

**Inductive
Proximity Switches**

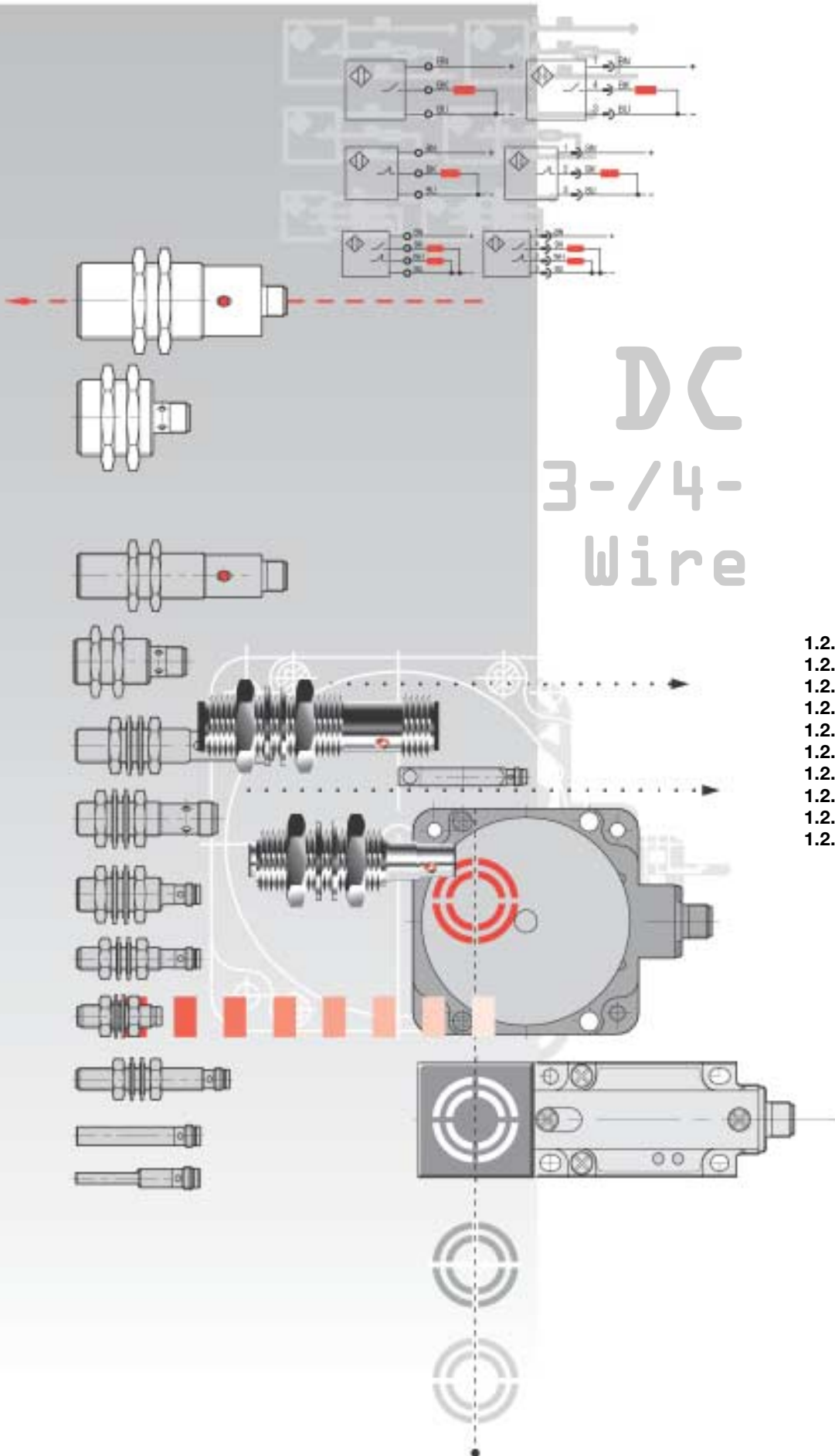
**Our Standard
Offering in 3- and
4-Wire DC Versions**

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**

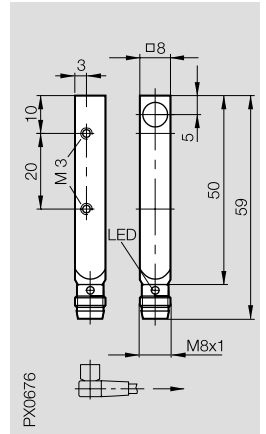
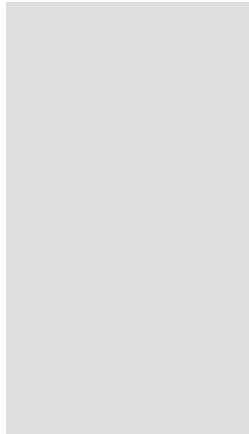
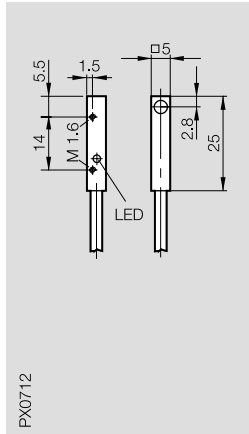
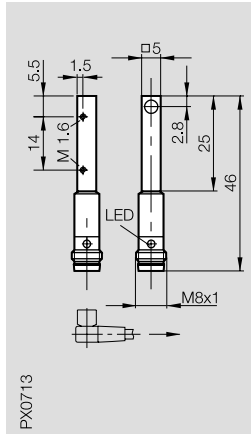
- 1.2.2** Ø 3 mm, Ø 4 mm
- 1.2.3** Ø 4 mm, M5
- 1.2.4** Ø 6.5 mm
- 1.2.8** Ø 8 mm
- 1.2.9** M8
- 1.2.17** M12
- 1.2.26** M18
- 1.2.32** M18, M30
- 1.2.33** M30
- 1.2.38** Quadraform housings



Inductive Sensors

DC 3-Wire Quadraform Housings s_n 0.8 mm, 1.5 mm

Housing size	5x5x46	5x5x25		8x8x59
Mounting	flush	flush		flush
Rated operating distance s _n	0.8 mm	0.8 mm		1.5 mm
Assured operating distance s _a	0...0.6 mm	0...0.6 mm		0...1.2 mm



PNP	Normally-open ①	BES 516-3040-I02-C-S 49	BES 516-3040-I02-C-PU-05		BES 516-300-S 166-S 49
	Normally-closed ②	BES 516-3042-I02-C-S 49	BES 516-3042-I02-C-PU-05		BES 516-300-S 180-S 49
NPN	Normally-open ④	BES 516-3041-I02-C-S 49	BES 516-3041-I02-C-PU-05		BES 516-300-S 170-S 49
	Normally-closed ⑤	BES 516-3043-I02-C-S 49	BES 516-3043-I02-C-PU-05		BES 516-300-S 264-S 49

Rated operational voltage U _e	24 V DC	24 V DC		24 V DC
Supply voltage U _B	10...30 V DC	10...30 V DC		10...30 V DC
Voltage drop U _d at I _e	≤ 1 V	≤ 1 V		≤ 2.5 V
Rated insulation voltage U _i	75 V DC	75 V DC		75 V DC
Rated operational current I _e	150 mA	150 mA		200 mA
No-load supply current I ₀ max.	≤ 10 mA	≤ 10 mA		≤ 20 mA
Off-state current I _r	≤ 50 μA	≤ 50 μA		≤ 80 μA
Protected against polarity reversal	yes	yes		yes
Short circuit protected	yes	yes		yes
Load capacity	≤ 0.1 μF	≤ 0.1 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	1000 Hz	1000 Hz		1000 Hz
Utilization categories	DC 13	DC 13		DC 13
Function indication	yes	yes		yes
Degree of protection per IEC 60529	IP 67	IP 65		IP 67
Housing material	Al anodized	Al anodized		GD-Zn nickel plated
Material of sensing face	POM	POM		PA 12
Connection	connector	cable		connector
No. of wires × conductor cross section		3 × 0.14 mm ²		
Recommended connector	BKS-B 48/BKS-B 49			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!**
03, 05 = PVC, length 3 m or 5 m
PU-03, PU-05 = PUR, length 3 m or 5 m

