED yellow	LED yellow
	Voltage	-	-	-	-
Operating temperature	[°C]	-25 ... 70	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN 60947-5-2	EN 60947-5-2	EN 60947-5-2	EN 60947-5-2
Protection to DIN 40050		IP 67	IP 67	IP 67	IP 67
Connection		2 m, PVC-cable	2 m, PVC-cable	2 m, PVC-cable	2 m, PVC-cable
Conductor cross section		0.34 mm ²	0.34 mm ²	0.34 mm ²	0.34 mm ²
Housing material		Nickel plated brass	Nickel plated brass	Nickel plated brass	Nickel plated brass
Sensing face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Drawing No.		FZ100007	FZ100021	FZ100007	FZ100021

Wiring diagrams



Inductive Proximity Sensors

Cylindrical $\varnothing 30$ mm

Technical Data

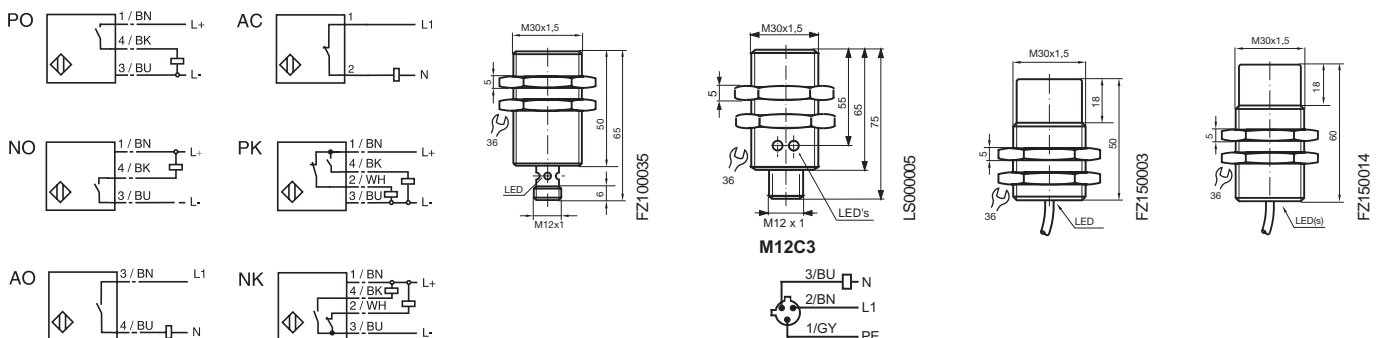
Size

M30x1.5



Operating dist. S_n , mounting		10 mm embeddable	10 mm embeddable	15 mm non embedd.	15 mm non embedd.
PNP	Normally open	SIF10-M30N-C1-PO		SIN15-M30N-V2-PO	
	Normally closed				
	NO/NC				SIN15-M30N-V2-PK
NPN	Normally open	SIF10-M30N-C1-NO		SIN15-M30N-V2-NO	
	NO/NC				SIN15-M30N-V2-NK
DC 2-wire	Normally open				
AC	Normally open		SIF10-M30N-C3-AO		
	Normally closed		SIF10-M30N-C3-AC		
	NO/NC				
Assured operat. dist. S_a	[mm]	0 ... 8.1	0 ... 8.1	0 ... 12.15	0 ... 12.15
Reduction factor	r_{V2A}	0.8	0.7	0.8	0.75
	r_{AL}	0.3	0.3	0.5	0.45
	r_{Cu}	0.3	0.25	0.4	0.4
Operating voltage	[V]	10 ... 30	20 ... 253	10 ... 30	10 ... 30
Operating current	[mA]		200	200	200 200
Switching frequency	[Hz]	200	25	200	200
No load supply current	[mA]	20	1.7 (off-state current)	15	20
Voltage drop U_d	[V]	3	8	3	3
Short polarity protection		pulsing	no	pulsing	pulsing
Reverse polarity protection		yes	no	yes	yes
Indication	Output	Ring LED yellow	LED yellow	LED yellow	LED yellow
	Voltage	-	LED green	-	-
Operating temperature	[°C]	-25 ... 70	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN 60947-5-2	EN 60947-5-2	EN 60947-5-2	EN 60947-5-2
Protection to DIN 40050		IP 67	IP 67	IP 67	IP 67
Connection		Connector M12	Connector M12	2m, PVC-cable	2m, PVC-cable
Conductor cross section		-	-	0.34 mm ²	0.34 mm ²
Housing material		Teflon coated brass	Nickel plated brass	Teflon coated brass	Teflon coated brass
Sensing face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Drawing No.		FZ100035	LS000005	FZ150003	FZ150014

