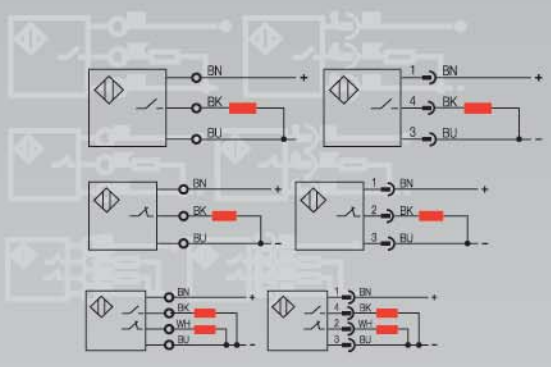
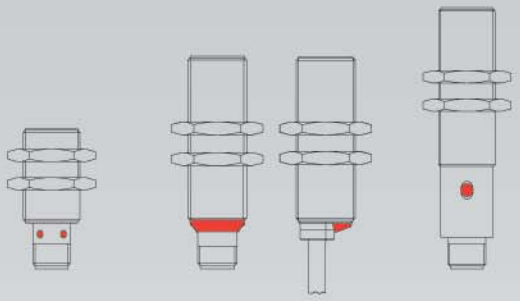
Inductive – DC 3-/4-wire





Short housing

Mid-length with maximum thread length

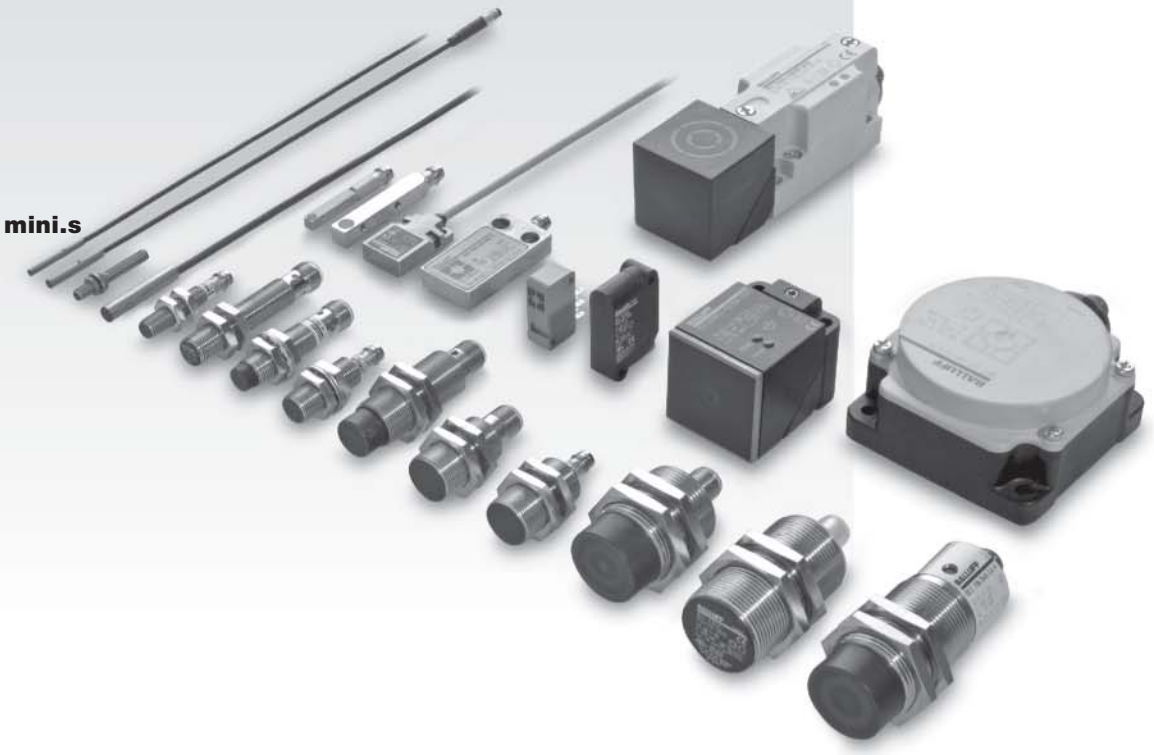
Long housing

Our standard line in 3- and 4-wire DC versions

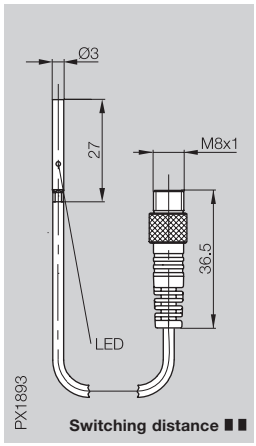
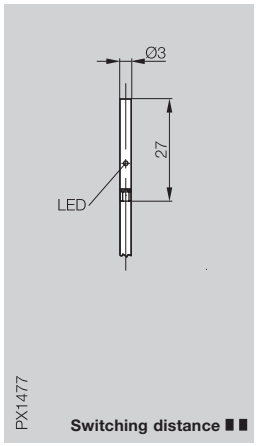
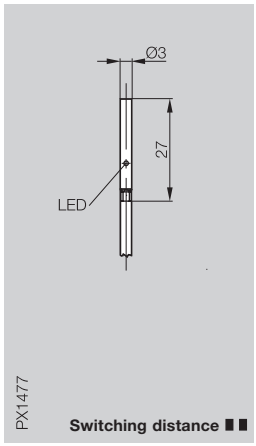
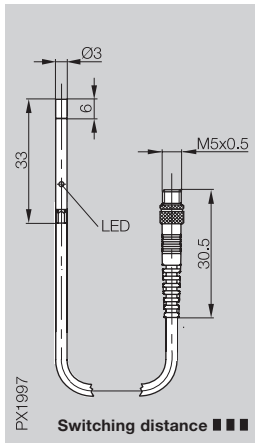
In this comprehensive line Balluff offers proximity switches from Ø 3 mm to 80×80 mm for virtually any application in the field of automation.

These highest quality sensors are designed and manufactured according to worldwide standards and the latest technology. Our 100 % final inspection of all products is your assurance that only carefully tested sensors leave our plants.

1.1.2 Ø 3 mm
1.1.3 Ø 3 mm, Ø 4 mm
1.1.6 M5
1.1.9 Ø 6.5 mm
1.1.13 Ø 8 mm
1.1.14 M8
1.1.24 M12
1.1.33 M18
1.1.40 M30
1.1.47 Block style housings



mini.s

Housing size			Ø **3 mm**	Ø **3 mm**	Ø **3 mm**	Ø **3 mm**
Mounting (see notes starting p. **1.0.**11)			flush	flush	flush	non-flush
Rated operating distance s_n			**1 mm**	**1 mm**	**1 mm**	**3 mm**