→ Connector orientation



Inductive Sensors

DC 3-Wire
 Quadraform Housings
 s_n 1.5 mm, 2 mm

1.2

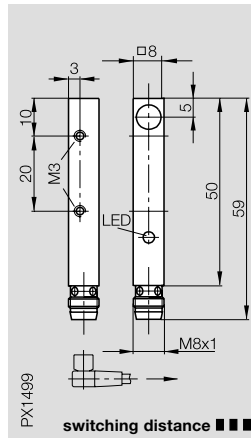
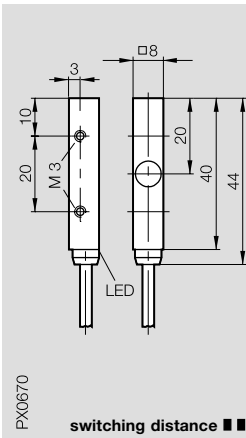
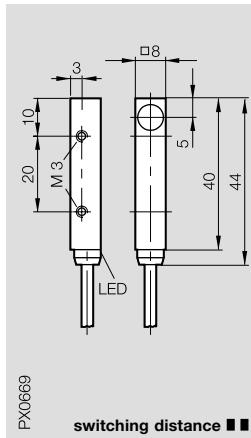
8x8x59 flush 1.5 mm 0...1.2 mm	8x8x44 flush 1.5 mm 0...1.2 mm	8x8x44 flush 1.5 mm 0...1.2 mm	8x8x59 flush 2 mm 0...1.6 mm	8x8x59 flush 2 mm 0...1.6 mm
BES 516-300-S 202-S 49 BES 516-300-S 272-S 49	BES 516-300-S 166- BES 516-300-S 180-	BES 516-300-S 202- BES 516-300-S 272-	BES Q08ZC-PSC20B-S49G BES Q08ZC-POC20B-S49G	BES Q08ZE-PSC20B-S49G BES Q08ZE-POC20B-S49G
BES 516-300-S 254-S 49 BES 516-300-S 273-S 49	BES 516-300-S 170- BES 516-300-S 264-	BES 516-300-S 254- BES 516-300-S 273-	BES Q08ZC-NSC20B-S49G BES Q08ZC-NOC20B-S49G	BES Q08ZE-NSC20B-S49G BES Q08ZE-NOC20B-S49G
24 V DC 10...30 V DC ≤ 2.5 V 75 V DC 200 mA ≤ 20 mA ≤ 80 μA yes yes ≤ 0.5 μF	24 V DC 10...30 V DC ≤ 2.5 V 75 V DC 200 mA ≤ 15 mA ≤ 80 μA yes yes ≤ 0.5 μF	24 V DC 10...30 V DC ≤ 2.5 V 75 V DC 200 mA ≤ 25 mA ≤ 80 μA yes yes ≤ 0.5 μF	24 V DC 10...30 V DC ≤ 2.5 V 75 V DC 200 mA ≤ 20 mA ≤ 80 μA yes yes ≤ 0.5 μF	24 V DC 10...30 V DC ≤ 2.5 V 75 V DC 200 mA ≤ 20 mA ≤ 80 μA yes yes ≤ 0.5 μF
≤ 5 % -25...+70 °C 1000 Hz DC 13 yes	≤ 5 % -25...+70 °C 1000 Hz DC 13 no	≤ 5 % -25...+70 °C 1000 Hz DC 13 no	≤ 5 % -25...+70 °C 1000 Hz DC 13 yes	≤ 5 % -25...+70 °C 1000 Hz DC 13 yes
IP 67	IP 67	IP 67	IP 65	IP 65
GD-Zn nickel plated PBT connector	GD-Zn nickel plated PA 12 cable 3 × 0.14 mm ²	GD-Zn nickel plated PBT cable 3 × 0.14 mm ²	GD-Zn nickel plated PA 12 connector	GD-Zn nickel plated PBT connector
BKS-B 48/BKS-B 49			BKS-B 48/BKS-B 49	BKS-B 48/BKS-B 49



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Connectors ...
 page 6.2 ...

Housing size	8x8x44	8x8x44	8x8x54		
Mounting	flush	flush	flush		
Rated operating distance s _n	2 mm	2 mm	3 mm		
Assured operating distance s _a	0...1.6 mm	0...1.6 mm	0...2.4 mm		



PNP	Normally-open ①	BES Q08ZC-PSC20B-	BES Q08ZE-PSC20B-	BES Q08MG-PSC30B-S49G	
	Normally-closed ②	BES Q08ZC-POC20B-	BES Q08ZE-POC20B-		
NPN	Normally-open ④	BES Q08ZC-NSC20B-	BES Q08ZE-NSC20B-	BES Q08MG-NSC30B-S49G	
	Normally-closed ⑤	BES Q08ZC-NOC20B-	BES Q08ZE-NOC20B-		

Rated operational voltage U _e	24 V DC	24 V DC	24 V DC		
Supply voltage U _B	10...30 V DC	10...30 V DC	10...30 V DC		
Voltage drop U _d at I _e	≤ 2.5 V	≤ 2.5 V	≤ 2 V		
Rated insulation voltage U _i	75 V DC	75 V DC	75 V DC		
Rated operational current I _e	200 mA	200 mA	200 mA		
No-load supply current I ₀ max.	≤ 20 mA	≤ 20 mA	≤ 10 mA		
Off-state current I _r	≤ 80 μA	≤ 80 μA	≤ 100 μA		
Protected against polarity reversal	yes	yes	yes		
Short circuit protected	yes	yes	yes		
Load capacity	≤ 0.5 μF	≤ 0.5 μF	≤ 1 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	1000 Hz	1000 Hz	1000 Hz		
Utilization categories	DC 13	DC 13	DC 13		
Function indication	yes	yes	yes		
Degree of protection per IEC 60529	IP 65	IP 65	IP 67		
Housing material	GD-Zn nickel plated	GD-Zn nickel plated	CuZn chrome plated		
Material of sensing face	PA 12	PBT	PBT		
Connection	cable	cable	connector		
No. of wires × conductor cross section	3 × 0.14 mm ²	3 × 0.14 mm ²			
Recommended connector			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



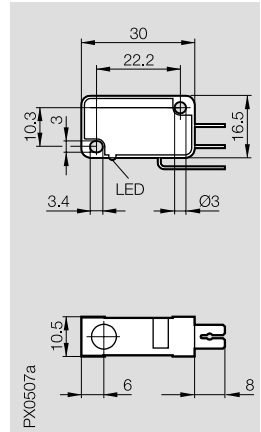
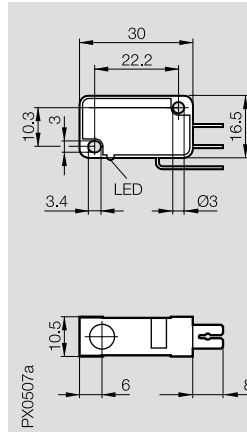
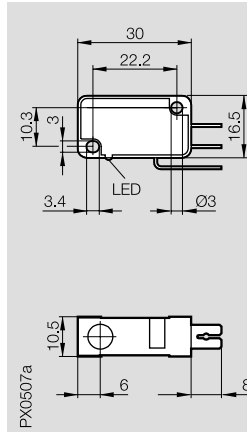
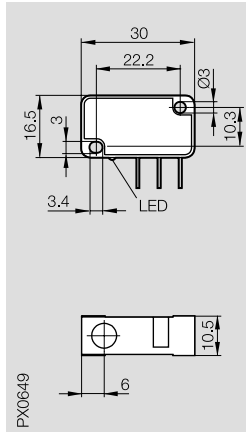
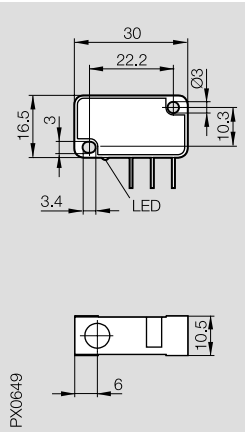
16.5×30×10.5 Minisensor
flush
2 mm
0...1.6 mm

