

**Inductive
Proximity Switches**

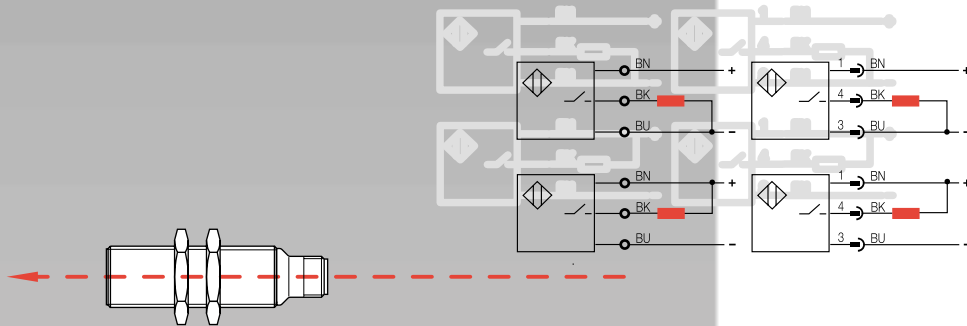
**Our Standard
Offering
"The Economical
Basic Series" in
3-Wire DC Versions**

Balluff inductive sensors are used for controlling, regulating, automating, positioning and monitoring of process sequences. They are rugged sensors that detect the presence of a metal object. They work without contact and have an electronic output, meaning they are wear-free. Their uses include machine tools, plastics processing machines, textile machinery, assembly systems, woodworking machines and in the automobile industry – wherever automation is required.

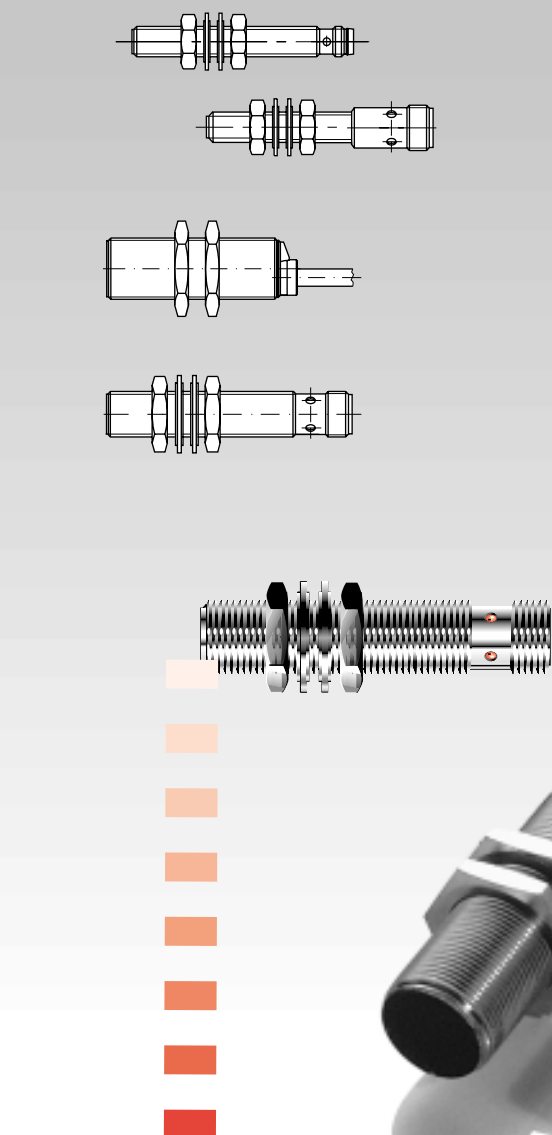
- Non-contact
- Wear-free
- Protected against polarity reversal
- Short circuit protected
- LED function display
- Virtually unlimited service life
- Insensitive to contamination
- For use under extreme conditions

**DC
3-Wire Sensors**

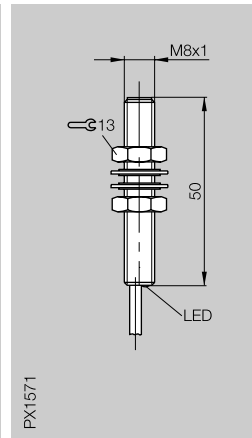
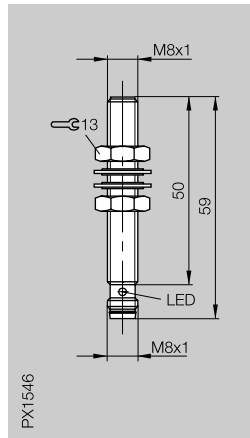
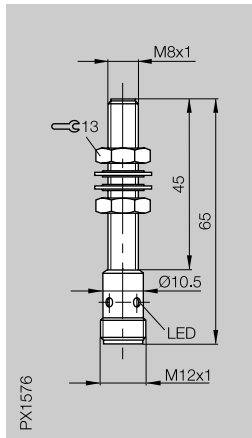
- 1.1.2 M8
- 1.1.4 M12
- 1.1.5 M18



