

**Inductive  
Proximity Switches**

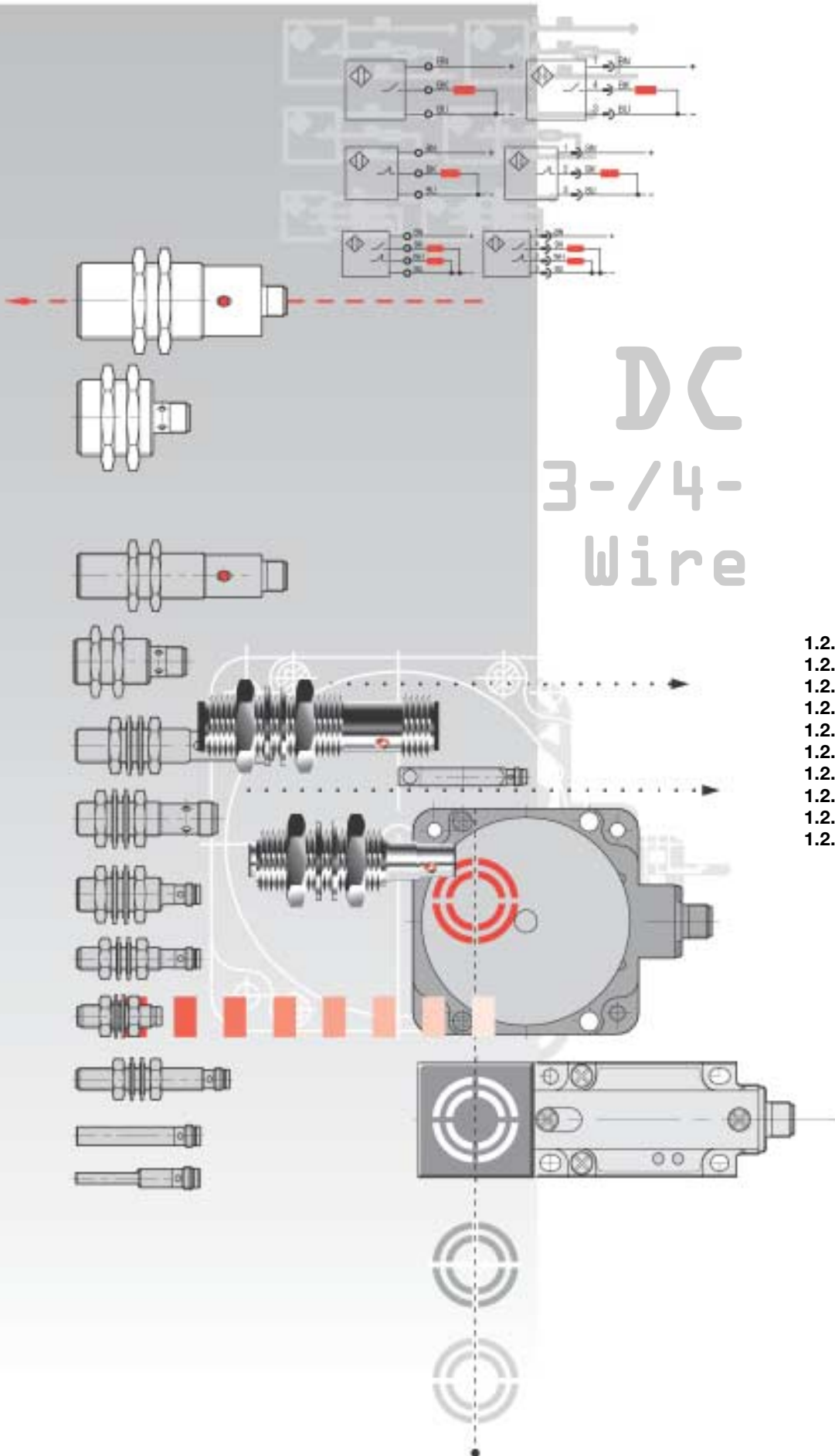
**Our Standard  
Offering in 3- and  
4-Wire DC Versions**

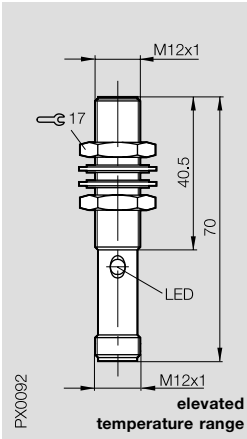
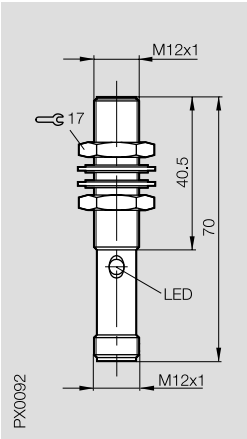
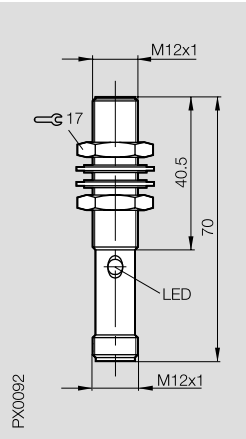
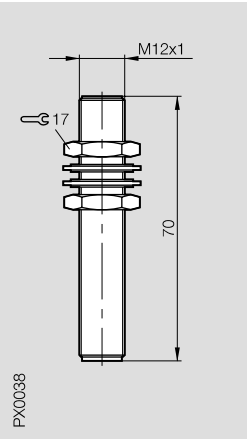
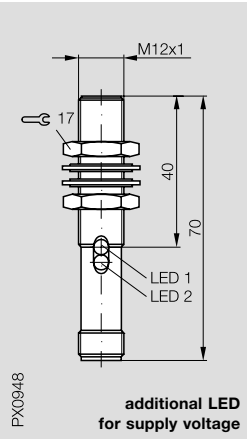
This broad range includes proximity switches from Ø 3 mm to 80 × 80 mm for virtually any application in the field of automation.

These highest quality sensors are designed and manufactured according to world-wide standards and the newest technology. Absolute final inspection of all products ensures that only carefully tested sensors are shipped.

**DC  
3-Wire and  
3-/4-Wire Sensors**

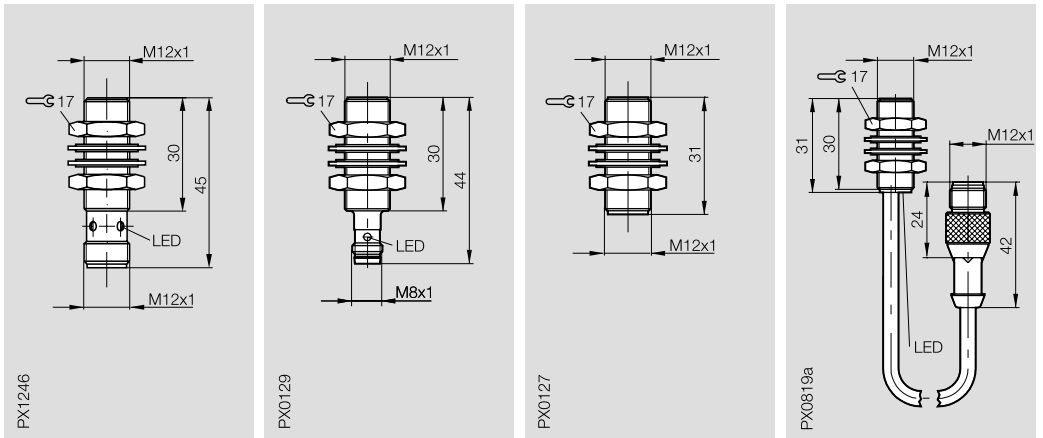
- 1.2.2** Ø 3 mm, Ø 4 mm
- 1.2.3** Ø 4 mm, M5
- 1.2.4** Ø 6.5 mm
- 1.2.8** Ø 8 mm
- 1.2.9** M8
- 1.2.17** M12
- 1.2.26** M18
- 1.2.32** M18, M30
- 1.2.33** M30
- 1.2.38** Quadraform housings



M12x1 flush 2 mm 0...1.6 mm	M12x1 flush 2 mm 0...1.6 mm	M12x1 flush 2 mm 0...1.6 mm	M12x1 flush 2 mm 0...1.6 mm	M12x1 flush 2 mm 0...1.6 mm
				
BES 516-325-S 4-C BES 516-370-S 4-C	BES 516-113-S 4-C	BES 516-370-S 4-H	BES 516-325-SA 52	BES 516-325-S 4-YL
BES 516-329-S 4-C BES 516-375-S 4-C	BES 516-118-S 4-C			
24 V DC 10...30 V DC ≤ 1.5 V 250 V AC 200 mA ≤ 8 mA ≤ 10 µA yes yes ≤ 0.5 µF	24 V DC 10...30 V DC ≤ 2.5 V 250 V AC 200 mA ≤ 32 mA ≤ 80 µA yes yes ≤ 1 µF	24 V DC 10...55 V DC ≤ 1.5 V 250 V AC 200 mA ≤ 12 mA ≤ 10 µA yes yes ≤ 0.5 µF	24 V DC 10...30 V DC ≤ 1.5 V 250 V AC 200 mA ≤ 8 mA ≤ 10 µA yes yes ≤ 0.5 µF	24 V DC 10...30 V DC ≤ 3.5 V 75 V DC 130 mA ≤ 35 mA ≤ 80 µA yes yes ≤ 1 µF
≤ 5 % -40...+85 °C 3000 Hz DC 13 yes	≤ 5 % -25...+70 °C 800 Hz DC 13 yes	≤ 5 % -25...+70 °C 3000 Hz DC 13 yes	≤ 5 % -25...+70 °C 3000 Hz DC 13 no	≤ 5 % -25...+70 °C 1000 Hz DC 13 yes
IP 68 per BWN Pr. 20 □ stainless steel PA 12 connector	IP 68 per BWN Pr. 20 □ stainless steel PA 12 connector	IP 68 per BWN Pr. 20 □ stainless steel PA 12 connector	IP 67 □ stainless steel PA 12 connector	IP 67 CuZn nickel plated PA 12 connector
cULus BKS-B 19/BKS-B 20	cULus BKS-B 19/BKS-B 20	cULus BKS-B 19/BKS-B 20	BKS-B 19/BKS-B 20	BKS-B 19/BKS-B 20



Housing size	<b>M12x1</b>	<b>M12x1</b>	<b>M12x1</b>	<b>M12x1</b>
Mounting	flush	flush	flush	flush
Rated operating distance s <sub>n</sub>	<b>2 mm</b>	<b>2 mm</b>	<b>2 mm</b>	<b>2 mm</b>
Assured operating distance s <sub>a</sub>	0...1.6 mm	0...1.6 mm	0...1.6 mm	0...1.6 mm



PNP	Normally-open ①	BES 516-325-E5-C-S 4	BES 516-325-E5-Y-S 49	BES 516-325-SA 45	BES 516-325-E4-C-S 4-
	Normally-closed ②	BES 516-370-E5-C-S 4			
	Complementary ③				
NPN	Normally-open ④	BES 516-329-E5-C-S 4			
	Normally-closed ⑤	BES 516-375-E5-C-S 4			
	Complementary ⑥				