16.5×30×10.5 Minisensor
flush
2 mm
0...1.6 mm

16.5×30×10.5 Minisensor
flush
2 mm
0...1.6 mm

16.5×30×10.5 Minisensor
flush
2 mm
0...1.6 mm

16.5×30×10.5 Minisensor
flush
2 mm
0...1.6 mm



BES 517-351-N1-L

BES 517-398-N1-C

BES 517-351-N2-L

BES 517-398-N2-C

BES 517-351-SA 2-C

BES 517-399-N1-L
BES 517-352-N1-L

BES 517-399-N2-L
BES 517-352-N2-L

24 V DC
10...30 V DC

24 V DC
10...30 V DC

24 V DC
10...30 V DC

24 V DC
10...30 V DC

24 V DC
10...30 V DC

≤ 1.5 V

≤ 2 V

≤ 1.5 V

≤ 2 V

≤ 2 V

75 V DC

75 V DC

75 V DC

75 V DC

75 V DC

200 mA

200 mA

200 mA

200 mA

200 mA

≤ 20 mA

≤ 10 mA

≤ 20 mA

≤ 10 mA

≤ 10 mA

≤ 80 μA

≤ 80 μA

≤ 80 μA

≤ 80 μA

≤ 80 μA

yes

yes

yes

yes

yes

no

yes

no

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

1500 Hz

2500 Hz

1500 Hz

2500 Hz

2500 Hz

DC 13

DC 13

DC 13

DC 13

DC 13

yes

yes

yes

yes

yes

housing IP 65/connector IP 00

housing IP 65/connector IP 00

housing IP 65/connector IP 00

housing IP 65/connector IP 00

housing IP 65/connector IP 00

PBT

PBT

PBT

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PBT

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PBT

PBT

PBT

flat connector DIN 46244

flat connector DIN 46244

flat connector DIN 46244

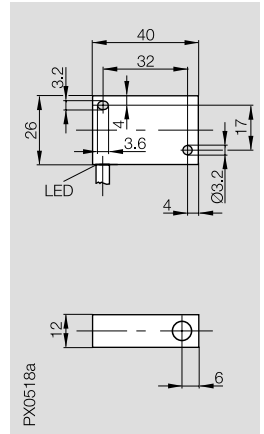
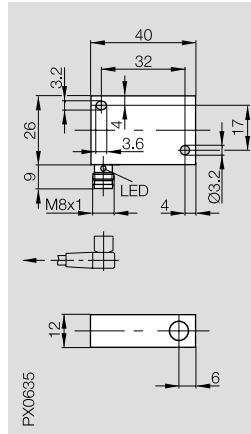
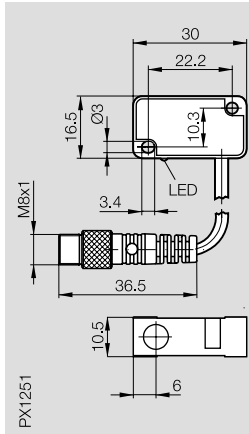
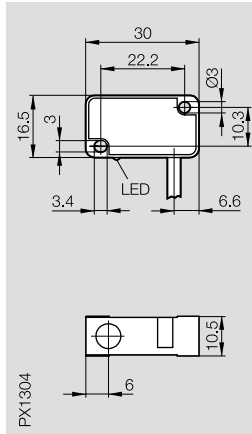
flat connector DIN 46244

flat connector DIN 46244

special pin configuration



Housing size	16.5×30×10.5 Minisensor	16.5×30×10.5 Minisensor	26×40×12 Midisensor	26×40×12 Midisensor
Mounting	flush	flush	flush	flush
Rated operating distance s _n	2 mm	2 mm	2 mm	2 mm
Assured operating distance s _a	0...1.6 mm	0...1.6 mm	0...1.6 mm	0...1.6 mm



PNP	Normally-open ①	BES 517-398-N0-C-		BES 517-347-M1-Y-S49	BES 517-347-M1-Y-
	Normally-closed ②	BES 517-351-N0-C-			
NPN	Normally-open ④	BES 517-399-N0-C-	BES 517-399-N0-C-S 49-		BES 517-345-M1-Y-
	Normally-closed ⑤	BES 517-352-N0-C-			
Rated operational voltage U _e	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC
Supply voltage U _B	10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC
Voltage drop U _d at I _e	≤ 2 V	≤ 2 V	≤ 3.5 V	≤ 3.5 V	≤ 3.5 V
Rated insulation voltage U _i	75 V DC	75 V DC	75 V DC	75 V DC	75 V DC
Rated operational current I _e	200 mA	200 mA	130 mA	130 mA	130 mA
No-load supply current I ₀ max.	≤ 10 mA	≤ 10 mA	≤ 25 mA	≤ 25 mA	≤ 25 mA
Off-state current I _r	≤ 80 μA	≤ 80 μA	≤ 80 μA	≤ 80 μA	≤ 80 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	2500 Hz	2500 Hz	800 Hz	800 Hz	800 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 65	IP 65	IP 67	IP 67	IP 67
Housing material	PBT	PBT	PBT	PBT	PBT
Material of sensing face	PBT	PBT	PBT	PBT	PBT
Connection	cable	cable with connector	connector	cable	cable
No. of wires × conductor cross section	3 × 0.14 mm ²			3 × 0.34 mm ²	
Recommended connector		BKS-B 48	BKS-B 48/BKS-B 49		

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

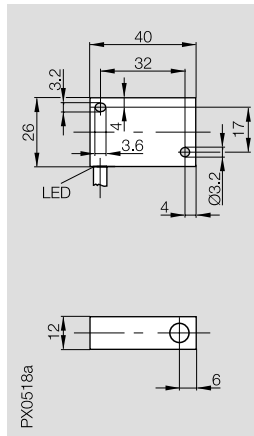
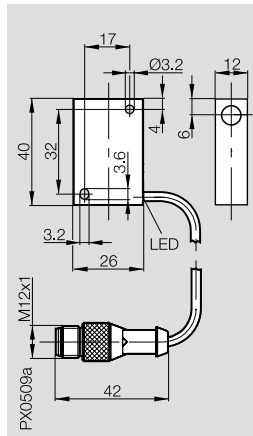
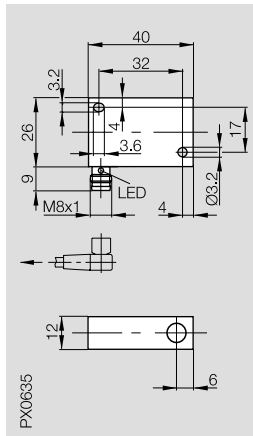
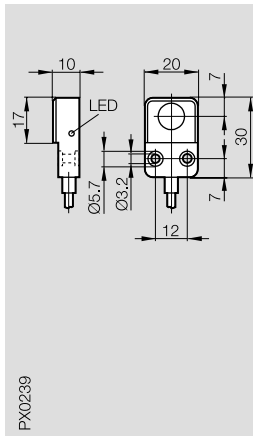


Inductive Sensors

DC 3-Wire
 Quadraform Housings
 s_n 2 mm, 4 mm

1.2

30×20×10 flush 2 mm 0...1.6 mm	26×40×12 Minisensor non-flush 4 mm 0...3.2 mm	26×40×12 Minisensor non-flush 4 mm 0...3.2 mm	26×40×12 Minisensor non-flush 4 mm 0...3.2 mm
-------------------------------------------------------	----------------------------------------------------------------------	----------------------------------------------------------------------	----------------------------------------------------------------------

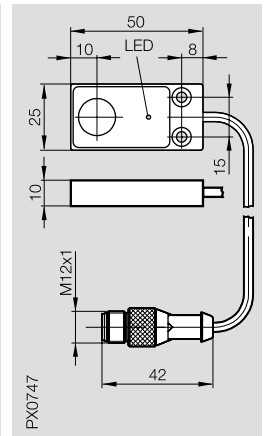
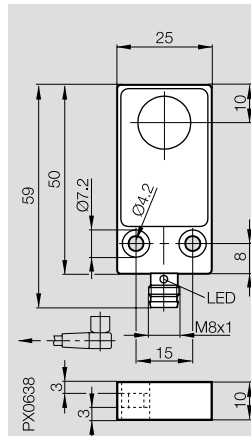
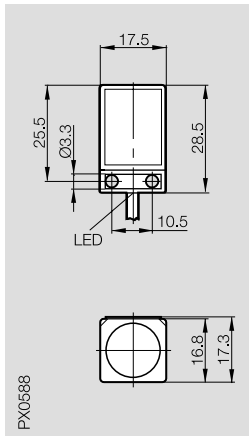
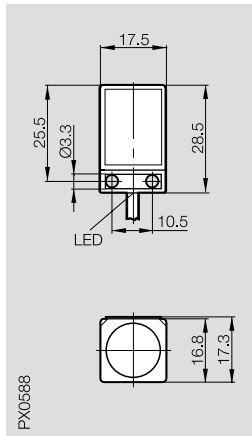