Assured operating distance s_a			0...0.8 mm	0...0.8 mm	0...0.8 mm	0...2.3 mm
						
PNP	NO	①	BES 516-3044-G-E4-C-S49-00,3	BES 516-3044-G-E4-C-PU-02		BES 516-3048-G-E4-C-S26-00,3
	NC	②		BES 516-3045-G-E4-C-PU-02		
NPN	NO	④			BES 516-3046-G-E4-L-PU-02	
Supply voltage U_B			10...30 V DC	10...30 V DC	10...30 V DC	21.6...26.4 V DC
Voltage drop U_d at I_e			≤ 2.5 V	≤ 2.5 V	≤ 1.5 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			100 mA	100 mA	100 mA	50 mA
No-load supply current I_0 max.			≤ 12 mA	≤ 12 mA	≤ 12 mA	≤ 10 mA
Polarity reversal protected			yes	yes	yes	yes
Short circuit protected			yes	yes	no	yes
Repeat accuracy R			≤ 5 %	≤ 5 %	≤ 5 %	≤ 15 %
Ambient temperature range T_a			–25...+70 °C	–25...+70 °C	0...+70 °C	0...+70 °C
Switching frequency f			2000 Hz	2000 Hz	5000 Hz	3000 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			Stainless steel	Stainless steel	Stainless steel	Stainless steel
Material of sensing face			POM	POM	POM	POM
Connection			0.3 m PUR cable with connector	2 m cable PUR	2 m cable PUR	0.3 m PUR cable with connector
No. of wires × cross-section				3×0.09 mm²	3×0.09 mm²	
Approval			cULus	cULus		
Recommended connector			BKS-_ 48			BKS-B 25