Rated operational voltage U <sub>e</sub>	24 V DC	24 V DC	24 V DC	24 V DC
Supply voltage U <sub>B</sub>	10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC
Voltage drop U <sub>d</sub> at I <sub>e</sub>	≤ 2 V	≤ 3.5 V	≤ 2.5 V	≤ 2 V
Rated insulation voltage U <sub>i</sub>	250 V AC	75 V DC	75 V DC	250 V AC
Rated operational current I <sub>e</sub>	200 mA	130 mA	200 mA	200 mA
No-load supply current I <sub>0</sub> max.	≤ 10 mA	≤ 25 mA	≤ 20 mA	≤ 12 mA
Off-state current I <sub>r</sub>	≤ 10 µA	≤ 80 µA	≤ 80 µA	≤ 10 µA
Protected against polarity reversal	yes	yes	yes	yes
Short circuit protected	yes	yes	yes	yes
Load capacity	≤ 1 µF	≤ 1 µF	≤ 1 µF	≤ 0.5 µF
Repeat accuracy R	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %
Ambient temperature range T <sub>a</sub>	-25...+70 °C	-25...+70 °C	-25...+70 °C	-25...+70 °C
Frequency of operating cycles f	5000 Hz	1000 Hz	1000 Hz	5000 Hz
Utilization categories	DC 13	DC 13	DC 13	DC 13
Function indication	yes	yes	no	yes
Degree of protection per IEC 60529	IP 68 per BWN Pr. 20	IP 67	IP 67	IP 68 per BWN Pr. 20
Insulation class	□			□
Housing material	CuZn nickel plated	CuZn nickel plated	CuZn nickel plated	CuZn nickel plated
Material of sensing face	PBT	PA 12	PA 12	PBT
Connection	connector	connector	connector	cable with connector
No. of wires × conductor cross section				
Approval	cULus	cULus		cULus
Recommended connector	BKS-B 19/BKS-B 20	BKS-B 48/BKS-B 49	BKS-B 19/BKS-B 20	BKS-B 19

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!**  
03, 05 = PVC, length 3 m or 5 m  
PU-03, PU-05 = PUR, length 3 m or 5 m

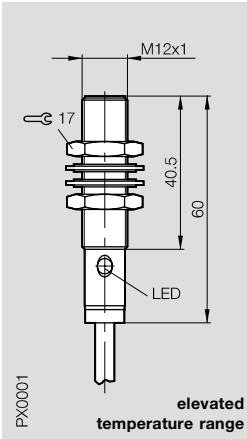
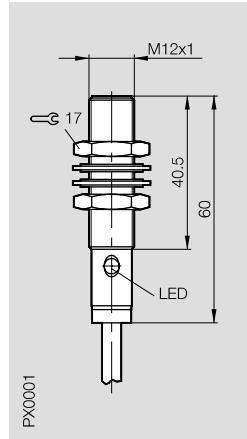
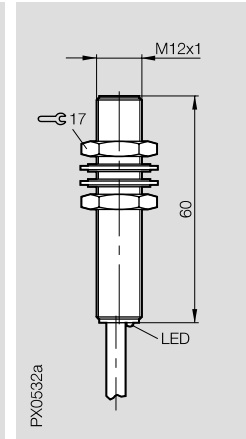
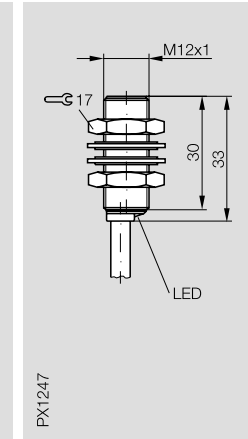
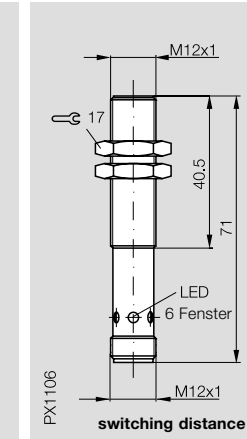
Please add the cable length to the ordering code for sensors with **cable and connector!**  
00,2, 00,5 = PUR, length 0.2 m or 0.5 m

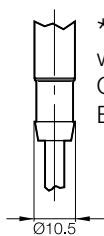


# Inductive Sensors

DC 3-/4-Wire  
M12  
S<sub>n</sub> 2 mm, 4 mm

1.2

M12x1 flush 2 mm 0...1.6 mm	M12x1 flush 2 mm 0...1.6 mm	M12x1 flush 2 mm 0...1.6 mm	M12x1 flush 2 mm 0...1.6 mm	M12x1 flush (free zone 1.5 mm) 4 mm 0...3.2 mm
				
BES 516-325-B0-C-*		BES 516-325-SA 56-	BES 516-325-E4-C- BES 516-370-E4-C-	BES 516-370-G-SA10-S 4-C
BES 516-370-B0-C-*	BES 516-113-B0-C-*			
BES 516-329-B0-C-*			BES 516-329-E4-C- BES 516-375-E4-C-	
BES 516-375-B0-C-*	BES 516-118-B0-C-*			
24 V DC 10...30 V DC ≤ 1.5 V 250 V AC 200 mA ≤ 8 mA ≤ 10 µA yes yes ≤ 0.5 µF	24 V DC 10...30 V DC ≤ 2.5 V 250 V AC 200 mA ≤ 32 mA ≤ 80 µA yes yes ≤ 1 µF	24 V DC 10...30 V DC ≤ 1.7 V 75 V DC 200 mA ≤ 25 mA ≤ 80 µA yes yes ≤ 1 µF	24 V DC 10...30 V DC ≤ 2 V 250 V AC 200 mA ≤ 12 mA ≤ 10 µA yes yes ≤ 0.5 µF	24 V DC 10...35 V DC ≤ 2.5 V 75 V DC 300 mA ≤ 16 mA ≤ 10 µA yes yes ≤ 0.5 µF
≤ 5 % -40...+85 °C 3000 Hz DC 13 yes	≤ 5 % -25...+70 °C 800 Hz DC 13 yes	≤ 5 % -25...+70 °C 800 Hz DC 13 yes	≤ 5 % -25...+70 °C 5000 Hz DC 13 yes	≤ 5 % -25...+70 °C 1000 Hz DC 13 yes
IP 68 per BWN Pr. 20 □	IP 68 per BWN Pr. 20 □	IP 67	IP 68 per BWN Pr. 20 □	IP 67
stainless steel PA 12 cable 3 × 0.34 mm <sup>2</sup> cULus	stainless steel PA 12 cable 4 × 0.25 mm <sup>2</sup> cULus	stainless steel PA 12 cable 3 × 0.34 mm <sup>2</sup>	CuZn nickel plated PBT cable 3 × 0.34 mm <sup>2</sup> cULus	CuZn nickel plated PA 12 connector
				BKS-B 19/BKS-B 20



\*Also available in A0 housing for use with cover sleeve with 5 m PUR-cable.  
Order example:  
BES 516-325-A0-C-PU-05



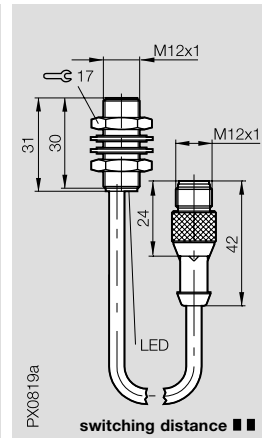
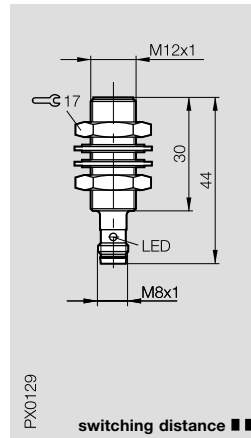
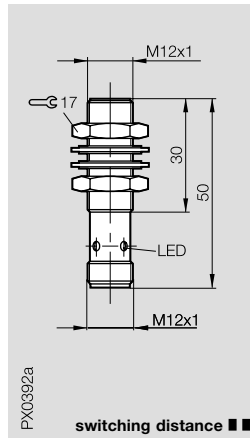
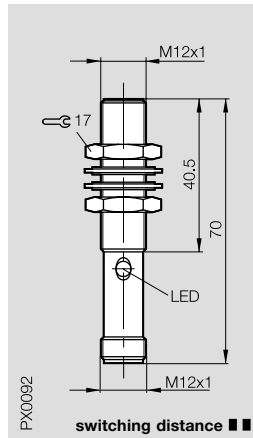
6

Connectors, clamps ...  
page 6.2 ...

# Inductive Sensors

DC 3-Wire  
M12  
s<sub>n</sub> 4 mm

Housing size	<b>M12x1</b>	<b>M12x1</b>	<b>M12x1</b>	<b>M12x1</b>
Mounting	flush	flush (free zone 0.5 mm)	flush (free zone 0.5 mm)	flush (free zone 0.5 mm)
Rated operating distance s <sub>n</sub>	<b>4 mm</b>	<b>4 mm</b>	<b>4 mm</b>	<b>4 mm</b>
Assured operating distance s <sub>a</sub>	0...3.2 mm	0...3.2 mm	0...3.2 mm	0...3.2 mm



PNP	Normally-open ①	BES 516-325-G-S 4-C	BES 516-325-G-E5-Y-S 4	BES 516-325-G-E5-Y-S 49	BES 516-325-G-E4-Y-S 4-
	Normally-closed ②		BES 516-370-G-E5-Y-S 4	BES 516-370-G-E5-Y-S 49	
NPN	Normally-open ④		BES 516-329-G-E5-Y-S 4	BES 516-329-G-E5-Y-S 49	
	Normally-closed ⑤			BES 516-375-G-E5-Y-S 49	

Rated operational voltage U <sub>e</sub>	24 V DC	24 V DC	24 V DC	24 V DC
Supply voltage U <sub>B</sub>	10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC
Voltage drop U <sub>d</sub> at I <sub>e</sub>	≤ 2.5 V	≤ 3.5 V	≤ 3.5 V	≤ 3.5 V
Rated insulation voltage U <sub>i</sub>	75 V DC	75 V DC	75 V DC	75 V DC
Rated operational current I <sub>e</sub>	200 mA	130 mA	130 mA	130 mA
No-load supply current I <sub>0</sub> max.	≤ 25 mA	≤ 25 mA	≤ 25 mA	≤ 25 mA
Off-state current I <sub>r</sub>	≤ 80 µA	≤ 80 µA	≤ 80 µA	≤ 80 µA
Protected against polarity reversal	yes	yes	yes	yes
Short circuit protected	yes	yes	yes	yes
Load capacity	≤ 1 µF	≤ 1 µF	≤ 1 µF	≤ 1 µF
Repeat accuracy R	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %
Ambient temperature range T <sub>a</sub>	-25...+70 °C	-25...+70 °C	-25...+70 °C	-25...+70 °C
Frequency of operating cycles f	600 Hz	600 Hz	600 Hz	600 Hz
Utilization categories	DC 13	DC 13	DC 13	DC 13
Function indication	yes	yes	yes	yes
Degree of protection per IEC 60529	IP 67	IP 67	IP 67	IP 68 per BWN Pr. 20
Housing material	CuZn nickel plated	CuZn nickel plated	CuZn nickel plated	CuZn nickel plated
Material of sensing face	LCP	PA 12	PA 12	PA 12
Connection	connector	connector	connector	cable with connector
No. of wires × conductor cross section				
Approval	cULus	cULus	cULus	cULus
Recommended connector	BKS-B 19/BKS-B 20	BKS-B 19/BKS-B 20	BKS-B 48/BKS-B 49	BKS-B 19

