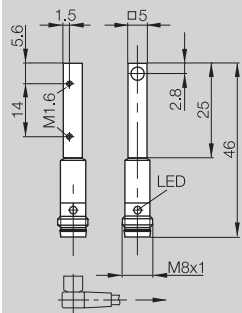


# 5x5x46 mm, 5x5x33 mm, 5x5x25 mm

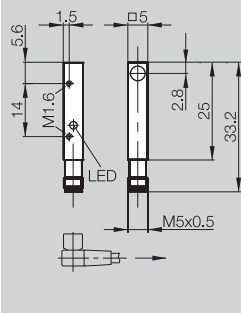
## Inductive Sensors

DC 3-wire  
Block style housings  
s<sub>n</sub> 0.8 mm

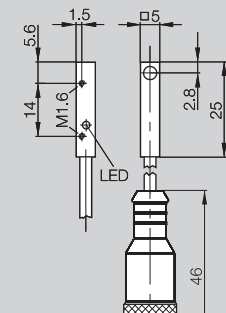
5x5x46 mm	5x5x33 mm	5x5x25 mm	5x5x25 mm	5x5x25 mm
flush	flush	flush	flush	flush
<b>0.8 mm</b>	<b>0.8 mm</b>	<b>0.8 mm</b>	<b>0.8 mm</b>	<b>0.8 mm</b>
0...0.6 mm	0...0.6 mm	0...0.6 mm	0...0.6 mm	0...0.6 mm



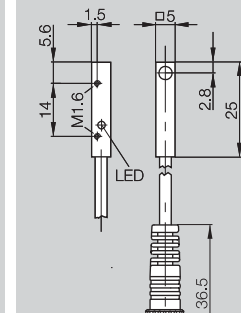
CH0005



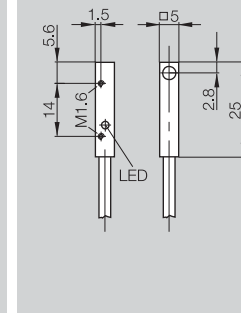
CH0165



CH0044



PX1894



CH0001

**1.1**

BES 516-3040-I02-C-S49 BES 516-3042-I02-C-S49	BES Q05AC-PSC08B-S26G BES Q05AC-POC08B-S26G	BES 516-3040-I02-C-S4-00,3	BES 516-3040-I02-C-S49-00,3	BES 516-3040-I02-C-PU-02 BES 516-3042-I02-C-PU-02
BES 516-3041-I02-C-S49 BES 516-3043-I02-C-S49	BES Q05AC-NSC08B-S26G BES Q05AC-NOC08B-S26G			BES 516-3041-I02-C-PU-02 BES 516-3043-I02-C-PU-02
10...30 V DC ≤ 2.5 V 75 V DC 100 mA ≤ 12 mA yes yes	10...30 V DC ≤ 2.5 V 75 V DC 100 mA ≤ 10 mA yes yes	10...30 V DC ≤ 2.5 V 75 V DC 100 mA ≤ 10 mA yes yes	10...30 V DC ≤ 2.5 V 75 V DC 100 mA ≤ 10 mA yes yes	10...30 V DC ≤ 2.5 V 75 V DC 100 mA ≤ 12 mA yes yes
≤ 5 % -25...+70 °C 3000 Hz DC 13 yes	≤ 5 % -25...+70 °C 3000 Hz DC 13 yes	≤ 5 % -25...+70 °C 1000 Hz DC 13 yes	≤ 5 % -25...+70 °C 3000 Hz DC 13 yes	≤ 5 % -25...+70 °C 3000 Hz DC 13 yes
IP 67 anodized Al POM Connector	IP 67 anodized Al POM Connector	IP 65 anodized Al POM 0.3 m PUR cable with connector	IP 67 anodized Al POM 0.3 m PUR cable with connector	IP 67 anodized Al POM 2 m cable PUR
cULus BKS- 48/BKS- 49	cULus BKS- 25/BKS- 26	cULus BKS- 19	cULus BKS- 48	3x0.14 mm <sup>2</sup> cULus