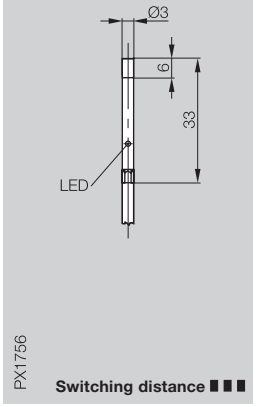
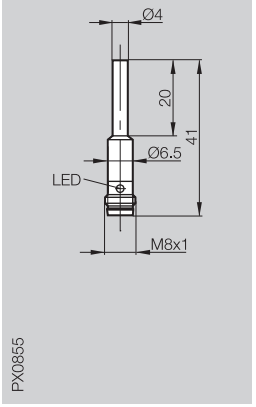
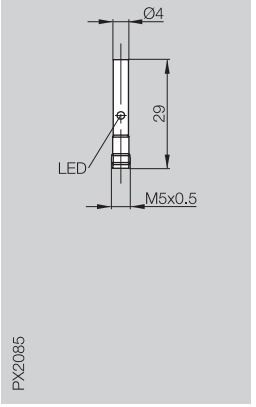
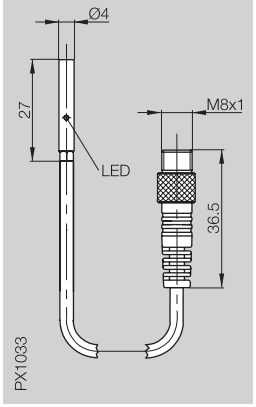
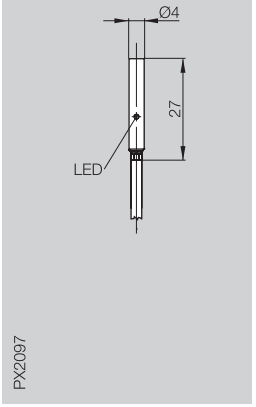
① Wiring diagrams see page **1.0.**6
Switching distance ■■ see page **1.0.**10

Other cable lengths on request.



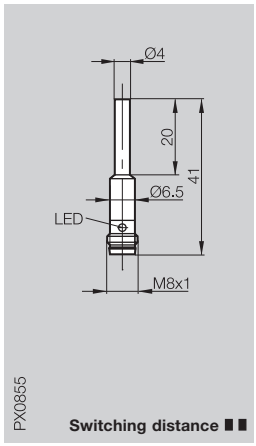
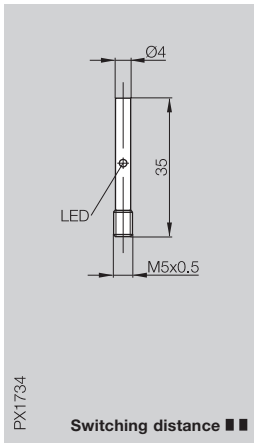
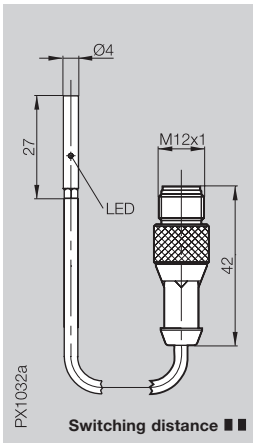
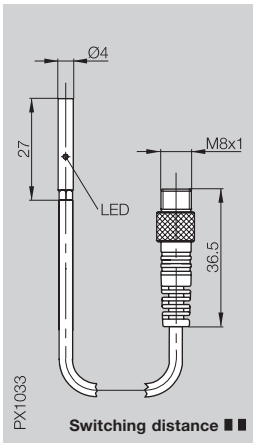