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!**

Example: **BES 516-325-G-E4-Y-05**

03, 05 = PVC, length 3 m or 5 m  
PU-03, PU-05 = PUR, length 3 m or 5 m  
or

Example: **BES M12MI-PSC80B-BP03**

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

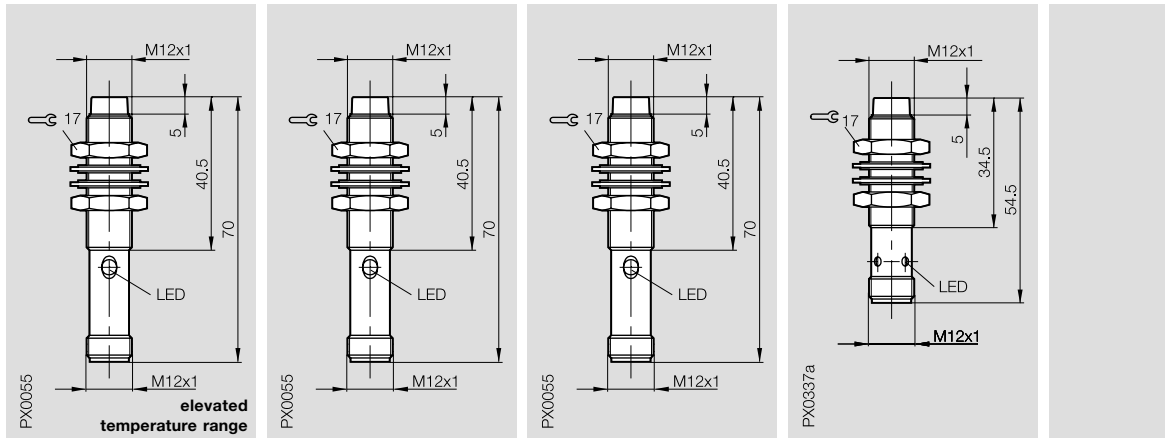
Please add the cable length to the ordering code for sensors with **cable and connector!**  
00,2, 00,5 = PUR, length 0.2 m or 0.5 m



M12x1 flush (free zone 0.5 mm) 4 mm 0...3.2 mm	M12x1 quasi-flush 6 mm 0...4.9 mm	M12x1 quasi-flush 6 mm 0...4.9 mm	M12x1 quasi-flush 8 mm 0...5.8 mm	M12x1 quasi-flush 8 mm 0...5.8 mm
switching distance ■■	switching distance ■■■	switching distance ■■■	switching distance ■■■■	switching distance ■■■■
BES 516-325-G-E4-Y- BES 516-370-G-E4-Y-	BES M12MG1-PSC60B-S04G BES M12MG1-POC60B-S04G	BES M12MD1-PSC60B-S04G	BES M12MI-PSH80B-S04G	BES M12MI-PSH80B-
BES 516-329-G-E4-Y- BES 516-375-G-E4-Y-	BES M12MG1-NSC60B-S04G	BES M12MD1-NSC60B-S04G	BES M12MI-NSH80B-S04G	BES M12MI-NSH80B-
24 V DC 10...30 V DC ≤ 3.5 V 75 V DC 130 mA ≤ 25 mA ≤ 80 μA yes yes ≤ 1 μF	24 V DC 10...30 V DC ≤ 2 V 75 V DC 200 mA ≤ 10 mA ≤ 100 μA yes yes ≤ 1 μF	24 V DC 10...30 V DC ≤ 2 V 75 V DC 200 mA ≤ 10 mA ≤ 100 μA yes yes ≤ 1 μF	24 V DC 10...55 V DC ≤ 2.5 V 75 V DC 200 mA ≤ 10 mA ≤ 10 μA yes yes ≤ 1 μF	24 V DC 10...55 V DC ≤ 2.5 V 75 V DC 200 mA ≤ 10 mA ≤ 10 μA yes yes ≤ 1 μF
≤ 5 % -25...+70 °C 600 Hz DC 13 yes	≤ 5 % -25...+70 °C 800 Hz DC 13 yes	≤ 5 % -25...+70 °C 800 Hz DC 13 yes	≤ 10 % 0...+60 °C 300 Hz DC 13 yes	≤ 10 % 0...+60 °C 300 Hz DC 13 yes
IP 68 per BWN Pr. 20	IP 67	IP 67	IP 67	IP 67
CuZn nickel plated PA 12 cable 3 × 0.34 mm <sup>2</sup> cULus	CuZn chrome plated PBT connector	CuZn chrome plated PBT connector	CuZn nickel plated LCP connector	CuZn nickel plated LCP cable 3 × 0.34 mm <sup>2</sup>
	BKS-B 19/BKS-B 20	BKS-B 19/BKS-B 20	BKS-B 19/BKS-B 20	



Housing size	<b>M12x1</b>	<b>M12x1</b>	<b>M12x1</b>	<b>M12x1</b>
Mounting	non-flush	non-flush	non-flush	non-flush
Rated operating distance s <sub>n</sub>	<b>4 mm</b>	<b>4 mm</b>	<b>4 mm</b>	<b>4 mm</b>
Assured operating distance s <sub>a</sub>	0...3.2 mm	0...3.2 mm	0...3.2 mm	0...3.2 mm



PNP	Normally-open ①	BES 516-356-S 4-C		BES 516-356-S 4-H	
	Normally-closed ②	BES 516-3019-S 4-C			
	Complementary ③		BES 516-131-S 4-C		
NPN	Normally-open ④	BES 516-357-S 4-C			BES 516-357-E5-Y-S 4
	Normally-closed ⑤	BES 516-3030-S 4-C			
	Complementary ⑥		BES 516-122-S 4-C		

Rated operational voltage U <sub>e</sub>	24 V DC	24 V DC	24 V DC	24 V DC
Supply voltage U <sub>B</sub>	10...30 V DC	10...30 V DC	10...60 V DC	10...30 V DC
Voltage drop U <sub>d</sub> at I <sub>e</sub>	≤ 1.5 V	≤ 2.5 V	≤ 1.5 V	≤ 3.5 V
Rated insulation voltage U <sub>i</sub>	250 V AC	250 V AC	250 V AC	75 V DC
Rated operational current I <sub>e</sub>	200 mA	200 mA	200 mA	130 mA
No-load supply current I <sub>0</sub> max.	≤ 8 mA	≤ 32 mA	≤ 12 mA	≤ 25 mA
Off-state current I <sub>r</sub>	≤ 10 μA	≤ 80 μA	≤ 80 μA	≤ 80 μA
Protected against polarity reversal	yes	yes	yes	yes
Short circuit protected	yes	yes	yes	yes
Load capacity	≤ 0.5 μF	≤ 1 μF	≤ 0.5 μF	≤ 1 μF
Repeat accuracy R	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %
Ambient temperature range T <sub>a</sub>	-40...+85 °C	-25...+70 °C	-25...+70 °C	-25...+70 °C
Frequency of operating cycles f	1500 Hz	400 Hz	1500 Hz	400 Hz
Utilization categories	DC 13	DC 13	DC 13	DC 13
Function indication	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
Insulation class	□	□	□	
Housing material	stainless steel	stainless steel	stainless steel	CuZn nickel plated
Material of sensing face	PA 12	PA 12	PA 12	PA 12
Connection	connector	connector	connector	connector
No. of wires × conductor cross section				
Approval	cULus	cULus	cULus	cULus
Recommended connector	BKS-B 19/BKS-B 20	BKS-B 19/BKS-B 20	BKS-B 19/BKS-B 20	BKS-B 19/BKS-B 20

① Connection diagrams see page 1.0.12

Please add the cable length to the ordering code for sensors with **cable!**  
03, 05 = PVC, length 3 m or 5 m  
PU-03, PU-05 = PUR, length 3 m or 5 m

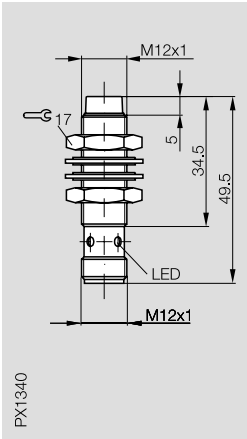
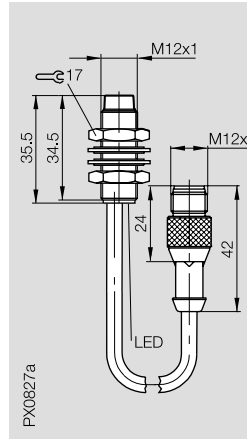
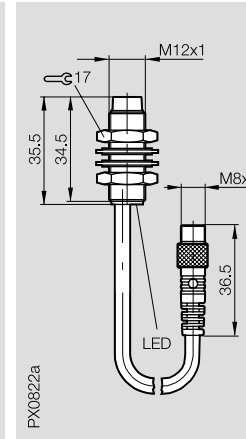
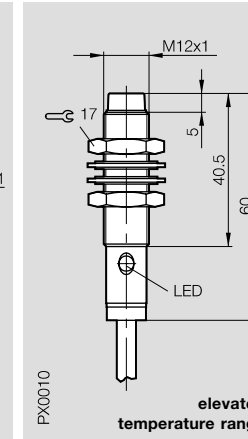
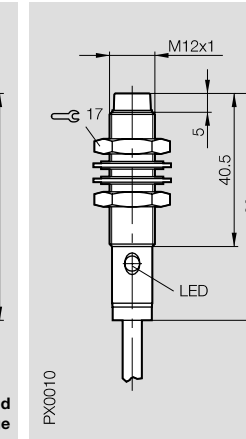
Please add the cable length to the ordering code for sensors with **cable and connector!**  
00,2, 00,5 = PUR, length 0.2 m or 0.5 m



# Inductive Sensors

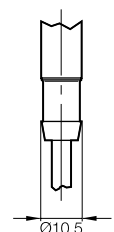
DC 3-/4-Wire  
M12  
s<sub>n</sub> 4 mm

1.2

M12x1 non-flush 4 mm 0...3.2 mm	M12x1 non-flush 4 mm 0...3.2 mm	M12x1 non-flush 4 mm 0...3.2 mm	M12x1 non-flush 4 mm 0...3.2 mm	M12x1 non-flush 4 mm 0...3.2 mm
				
PX1340	PX0827a	PX0822a	PX0010 elevated temperature range	PX0010
BES 516-356-E5-C-S 4 BES 516-3019-E5-C-S 4	BES 516-356-E4-Y-S 4	BES 516-356-E4-Y-S 49	BES 516-356-B0-C- <sup>*</sup> BES 516-3019-B0-C- <sup>*</sup>	BES 516-131-B0-C- <sup>*</sup>
			BES 516-357-B0-C- <sup>*</sup> BES 516-3030-B0-C- <sup>*</sup>	BES 516-122-B0-C- <sup>*</sup>
24 V DC 10...30 V DC ≤ 2 V 250 V AC 200 mA ≤ 10 mA ≤ 30 μA yes yes ≤ 0.5 μF	24 V DC 10...30 V DC ≤ 3.5 V 75 V DC 130 mA ≤ 25 mA ≤ 80 μA yes yes ≤ 1 μF	24 V DC 10...30 V DC ≤ 3.5 V 75 V DC 130 mA ≤ 25 mA ≤ 80 μA yes yes ≤ 1 μF	24 V DC 10...30 V DC ≤ 1.5 V 250 V AC 200 mA ≤ 8 mA ≤ 10 μA yes yes ≤ 0.5 μF	24 V DC 10...30 V DC ≤ 2.5 V 250 V AC 200 mA ≤ 32 mA ≤ 80 μA yes yes ≤ 1 μF
≤ 5 % -25...+70 °C 2000 Hz DC 13 yes	≤ 5 % -25...+70 °C 400 Hz DC 13 yes	≤ 5 % -25...+70 °C 400 Hz DC 13 yes	≤ 5 % -40...+85 °C 1500 Hz DC 13 yes	≤ 5 % -25...+70 °C 400 Hz DC 13 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 ☐	IP 68 per BWN Pr. 20 ☐
CuZn nickel plated PBT connector	CuZn nickel plated PA 12 cable with connector	CuZn nickel plated PA 12 cable with connector	stainless steel PA 12 cable 3 × 0.34 mm <sup>2</sup> cULus	stainless steel PA 12 cable 4 × 0.25 mm <sup>2</sup> cULus
cULus BKS-B 19/BKS-B 20	cULus BKS-B 19	cULus BKS-B 48		