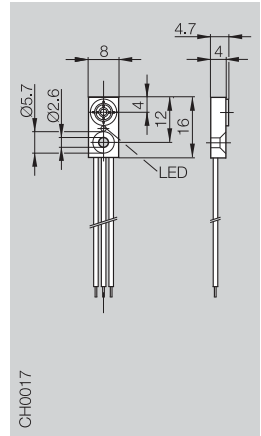
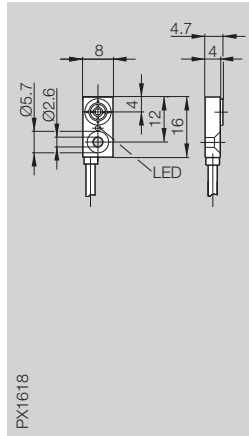
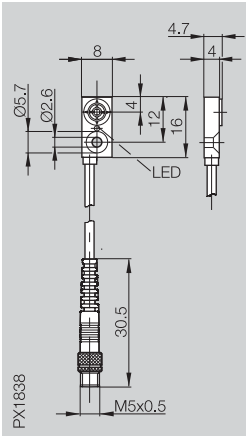
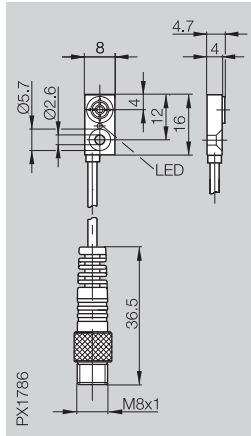


**5**  
Connectors,  
Holders ...  
Page 5.2 ...

# Inductive Sensors

DC 3-wire  
Block style housings  
 $s_n$  1.5 mm

Housing size	<b>8×16×4 mm R04</b>	<b>8×16×4 mm R04</b>	<b>8×16×4 mm R04</b>	<b>8×16×4 mm R04</b>
Mounting (see notes starting p. 1.0.11)	flush	flush	flush	flush
Rated operating distance $s_n$	<b>1.5 mm</b>	<b>1.5 mm</b>	<b>1.5 mm</b>	<b>1.5 mm</b>
Assured operating distance $s_a$	0...1.2 mm	0...1.2 mm	0...1.2 mm	0...1.2 mm



PNP	NO	①	BES R04KC-PSC15B-EP00,13-GS49	BES R04KC-PSC15B-EP00,2-GS26	BES R04KC-PSC15B-EV02	BES R04KC-PSC15B-LV00,3
	NC	②	BES R04KC-POC15B-EP00,13-GS49	BES R04KC-POC15B-EP00,2-GS26	BES R04KC-POC15B-EV02	
NPN	NO	④	BES R04KC-NSC15B-EP00,13-GS49	BES R04KC-NSC15B-EP00,2-GS26	BES R04KC-NSC15B-EV02	
	NC	⑤	BES R04KC-NOC15B-EP00,13-GS49	BES R04KC-NOC15B-EP00,2-GS26	BES R04KC-NOC15B-EV02	