Wiring diagrams



Inductive Proximity Sensors

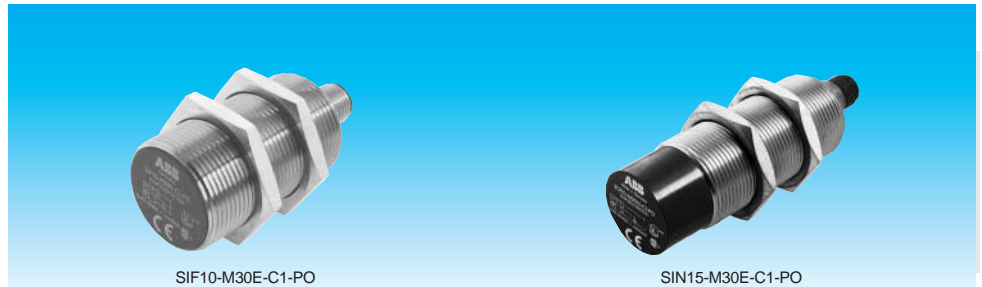
Cylindrical $\varnothing 30$ mm

Technical Data

NEW

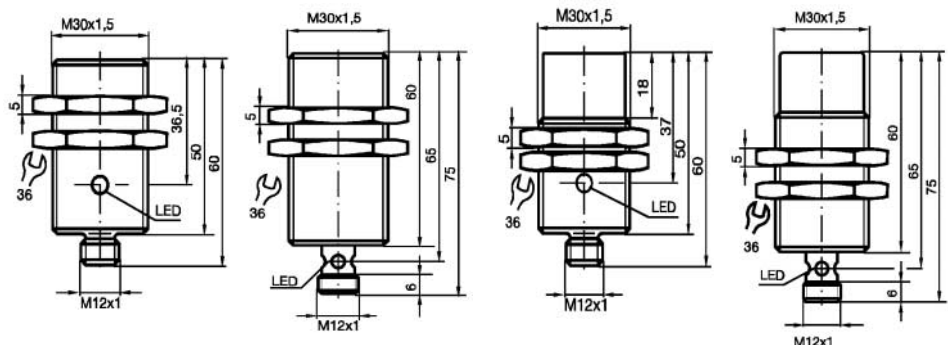
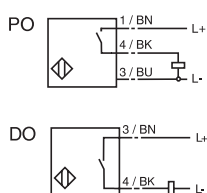
Size

M30x1.5



Operating dist. S_n , mounting		10 mm embeddable	10 mm embeddable	15 mm non embedd.	15 mm non embedd.
PNP	Normally open	SIF10-M30E-C1-PO		SIN15-M30E-C1-PO	
	Normally closed				
	NO/NC				
NPN	Normally open				
	NO/NC				
DC 2-wire	Normally open		SIF10-M30E-C1-DO		SIN15-M30E-C1-DO
AC	Normally open				
	Normally closed				
	NO/NC				
Assured operat. dist. S_a	[mm]	0 ... 8.1	0 ... 8.1	0 ... 12.15	0 ... 12.15
Reduction factor	r_{V2A}	0.72	0.72	0.71	0.7
	r_{AL}	0.34	0.34	0.4	0.43
	r_{Cu}	0.32	0.32	0.38	0.36
Operating voltage	[V]	10 ... 60	5 ... 60	10 ... 60	5 ... 60
Operating current	[mA]	200	100	200	100
Switching frequency	[Hz]	650	500	500	50
No load supply current	[mA]	9	0.7	12	0.7
Voltage drop U_d	[V]	2.8	5	2.8	5
Short polarity protection		pulsing	pulsing	pulsing	pulsing
Reverse polarity protection		yes	yes	yes	yes
Indication	Output	LED yellow	ring LED yellow	LED yellow	ring LED yellow
	Voltage	-	-	-	-
Operating temperature	[°C]	-25 ... 70	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN 60947-5-2	EN 60947-5-2	EN 60947-5-2	EN 60947-5-2
Protection to DIN 40050		IP 67	IP 67	IP 67	IP 67
Connection		Connector M12	Connector M12	Connector M12	Connector M12
Conductor cross section		-	-	-	-
Housing material		High grade steel	High grade steel	High grade steel	High grade steel
Sensing face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)	PBT (Crastin)