mini.s
The new sensor dimension

	Ø 3 mm	**Ø 4 mm**	**Ø 4 mm**	**Ø 4 mm**	**Ø 4 mm**
	non-flush	flush	flush	flush	flush
	3 mm	**0.8 mm**	**0.8 mm**	**0.8 mm**	**0.8 mm**
	0...2.3 mm	0...0.6 mm	0...0.6 mm	0...0.6 mm	0...0.6 mm
					
	BES 516-3048-G-E4-C-PU-02	BES 516-3007-E5-C-S49 BES 516-3017-E5-C-S49	BES G04EC-PSC08B-S26G BES G04EC-POC08B-S26G	BES 516-3007-E4-C-S49-00,3 BES 516-3017-E4-C-S49-00,3	BES 516-3007-E4-C-PU-02
		BES 516-3008-E5-C-S49	BES G04EC-NSC08B-S26G	BES 516-3008-E4-C-S49-00,2	
	21.6...26.4 V DC	10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC
	≤ 2.5 V	≤ 3 V	≤ 3 V	≤ 3 V	≤ 3 V
	75 V DC	75 V DC	75 V DC	75 V DC	75 V DC
	50 mA	100 mA	100 mA	100 mA	100 mA
	≤ 10 mA	≤ 12 mA	≤ 12 mA	≤ 12 mA	≤ 12 mA
	yes	yes	yes	yes	yes
	yes	yes	yes	yes	yes
	≤ 15 %	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %
	0...+70 °C	–25...+70 °C	–25...+70 °C	–25...+70 °C	–25...+70 °C
	3000 Hz	3000 Hz	3000 Hz	3000 Hz	3000 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
	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
	POM	POM	POM	POM	POM
	2 m cable PUR	Connector	Connector	0.2 m/0.3 m PUR cable with connector	2 m cable PUR
	3×0.09 mm²				3×0.14 mm²
		cULus	cULus	cULus	cULus
		BKS-_ 48/BKS-_ 49	BKS-B 25/BKS-B 26	BKS-_ 48	



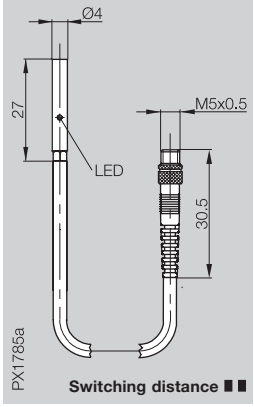
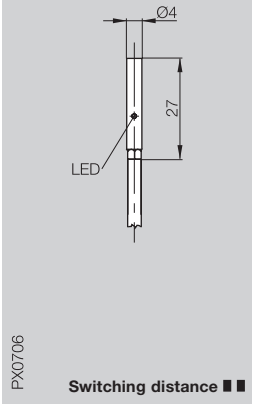
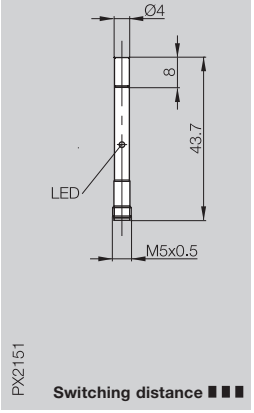
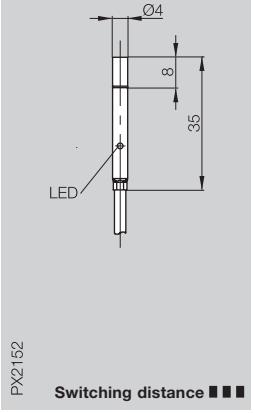
1.1
5
Connectors, Holders ... Page 5.2 ...