DC
3-
Wire



Housing size	M8x1	M8x1	M8x1
Mounting	flush	flush	flush
Rated operating distance s _n	1.5 mm	1.5 mm	1.5 mm
Assured operating distance s _a	0...1.2 mm	0...1.2 mm	0...1.2 mm



PNP	Normally-open ①	BES M08MH1-PSC15B-S04G	BES M08MI-PSC15B-S49G	BES M08MI-PSC15B-
NPN	Normally-open ④	BES M08MH1-NSC15B-S04G	BES M08MI-NSC15B-S49G	BES M08MI-NSC15B-
Rated operational voltage U _e	24 V DC	24 V DC	24 V DC	
Supply voltage U _B	12...30 V DC	12...30 V DC	12...30 V DC	
Voltage drop U _d at I _e	≤ 3 V	≤ 3 V	≤ 3 V	
Rated insulation voltage U _i	75 V DC	75 V DC	75 V DC	
Rated operational current I _e	100 mA	100 mA	100 mA	
No-load supply current I ₀ max.	≤ 11 mA	≤ 11 mA	≤ 11 mA	
Off-state current I _r	≤ 80 µA	≤ 80 µA	≤ 10 µA	
Protected against polarity reversal	yes	yes	yes	
Short circuit protected	yes	yes	yes	
Load capacity	≤ 0.5 µF	≤ 0.5 µF	≤ 0.5 µF	
Repeat accuracy R	≤ 5 %	≤ 5 %	≤ 5 %	
Ambient temperature range T _a	-25...+70 °C	-25...+70 °C	-25...+70 °C	
Frequency of operating cycles f	600 Hz	600 Hz	600 Hz	
Utilization categories	DC 13	DC 13	DC 13	
Function indication	yes	yes	yes	
Degree of protection per IEC 60529	IP 67	IP 67	IP 67	
Housing material	CuZn nickel plated	CuZn nickel plated	CuZn nickel plated	
Material of sensing face	PBT	PBT	PBT	
Connection	connector	connector	cable	
No. of wires × conductor cross section			3 × 0.14 mm ²	
Approval	cULus	cULus	cULus	
Recommended connector	BKS-B 19/BKS-B 20	BKS-B 48/BKS-B 49		

① Connection diagrams see page 1.0.12
Switching distance ■■ see page 1.0.3

Please add the cable length to the ordering code for sensors with **cable!**

BV03, BV05 = PVC, length 3 m or 5 m
BP03, BP05 = PUR, length 3 m or 5 m



M8×1

flush

2 mm

0...1.6 mm

M8×1

flush

2 mm

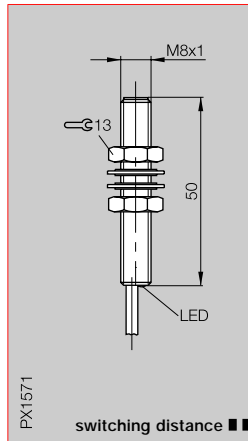
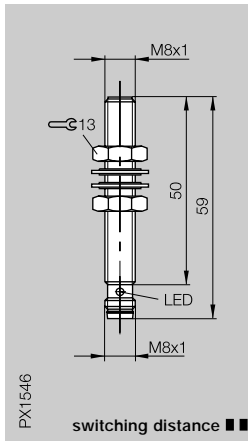
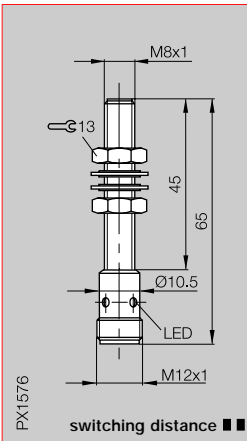
0...1.6 mm