Wiring diagrams



Inductive Proximity Sensors

Cylindrical $\varnothing 30$ mm

Technical Data

Size

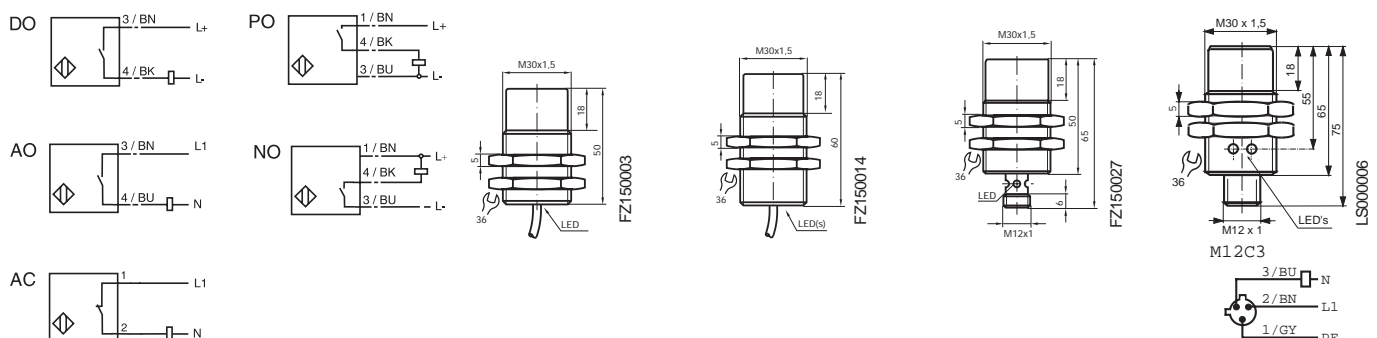
M30x1.5



SIN15-M30N-V2-AO

Operating dist. S_n , mounting		15 mm non embedd.	15 mm non embedd.	15 mm non embedd.	15 mm non embedd.
PNP	Normally open			SIN15-M30N-C1-PO	
	Normally closed				
	NO/NC				
NPN	Normally open			SIN15-M30N-C1-NO	
	NO/NC				
DC 2-wire	Normally open	SIN15-M30N-V2-DO			
AC	Normally open		SIN15-M30N-V2-AO		SIN15-M30N-C3-AO
	Normally closed		SIN15-M30N-V2-AC		SIN15-M30N-C3-AC
	NO/NC				
Assured operat. dist. S_a	[mm]	0 ... 12.2	0 ... 12.2	0 ... 12.15	0 ... 12.2
Reduction factor	r_{V2A}	0.7	0.82	0.8	0.8
	r_{AL}	0.4	0.43	0.5	0.45
	r_{Cu}	0.35	0.41	0.4	0.4
Operating voltage	[V]	6 ... 60	20 ... 253	10 ... 30	20 ... 253
Operating current	[mA]		4 ... 100	5 ... 200	200 200
Switching frequency	[Hz]	500	20	200	25
No load supply current	[mA]	0.7 (off-state current)	1.7 (off-state current)	20	1.7 (off-state current)
Voltage drop U_d	[V]	6	8	3	8
Short polarity protection		no	no	pulsing	no
Reverse polarity protection		yes	no	yes	no
Indication	Output	LED yellow	LED yellow	ring LED yellow	LED yellow
	Voltage	-	-	-	LED grün
Operating temperature	[°C]	-25 ... 70	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN 60947-5-2	EN 60947-5-2	EN 60947-5-2	EN 60947-5-2
Protection to DIN 40050		P 67	IP 67	IP 67	IP 67
Connection		2 m, PVC-cable	2 m, PVC-cable	Connector M12	Connector M12
Conductor cross section		0.34 mm ²	0.34 mm ²	-	-
Housing material		Nickel plated brass	Nickel plated brass	Teflon coated brass	Nickel plated brass
Sensing face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Drawing No.		FZ 150003	FZ 150014	FZ 150027	LS000006