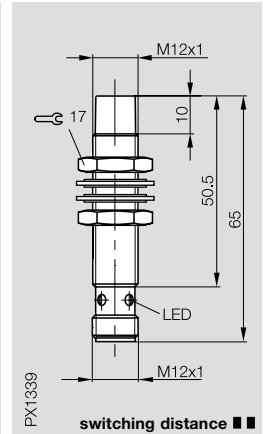
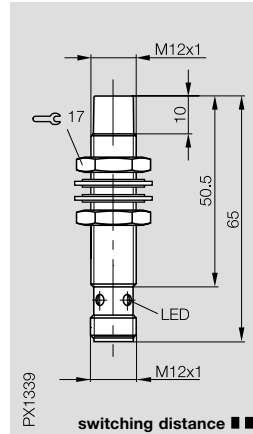
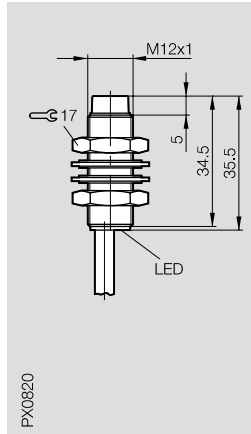
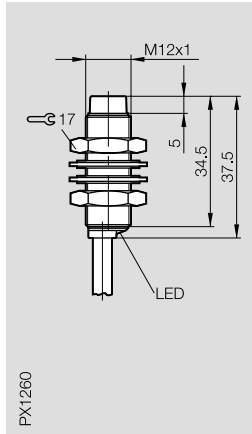
\*Also available in A0 housing for use with cover sleeve with 5 m PUR-cable.  
Order example:  
BES 516-356-A0-C-PU-05



# Inductive Sensors

DC 3-Wire  
M12  
s<sub>n</sub> 4 mm, 7 mm, 8 mm

Housing size	<b>M12x1</b>	<b>M12x1</b>	<b>M12x1</b>	<b>M12x1</b>
Mounting	non-flush	non-flush	non-flush	non-flush
Rated operating distance s <sub>n</sub>	<b>4 mm</b>	<b>4 mm</b>	<b>7 mm</b>	<b>8 mm</b>
Assured operating distance s <sub>a</sub>	0...3.2 mm	0...3.2 mm	0...5.7 mm	0...6.5 mm



PNP	Normally-open ①	BES 516-356-E4-C-		BES M12EG-PSC70F-S04G	BES M12EG-PSC80F-S04G
	Normally-closed ②	BES 516-3019-E4-C-			
NPN	Normally-open ④		BES 516-357-E4-Y-		
	Normally-closed ⑤		BES 516-3030-E4-Y-		
Rated operational voltage U <sub>e</sub>	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC
Supply voltage U <sub>B</sub>	10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC
Voltage drop U <sub>d</sub> at I <sub>e</sub>	≤ 2 V	≤ 3.5 V	≤ 2 V	≤ 2.5 V	≤ 2.5 V
Rated insulation voltage U <sub>i</sub>	250 V AC	75 V DC	250 V AC	250 V AC	250 V AC
Rated operational current I <sub>e</sub>	200 mA	130 mA	200 mA	200 mA	200 mA
No-load supply current I <sub>0</sub> max.	≤ 10 mA	≤ 25 mA	≤ 8 mA	≤ 10 mA	≤ 10 mA
Off-state current I <sub>r</sub>	≤ 30 μA	≤ 80 μA	≤ 10 μA	≤ 10 μA	≤ 10 μA
Protected against polarity reversal	yes	yes	yes	yes	yes
Short circuit protected	yes	yes	yes	yes	yes
Load capacity	≤ 0.5 μF	≤ 1 μF	≤ 1 μF	≤ 1 μF	≤ 1 μF
Repeat accuracy R	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %
Ambient temperature range T <sub>a</sub>	-25...+70 °C	-25...+70 °C	-25...+70 °C	-25...+70 °C	-25...+70 °C
Frequency of operating cycles f	2000 Hz	400 Hz	3000 Hz	1500 Hz	1500 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	stainless steel	stainless steel	stainless steel
Material of sensing face	PBT	PA 12	PBT	PBT	PBT
Connection	cable	cable	connector	connector	connector
No. of wires × conductor cross section	3 × 0.34 mm <sup>2</sup>	3 × 0.34 mm <sup>2</sup>			
Approval	cULus	cULus			cULus
Recommended connector			BKS-B 19/BKS-B 20	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!**

Example: **BES 516-357-E4-Y-PU-05**  
03, 05 = PVC, length 3 m or 5 m  
PU-03, PU-05 = PUR, length 3 m or 5 m  
or

Example: **BES M12EG-PSC80F-BV03**  
BV03, BV05 = PVC, length 3 m or 5 m  
BP03, BP05 = PUR, length 3 m or 5 m



**M12x1**

non-flush

**8 mm**

0...6.5 mm

**M12x1**

non-flush

**10 mm**

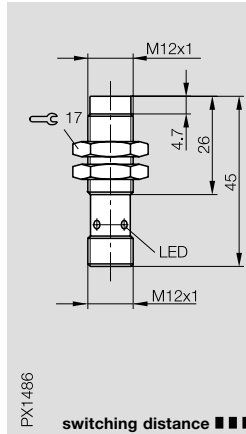
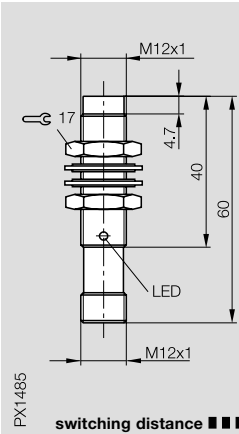
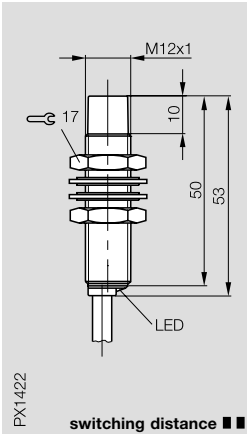
0...8.1 mm

**M12x1**

non-flush

**10 mm**

0...8.1 mm



BES M12EG-PSC80F-

BES M12MF1-PSC10F-S04G

BES M12MC1-PSC10F-S04G

BES M12MF1-NSC10F-S04G

BES M12MC1-NSC10F-S04G

24 V DC  
10...30 V DC

≤ 2 V

250 V AC

200 mA

≤ 11 mA

≤ 10 μA

yes

yes

≤ 1 μF

≤ 5 %

-25...+70 °C

1500 Hz

DC 13

yes

IP 68 per BWN Pr. 20



stainless steel

PBT

cable

3 × 0.34 mm<sup>2</sup>

cULus

24 V DC  
10...30 V DC

≤ 2 V

75 V DC

200 mA

≤ 10 mA

≤ 100 μA

yes

yes

≤ 1 μF

≤ 5 %

-25...+70 °C

400 Hz

DC 13

yes

IP 67

CuZn chrome plated

PBT

connector

BKS-B 19/BKS-B 20

24 V DC  
10...30 V DC

≤ 2 V

75 V DC

200 mA

≤ 10 mA

≤ 100 μA

yes

yes

≤ 1 μF

≤ 5 %

-25...+70 °C

400 Hz

DC 13

yes

IP 67

CuZn chrome plated

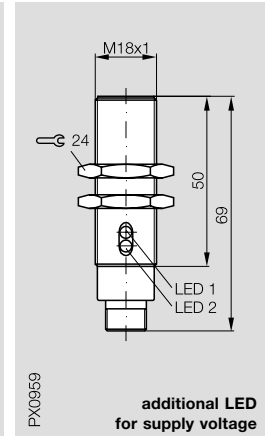
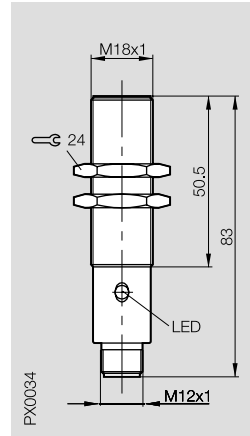
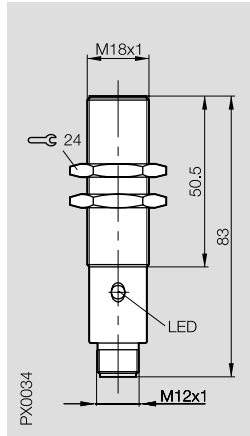
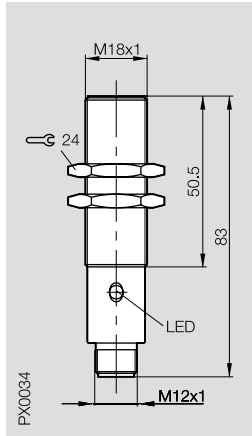
PBT

connector

BKS-B 19/BKS-B 20



Housing size	<b>M18x1</b>	<b>M18x1</b>	<b>M18x1</b>	<b>M18x1</b>
Mounting	flush	flush	flush	flush
Rated operating distance s <sub>n</sub>	<b>5 mm</b>	<b>5 mm</b>	<b>5 mm</b>	<b>5 mm</b>
Assured operating distance s <sub>a</sub>	0...4.1 mm	0...4.1 mm	0...4.1 mm	0...4.1 mm



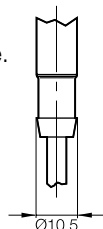
PNP	Normally-open ①	BES 516-326-S 4-C		BES 516-326-S 4-H	BES 516-326-S 4-YL
	Normally-closed ②	BES 516-367-S 4-C			
	Complementary ③		BES 516-105-S 4-C		
NPN	Normally-open ④	BES 516-355-S 4-C			
	Normally-closed ⑤	BES 516-366-S 4-C			
	Complementary ⑥		BES 516-111-S 4-C		

Rated operational voltage U <sub>e</sub>	24 V DC	24 V DC	24 V DC	24 V DC
Supply voltage U <sub>B</sub>	10...30 V DC	10...30 V DC	10...55 V DC	10...55 V DC
Voltage drop U <sub>d</sub> at I <sub>e</sub>	≤ 1.5 V	≤ 2.5 V	≤ 1.5 V	≤ 3.5 V
Rated insulation voltage U <sub>i</sub>	250 V AC	250 V AC	250 V AC	75 V DC
Rated operational current I <sub>e</sub>	200 mA	200 mA	200 mA	130 mA
No-load supply current I <sub>0</sub> max.	≤ 8 mA	≤ 30 mA	≤ 12 mA	≤ 35 mA
Off-state current I <sub>r</sub>	≤ 10 μA	≤ 80 μA	≤ 10 μA	≤ 80 μA
Protected against polarity reversal	yes	yes	yes	yes
Short circuit protected	yes	yes	yes	yes
Load capacity	≤ 0.8 μF	≤ 1 μF	≤ 0.8 μF	≤ 1 μF
Repeat accuracy R	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %
Ambient temperature range T <sub>a</sub>	-25...+70 °C	-25...+70 °C	-25...+70 °C	-25...+70 °C
Frequency of operating cycles f	900 Hz	500 Hz	900 Hz	500 Hz
Utilization categories	DC 13	DC 13	DC 13	DC 13
Function indication	yes	yes	yes	yes
Degree of protection per IEC 60529	IP 68 per BWN Pr. 20	IP 67	IP 68 per BWN Pr. 20	IP 67
Insulation class	□	□	□	
Housing material	CuZn nickel plated	CuZn nickel plated	CuZn nickel plated	CuZn nickel plated
Material of sensing face	PA 12	PA 12	PA 12	PBT
Connection	connector	connector	connector	connector
No. of wires × conductor cross section				
Approval	cULus	cULus	cULus	cULus
Recommended connector	BKS-B 19/BKS-B 20	BKS-B 19/BKS-B 20	BKS-B 19/BKS-B 20	BKS-B 19/BKS-B 20