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 $I_e$	≤ 3 V	≤ 3 V	≤ 3 V	≤ 3 V
Rated insulation voltage $U_i$	75 V DC	75 V DC	75 V DC	75 V DC
Rated operational current $I_e$	100 mA	100 mA	100 mA	100 mA
No-load supply current $I_0$ max.	≤ 12 mA	≤ 12 mA	≤ 12 mA	≤ 10 mA
Polarity reversal protected	no	no	no	no
Short circuit protected	yes	yes	yes	yes
Repeat accuracy R	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %
Ambient temperature range $T_a$	-25...+70 °C	-25...+70 °C	-25...+70 °C	-25...+70 °C
Switching frequency f	600 Hz	600 Hz	600 Hz	600 Hz
Utilization category	DC 12	DC 12	DC 12	DC 12
Function indicator	yes	yes	yes	yes
Degree of protection per IEC 60529	IP 67	IP 67	IP 67	IP 67
Housing material	PA 6	PA 6	PA 6	PA 6
Material of sensing face	PA 6	PA 6	PA 6	PA 6
Connection	0.13 m PUR cable with connector	0.2 m PUR cable with connector	2 m PVC cable	3×0.3 m single leads PVC
No. of wires × cross-section			3×0.09 mm <sup>2</sup>	3×0.09 mm <sup>2</sup>
Approval	cULus	cULus	cULus	cULus
Recommended connector	BKS-_ 48	BKS-B 25		

① Wiring diagrams see page 1.0.6

Other cable lengths on request.



# 8×16×4 mm, 10×30×6 mm

## Inductive Sensors

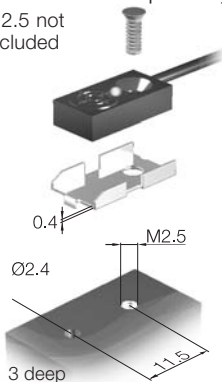
DC 3-wire  
Block style housings  
s<sub>n</sub> 2.5 mm, 3 mm

8×16×4 mm R04 non-flush <b>2.5 mm</b> 0...2 mm	8×16×4 mm R04 non-flush <b>2.5 mm</b> 0...2 mm	10×30×6 mm R03 flush <b>3 mm</b> 0...2.4 mm	10×30×6 mm R03 flush <b>3 mm</b> 0...2.4 mm
BES R04KC-PSC25F-EP00,3-GS49	BES R04KC-PSC25F-EV02	BES R03KC-PSC30B-BP00,3-GS49	BES R03KC-PSC30B-EP02 BES R03KC-POC30B-EP05
			BES R03KC-NSC30B-EP05 BES R03KC-NOC30B-EP05
10...30 V DC ≤ 2.5 V 75 V DC 100 mA ≤ 10 mA no yes	10...30 V DC ≤ 2.5 V 75 V DC 100 mA ≤ 10 mA no yes	5...30 V DC ≤ 1.5 V 75 V DC 100 mA ≤ 6 mA no yes	5...30 V DC ≤ 1.5 V 75 V DC 100 mA ≤ 6 mA no yes
≤ 5 % -25...+70 °C 150 Hz DC 12 yes	≤ 5 % -25...+70 °C 150 Hz DC 12 yes	≤ 1 % -25...+70 °C 1000 Hz DC 12 yes	≤ 1 % -25...+70 °C 1000 Hz DC 12 yes
IP 67	IP 67	IP 67	IP 67
PA 6 PA 6	PA 6 PA 6	PA 6 PA 6	PA 6 PA 6
0.3 m PUR cable with connector	2 m PVC cable	0.3 m PUR cable with connector	2 m/5 m PUR cable
cULus BKS-_ 48	3×0.09 mm <sup>2</sup> cULus	cULus BKS-_ 48	3×0.14 mm <sup>2</sup> cULus

**1.1**

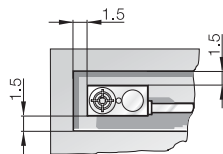
### Mounting bracket BES R04-MF-01 for BES R04... with s<sub>n</sub> 1.5 mm