Wiring diagrams

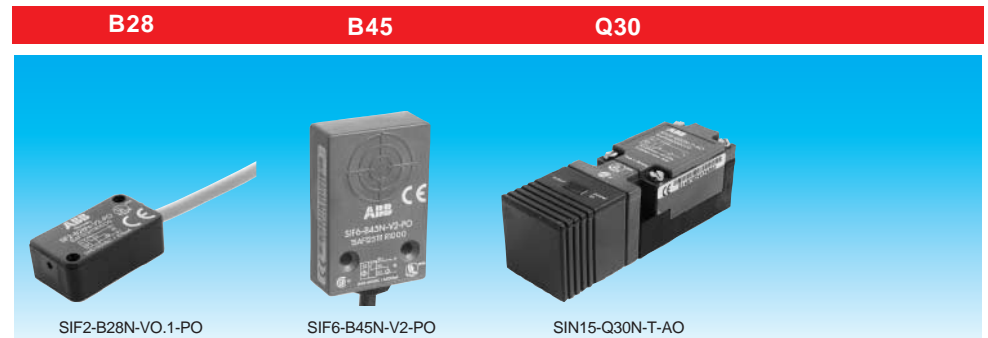


Inductive Proximity Sensors

Square Block $\varnothing 28 - 30 - 45$ mm

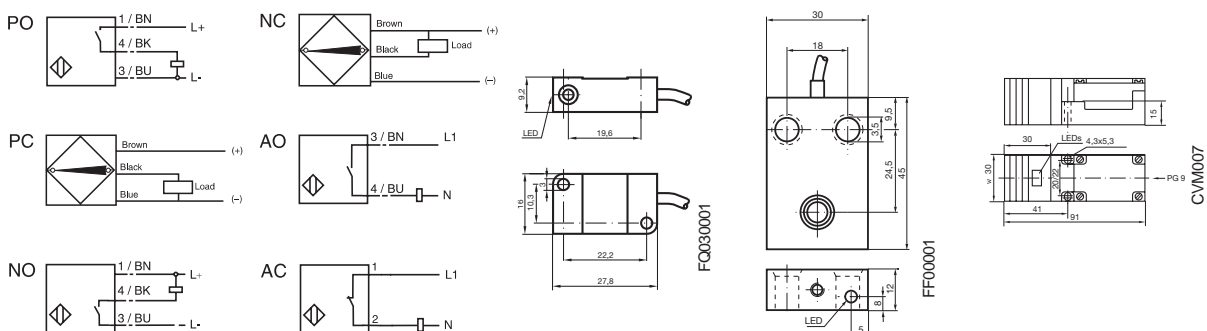
Technical Data

Size



Operating dist. S_n , mounting		2 mm embeddable	6 mm embeddable	15 mm non embedd.
PNP	Normally open	SIF2-B28N-V0.1-PO	SIF6-B45N-V2-PO	
	Normally closed	SIF2-B28N-V0.1-PC		
	NO/NC			
NPN	Normally open	SIF2-B28N-V0.1-NO		
	Normally closed	SIF2-B28N-V0.1-NC		
DC 2-wire	Normally open			
AC	Normally open			SIN15-Q30N-T-AO
	Normally closed			SIN15-Q30N-T-AC
	NO/NC			
Assured operat. dist. S_a	[mm]	0 ... 1.62	0 ... 4.8	0 ... 12.15
Reduction factor	r_{V2A}	0.7	0.7	0.82
	r_{AL}	0.35	0.22	0.43
	r_{Cu}	0.2	0.2	0.41
Operating voltage	[V]		10 ... 30	10 ... 60 20 ... 253
Operating current	[mA]		0 ... 100	200 5 ... 400
Switching frequency	[Hz]	1000	500	20
No load supply current	[mA]	15	20	1.7 (off-state current)
Voltage drop U_d	[V]	3	3	8
Short polarity protection		pulsing	pulsing	no
Reverse polarity protection		yes	yes	no
Indication	Output	LED yellow	LED yellow	LED yellow
	Voltage	-	-	-
Operating temperature	[°C]	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN 60947-5-2	EN 60947-5-2	EN 60947-5-2
Protection to DIN 40050		IP 67	IP 67	IP 67
Connection		0.1 m, PVC-cable	2 m, PUR-cable	Terminal compartment
Conductor cross section		0.14 mm ²	0.34 mm ²	up to 2.5 mm ²
Housing material		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Sensing face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Drawing No.		FQ030001	FF00001	CVM007