BES 516-300-S 279	BES 517-3034-M1-Y-S 49	BES 517-3034-M1-Y-S 4-	BES 517-3034-M1-Y-
BES 516-300-S 255			BES 517-3035-M1-Y-
24 V DC 10...30 V DC ≤ 0.5 V 75 V DC 50 mA ≤ 25 mA ≤ 80 µA yes no ≤ 1 µF	24 V DC 10...30 V DC ≤ 3.5 V 75 V DC 130 mA ≤ 25 mA ≤ 80 µA yes yes ≤ 1 µF	24 V DC 10...30 V DC ≤ 3.5 V 75 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
≤ 10 % -25...+70 °C 1500 Hz DC 13 yes	≤ 5 % -25...+70 °C 800 Hz DC 13 yes	≤ 5 % -25...+70 °C 1000 Hz DC 13 yes	≤ 5 % -25...+70 °C 800 Hz DC 13 yes
IP 65	IP 67	IP 67	IP 67
GD-Al anodized PBT cable 3 × 0.14 mm ²	PBT PBT connector	PBT PBT cable with connector	PBT PBT cable 3 × 0.34 mm ²
	BKS-B 48/BKS-B 49	BKS-B 19	



6
 Connectors ...
 page 6.2 ...

Housing size	17.5×17.3×28.5	17.5×17.3×28.5	25×50×10	25×50×10
Mounting	flush	non-flush	flush	flush
Rated operating distance s _n	3 mm	5 mm	5 mm	5 mm
Assured operating distance s _a	0...2.4 mm	0...4.1 mm	0...4.1 mm	0...4.1 mm



PNP	Normally-open ①	BES 517-1603-QP-S-	BES 517-1605-QP-S-	BES 516-347-M0-C-S 49	BES 516-347-M0-C-S 4-
	Normally-closed ②				
	Complementary ③				
NPN	Normally-open ④	BES 517-1603-QN-S-	BES 517-1605-QN-S-		
Rated operational voltage U _e	24 V DC	24 V DC	24 V DC	24 V DC	
Supply voltage U _B	10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC	
Voltage drop U _d at I _e	≤ 1.8 V	≤ 1.8 V	≤ 2.5 V	≤ 2.5 V	
Rated insulation voltage U _i	75 V DC	75 V DC	75 V DC	75 V DC	
Rated operational current I _e	50 mA	50 mA	200 mA	200 mA	
No-load supply current I ₀ max.	≤ 20 mA	≤ 20 mA	≤ 25 mA	≤ 25 mA	
Off-state current I _r	≤ 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 _a	-25...+70 °C	-25...+70 °C	-25...+70 °C	-25...+70 °C	
Frequency of operating cycles f	500 Hz	500 Hz	500 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 67	IP 67	IP 67	IP 67	
Housing material	AES/CP	AES/CP	GD-AI	GD-AI	
Material of sensing face	AES/CP	AES/CP	PBT	PBT	
Connection	cable	cable	connector	cable with connector	
No. of wires × conductor cross section	3 × 0.14 mm ²	3 × 0.14 mm ²			
Recommended connector			BKS-B 48/BKS-B 49	BKS-B 19	

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

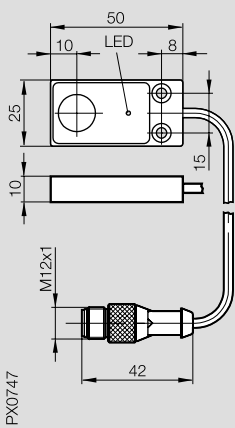
DC 3-/4-Wire
 Quadraform Housings
 s_n 5 mm, 10 mm

25x50x10

flush

5 mm

0...4.1 mm

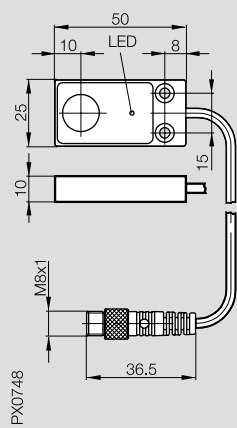


25x50x10

flush

5 mm

0...4.1 mm

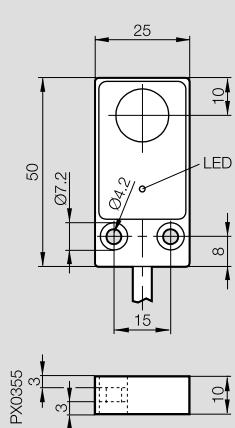


25x50x10

flush

5 mm

0...4.1 mm

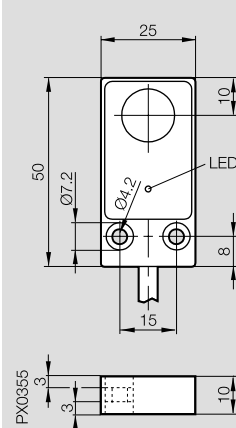


25x50x10

flush

5 mm

0...4.1 mm

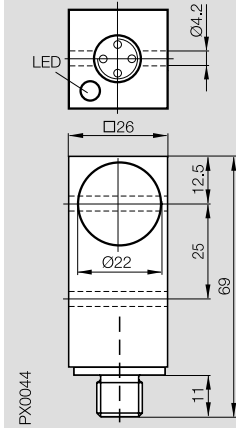


26x26x69

flush

10 mm

0...8.1 mm



BES 516-347-M0-C-S 49-

BES 516-347-M0-C-

BES 517-3036-I02-C-S 4

BES 516-133-M0-C-S 4-

BES 516-133-M0-C-

BES 516-345-M0-C-

24 V DC
 10...30 V DC

≤ 2.5 V

75 V DC

200 mA

≤ 32 mA

≤ 80 µA

yes

yes

≤ 1 µF

≤ 5 %

-25...+70 °C

500 Hz

DC 13

yes

IP 67

GD-AI

PBT

cable with connector

BKS-B 19

24 V DC
 10...30 V DC

≤ 2.5 V

75 V DC

200 mA

≤ 25 mA

≤ 80 µA

yes

yes

≤ 1 µF

≤ 5 %

-25...+70 °C

500 Hz

DC 13

yes

IP 67

GD-AI

PBT

cable with connector

BKS-B 48

24 V DC
 10...30 V DC

≤ 2.5 V

75 V DC

200 mA

≤ 25 mA

≤ 80 µA

yes

yes

≤ 1 µF

≤ 5 %

-25...+70 °C

500 Hz

DC 13

yes

IP 67

GD-AI

PBT

cable

3 × 0.34 mm²

24 V DC
 10...30 V DC

≤ 2.5 V

75 V DC

200 mA

≤ 32 mA

≤ 80 µA

yes

yes

≤ 1 µF

≤ 5 %

-25...+70 °C

500 Hz

DC 13

yes

IP 67

GD-AI

PBT

cable

4 × 0.25 mm²

24 V DC
 10...30 V DC

≤ 1.5 V

75 V DC

200 mA

≤ 12 mA

≤ 80 µA

yes

yes

≤ 0.5 µF

≤ 5 %

-25...+70 °C

500 Hz

DC 13

yes

IP 67

PA 12

PA 12

connector

BKS-B 19/BKS-B 20

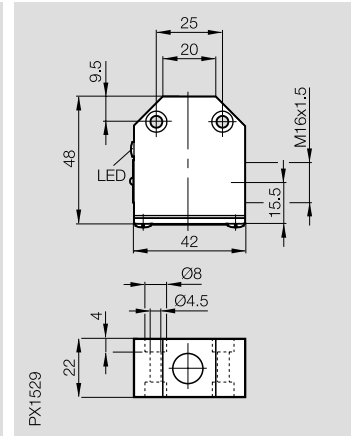
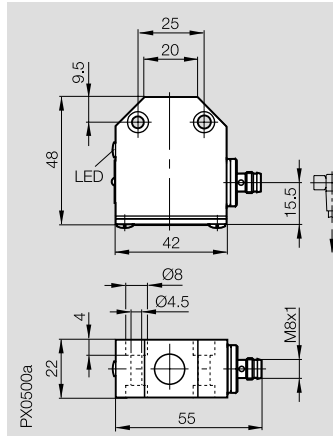
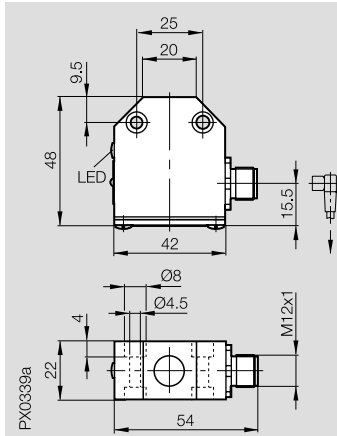


1.2

6

Connectors ...
 page 6.2 ...