M8×1

flush

2 mm

0...1.6 mm



BES M08MH1-PSC20B-S04G

BES M08MI-PSC20B-S49G

BES M08MI-PSC20B-

BES M08MH1-NSC20B-S04G

BES M08MI-NSC20B-S49G

BES M08MI-NSC20B-

24 V DC
12...30 V DC

≤ 3 V

75 V DC

100 mA

≤ 11 mA

≤ 80 µA

yes

yes

≤ 0.5 µF

≤ 5 %

-25...+70 °C

400 Hz

DC 13

yes

IP 67

CuZn nickel plated

PBT

connector

cULus

BKS-B 19/BKS-B 20

24 V DC
12...30 V DC

≤ 3 V

75 V DC

100 mA

≤ 11 mA

≤ 80 µA

yes

yes

≤ 0.5 µF

≤ 5 %

-25...+70 °C

400 Hz

DC 13

yes

IP 67

CuZn nickel plated

PBT

connector

cULus

BKS-B 48/BKS-B 49

24 V DC
12...30 V DC

≤ 3 V

75 V DC

100 mA

≤ 11 mA

≤ 10 µA

yes

yes

≤ 0.5 µF

≤ 5 %

-25...+70 °C

400 Hz

DC 13

yes

IP 67

CuZn nickel plated

PBT

cable

3 × 0.14 mm²

cULus

1.1

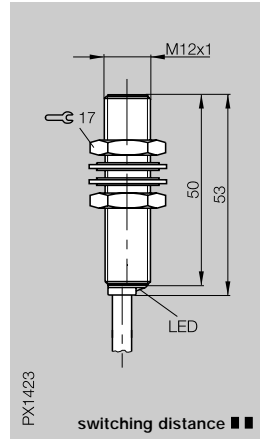
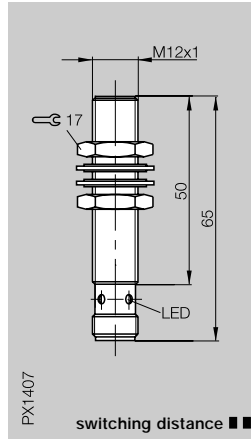
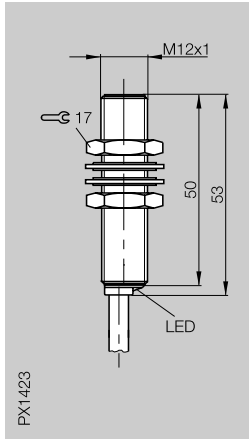
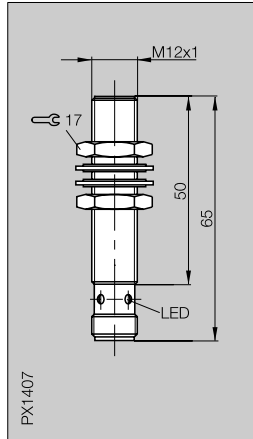
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Connectors,
clamps ...
page 6.2 ...

Inductive Sensors

DC 3-Wire
M12
s_n 2 mm, 4 mm

Housing size	M12x1	M12x1	M12x1	M12x1
Mounting	flush	flush	flush (free zone 1.5 mm)	flush (free zone 1.5 mm)
Rated operating distance s _n	2 mm	2 mm	4 mm	4 mm
Assured operating distance s _a	0...1.6 mm	0...1.6 mm	0...3.2 mm	0...3.2 mm



PNP	Normally-open ①	BES M12MI-PSC20B-S04G	BES M12MI-PSC20B-	BES M12MI-PSC40B-S04G	BES M12MI-PSC40B-
NPN	Normally-open ④	BES M12MI-NSC20B-S04G	BES M12MI-NSC20B-	BES M12MI-NSC40B-S04G	BES M12MI-NSC40B-
Rated operational voltage U _e	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC
Supply voltage U _B	12...30 V DC	12...30 V DC	12...30 V DC	12...30 V DC	12...30 V DC
Voltage drop U _d at I _e	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V
Rated insulation voltage U _i	250 V AC	250 V AC	250 V AC	250 V AC	250 V AC
Rated operational current I _e	200 mA	200 mA	200 mA	200 mA	200 mA
No-load supply current I ₀ max.	≤ 15 mA	≤ 15 mA	≤ 15 mA	≤ 15 mA	≤ 15 mA
Off-state current I _r	≤ 20 μA	≤ 20 μA	≤ 20 μA	≤ 20 μA	≤ 20 μA
Protected against polarity reversal	yes	yes	yes	yes	yes
Short circuit protected	yes	yes	yes	yes	yes
Load capacity	≤ 1 μF	≤ 1 μF	≤ 1 μF	≤ 1 μF	≤ 1 μF
Repeat accuracy R	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %
Ambient temperature range T _a	-25...+70 °C	-25...+70 °C	-25...+70 °C	-25...+70 °C	-25...+70 °C
Frequency of operating cycles f	1200 Hz	1200 Hz	300 Hz	300 Hz	300 Hz
Utilization categories	DC 13	DC 13	DC 13	DC 13	DC 13
Function indication	yes	yes	yes	yes	yes
Degree of protection per IEC 60529	IP 68 per BWN Pr. 20	IP 68 per BWN Pr. 20	IP 68 per BWN Pr. 20	IP 68 per BWN Pr. 20	IP 68 per BWN Pr. 20
Insulation class	□	□	□	□	□
Housing material	CuZn nickel plated	CuZn nickel plated	CuZn nickel plated	CuZn nickel plated	CuZn nickel plated
Material of sensing face	PA 12	PA 12	PA 12	PA 12	PA 12
Connection	connector	cable	connector	cable	cable
No. of wires × conductor cross section		3 × 0.34 mm ²		3 × 0.34 mm ²	
Approval	cULus	cULus	cULus	cULus	cULus
Recommended connector	BKS-B 19/BKS-B 20		BKS-B 19/BKS-B 20		