please order separately  
M2.5 not included



### Installation note for BES R04... with s<sub>n</sub> 2.5 mm

Aluminum: full flush mountable  
Steel: surrounding 1.5 mm clear zone



**5**

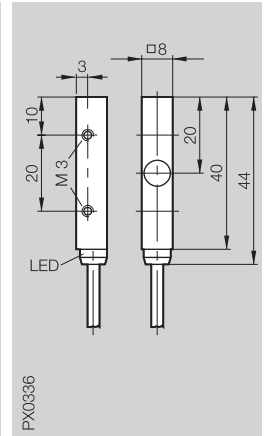
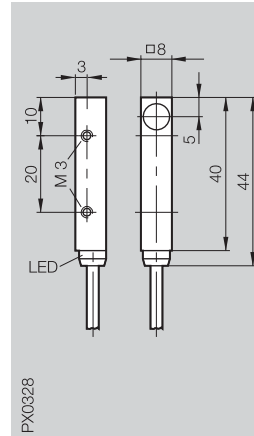
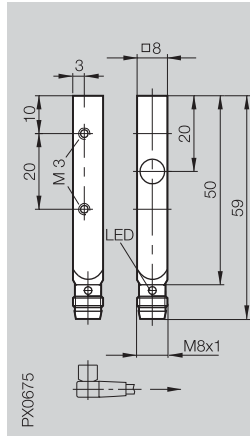
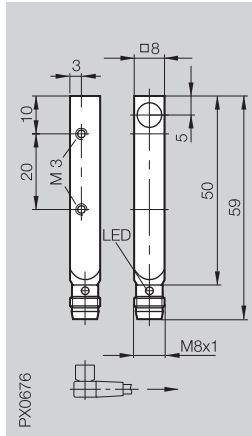
Connectors ...  
page 5.2 ...

# Inductive Sensors

DC 3-wire  
Block style housings  
 $s_n$  1.5 mm

## 8x8x59 mm, 8x8x44 mm

Housing size	<b>8x8x59 mm</b>	<b>8x8x59 mm</b>	<b>8x8x44 mm</b>	<b>8x8x44 mm</b>
Mounting (see notes starting p. 1.0.11)	flush	flush	flush	flush
Rated operating distance $s_n$	<b>1.5 mm</b>	<b>1.5 mm</b>	<b>1.5 mm</b>	<b>1.5 mm</b>
Assured operating distance $s_a$	0...1.2 mm	0...1.2 mm	0...1.2 mm	0...1.2 mm



PNP	NO	①	BES 516-300-S166-S49	BES 516-300-S202-S49	BES 516-300-S166-02	BES 516-300-S202-02
	NC	②	BES 516-300-S180-S49		BES 516-300-S180-02	
NPN	NO	④	BES 516-300-S170-S49	BES 516-300-S254-S49	BES 516-300-S170-02	
	NC	⑤				

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 $I_e$	≤ 2.5 V	≤ 2.5 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 $I_e$	200 mA	200 mA	200 mA	200 mA
No-load supply current $I_0$ max.	≤ 15 mA	≤ 15 mA	≤ 15 mA	≤ 12 mA
Polarity reversal protected	yes	yes	yes	yes
Short circuit protected	yes	yes	yes	yes

Repeat accuracy R	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %
Ambient temperature range $T_a$	-25...+70 °C	-25...+70 °C	-25...+70 °C	-25...+70 °C
Switching frequency f	5000 Hz	5000 Hz	5000 Hz	5000 Hz
Utilization category	DC 13	DC 13	DC 13	DC 13
Function indicator	yes	yes	yes	yes

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

Housing material	GD-Zn coated	GD-Zn coated	GD-Zn coated	GD-Zn coated
Material of sensing face	POM	POM	POM	POM
Connection	Connector	Connector	2 m PVC cable	2 m PVC cable
No. of wires × cross-section			3x0.14 mm <sup>2</sup>	3x0.14 mm <sup>2</sup>
Approval	cULus	cULus	cULus	cULus
Recommended connector	BKS- 48/BKS- 49	BKS- 48/BKS- 49		