Housing size	42×48×22	42×48×22	42×48×22
Mounting	flush	flush	flush
Rated operating distance s _n	5 mm	5 mm	5 mm
Assured operating distance s _a	0...4.1 mm	0...4.1 mm	0...4.1 mm



PNP	Normally-open ①	BES 516-346-H2-Y-S 4	BES 516-346-H2-Y-S 49	BES 516-346-H2-Y
	Normally-closed ②	BES 516-341-H2-Y-S 4		BES 516-341-H2-Y
	Complementary ③			
NPN	Normally-open ④			BES 516-344-H2-Y
	Normally-closed ⑤			BES 516-340-H2-Y
	Complementary ⑥			

Rated operational voltage U _e	24 V DC	24 V DC	24 V DC
Supply voltage U _B	10...30 V DC	10...30 V DC	10...30 V DC
Voltage drop U _d at I _e	≤ 3.5 V	≤ 3.5 V	≤ 3.5 V
Rated insulation voltage U _i	75 V DC	75 V DC	75 V DC
Rated operational current I _e	130 mA	130 mA	130 mA
No-load supply current I ₀ max.	≤ 25 mA	≤ 25 mA	≤ 25 mA
Off-state current I _r	≤ 80 µA	≤ 80 µA	≤ 80 µA
Protected against polarity reversal	yes	yes	yes
Short circuit protected	yes	yes	yes
Load capacity	≤ 1 µF	≤ 1 µF	≤ 1 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	500 Hz	500 Hz	500 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	GD-Al anodized	GD-Al anodized	GD-Al anodized
Material of sensing face	PA 12	PA 12	PA 12
Connection	connector	connector	screw terminals
Max. cross section for connection			up to 2.5 mm ²
Recommended connector	BKS-B 19/BKS-B 20	BKS-B 48/BKS-B 49	

① Connection diagrams see page 1.0.12

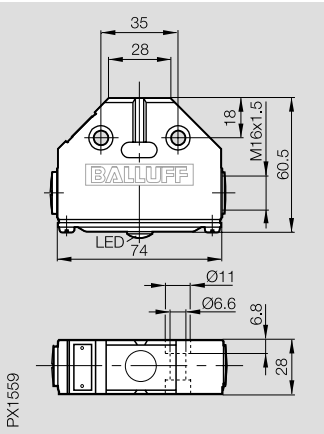


74×60.5×28

flush

7 mm

0...5.7 mm



BES 516-161-H3-L

BES 516-160-H3-L

24 V DC
10...30 V DC
≤ 1.5 V
75 V DC
400 mA
≤ 30 mA
≤ 130 µA
yes
no
≤ 1 µF

≤ 5 %
-25...+70 °C
300 Hz
DC 13
yes

IP 67

GD-Al anodized
PA 12
screw terminals
up to 2.5 mm²

1.2



For electromechanical sensors in this form factor, please request our catalog "Electromechanical and Inductive Single and Multiple Limit Switches with Accessories".

6

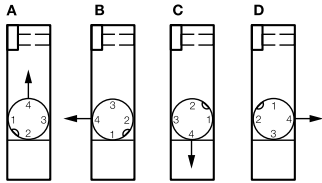
Connectors ...
page 6.2 ...

Integrated position indication easy made

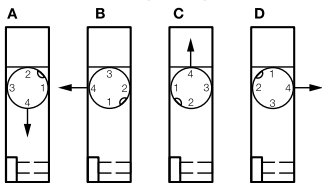
The unique advantage of this sensor is its compactness which allows mounting between the valve flap and the actuator. By selecting the appropriate connection type, exterior contours of the valve will not be exceeded. Mechanical damage is virtually eliminated.

- Mounting is simple and fast
- Plug-in connector
- Non-contact and wear-free
- Protection class IP 67
- No adjustment necessary

Style ..S 4L/_
Orientation for right angle connector

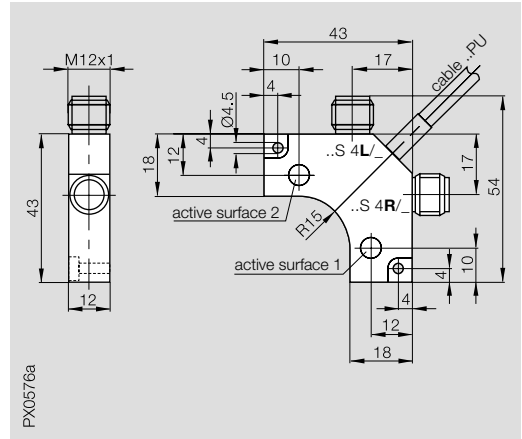


Style ..S 4R/_
Orientation for right angle connector



Housing size	
Mounting	
Rated operating distance s _n	
Assured operating distance s _a	

Double Sensor
flush
4 mm
0...3.2 mm



PNP	Normally-open connector left	BES 517-300-S 280-S 4L/_ (indicate connector orientation)
	Normally-open connector right	BES 517-300-S 280-S 4R/_ (indicate connector orientation)
	Normally-open cable version	BES 517-300-S 280- (indicate cable length)

Rated operational voltage U _e	24 V DC
Supply voltage U _B	10...55 V DC
Voltage drop U _d at I _e	≤ 2.5 V
Rated insulation voltage U _i	75 V DC
Rated operational current I _e	200 mA
No-load supply current I ₀ max.	≤ 6 mA
Off-state current I _r	≤ 80 μA
Protected against polarity reversal	yes
Short circuit protected	yes
Load capacity	≤ 1 μF

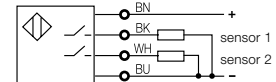
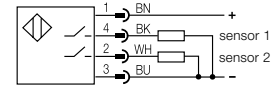
Repeat accuracy R	≤ 5 %
Ambient temperature range T _a	-25...+85 °C
Frequency of operating cycles f	400 Hz
Utilization categories	DC 13
Function/supply voltage indication	no/no

Degree of protection per IEC 60529	IP 67
------------------------------------	-------

Housing material	PA 6
Material of sensing face	PA 6
Connection	connector/cable
No. of wires × conductor cross section	4 × 0.25 mm ²

Recommended connector	BKS-S 20E-10-PU-...
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Please add the cable length to the ordering code for sensors with **cable!**
PU-03, PU-05 = PUR, length 3 m or 5 m