① Connection diagrams see page 1.0.12
Switching distance ■■ see page 1.0.3

Please add the cable length to the ordering code for sensors with **cable!**
BV03, BV05 = PVC, length 3 m or 5 m
BP03, BP05 = PUR, length 3 m or 5 m

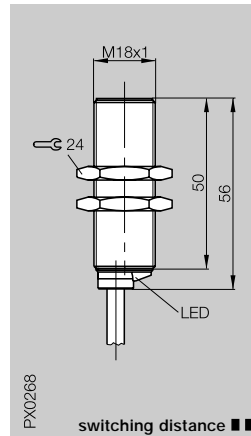
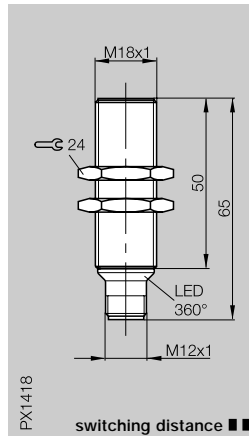
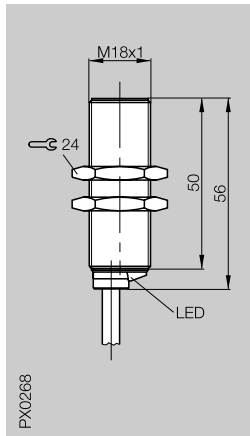
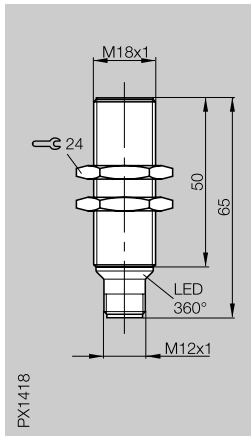


Inductive Sensors

DC 3-Wire
M18
S_n 5 mm, 8 mm

1.1

M18×1 flush 5 mm 0...4.1 mm	M18×1 flush 5 mm 0...4.1 mm	M18×1 flush (free zone 2.5 mm) 8 mm 0...6.5 mm	M18×1 flush (free zone 2.5 mm) 8 mm 0...6.5 mm
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BES M18MI-PSC50B-S04G	BES M18MI-PSC50B-	BES M18MI-PSC80B-S04G	BES M18MI-PSC80B-
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BES M18MI-NSC50B-S04G	BES M18MI-NSC50B-	BES M18MI-NSC80B-S04G	BES M18MI-NSC80B-
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24 V DC	24 V DC	24 V DC	24 V DC
12...30 V DC	12...30 V DC	12...30 V DC	12...30 V DC
≤ 2.5 V	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V
250 V AC	250 V AC	250 V AC	250 V AC
200 mA	200 mA	200 mA	200 mA
≤ 15 mA	≤ 15 mA	≤ 15 mA	≤ 15 mA
≤ 20 µA	≤ 20 µA	≤ 20 µA	≤ 20 µA
yes	yes	yes	yes
yes	yes	yes	yes
≤ 1 µF	≤ 1 µF	≤ 1 µF	≤ 1 µF
≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %
-25...+70 °C	-25...+70 °C	-25...+70 °C	-25...+70 °C
700 Hz	700 Hz	150 Hz	150 Hz
DC 13	DC 13	DC 13	DC 13
yes	yes	yes	yes
IP 68 per BWN Pr. 20 ☐	IP 68 per BWN Pr. 20 ☐	IP 68 per BWN Pr. 20 ☐	IP 68 per BWN Pr. 20 ☐
CuZn nickel plated/ PA 6 transparent	CuZn nickel plated	CuZn nickel plated/ PA 6 transparent	CuZn nickel plated
PA 12 connector	PA 12 cable	PA 12 connector	PA 12 cable
	3 × 0.34 mm ²		3 × 0.34 mm ²
cULus	cULus	cULus	cULus
BKS-B 19/BKS-B 20		BKS-B 19/BKS-B 20	



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Connectors,
clamps ...
page 6.2 ...