① Connection diagrams see page 1.0.12

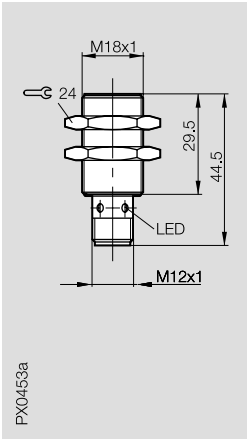
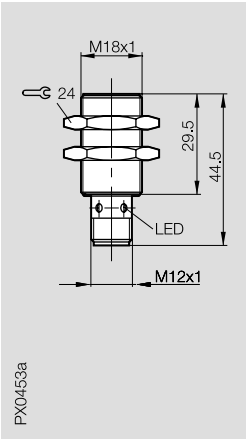
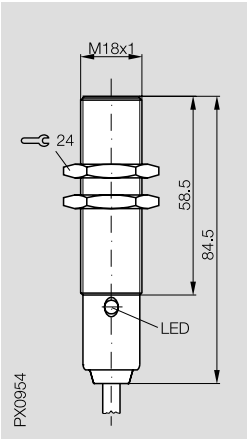
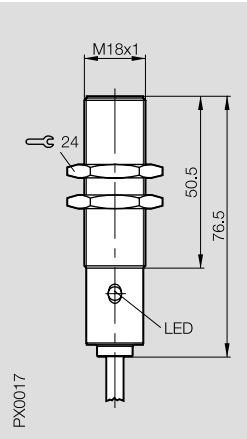
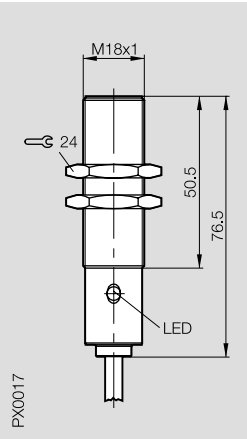
Please add the cable length to the ordering code for sensors with **cable!**  
 03, 05 = PVC, length 3 m or 5 m  
 PU-03, PU-05 = PUR, length 3 m or 5 m

\*Also available in A0 housing for use with cover sleeve with 5 m PUR-cable.  
 Order example:  
 BES 516-326-**A0**-C-PU-05



# Inductive Sensors

DC 3-/4-Wire  
M18  
s<sub>n</sub> 5 mm

M18x1 flush 5 mm 0...4.1 mm	M18x1 flush 5 mm 0...4.1 mm	M18x1 flush 5 mm 0...4.1 mm	M18x1 flush 5 mm 0...4.1 mm	M18x1 flush 5 mm 0...4.1 mm
				
BES 516-326-E5-Y-S 4 BES 516-367-E5-Y-S 4	BES 516-326-E5-C-S 4	BES 516-326-B0-H-	BES 516-326-B0-C-* BES 516-367-B0-C-*	BES 516-105-B0-C-*
BES 516-355-E5-Y-S 4			BES 516-355-B0-C-* BES 516-366-B0-C-*	BES 516-111-B0-C-*
24 V DC 10...30 V DC ≤ 3.5 V 75 V DC 130 mA ≤ 25 mA ≤ 80 µA yes yes ≤ 1 µF	24 V DC 10...30 V DC ≤ 2 V 75 V DC 200 mA ≤ 10 mA ≤ 50 µA yes yes ≤ 1 µF	24 V DC 10...55 V DC ≤ 2.5 V 250 V AC 200 mA ≤ 12 mA ≤ 80 µA yes yes ≤ 0.8 µF	24 V DC 10...30 V DC ≤ 1.5 V 250 V AC 200 mA ≤ 8 mA ≤ 10 µA yes yes ≤ 0.8 µF	24 V DC 10...30 V DC ≤ 2.5 V 250 V AC 200 mA ≤ 30 mA ≤ 80 µA yes yes ≤ 1 µF
≤ 5 % -25...+70 °C 500 Hz DC 13 yes	≤ 5 % -25...+70 °C 1000 Hz DC 13 yes	≤ 5 % -25...+70 °C 500 Hz DC 13 yes	≤ 5 % -25...+70 °C 900 Hz DC 13 yes	≤ 5 % -25...+70 °C 500 Hz DC 13 yes
IP 67	IP 67	IP 67 □	IP 68 per BWN Pr. 20 □	IP 67 □
CuZn nickel plated PA 12 connector	CuZn nickel plated PBT connector	CuZn nickel plated PBT cable 3 × 0.34 mm <sup>2</sup>	CuZn nickel plated PA 12 cable 3 × 0.34 mm <sup>2</sup>	CuZn nickel plated PA 12 cable 4 × 0.25 mm <sup>2</sup>
cULus BKS-B 19/BKS-B 20	cULus BKS-B 19/BKS-B 20		cULus	cULus

1.2

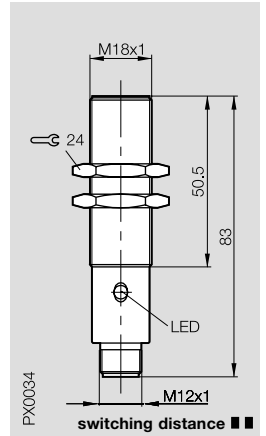
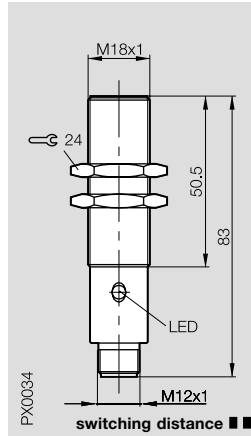
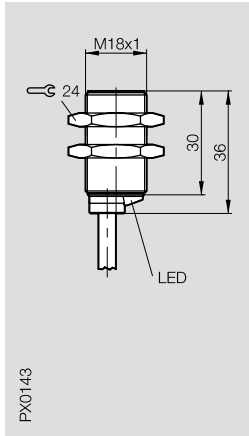
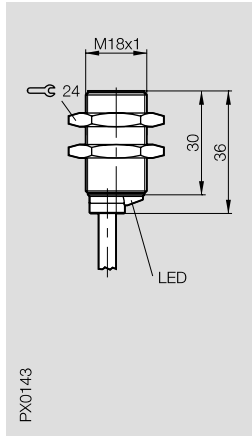


6  
Connectors, clamps ...  
page 6.2 ...

# Inductive Sensors

DC 3-/4-Wire  
M18  
s<sub>n</sub> 5 mm, 8 mm

Housing size	<b>M18x1</b>	<b>M18x1</b>	<b>M18x1</b>	<b>M18x1</b>
Mounting	flush	flush	flush (free zone 2 mm)	flush (free zone 2 mm)
Rated operating distance s <sub>n</sub>	<b>5 mm</b>	<b>5 mm</b>	<b>8 mm</b>	<b>8 mm</b>
Assured operating distance s <sub>a</sub>	0...4.1 mm	0...4.1 mm	0...6.5 mm	0...6.5 mm



PNP	Normally-open ①	BES 516-326-E4-Y-	BES 516-326-E4-C-	BES 516-326-G-S 4-C	BES 516-326-G-S 4-H
	Normally-closed ②	BES 516-367-E4-Y-			
	Complementary ③				BES 516-105-G-S 4-H
NPN	Normally-open ④	BES 516-355-E4-Y-			
	Normally-closed ⑤				

Rated operational voltage U <sub>e</sub>	24 V DC	24 V DC	24 V DC	24 V DC
Supply voltage U <sub>B</sub>	10...30 V DC	10...30 V DC	10...30 V DC	10...55 V DC
Voltage drop U <sub>d</sub> at I <sub>e</sub>	≤ 3.5 V	≤ 2 V	≤ 2.5 V	≤ 2.5 V
Rated insulation voltage U <sub>i</sub>	75 V DC	75 V DC	75 V DC	75 V DC
Rated operational current I <sub>e</sub>	130 mA	200 mA	200 mA	200 mA
No-load supply current I <sub>0</sub> max.	≤ 25 mA	≤ 10 mA	≤ 12 mA	≤ 15 mA
Off-state current I <sub>r</sub>	≤ 80 µA	≤ 50 µA	≤ 80 µA	≤ 80 µA
Protected against polarity reversal	yes	yes	yes	yes
Short circuit protected	yes	yes	yes	yes
Load capacity	≤ 1 µF	≤ 1 µF	≤ 1 µF	≤ 1 µF
Repeat accuracy R	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %
Ambient temperature range T <sub>a</sub>	-25...+70 °C	-25...+70 °C	0...+70 °C	0...+70 °C
Frequency of operating cycles f	500 Hz	1000 Hz	80 Hz	80 Hz
Utilization categories	DC 13	DC 13	DC 13	DC 13
Function indication	yes	yes	yes	yes
Degree of protection per IEC 60529	IP 67	IP 67	IP 67	IP 67
Insulation class				
Housing material	CuZn nickel plated	CuZn nickel plated	CuZn nickel plated	CuZn nickel plated
Material of sensing face	PA 12	PBT	PBT	PBT
Connection	cable	cable	connector	connector
No. of wires x conductor cross section	3 x 0.34 mm <sup>2</sup>	3 x 0.34 mm <sup>2</sup>		
Approval	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!**  
03, 05 = PVC, length 3 m or 5 m  
PU-03, PU-05 = PUR, length 3 m or 5 m



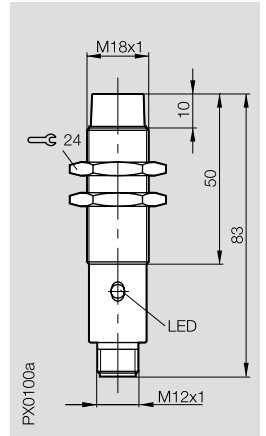
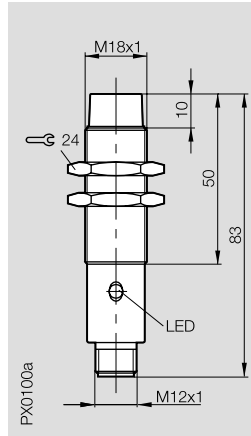
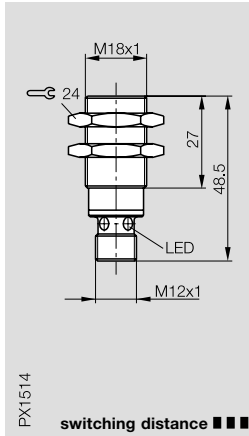
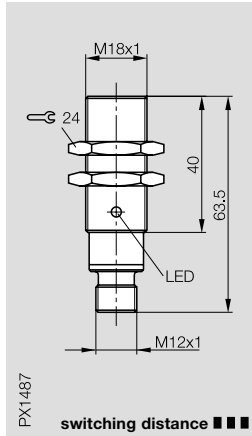
M18x1 flush (free zone 2 mm) 8 mm 0...6.5 mm	M18x1 flush (free zone 2 mm) 8 mm 0...6.5 mm	M18x1 flush (free zone 2 mm) 8 mm 0...6.5 mm	M18x1 flush (free zone 2 mm) 8 mm 0...6.5 mm
PX0453a switching distance ■ ■ ■	PX0083a switching distance ■ ■ ■	PX0017 switching distance ■ ■ ■	PX0143 switching distance ■ ■ ■
BES 516-326-G-E5-Y-S 4 BES 516-367-G-E5-Y-S 4	BES 516-326-G-E5-Y-S 49 BES 516-367-G-E5-Y-S 49	BES 516-326-G-B0-C-PU-	BES 516-326-G-E4-Y- BES 516-367-G-E4-Y-
BES 516-355-G-E5-Y-S 4	BES 516-355-G-E5-Y-S 49 BES 516-366-G-E5-Y-S 49		BES 516-355-G-E4-Y- BES 516-366-G-E4-Y-
24 V DC 10...30 V DC ≤ 3.5 V 75 V DC 130 mA ≤ 25 mA ≤ 80 µA yes yes ≤ 1 µF	24 V DC 10...30 V DC ≤ 3.5 V 75 V DC 130 mA ≤ 25 mA ≤ 80 µA yes yes ≤ 1 µF	24 V DC 10...30 V DC ≤ 2.5 V 250 V AC 200 mA ≤ 12 mA ≤ 80 µA yes yes ≤ 1 µF	24 V DC 10...30 V DC ≤ 3.5 V 75 V DC 130 mA ≤ 25 mA ≤ 80 µA yes yes ≤ 1 µF
≤ 5 % -25...+70 °C 200 Hz DC 13 yes	≤ 5 % -25...+70 °C 200 Hz DC 13 yes	≤ 5 % 0...+70 °C 80 Hz DC 13 yes	≤ 5 % -25...+70 °C 200 Hz DC 13 yes
IP 67	IP 67	IP 67 □	IP 68 per BWN Pr. 20
CuZn nickel plated PA 12 connector	CuZn nickel plated PA 12 connector	CuZn nickel plated PA 12 cable 3 × 0.34 mm <sup>2</sup> cULus	CuZn nickel plated PA 12 cable 3 × 0.34 mm <sup>2</sup> cULus
cULus BKS-B 19/BKS-B 20	cULus BKS-B 48/BKS-B 49		