The Unisensor – multiple uses

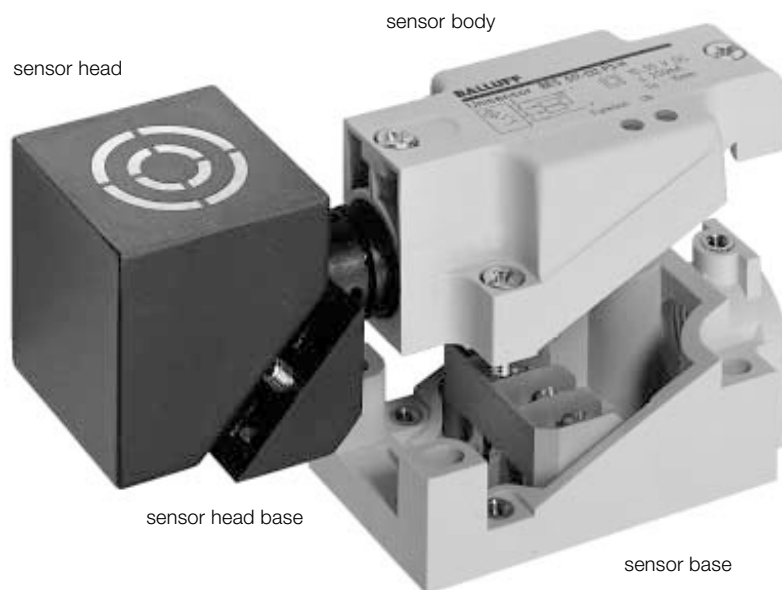
- The Unisensor is made up of three modular components: sensor head (including sensor head base), sensor body and sensor base.
- Easily removable pin contacts join sensor head and sensor body, that means easy interchange of the modules without wiring.
- Sensor base with wiring terminals, self-lifting pressure plates and ample wiring room.
- Sensor head rotatable in 5 different positions for easy adaption to any application (see installation drawings).
- Plastic housing of PBT.
- DIN EN 60947-5-2 mounting dimensions.
- LED for supply voltage.
- LED shows when metal object is sensed.
- Also available in special configuration for the automotive industry
- Cable connectors are not included.
- In the complementary version, output terminals 2 or 4 can be wired to configure the switch as normally closed (terminal 2) or normally open (terminal 4). Connecting both terminals allows the switch to be used as both (see wiring diagram ③ or ⑥).

Positioning the sensor head

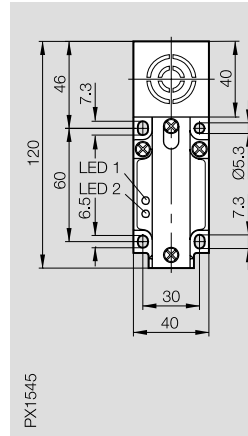
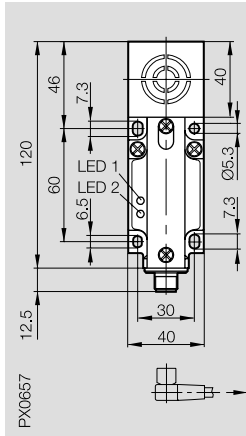
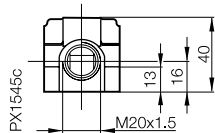
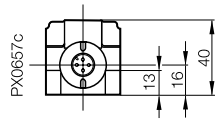
- Loosen the two holding screws on sensor head
- Rotate sensor head 180°
- tighten holding screws

Rotating the sensor head

- Loosen holding screws
- Rotate the sensor head (complete with sensor head base) into the required position (range 270°)
- Tighten holding screws
- Sensor head is protected against complete rotation



Housing size	40×40×120 Unisensor	40×40×120 Unisensor
Mounting	flush	flush
Rated operating distance s _n	15 mm	15 mm
Assured operating distance s _a	0...12.2 mm	0...12.2 mm

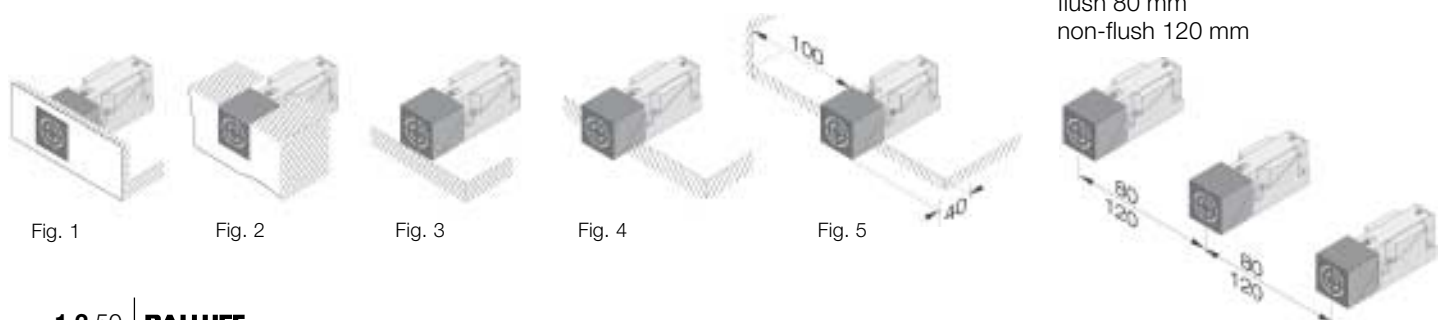


PNP	Complementary ③	BES 517-132-M3-H-S 4	BES 517-132-M3-H
NPN	Complementary ④	BES 517-134-M3-H-S 4	BES 517-134-M3-H
Rated operational voltage U _e	24 V DC	24 V DC	
Supply voltage U _s	10...55 V DC	10...55 V DC	
Voltage drop U _d at I _e	≤ 2.5 V	≤ 2.5 V	
Rated insulation voltage U _i	250 V AC	250 V AC	
Rated operational current I _e	200 mA	200 mA	
No-load supply current I ₀ max.	≤ 20 mA	≤ 20 mA	
Off-state current I _r	≤ 80 µA	≤ 80 µA	
Protected against polarity reversal	yes	yes	
Short circuit protected	yes	yes	
Load capacity	≤ 1 µF	≤ 1 µF	
Repeat accuracy R	≤ 5 %	≤ 5 %	
Ambient temperature range T _a	-25...+70 °C	-25...+70 °C	
Frequency of operating cycles f	100 Hz	100 Hz	
Utilization categories	DC 13	DC 13	
Function/supply voltage indication	yes/yes	yes/yes	
Degree of protection per IEC 60529	IP 67	IP 67	
Insulation class	□	□	
Housing material	PBT	PBT	
Material of sensing face	PBT	PBT	
Connection	connector	screw terminals	
Max. cross section for connection		up to 2.5 mm ²	
Approval	cULus	cULus	
Recommended connector	BKS-B 19/BKS-B 20		
Mounting variations allowed	Figs. 1 to 5	Figs. 1 to 5	

③ Connection diagrams see page 1.0.12
 Switching distance ■■ see page 1.0.3

→ Connector orientation

Mounting variations



Inductive Sensors

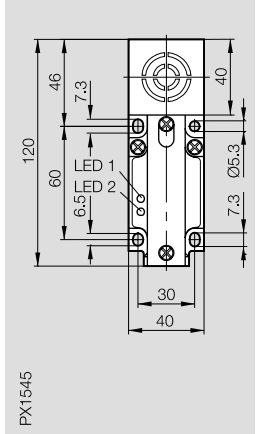
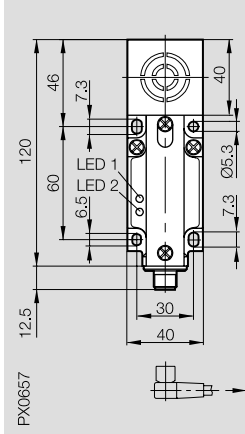
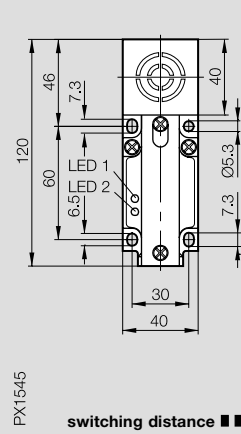
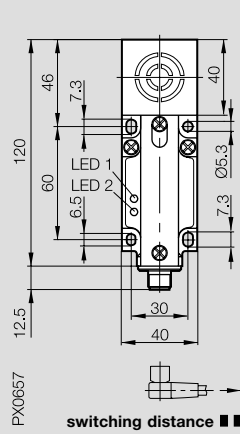
DC 4-Wire
 Quadraform Housings
 s_n 20 mm, 30 mm