① Wiring diagrams see page 1.0.6  
Switching distance ■■ see page 1.0.10

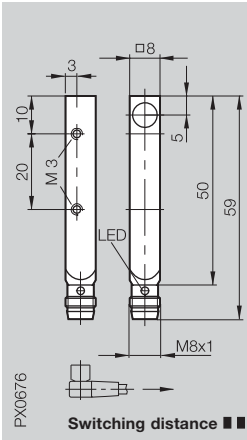
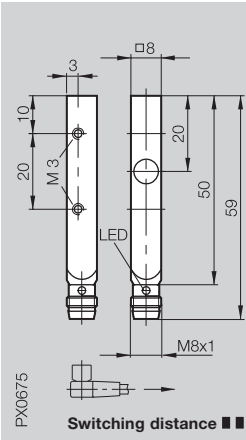
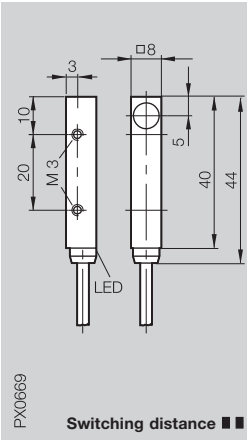
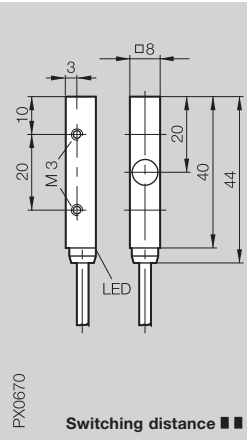
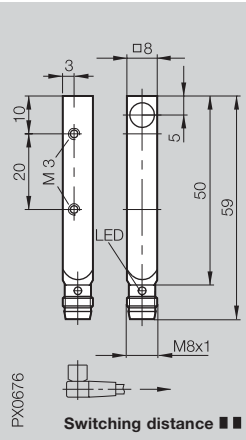
For sensors with cable, other lengths and PUR quality are available on request.



# 8x8x59 mm, 8x8x44 mm

## Inductive Sensors

DC 3-wire  
Block style housings  
s<sub>n</sub> 2 mm, 2.5 mm

8x8x59 mm	8x8x59 mm	8x8x44 mm	8x8x44 mm	8x8x59 mm
flush	flush	flush	flush	flush
<b>2 mm</b>	<b>2 mm</b>	<b>2 mm</b>	<b>2 mm</b>	<b>2.5 mm</b>
0...1.6 mm	0...1.6 mm	0...1.6 mm	0...1.6 mm	0...2 mm
				
BES Q08ZC-PSC20B-S49G BES Q08ZC-POC20B-S49G	BES Q08ZE-PSC20B-S49G BES Q08ZE-POC20B-S49G	BES Q08ZC-PSC20B-BV02 BES Q08ZC-POC20B-BV02	BES Q08ZE-PSC20B-BV02 BES Q08ZE-POC20B-BV02	BES Q08ZC-PSC25B-S49G
BES Q08ZC-NSC20B-S49G BES Q08ZC-NOC20B-S49G	BES Q08ZE-NSC20B-S49G BES Q08ZE-NOC20B-S49G	BES Q08ZC-NSC20B-BV02 BES Q08ZC-NOC20B-BV02	BES Q08ZE-NSC20B-BV02	
10...30 V DC ≤ 2.5 V	10...30 V DC ≤ 2.5 V	10...30 V DC ≤ 2.5 V	10...30 V DC ≤ 2.5 V	10...30 V DC ≤ 2.5 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
≤ 15 mA	≤ 15 mA	≤ 15 mA	≤ 15 mA	≤ 12 mA
yes	yes	yes	yes	yes
yes	yes	yes	yes	yes
≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %
-25...+70 °C	-25...+70 °C	-25...+70 °C	-25...+70 °C	-25...+70 °C
3000 Hz	3000 Hz	3000 Hz	3000 Hz	2000 Hz
DC 13	DC 13	DC 13	DC 13	DC 13
yes	yes	yes	yes	yes
IP 67	IP 67	IP 67	IP 67	IP 67
GD-Zn coated	GD-Zn coated	GD-Zn coated	GD-Zn coated	GD-Zn coated
POM	POM	POM	POM	POM
Connector	Connector	2 m PVC cable 3x0.14 mm <sup>2</sup>	2 m PVC cable 3x0.14 mm <sup>2</sup>	Connector
cULus	cULus	cULus	cULus	cULus
BKS- 48/BKS- 49	BKS- 48/BKS- 49			BKS- 48/BKS- 49