# Inductive Sensors

DC 3-/4-Wire  
M18  
s<sub>n</sub> 8 mm, 12 mm

Housing size	<b>M18x1</b>	<b>M18x1</b>	<b>M18x1</b>	<b>M18x1</b>
Mounting	quasi-flush	quasi-flush	non-flush	non-flush
Rated operating distance s <sub>n</sub>	<b>12 mm</b>	<b>12 mm</b>	<b>8 mm</b>	<b>8 mm</b>
Assured operating distance s <sub>a</sub>	0...9.7 mm	0...9.7 mm	0...6.5 mm	0...6.5 mm



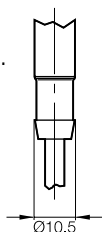
PNP	Normally-open ①	BES M18MG1-PSC12B-S04G	BES M18MD1-PSC12B-S04G	BES 516-360-S 4-C	
	Normally-closed ②			BES 516-3026-S 4-C	
	Complementary ③				BES 516-123-S 4-C
NPN	Normally-open ④	BES M18MG1-NSC12B-S04G	BES M18MD1-NSC12B-S04G	BES 516-361-S 4-C	
	Normally-closed ⑤			BES 516-3031-S 4-C	
	Complementary ⑥				BES 516-124-S 4-C

Rated operational voltage U <sub>e</sub>	24 V DC	24 V DC	24 V DC	24 V DC
Supply voltage U <sub>B</sub>	10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC
Voltage drop U <sub>d</sub> at I <sub>e</sub>	≤ 2 V	≤ 2 V	≤ 1.5 V	≤ 2.5 V
Rated insulation voltage U <sub>i</sub>	75 V DC	75 V DC	250 V AC	250 V AC
Rated operational current I <sub>e</sub>	200 mA	200 mA	200 mA	200 mA
No-load supply current I <sub>0</sub> max.	≤ 10 mA	≤ 10 mA	≤ 8 mA	≤ 30 mA
Off-state current I <sub>r</sub>	≤ 100 µA	≤ 100 µA	≤ 10 µA	≤ 80 µA
Protected against polarity reversal	yes	yes	yes	yes
Short circuit protected	yes	yes	yes	yes
Load capacity	≤ 1 µF	≤ 1 µF	≤ 0.8 µF	≤ 1 µF
Repeat accuracy R	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %
Ambient temperature range T <sub>a</sub>	-25...+70 °C	-25...+70 °C	-25...+70 °C	-25...+70 °C
Frequency of operating cycles f	500 Hz	500 Hz	600 Hz	200 Hz
Utilization categories	DC 13	DC 13	DC 13	DC 13
Function indication	yes	yes	yes	yes
Degree of protection per IEC 60529	IP 67	IP 67	IP 68 per BWN Pr. 20	IP 67
Insulation class			□	□
Housing material	CuZn chrome plated	CuZn chrome plated	CuZn nickel plated	CuZn nickel plated
Material of sensing face	PBT	PBT	PA 12	PA 12
Connection	connector	connector	connector	connector
No. of wires × conductor cross section				
Approval			cULus	cULus
Recommended connector	BKS-B 19/BKS-B 20	BKS-B 19/BKS-B 20	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!**  
03, 05 = PVC, length 3 m or 5 m  
PU-03, PU-05 = PUR, length 3 m or 5 m

\*Also available in A0 housing for use with cover sleeve with 5 m PUR-cable.  
Order example:  
BES 516-360-A0-C-PU-05



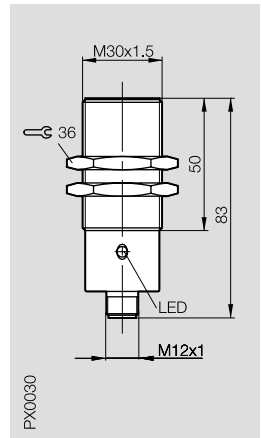
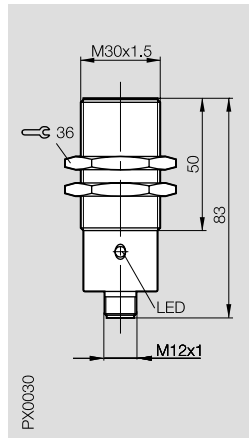
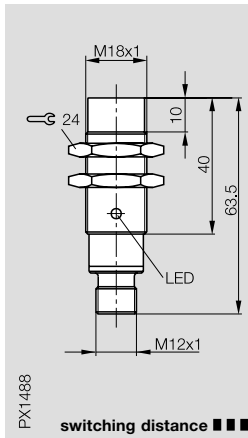
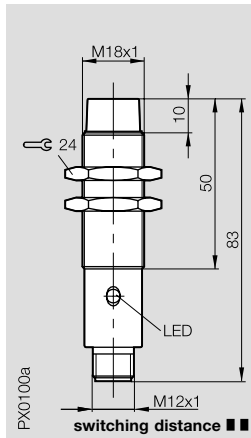
M18x1 non-flush 8 mm 0...6.5 mm	M18x1 non-flush 8 mm 0...6.5 mm	M18x1 non-flush 8 mm 0...6.5 mm	M18x1 non-flush 8 mm 0...6.5 mm	M18x1 non-flush 8 mm 0...6.5 mm
BES 516-360-S 4-H	BES 516-360-E5-Y-S 4 BES 516-3026-E5-Y-S 4	BES 516-360-B0-C-* BES 516-3026-B0-C-*	BES 516-123-B0-C-*	BES 516-360-E4-Y- BES 516-3026-E4-Y-
	BES 516-361-E5-Y-S 4	BES 516-361-B0-C-* BES 516-3031-B0-C-*	BES 516-124-B0-C-*	BES 516-361-E4-Y-
24 V DC 10...55 V DC ≤ 1.5 V 250 V AC 200 mA ≤ 12 mA ≤ 10 μA yes yes ≤ 0.8 μF	24 V DC 10...30 V DC ≤ 3.5 V 75 V DC 130 mA ≤ 25 mA ≤ 80 μA yes yes ≤ 1 μF	24 V DC 10...30 V DC ≤ 1.5 V 250 V AC 200 mA ≤ 8 mA ≤ 10 μA yes yes ≤ 0.8 μF	24 V DC 10...30 V DC ≤ 2.5 V 250 V AC 200 mA ≤ 30 mA ≤ 80 μA yes yes ≤ 1 μF	24 V DC 10...30 V DC ≤ 3.5 V 75 V DC 130 mA ≤ 25 mA ≤ 80 μA yes yes ≤ 1 μF
≤ 5 % -25...+70 °C 600 Hz DC 13 yes	≤ 5 % -25...+70 °C 200 Hz DC 13 yes	≤ 5 % -25...+70 °C 600 Hz DC 13 yes	≤ 5 % -25...+70 °C 200 Hz DC 13 yes	≤ 5 % -25...+70 °C 200 Hz DC 13 yes
IP 68 per BWN Pr. 20 ☐	IP 67	IP 68 per BWN Pr. 20 ☐	IP 67 ☐	IP 68 per BWN Pr. 20
CuZn nickel plated PA 12 connector	CuZn nickel plated PA 12 connector	CuZn nickel plated PA 12 cable 3 × 0.34 mm <sup>2</sup>	CuZn nickel plated PA 12 cable 4 × 0.25 mm <sup>2</sup>	CuZn nickel plated PA 12 cable 3 × 0.34 mm <sup>2</sup>
cULus BKS-B 19/BKS-B 20	cULus BKS-B 19/BKS-B 20	cULus	cULus	cULus



# Inductive Sensors

DC 3-/4-Wire  
M18, M30  
s<sub>n</sub> 10 mm, 16 mm, 20 mm

Housing size	<b>M18x1</b>	<b>M18x1</b>	<b>M30x1.5</b>	<b>M30x1.5</b>
Mounting	non-flush	non-flush	flush	flush
Rated operating distance s <sub>n</sub>	<b>16 mm</b>	<b>20 mm</b>	<b>10 mm</b>	<b>10 mm</b>
Assured operating distance s <sub>a</sub>	0...13 mm	0...16.2 mm	0...8.1 mm	0...8.1 mm



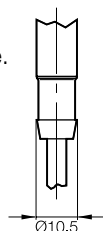
PNP	Normally-open ①	BES 516-360-G-S 4-H	BES M18ME1-PSC20F-S04G	BES 516-327-S 4-C	
	Normally-closed ②			BES 516-3028-S 4-C	
	Complementary ③	BES 516-123-G-S 4-H			BES 516-114-S 4-C
NPN	Normally-open ④		BES M18ME1-NSC20F-S04G	BES 516-359-S 4-C	
	Normally-closed ⑤				
	Complementary ⑥				BES 516-120-S 4-C

Rated operational voltage U <sub>e</sub>	24 V DC	24 V DC	24 V DC	24 V DC
Supply voltage U <sub>B</sub>	10...55 V DC	10...30 V DC	10...30 V DC	10...30 V DC
Voltage drop U <sub>d</sub> at I <sub>e</sub>	≤ 2.5 V	≤ 2 V	≤ 2.5 V	≤ 2.5 V
Rated insulation voltage U <sub>i</sub>	250 V AC	75 V DC	250 V AC	250 V AC
Rated operational current I <sub>e</sub>	200 mA	200 mA	200 mA	200 mA
No-load supply current I <sub>0</sub> max.	≤ 15 mA	≤ 10 mA	≤ 25 mA	≤ 30 mA
Off-state current I <sub>r</sub>	≤ 80 µA	≤ 100 µA	≤ 80 µA	≤ 80 µA
Protected against polarity reversal	yes	yes	yes	yes
Short circuit protected	yes	yes	yes	yes
Load capacity	≤ 1 µF	≤ 1 µF	≤ 1 µF	≤ 1 µF
Repeat accuracy R	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %
Ambient temperature range T <sub>a</sub>	-25...+70 °C	-25...+70 °C	-25...+70 °C	-25...+70 °C
Frequency of operating cycles f	80 Hz	200 Hz	300 Hz	300 Hz
Utilization categories	DC 13	DC 13	DC 13	DC 13
Function indication	yes	yes	yes	yes
Degree of protection per IEC 60529	IP 68 per BWN Pr. 20	IP 67	IP 68 per BWN Pr. 20	IP 67
Insulation class	□		□	□
Housing material	CuZn nickel plated	CuZn chrome plated	CuZn nickel plated	CuZn nickel plated
Material of sensing face	PA 12	PBT	PA 12	PA 12
Connection	connector	connector	connector	connector
No. of wires × conductor cross section				
Approval			cULus	cULus
Recommended connector	BKS-B 19/BKS-B 20	BKS-B 19/BKS-B 20	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!**  
03, 05 = PVC, length 3 m or 5 m  
PU-03, PU-05 = PUR, length 3 m or 5 m