40x40x120 Unisensor
 flush
20 mm
 0...16.2 mm

40x40x120 Unisensor
 flush
20 mm
 0...16.2 mm

40x40x120 Unisensor
 non-flush
30 mm
 0...24.3 mm

40x40x120 Unisensor
 non-flush
30 mm
 0...24.3 mm



1.2

BES 517-132-M6-H-S 4

BES 517-132-M6-H

BES 517-132-M5-H-S 4

BES 517-132-M5-H

BES 517-134-M6-H-S 4

BES 517-134-M6-H

BES 517-134-M5-H-S 4

BES 517-134-M5-H

24 V DC
 10...55 V DC
 ≤ 2.5 V
 250 V AC
 200 mA
 ≤ 20 mA
 ≤ 80 µA
 yes
 yes
 ≤ 1 µF

24 V DC
 10...55 V DC
 ≤ 2.5 V
 250 V AC
 200 mA
 ≤ 20 mA
 ≤ 80 µA
 yes
 yes
 ≤ 1 µF

24 V DC
 10...55 V DC
 ≤ 2.5 V
 250 V AC
 200 mA
 ≤ 20 mA
 ≤ 80 µA
 yes
 yes
 ≤ 1 µF

24 V DC
 10...55 V DC
 ≤ 2.5 V
 250 V AC
 200 mA
 ≤ 20 mA
 ≤ 80 µA
 yes
 yes
 ≤ 1 µF

≤ 5 %
 -25...+70 °C
 50 Hz
 DC 13
 yes/yes

≤ 5 %
 -25...+70 °C
 50 Hz
 DC 13
 yes/yes

≤ 5 %
 -25...+70 °C
 60 Hz
 DC 13
 yes/yes

≤ 5 %
 -25...+70 °C
 60 Hz
 DC 13
 yes/yes

IP 67

 PBT
 PBT
 connector

IP 67

 PBT
 PBT
 screw terminals
 up to 2.5 mm²

IP 67

 PBT
 PBT
 connector

IP 67

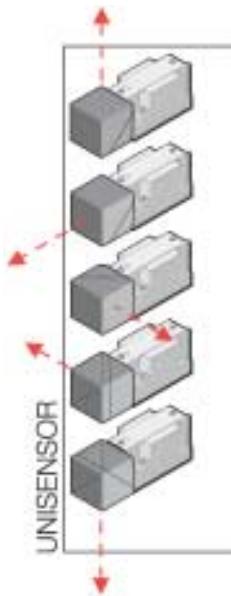
 PBT
 PBT
 screw terminals
 up to 2.5 mm²

cULus
 BKS-B 19/BKS-B 20
 Figs. 1 to 5

cULus
 Figs. 1 to 5

cULus
 BKS-B 19/BKS-B 20
 Figs. 4 and 5

cULus
 Figs. 4 and 5

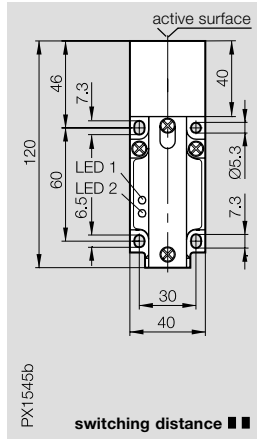
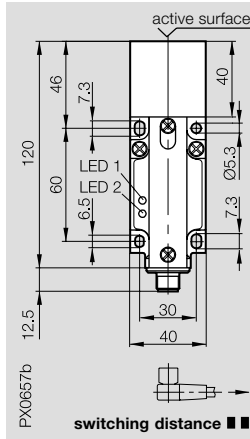
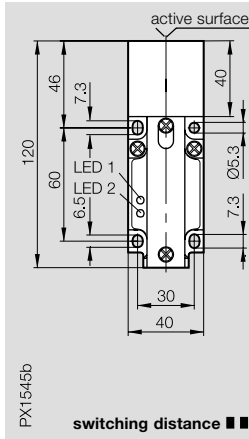
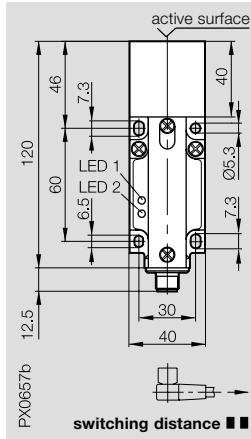
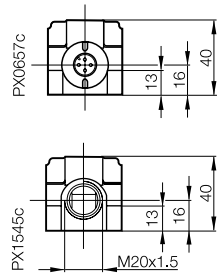


6
 Connectors,
 mounting
 plate ...
 page 6.2 ...

Inductive Sensors

DC 3-/4-Wire
 Quadraform Housings
 s_n 25/40 mm, 40 mm

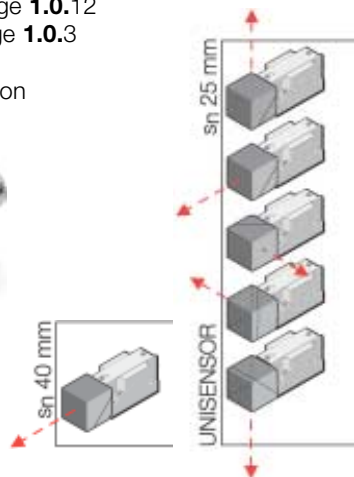
Housing size	40x40x120 Unisensor	40x40x120 Unisensor	40x40x120 Unisensor	40x40x120 Unisensor
Mounting	non-flush	non-flush	non-flush	non-flush
Rated operating distance s_n	programmable 25/40 mm	programmable 25/40 mm	40 mm	40 mm
Assured operating distance s_a	0...20.3 mm/0...32.4 mm	0...20.3 mm/0...32.4 mm	0...32.4 mm	0...32.4 mm



PNP	Normally-open ① Complementary ③	BES 517-385-MV-C-S 4	BES 517-385-MV-C	BES 517-132-M7-H-S 4	BES 517-132-M7-H
NPN	Complementary ⑥			BES 517-134-M7-H-S 4	BES 517-134-M7-H
Rated operational voltage U_e	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC
Supply voltage U_B	10...30 V DC	10...30 V DC	10...30 V DC	10...55 V DC	10...55 V DC
Voltage drop U_d at I_e	≤ 3.5 V	≤ 3.5 V	≤ 3.5 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	≤ 20 mA	≤ 20 mA
Off-state current I_r	≤ 80 µA	≤ 80 µA	≤ 80 µA	≤ 80 µA	≤ 80 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	50 Hz	50 Hz	50 Hz	50 Hz	50 Hz
Utilization categories	DC 13	DC 13	DC 13	DC 13	DC 13
Function/supply voltage indication	yes/yes	yes/yes	yes/yes	yes/yes	yes/yes
Degree of protection per IEC 60529	IP 67	IP 67	IP 67	IP 67	IP 67
Insulation class	□	□	□	□	□
Housing material	PBT	PBT	PBT	PBT	PBT
Material of sensing face	PBT	PBT	PBT	PBT	PBT
Connection	connector	screw terminals	connector	screw terminals	screw terminals
Max. cross section for connection		up to 2.5 mm ²		up to 2.5 mm ²	up to 2.5 mm ²
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	BKS-B 19/BKS-B 20
Mounting variations allowed	Figs. 1 and 2	Figs. 1 and 2	Figs. 1 and 2	Figs. 1 and 2	Figs. 1 and 2

③ Connection diagrams see page 1.0.12
 Switching distance ■■ see page 1.0.3

Connector orientation



Mounting variations

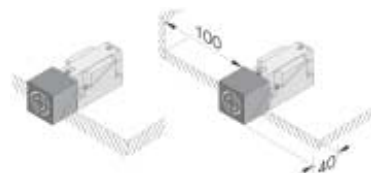


Fig. 1

Row mounting

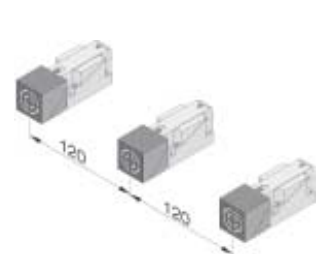


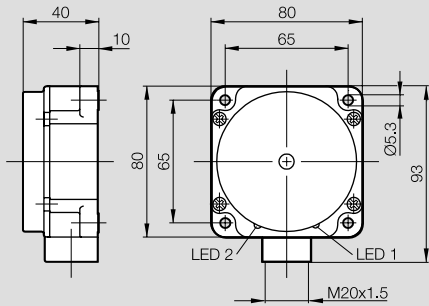
Fig. 2

80×80×40 Maxisensor
 flush
40 mm
 0...32.4 mm

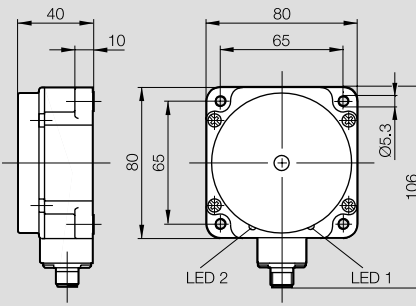
80×80×40 Maxisensor
 non-flush
50 mm
 0...40.5 mm