Housing size			Ø **4 mm**	Ø **4 mm**	Ø **4 mm**	Ø **4 mm**
Mounting (see notes starting p. **1.0.**11)			flush	flush	flush	flush
Rated operating distance s_n			**1.5 mm**	**1.5 mm**	**1.5 mm**	**1.5 mm**
Assured operating distance s_a			0...1.2 mm	0...1.2 mm	0...1.2 mm	0...1.2 mm
						
PNP	NO	①	BES 516-3007-G-E5-C-S49	BES G04ED-PSC15B-S26G	BES 516-3007-G-E4-C-S4-00,2	BES 516-3007-G-E4-C-S49-00,3
	NC	②	BES 516-3017-G-E5-C-S49		BES 516-3017-G-E4-C-S4-00,2	BES 516-3017-G-E4-C-S49-00,3
NPN	NO	④	BES 516-3008-G-E5-C-S49			BES 516-3008-G-E4-C-S49-00,2
	NC	⑤	BES 516-3018-G-E5-C-S49			
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	≤ 10 mA	≤ 12 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			3000 Hz	3000 Hz	3000 Hz	3000 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			Stainless steel	Stainless steel	Stainless steel	Stainless steel
Material of sensing face			POM	POM	POM	POM
Connection			Connector	Connector	0.2 m PUR cable with connector	0.2 m/0.3 m PUR cable with connector
No. of wires × cross-section						
Approval			cULus	cULus	cULus	cULus
Recommended connector			BKS-_ 48/BKS-_ 49	BKS-B 25/BKS-B 26	BKS-_ 19	BKS-_ 48

① Wiring diagrams see page **1.0.**6
Switching distance ■■ see page **1.0.**10

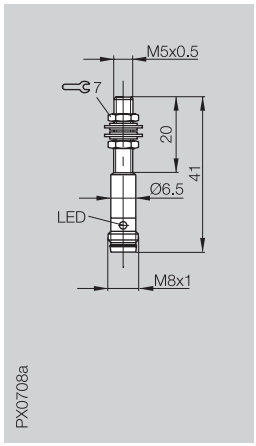
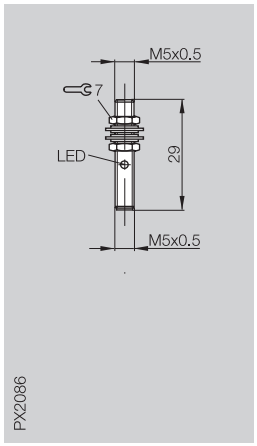
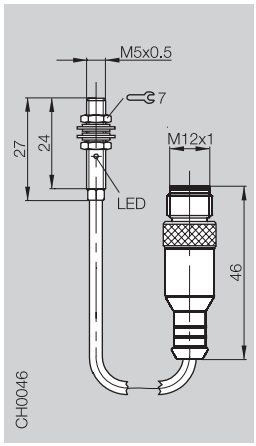
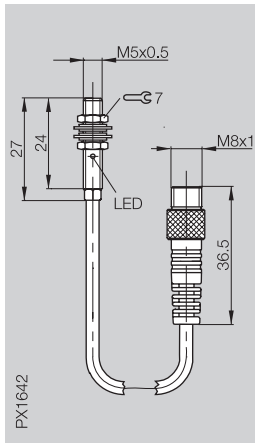
Other cable lengths on request.



	∅ 4 mm	**∅ 4 mm**	**∅ 4 mm**	**∅ 4 mm**	
	flush	flush	non-flush	non-flush	
	1.5 mm	**1.5 mm**	**5 mm**	**5 mm**	
	0...1.2 mm	0...1.2 mm	0...4.1 mm	0...4.1 mm	
					