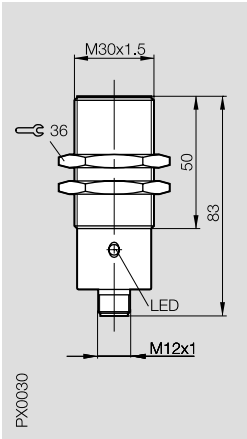
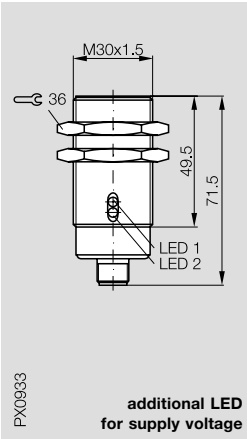
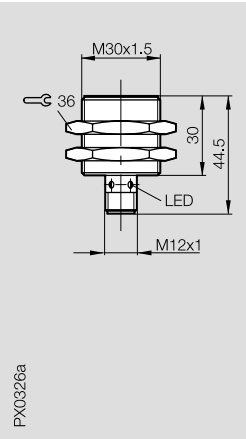
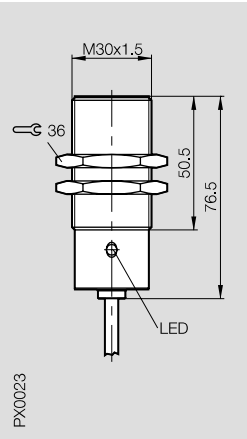
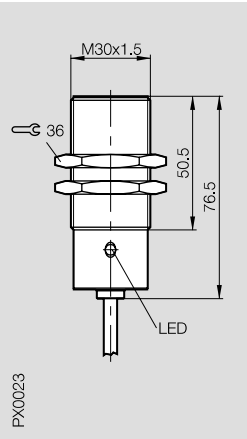
\*Also available in A0 housing for use with cover sleeve with 5 m PUR-cable.  
Order example:  
BES 516-327-A0-C-PU-05



# Inductive Sensors

DC 3-/4-Wire  
M30  
S<sub>n</sub> 10 mm

1.2

M30x1.5 flush 10 mm 0...8.1 mm	M30x1.5 flush 10 mm 0...8.1 mm	M30x1.5 flush 10 mm 0...8.1 mm	M30x1.5 flush 10 mm 0...8.1 mm	M30x1.5 flush 10 mm 0...8.1 mm
				
BES 516-327-S 4-H	BES 516-327-S 4-YL	BES 516-327-E5-Y-S 4 BES 516-3028-E5-Y-S 4	BES 516-327-B0-C-* BES 516-3028-B0-C-*	BES 516-114-B0-C-*
		BES 516-359-E5-Y-S 4	BES 516-359-B0-C-* BES 516-3032-B0-C-*	BES 516-120-B0-C-*
24 V DC 10...55 V DC ≤ 1.5 V 250 V AC 200 mA ≤ 12 mA ≤ 80 µA yes yes ≤ 0.8 µF	24 V DC 10...30 V DC ≤ 3.5 V 75 V DC 130 mA ≤ 35 mA ≤ 80 µA yes yes ≤ 1 µF	24 V DC 10...30 V DC ≤ 3.5 V 75 V DC 130 mA ≤ 25 mA ≤ 80 µA yes yes ≤ 1 µF	24 V DC 10...30 V DC ≤ 2.5 V 250 V AC 200 mA ≤ 25 mA ≤ 80 µA yes yes ≤ 1 µF	24 V DC 10...30 V DC ≤ 2.5 V 250 V AC 200 mA ≤ 30 mA ≤ 80 µA yes yes ≤ 1 µF
≤ 5 % -25...+70 °C 600 Hz DC 13 yes	≤ 5 % -25...+70 °C 200 Hz DC 13 yes	≤ 5 % -25...+70 °C 500 Hz DC 13 yes	≤ 5 % -25...+70 °C 300 Hz DC 13 yes	≤ 5 % -25...+70 °C 300 Hz DC 13 yes
IP 68 per BWN Pr. 20 ☐ CuZn nickel plated PA 12 connector	IP 67 CuZn nickel plated PBT connector	IP 67 CuZn nickel plated PA 12 connector	IP 68 per BWN Pr. 20 ☐ CuZn nickel plated PA 12 cable 3 × 0.34 mm <sup>2</sup> cULus	IP 67 ☐ CuZn nickel plated PA 12 cable 4 × 0.25 mm <sup>2</sup> cULus
cULus BKS-B 19/BKS-B 20	BKS-B 19/BKS-B 20	cULus BKS-B 19/BKS-B 20		



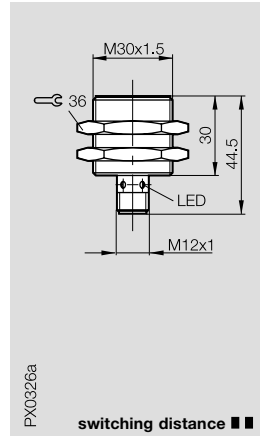
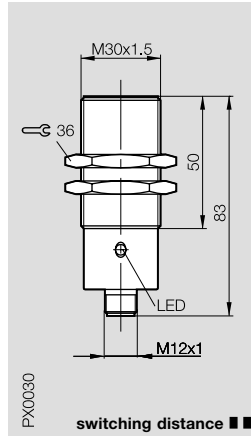
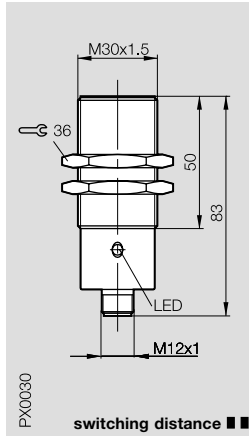
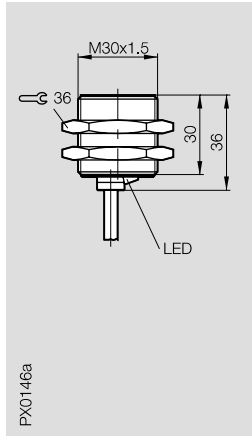
6

Connectors,  
clamps ...  
page 6.2 ...

# Inductive Sensors

DC 3-/4-Wire  
M30  
s<sub>n</sub> 10 mm, 15 mm

Housing size	<b>M30x1.5</b>	<b>M30x1.5</b>	<b>M30x1.5</b>	<b>M30x1.5</b>
Mounting	flush	flush (free zone 3 mm)	flush (free zone 3 mm)	flush (free zone 3 mm)
Rated operating distance s <sub>n</sub>	<b>10 mm</b>	<b>15 mm</b>	<b>15 mm</b>	<b>15 mm</b>
Assured operating distance s <sub>a</sub>	0...8.1 mm	0...12.2 mm	0...12.2 mm	0...12.2 mm



PNP	Normally-open ①	BES 516-327-E4-Y-	BES 516-327-G-S 4-C	BES 516-327-G-S 4-H	BES 516-327-G-E5-Y-S 4
	Normally-closed ②	BES 516-3028-E4-Y-			BES 516-3028-G-E5-Y-S 4
	Complementary ③			BES 516-114-G-S 4-H	
NPN	Normally-open ④	BES 516-359-E4-Y-			
	Normally-closed ⑤				

Rated operational voltage U <sub>e</sub>	24 V DC	24 V DC	24 V DC	24 V DC
Supply voltage U <sub>B</sub>	10...30 V DC	10...30 V DC	10...55 V DC	10...30 V DC
Voltage drop U <sub>d</sub> at I <sub>e</sub>	≤ 3.5 V	≤ 2.5 V	≤ 2.5 V	≤ 3.5 V
Rated insulation voltage U <sub>i</sub>	75 V DC	250 V AC	250 V AC	75 V DC
Rated operational current I <sub>e</sub>	130 mA	200 mA	200 mA	130 mA
No-load supply current I <sub>0</sub> max.	≤ 25 mA	≤ 12 mA	≤ 15 mA	≤ 25 mA
Off-state current I <sub>r</sub>	≤ 80 µA	≤ 80 µA	≤ 80 µA	≤ 80 µA
Protected against polarity reversal	yes	yes	yes	yes
Short circuit protected	yes	yes	yes	yes
Load capacity	≤ 1 µF	≤ 1 µF	≤ 1 µF	≤ 1 µF
Repeat accuracy R	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %
Ambient temperature range T <sub>a</sub>	-25...+70 °C	-25...+70 °C	-25...+70 °C	-25...+70 °C
Frequency of operating cycles f	200 Hz	100 Hz	150 Hz	100 Hz
Utilization categories	DC 13	DC 13	DC 13	DC 13
Function indication	yes	yes	yes	yes
Degree of protection per IEC 60529	IP 68 per BWN Pr. 20	IP 67	IP 68 per BWN Pr. 20	IP 67
Insulation class		□	□	
Housing material	CuZn nickel plated	CuZn nickel plated	CuZn nickel plated	CuZn nickel plated
Material of sensing face	PA 12	PA 12	PA 12	PA 12
Connection	cable	connector	connector	connector
No. of wires x conductor cross section	3 x 0.34 mm <sup>2</sup>			
Approval	cULus	cULus	cULus	cULus
Recommended connector		BKS-B 19/BKS-B 20	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!**  
03, 05 = PVC, length 3 m or 5 m  
PU-03, PU-05 = PUR, length 3 m or 5 m

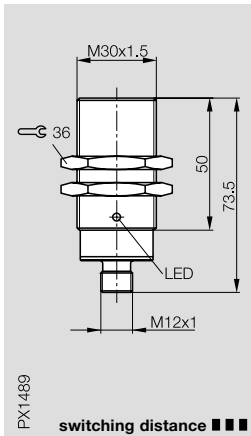
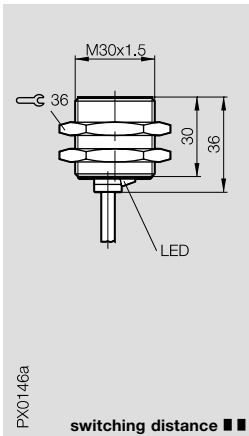
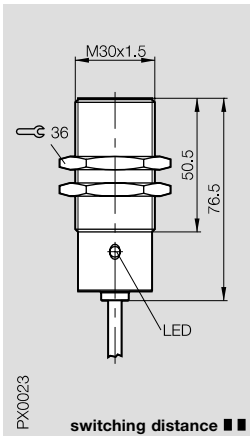
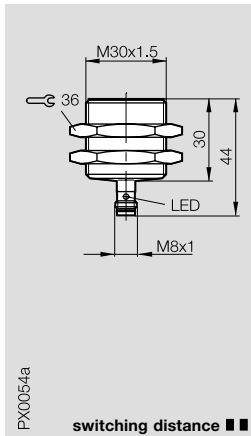