**1.1**



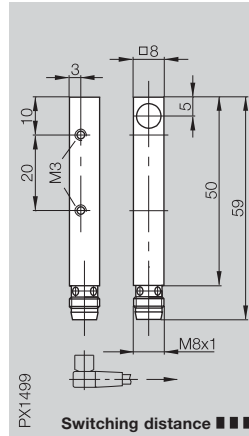
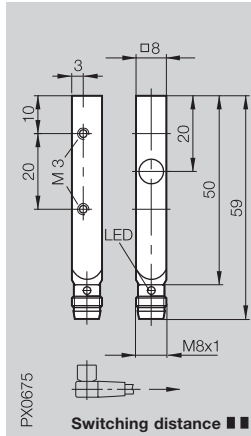
**5**  
Connectors ...  
page 5.2 ...

# Inductive Sensors

DC 3-wire  
Block style housings  
s<sub>n</sub> 2.5 mm, 3 mm

8x8x59 mm

Housing size	<b>8x8x59 mm</b>	<b>8x8x59 mm</b>			
Mounting (see notes starting p. 1.0.11)	flush	quasi flush			
Rated operating distance s <sub>n</sub>	<b>2.5 mm</b>	<b>3 mm</b>			
Assured operating distance s <sub>a</sub>	0...2 mm	0...2.4 mm			



PNP	NO	①	BES Q08ZE-PSC25B-S49G	BES Q08MG-PSC30B-S49G		
	NC	②				
NPN	NO	④		BES Q08MG-NSC30B-S49G		
	NC	⑤				

Supply voltage U <sub>B</sub>	10...30 V DC	10...30 V DC			
Voltage drop U <sub>d</sub> at I <sub>e</sub>	≤ 2.5 V	≤ 2 V			
Rated insulation voltage U <sub>i</sub>	75 V DC	75 V DC			
Rated operational current I <sub>e</sub>	200 mA	200 mA			
No-load supply current I <sub>0</sub> max.	≤ 12 mA	≤ 10 mA			
Polarity reversal protected	yes	yes			
Short circuit protected	yes	yes			

Repeat accuracy R	≤ 5 %	≤ 5 %			
Ambient temperature range T <sub>a</sub>	-25...+70 °C	-25...+70 °C			
Switching frequency f	2000 Hz	1000 Hz			
Utilization category	DC 13	DC 13			
Function indicator	yes	yes			

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

Housing material	CuZn coated	CuZn coated			
Material of sensing face	POM	PBT			
Connection	Connector	Connector			

No. of wires × cross-section					
Approval	cULus				
Recommended connector	BKS- _ 48/BKS- _ 49	BKS- _ 48/BKS- _ 49			

① Wiring diagrams see page 1.0.6  
Switching distance ■ ■ see page 1.0.10

For sensors with cable, other lengths and PUR quality are available on request.

For sensors with cable and connector, other lengths are available on request.