	BES 516-3007-G-E4-C-S26-00,2	BES 516-3007-G-E4-C-PU-02 BES 516-3017-G-E4-C-PU-02	BES G04ED-PSC50F-S26G	BES G04ED-PSC50F-EP02	
		BES 516-3008-G-E4-C-PU-02 BES 516-3018-G-E4-C-PU-02			
	10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC	
	≤ 3 V	≤ 3 V	≤ 2.5 V	≤ 2.5 V	
	75 V DC	75 V DC	75 V DC	75 V DC	
	100 mA	100 mA	100 mA	100 mA	
	≤ 12 mA	≤ 12 mA	≤ 10 mA	≤ 10 mA	
	yes	yes	yes	yes	
	yes	yes	yes	yes	
	≤ 5 %	≤ 5 %	≤ 10 %	≤ 10 %	
	–25...+70 °C	–25...+70 °C	–25...+70 °C	–25...+70 °C	
	3000 Hz	3000 Hz	3000 Hz	3000 Hz	
	DC 13	DC 13	DC 13	DC 13	
	yes	yes	yes	yes	
	IP 67	IP 67	IP 67	IP 67	
	Stainless steel	Stainless steel	Stainless steel	Stainless steel	
	POM	POM	POM	POM	
	0.2 m PUR cable with connector	2 m cable PUR	Connector	2 m cable PUR	
		3×0.14 mm²		3×0.14 mm²	
	cULus	cULus	cULus	cULus	
	BKS-B 25		BKS-B 25/BKS-B 26		



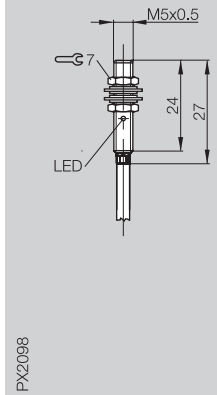
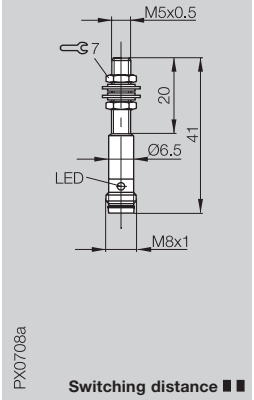
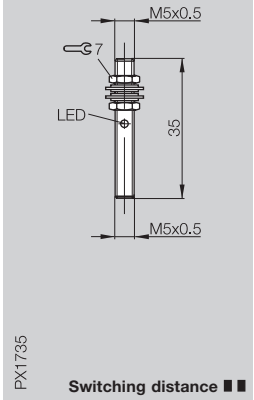
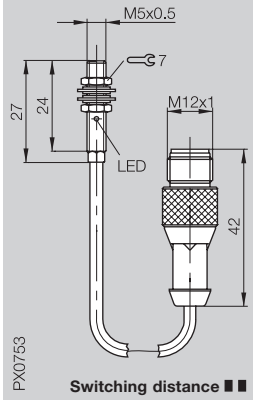
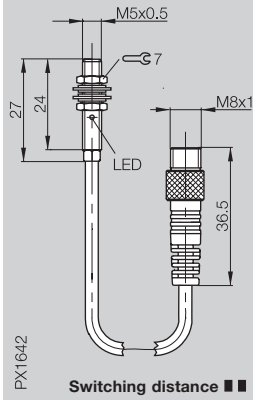
1.1
5
Connectors, Holders ...
Page 5.2 ...

Housing size			**M5×0.5**	**M5×0.5**	**M5×0.5**	**M5×0.5**
Mounting (see notes starting p. **1.0.**11)			flush	flush	flush	flush
Rated operating distance s_n			**0.8 mm**	**0.8 mm**	**0.8 mm**	**0.8 mm**
Assured operating distance s_a			0...0.6 mm	0...0.6 mm	0...0.6 mm	0...0.6 mm
						