Wiring diagrams



Inductive Proximity Sensors

Square Block \varnothing 40 mm

Technical Data

Size

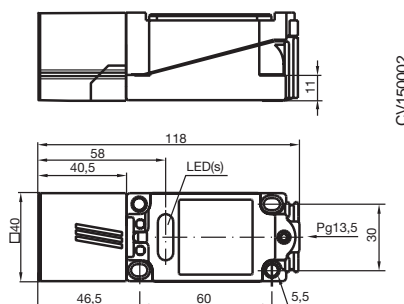
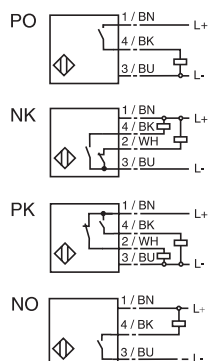
Q40



SIF15-Q40N-T-PO

Operating dist. S_n , mounting		15 mm embeddable	15 mm embeddable	20 mm embeddable	20 mm non embedd.
PNP	Normally open	SIF15-Q40N-T-PO		SIF20-Q40N-T-PO	
	Normally closed				
	NO/NC	SIF15-Q40N-T-PK		SIF20-Q40N-T-PK	
NPN	Normally open	SIF15-Q40N-T-NO			
	NO/NC	SIF15-Q40N-T-NK		SIF20-Q40N-T-NK	
DC 2-wire	Normally open				
AC	Normally open				
	Normally closed				
	NO/NC		SIF15-Q40N-T-AK		SIN20-Q40N-T-AK
Assured operat. dist. S_a	[mm]	0 ... 12.15	0 ... 12.15	0 ... 16.2	0 ... 16.2
Reduction factor	$r_{\sqrt{2}A}$	0.75	0.75	0.8	0.8
	r_{AL}	0.3	0.3	0.3	0.35
	r_{Cu}	0.25	0.25	0.3	0.35
Operating voltage	[V]	10 ... 60	20 ... 253	10 ... 60	20 ... 253
Operating current	[mA]		200	8 ... 500	200 8 ... 500
Switching frequency	[Hz]	150	20	150	20
No load supply current	[mA]	10	-	20	-
Voltage drop U_d	[V]	2.8	12	3	12
Short polarity protection		pulsing	no	pulsing	no
Reverse polarity protection		yes	no	yes	no
Indication	Output	LED yellow	LED yellow	LED yellow	LED yellow
	Voltage	-	-	-	-
Operating temperature	[°C]	-25 ... 70	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN 60947-5-2	EN 60947-5-2	EN 60947-5-2	EN 60947-5-2
Protection to DIN 40050		IP 67	IP 67	IP 67	IP 67
Connection		Terminal compartment	Terminal compartment	Terminal compartment	Terminal compartment
Conductor cross section		up to 2.5 mm ²	up to 2.5 mm ²	up to 2.5 mm ²	up to 2.5 mm ²
Housing material		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Sensing face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Drawing No.		CV150002	CV150002	CV150002	CV150002

Wiring diagrams



Inductive Proximity Sensors

Square Block $\varnothing 40$ mm

Technical Data

Size

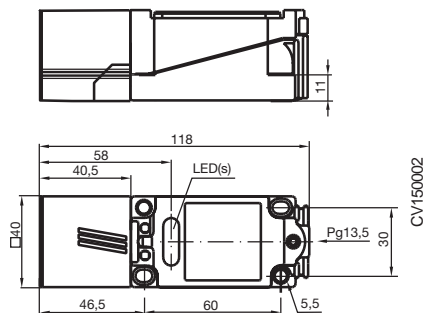
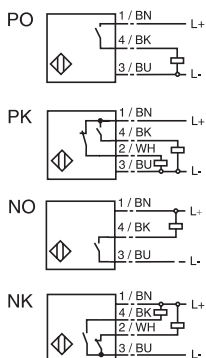
Q40