→ Connector orientation



# 16.5×30×10.5 mm

## Inductive Sensors

DC 3-wire  
Block style housings  
S<sub>n</sub> 2 mm

1.1

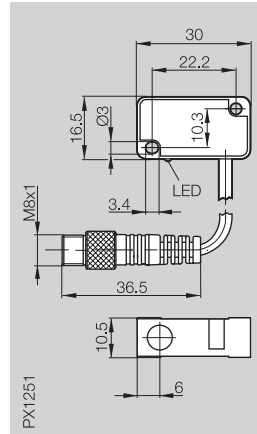
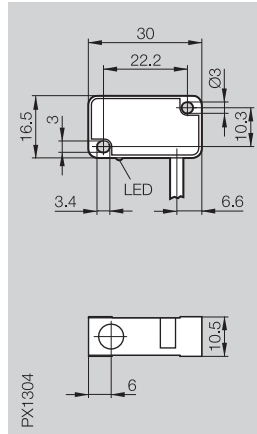
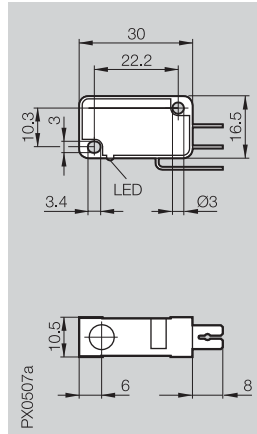
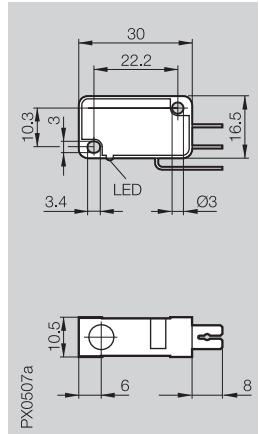
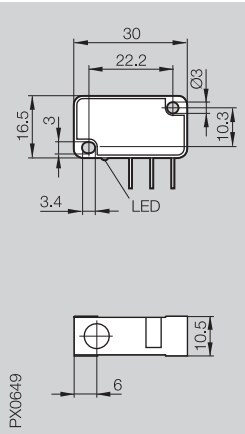
16.5×30×10.5 mm Minisensor  
flush  
**2 mm**  
0...1.6 mm

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

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

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

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



BES 517-398-N1-C  
BES 517-351-N1-C

BES 517-398-N2-C  
BES 517-351-N2-C

BES 517-351-SA2-C

BES 517-398-N0-C-03  
BES 517-351-N0-C-03

BES 517-398-N0-C-S49-00,2  
BES 517-351-N0-C-S49-00,32

BES 517-399-N1-C  
BES 517-352-N1-C

BES 517-399-N2-C  
BES 517-352-N2-C

BES 517-399-N0-C-03  
BES 517-352-N0-C-03

BES 517-399-N0-C-S49-00,2

10...30 V DC

≤ 2 V

75 V DC

200 mA

≤ 10 mA

yes

yes

≤ 5 %

-25...+70 °C

2500 Hz

DC 13

yes

10...30 V DC

≤ 2 V

75 V DC

200 mA

≤ 10 mA

yes

yes

≤ 5 %

-25...+70 °C

2500 Hz

DC 13

yes

10...30 V DC

≤ 2 V

75 V DC

200 mA

≤ 10 mA

yes

yes

≤ 5 %

-25...+70 °C

2500 Hz

DC 13

yes

10...30 V DC

≤ 2 V

75 V DC

200 mA

≤ 10 mA

yes

yes

≤ 5 %

-25...+70 °C

2500 Hz

DC 13

yes

10...30 V DC

≤ 2 V

75 V DC

200 mA

≤ 10 mA

yes

yes

≤ 5 %

-25...+70 °C

2500 Hz

DC 13

yes

Housing IP 65/Connector IP 00

Housing IP 65/Connector IP 00

Housing IP 65/Connector IP 00

IP 65

IP 65

PBT

PBT

Flat connector DIN 46244

PBT

PBT

Flat connector DIN 46244

PBT

PBT

Flat connector DIN 46244

PBT

PBT

3 m PVC cable

3×0.14 mm<sup>2</sup>

PBT

PBT

0.2 m/0.32 m PUR cable with connector

BKS\_ 48

Special pin configuration



5

Connectors ...  
page 5.2 ...