<b>M30x1.5</b>
flush (free zone 3 mm)
<b>15 mm</b>
0...12.2 mm

<b>M30x1.5</b>
flush (free zone 3 mm)
<b>15 mm</b>
0...12.2 mm

<b>M30x1.5</b>
flush (free zone 3 mm)
<b>15 mm</b>
0...12.2 mm

<b>M30x1.5</b>
quasi-flush
<b>22 mm</b>
0...17.8 mm



BES 516-327-G-E5-Y-S 49
BES 516-3028-G-E5-Y-S 49

BES 516-327-G-B0-C-
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BES 516-327-G-E4-Y-
BES 516-3028-G-E4-Y-

BES M30MI1-PSC22B-S04G
------------------------

BES 516-359-G-E5-Y-S 49
-------------------------

BES 516-359-G-E4-Y-
BES 516-3032-G-E4-Y-

BES M30MI1-NSC22B-S04G
------------------------

24 V DC
10...30 V DC
≤ 3.5 V
75 V DC
130 mA
≤ 25 mA
≤ 80 µA
yes
yes
≤ 1 µF
≤ 5 %
-25...+70 °C
100 Hz
DC 13
yes

24 V DC
10...30 V DC
≤ 2.5 V
250 V AC
200 mA
≤ 12 mA
≤ 80 µA
yes
yes
≤ 1 µF
≤ 5 %
-25...+70 °C
100 Hz
DC 13
yes

24 V DC
10...30 V DC
≤ 3.5 V
75 V DC
130 mA
≤ 25 mA
≤ 80 µA
yes
yes
≤ 1 µF
≤ 5 %
-25...+70 °C
100 Hz
DC 13
yes

24 V DC
10...30 V DC
≤ 2 V
75 V DC
200 mA
≤ 10 mA
≤ 100 µA
yes
yes
≤ 1 µF
≤ 5 %
-25...+70 °C
200 Hz
DC 13
yes

IP 67
CuZn nickel plated
PA 12
connector
cULus
BKS-B 48/BKS-B 49

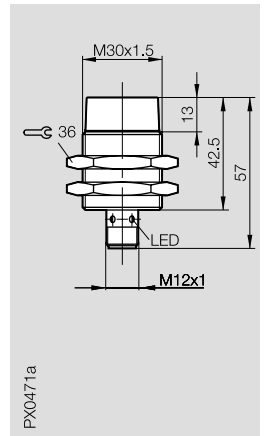
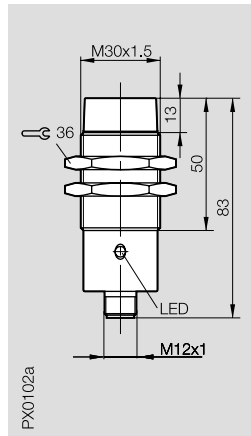
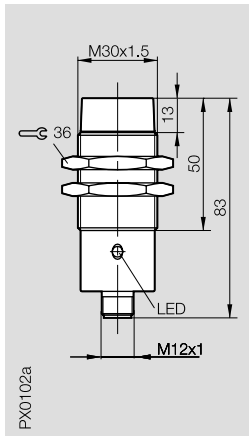
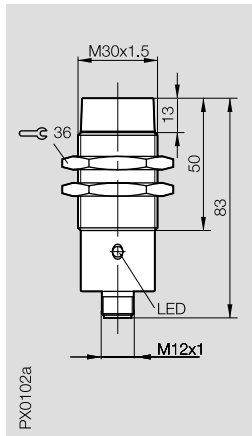
IP 67
CuZn nickel plated
PA 12
cable
3 × 0.34 mm <sup>2</sup>
cULus

IP 68 per BWN Pr. 20
CuZn nickel plated
PA 12
cable
3 × 0.34 mm <sup>2</sup>
cULus

IP 67
CuZn chrome plated
PBT
connector
BKS-B 19/BKS-B 20



Housing size	<b>M30x1.5</b>	<b>M30x1.5</b>	<b>M30x1.5</b>	<b>M30x1.5</b>
Mounting	non-flush	non-flush	non-flush	non-flush
Rated operating distance s <sub>n</sub>	<b>15 mm</b>	<b>15 mm</b>	<b>15 mm</b>	<b>15 mm</b>
Assured operating distance s <sub>a</sub>	0...12.2 mm	0...12.2 mm	0...12.2 mm	0...12.2 mm



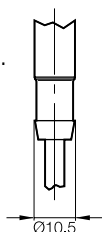
PNP	Normally-open ①	BES 516-362-S 4-C		BES 516-362-S 4-H	BES 516-362-E5-Y-S 4
	Normally-closed ②	BES 516-3029-S 4-C			BES 516-3029-E5-Y-S 4
	Complementary ③		BES 516-125-S 4-C		
NPN	Normally-open ④	BES 516-363-S 4-C			BES 516-363-E5-Y-S 4
	Normally-closed ⑤	BES 516-3033-S 4-C			
	Complementary ⑥		BES 516-126-S 4-C		

Rated operational voltage U <sub>e</sub>	24 V DC	24 V DC	24 V DC	24 V DC
Supply voltage U <sub>B</sub>	10...30 V DC	10...30 V DC	10...55 V DC	10...30 V DC
Voltage drop U <sub>d</sub> at I <sub>e</sub>	≤ 2.5 V	≤ 2.5 V	≤ 1.5 V	≤ 3.5 V
Rated insulation voltage U <sub>i</sub>	250 V AC	250 V AC	250 V AC	75 V DC
Rated operational current I <sub>e</sub>	200 mA	200 mA	200 mA	130 mA
No-load supply current I <sub>0</sub> max.	≤ 25 mA	≤ 30 mA	≤ 12 mA	≤ 25 mA
Off-state current I <sub>r</sub>	≤ 80 µA	≤ 80 µA	≤ 10 µA	≤ 80 µA
Protected against polarity reversal	yes	yes	yes	yes
Short circuit protected	yes	yes	yes	yes
Load capacity	≤ 1 µF	≤ 1 µF	≤ 0.8 µF	≤ 1 µF
Repeat accuracy R	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %
Ambient temperature range T <sub>a</sub>	-25...+70 °C	-25...+70 °C	-25...+70 °C	-25...+70 °C
Frequency of operating cycles f	100 Hz	100 Hz	400 Hz	100 Hz
Utilization categories	DC 13	DC 13	DC 13	DC 13
Function indication	yes	yes	yes	yes
Degree of protection per IEC 60529	IP 68 per BWN Pr. 20	IP 67	IP 68 per BWN Pr. 20	IP 67
Insulation class	□	□	□	
Housing material	CuZn nickel plated	CuZn nickel plated	CuZn nickel plated	CuZn nickel plated
Material of sensing face	PA 12	PA 12	PA 12	PA 12
Connection	connector	connector	connector	connector
No. of wires × conductor cross section				
Approval	cULus	cULus		cULus
Recommended connector	BKS-B 19/BKS-B 20	BKS-B 19/BKS-B 20	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

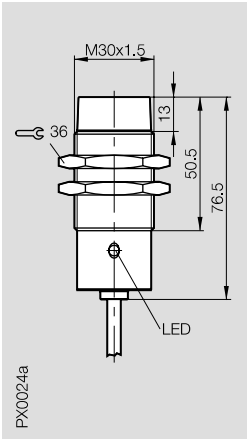
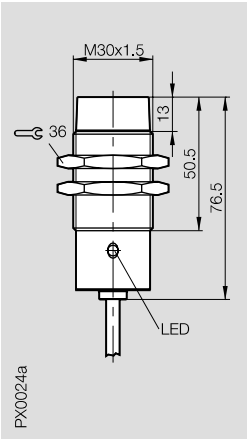
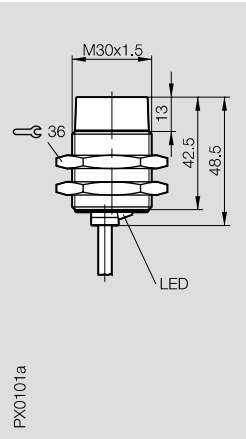
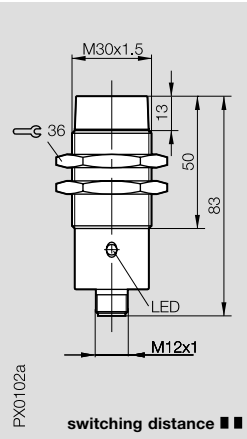
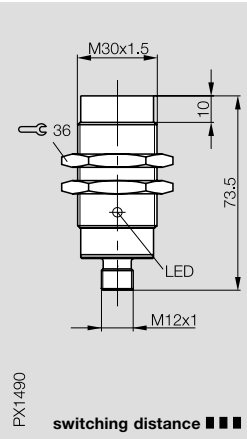
Please add the cable length to the ordering code for sensors with **cable!**  
03, 05 = PVC, length 3 m or 5 m  
PU-03, PU-05 = PUR, length 3 m or 5 m

\*Also available in A0 housing for use with cover sleeve with 5 m PUR-cable.  
Order example:  
BES 516-362-A0-C-PU-05



# Inductive Sensors

DC 3-/4-Wire  
M30  
s<sub>n</sub> 15 mm, 30 mm, 40 mm

M30x1.5 non-flush 15 mm 0...12.2 mm	M30x1.5 non-flush 15 mm 0...12.2 mm	M30x1.5 non-flush 15 mm 0...12.2 mm	M30x1.5 non-flush 30 mm 0...24.3 mm	M30x1.5 non-flush 40 mm 0...32.4 mm
				
BES 516-362-B0-C-*		BES 516-362-E4-Y- BES 516-3029-E4-Y-	BES 516-362-G-S 4-H	BES M30MG1-PSC40F-S04G
BES 516-3029-B0-C-*	BES 516-125-B0-C-*			
BES 516-363-B0-C-*		BES 516-363-E4-Y-		BES M30MG1-NSC40F-S04G
BES 516-3033-B0-C-*	BES 516-126-B0-C-*			
24 V DC	24 V DC	24 V DC	24 V DC	24 V DC
10...30 V DC	10...30 V DC	10...30 V DC	10...55 V DC	10...30 V DC
≤ 2.5 V	≤ 2.5 V	≤ 3.5 V	≤ 2.5 V	≤ 2 V
250 V AC	250 V AC	75 V DC	250 V AC	75 V DC
200 mA	200 mA	130 mA	200 mA	200 mA
≤ 25 mA	≤ 30 mA	≤ 25 mA	≤ 15 mA	≤ 10 mA
≤ 10 µA	≤ 80 µA	≤ 80 µA	≤ 80 µA	≤ 100 µA
yes	yes	yes	yes	yes
yes	yes	yes	yes	yes
≤ 1 µF	≤ 1 µF	≤ 1 µF	≤ 1 µF	≤ 1 µF
≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %
-25...+70 °C	-25...+70 °C	-25...+70 °C	-25...+70 °C	-25...+70 °C
100 Hz	100 Hz	100 Hz	70 Hz	100 Hz
DC 13	DC 13	DC 13	DC 13	DC 13
yes	yes	yes	yes	yes
IP 68 per BWN Pr. 20	IP 67	IP 68 per BWN Pr.20	IP 68 per BWN Pr. 20	IP 67
CuZn nickel plated	CuZn nickel plated	CuZn nickel plated	CuZn nickel plated	CuZn chrome plated
PA 12	PA 12	PA 12	PA 12	PBT
cable	cable	cable	connector	connector
3 × 0.34 mm <sup>2</sup>	4 × 0.25 mm <sup>2</sup>	3 × 0.34 mm <sup>2</sup>		
cULus	cULus	cULus		
			BKS-B 19/BKS-B 20	BKS-B 19/BKS-B 20

1.2



6  
Connectors, clamps ...  
page 6.2 ...