SIN30-Q40N-T-PO

Operating dist. S_n , mounting		30 mm non embedd.	30 mm non embedd.		
PNP	Normally open	SIN30-Q40N-T-PO			
	Normally closed				
	NO/NC	SIN30-Q40N-T-PK			
NPN	Normally open	SIN30-Q40N-T-NO			
	NO/NC	SIN30-Q40N-T-NK			
DC 2-wire	Normally open				
AC	Normally open				
	Normally closed				
	NO/NC		SIN30-Q40N-T-AK		
Assured operat. dist. S_a	[mm]	0 ... 24.3	0 ... 24.3		
Reduction factor	r_{V2A}	0.8	0.8		
	r_{AL}	0.45	0.45		
	r_{Cu}	0.4	0.4		
Operating voltage	[V]		10 ... 60 20 ... 253		
Operating current	[mA]		200 8 ... 500		
Switching frequency	[Hz]	100	20		
No load supply current	[mA]	10	-		
Voltage drop U_d	[V]	2.8	12		
Short polarity protection		pulsing	no		
Reverse polarity protection		yes	no		
Indication	Output	LED yellow	LED yellow		
	Voltage	-	-		
Operating temperature	[°C]	-25 ... 70	-25 ... 70		
In compliance with		EN 60947-5-2	EN 60947-5-2		
Protection to DIN 40050		IP 67	IP 67		
Connection		Terminal compartment	Terminal compartment		
Conductor cross section		up to 2.5 mm ²	up to 2.5 mm ²		
Housing material		PBT (Crastin)	PBT (Crastin)		
Sensing face		PBT (Crastin)	PBT (Crastin)		
Drawing No.		CV150002	CV150002		

Wiring diagrams



CV150002

Inductive Proximity Sensors

Square Block \varnothing 40 mm

Technical Data

Size

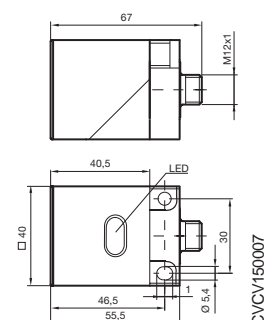
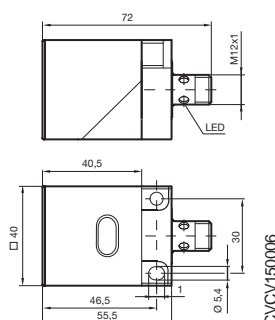
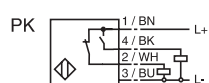
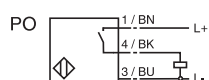
Q40



SIF20-Q40T-C1-PO

Operating dist. S_n , mounting		20 mm, embeddable	30 mm, non embedd.	20 mm, embeddable	30 mm non embedd.
PNP	Normally open	SIF20-Q40S-C1-PO	SIN30-Q40S-C1-PO	SIF20-Q40T-C1-PO	
	Normally closed				
	NO/NC			SIF20-Q40T-C1-PK	SIN30-Q40T-C1-PK
NPN	Normally open				
	NO/NC				
DC 2-wire	Normally open				
AC	Normally open				
	Normally closed				
	NO/NC				
Assured operat. dist. S_a	[mm]	0 ... 16.2	0 ... 24.3	0 ... 16.2	0 ... 24.3
Reduction factor	r_{V2A}	0.85	0.85	0.85	0.85
	r_{AL}	0.4	0.5	0.4	0.5
	r_{Cu}	0.35	0.45	0.35	0.45
Operating voltage	[V]	10 ... 30	10 ... 30	10 ... 30	10 ... 30
Operating current	[mA]		200	200	200 200
Switching frequency	[Hz]	150	150	150	150
No load supply current	[mA]	20	20	20	20
Voltage drop U_d	[V]	3	3	3	3
Short polarity protection		pulsing	pulsing	pulsing	pulsing
Reverse polarity protection		yes	yes	yes	yes
Indication	Output	ring LED yellow	ring LED yellow	LED yellow	LED yellow
	Voltage	-	-	-	-
Operating temperature	[°C]	-25 ... 70	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN 60947-5-2	EN 60947-5-2	EN 60947-5-2	EN 60947-5-2
Protection to DIN 40050		IP 67	IP 67	IP 67	IP 67
Connection		Connector M12	Connector M12	Connector M12	Connector M12
Conductor cross section		-	-	-	-
Housing material		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Sensing face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Drawing No.		CV150006	CV150006	CV150007	CV150007

Wiring diagrams



Inductive Proximity Sensors

Square Block \varnothing 80 mm

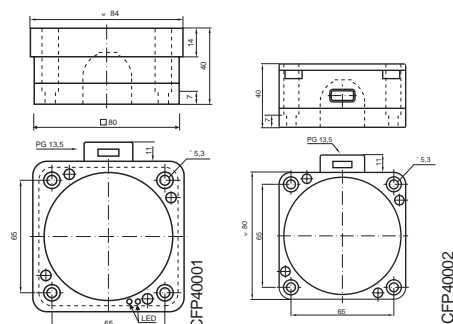
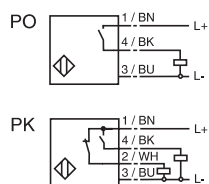
Technical Data