80×80×40 Maxisensor
 flush
40 mm
 0...32.4 mm

80×80×40 Maxisensor
 non-flush
50 mm
 0...40.5 mm



PX1573



PX0666a

BES 517-139-M4-H	BES 517-139-M5-H	BES 517-139-M4-H-S 4	BES 517-139-M5-H-S 4
BES 517-140-M4-H	BES 517-140-M5-H		BES 517-140-M5-H-S 4
24 V DC	24 V DC	24 V DC	24 V DC
10...55 V DC	10...55 V DC	10...55 V DC	10...55 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
≤ 80 µA	≤ 80 µA	≤ 80 µA	≤ 80 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
50 Hz	100 Hz	50 Hz	100 Hz
DC 13	DC 13	DC 13	DC 13
yes/yes	yes/yes	yes/yes	yes/yes
IP 67	IP 67	IP 67	IP 67
PBT	PBT	PBT	PBT
PBT	PBT	PBT	PBT
screw terminals up to 2.5 mm ²	screw terminals up to 2.5 mm ²	connector	connector
Figs. 1 to 4	Fig. 4	BKS-B 19/BKS-B 20 Figs. 1 to 4	BKS-B 19/BKS-B 20 Fig. 4

Mounting in steel



Fig. 1

Mounting in non-ferrous metals



Fig. 2

**Mounting in steel/
non-ferrous metals**

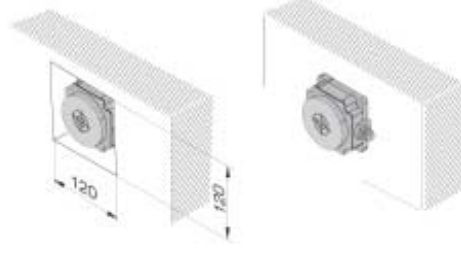


Fig. 3



Fig. 4

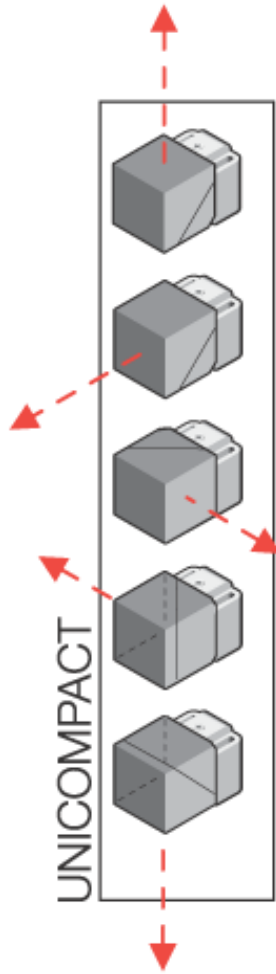


Unicomact – the small Unisensor flexible in all directions

We have expanded our offering for machine and system designs.

The connector can be oriented in all directions, the cable is always where it needs to be. The Unicomact is available in DC and AC/DC for world markets, naturally with the local-standard connector. Like its Unisensor big brother, the sensing surface can be oriented in five different directions. Bottom line – you always have the right switch:

- Easy handling
- Easy wiring
- Universal application



Housing size	
Mounting	
Rated operating distance s_n	
Assured operating distance s_a	



PNP	Complementary ③	
-----	-----------------	--

NPN	Complementary ⑥	
-----	-----------------	--

Rated operational voltage U_e	
Supply voltage U_B	
Voltage drop U_d at I_e	
Rated insulation voltage U_i	
Rated operational current I_e	
No-load supply current I_0 max.	
Off-state current I_r	
Protected against polarity reversal	
Short circuit protected	
Load capacity	

Repeat accuracy R	
Ambient temperature range T_a	
Frequency of operating cycles f	
Utilization categories	
Function/supply voltage indication	

Degree of protection per IEC 60529	
Insulation class	
Housing material	
Material of sensing face	
Connection	

Recommended connector	
Mounting variations allowed	

③ Connection diagrams see page 1.0.12
 Switching distance ■■ see page 1.0.3

Mounting variations



Fig. 1

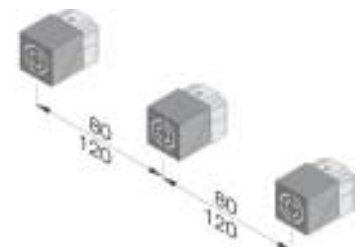
Fig. 2

Fig. 3

Fig. 4

Fig. 5

Row mounting
 flush 80 mm
 non-flush 120 mm

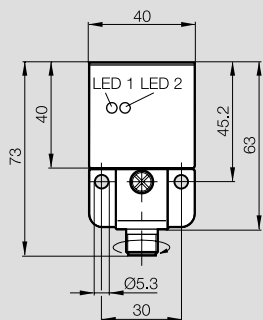


40x40x73 Unicomcompact
flush
20 mm
0...16.2 mm

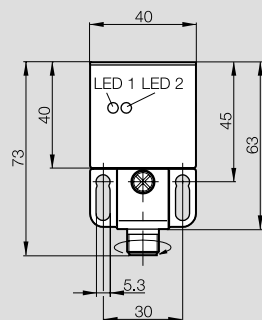
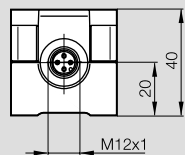
40x40x73 Unicomcompact
non-flush
25 mm
0...20.3 mm

40x40x73 Unicomcompact
flush
20 mm
0...16.2 mm

40x40x73 Unicomcompact
non-flush
25 mm
0...20.3 mm



PX0725
switching distance ■ ■



PX0851
switching distance ■ ■

BES Q40KEU-PAH20B-S04G-001

BES Q40KEU-PAH25F-S04G-001

BESQ40KEU-PAH20B-S04G

BESQ40KEU-PAH25F-S04G

BES Q40KEU-NAH20B-S04G-001

BES Q40KEU-NAH25F-S04G-001

BES Q40KEU-NAH20B-S04G

BESQ40KEU-NAH25F-S04G

24 V DC
10...55 V DC
≤ 2.5 V
250 V AC
200 mA
≤ 20 mA
≤ 80 µA
yes
yes
≤ 1 µF

24 V DC
10...55 V DC
≤ 2.5 V
250 V AC
200 mA
≤ 20 mA
≤ 80 µA
yes
yes
≤ 1 µF

24 V DC
10...55 V DC
≤ 2.5 V
250 V AC
200 mA
≤ 20 mA
≤ 80 µA
yes
yes
≤ 1 µF

24 V DC
10...55 V DC
≤ 2.5 V
250 V AC
200 mA
≤ 20 mA
≤ 80 µA
yes
yes
≤ 1 µF

≤ 5 %
-25...+70 °C
50 Hz
DC 13
yes/yes

≤ 5 %
-25...+70 °C
50 Hz
DC 13
yes/yes

≤ 5 %
-25...+70 °C
50 Hz
DC 13
yes/yes

≤ 5 %
-25...+70 °C
50 Hz
DC 13
yes/yes

IP 67
□
PBT/GD-ZnAl
PBT
connector

IP 67
□
PBT/GD-ZnAl
PBT
connector

IP 67
□
PBT/GD-ZnAl
PBT
connector

IP 67
□
PBT/GD-ZnAl
PBT
connector

BKS-B 19/BKS-B 20
Figs. 1 to 5

BKS-B 19/BKS-B 20
Figs. 3 to 5

BKS-B 19/BKS-B 20
Figs. 1 to 5

BKS-B 19/BKS-B 20
Fig. 3 to 5