Size



Operating dist. S_n , mounting		40 mm embeddable	50 mm non embedd.		
PNP	Normally open		SIN50-Q80N-T-PO		
	Normally closed				
	NO/NC	SIF40-Q80N-T-PK	SIN50-Q80N-T-PK		
NPN	Normally open				
	NO/NC				
DC 2-wire	Normally open				
AC	Normally open				
	Normally closed				
	NO/NC				
Assured operat. dist. S_a	[mm]	0 ... 32.4	0 ... 40.5		
Reduction factor	r_{V2A}	0.83	0.85		
	r_{AL}	0.38	0.4		
	r_{Cu}	0.38	0.3		
Operating voltage	[V]		10 ... 60 10 ... 60		
Operating current	[mA]		0 ... 200 0 ... 200		
Switching frequency	[Hz]	100	100		
No load supply current	[mA]	20	20		
Voltage drop U_d	[V]	3	3		
Short polarity protection		pulsing	pulsing		
Reverse polarity protection		yes	yes		
Indication	Output	LED yellow	LED yellow		
	Voltage	LED green	LED green		
Operating temperature	[°C]	-25 ... 70	-25 ... 70		
In compliance with		EN 60947-5-2	EN 60947-5-2		
Protection to DIN 40050		IP 67	IP 67		
Connection		Terminal compartment	Terminal compartment		
Conductor cross section		up to 2.5 mm ²	up to 2.5 mm ²		
Housing material		PBT (Crastin)	PBT (Crastin)		
Sensing face		PBT (Crastin)	PBT (Crastin)		
Drawing No.		CFP40001	CFP40002		

Wiring diagrams



Special Inductive Proximity Sensors, Analogue output

Cylindrical \varnothing 18 mm

Technical Data

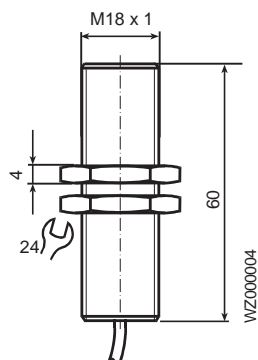
Size

M18x1



Sensing range	2 mm ... 5 mm		
Type	SIF5-M18N-V2-M		
Operating voltage	[V]	15 ... 30	
Zero tolerance	[%]	±2	
Limit frequency (3 db)	[Hz]	appr. 110	
Repeatability	[µm]	6	
Output signal	[mA]	0 ... 20	
Load resistance	[Ω]	0 ... 500	
Residual ripple output		appr.±0.15%	
Short polarity protection		yes	
Temperature drift			appr.±0.1%/K
No load supply current	[mA]	8	
Operating temperature	[°C]	-10 ... 70	
In compliance with		EN 60947-5-2	
Protection to IEC 60529		IP 67	
Connection		2 m PVC-cable	
Conductor cross section		0.5 mm ²	
Housing material		Nickel plated brass	
Sensing face		PBT (Crastin)	
Drawing No.		WZ000004	

Wiring diagram



Special Inductive Proximity Sensors, Weld Immune

Cylindrical $\varnothing 12, 18$ mm

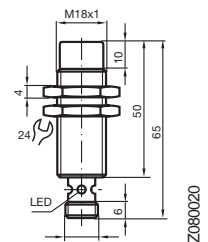
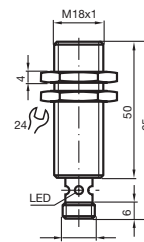
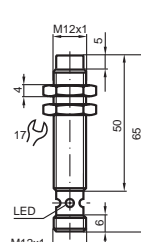
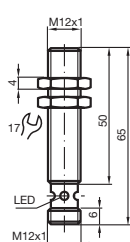
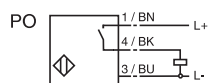
Technical Data

Size



Operating dist. S_n , mounting		M12x1	M18x1
PNP	Normally open	SIF2-M12W-C1-PO	SIN4-M12W-C1-PO
	Normally closed		
	NO/NC		
NPN	Normally open		
	NO/NC		
DC 2-wire	Normally open		
AC	Normally open		
	Normally closed		
	NO/NC		
Assured operat. dist. S_a	[mm]	0 ... 1.62	0 ... 3.24
Reduction factor	r_{V2A}	0.7	0.7
	r_{AL}	0.3	0.4
	r_{Cu}	0.2	0.3
Operating voltage	[V]	10 ... 30	10 ... 30
Operating current	[mA]		200
Switching frequency	[Hz]	1500	1200
No load supply current	[mA]	15	15
Voltage drop U_d	[V]	3	3
Constant magn. field	[mT]	200	200
Alternating magn. field	[mT]	200	200
Short polarity protection		pulsing	pulsing
Reverse polarity protection		yes	yes
Indication	Output	ring LED yellow	ring LED yellow
	Voltage	-	-
Operating temperature	[°C]	-25 ... 70	-25 ... 70
In compliance with		EN 60947-5-2	EN 60947-5-2
Protection to DIN 40050		IP 67	IP 67
Connection		Connector M12	Connector M12
Conductor cross section		-	-
Housing material		Chrom plated brass	Chrom plated brass
Sensing face		PBT (Crastin)	PBT (Crastin)
Drawing No.		FZ020046	FZ040028

Wiring diagram



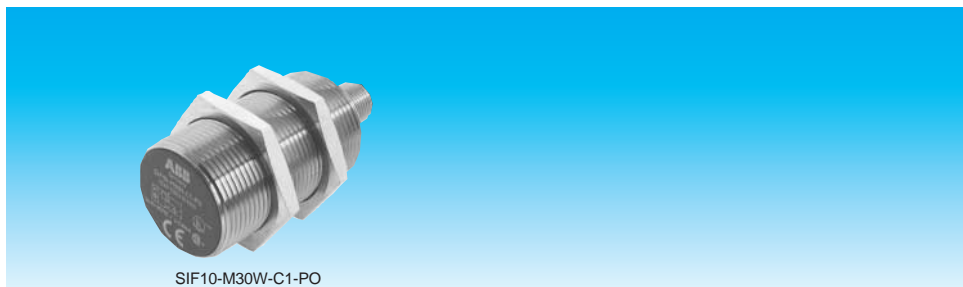
Special Inductive Proximity Sensors, Weld Immune

Cylindrical \varnothing 30 mm

Technical Data

Size

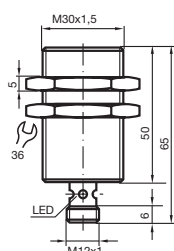
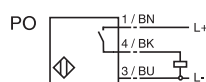
M30x1.5



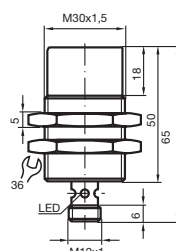
SIF10-M30W-C1-PO

Operating dist. S_n , mounting		10 mm embeddable	15 mm not embedd.		
PNP	Normally open	SIF10-M30W-C1-PO	SIN15-M30W-C1-PO		
	Normally closed				
	NO/NC				
NPN	Normally open				
	NO/NC				
DC 2-wire	Normally open				
AC	Normally open				
	Normally closed				
	NO/NC				
Assured operat. dist. S_a	[mm]	0 ... 8.1	0 ... 12.5		
Reduction factor	r_{V2A}	0.6	0.6		
	r_{AL}	0.3	0.3		
	r_{Cu}	0.2	0.2		
Operating voltage	[V]		10 ... 30	10 ... 30	
Operating current	[mA]		200	200	
Switching frequency	[Hz]	10	10		
No load supply current	[mA]	15	15		
Voltage drop U_d	[V]	3	3		
Constant magn. field	[mT]	100	100		
Alternating magn. field	[mT]	100	100		
Short polarity protection		pulsing	pulsing		
Reverse polarity protection		yes	yes		
Indication	Output	ring LED yellow	ring LED yellow		
	Voltage	-	-		
Operating temperature	[°C]	-25 ... 70	-25 ... 70		
In compliance with		EN 60947-5-2	EN 60947-5-2		
Protection to DIN 40050		IP 67	IP 67		
Connection		Connector M12	Connector M12		
Conductor cross section		-	-		
Housing material		Chrom plated brass	Chrom plated brass		
Sensing face		PBT (Crastin)	PBT (Crastin)		
Drawing No.		FZ100035	FZ150027		

Wiring diagram



LZ100035



LZ150027