PNP	NO	①	BES 516-3005-E5-C-S49	BES M05EC-PSC08B-S26G	BES 516-3005-E4-C-S4-00,3	BES 516-3005-E4-C-S49-00,3
	NC	②	BES 516-3022-E5-C-S49	BES M05EC-POC08B-S26G		
NPN	NO	④	BES 516-3006-E5-C-S49	BES M05EC-NSC08B-S26G		
	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			≤ 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	≤ 10 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			3000 Hz	3000 Hz	3000 Hz	3000 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			Stainless steel	Stainless steel	Stainless steel	Stainless steel
Material of sensing face			POM	POM	POM	POM
Connection			Connector	Connector	0.3 m PUR cable with connector	0.3 m PUR cable with connector
No. of wires × cross-section						
Approval			cULus	cULus	cULus	cULus
Recommended connector			BKS-_ 48/BKS-_ 49	BKS-B 25/BKS-B 26	BKS-_ 19	BKS-_ 48

① Wiring diagrams see page **1.0.**6
Switching distance ■■ see page **1.0.**10

Other cable lengths on request.

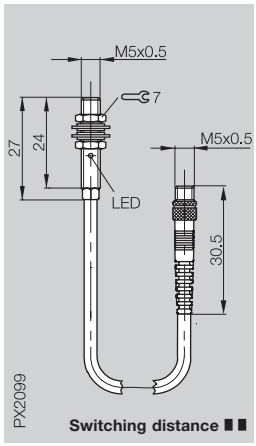
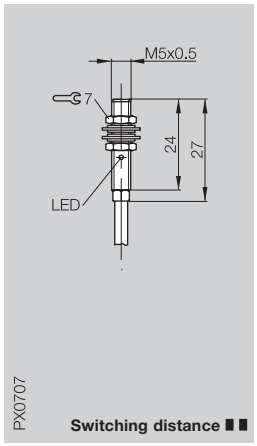
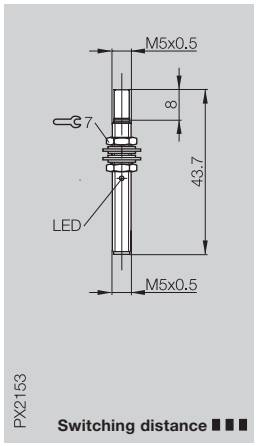
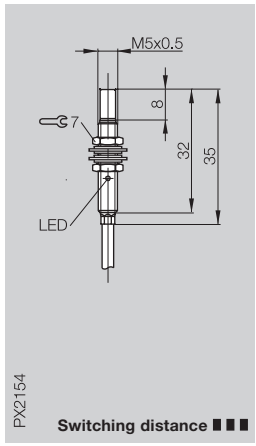


	M5×0.5	**M5×0.5**	**M5×0.5**	**M5×0.5**	**M5×0.5**
	flush	flush	flush	flush	flush
	0.8 mm	**1.5 mm**	**1.5 mm**	**1.5 mm**	**1.5 mm**
	0...0.6 mm	0...1.2 mm	0...1.2 mm	0...1.2 mm	0...1.2 mm
					
	BES 516-3005-E4-C-PU-02	BES 516-3005-G-E5-C-S49 BES 516-3022-G-E5-C-S49	BES M05ED-PSC15B-S26G	BES 516-3005-G-E4-C-S4-00,2	BES 516-3005-G-E4-C-S49-00,3 BES 516-3022-G-E4-C-S49-00,3
		BES 516-3006-G-E5-C-S49 BES 516-3023-G-E5-C-S49			
	10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC
	≤ 3 V	≤ 3 V	≤ 3 V	≤ 3 V	≤ 3 V
	75 V DC	75 V DC	75 V DC	75 V DC	75 V DC
	100 mA	100 mA	100 mA	100 mA	100 mA
	≤ 12 mA	≤ 12 mA	≤ 10 mA	≤ 12 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	3000 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
	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
	POM	POM	POM	POM	POM
	2 m cable PUR	Connector	Connector	0.2 m PUR cable with connector	0.3 m PUR cable with connector
	3×0.14 mm²				
	cULus	cULus	cULus	cULus	cULus
		BKS-_ 48/BKS-_ 49	BKS-B 25/BKS-B 26	BKS-_ 19	BKS-_ 48



1.1

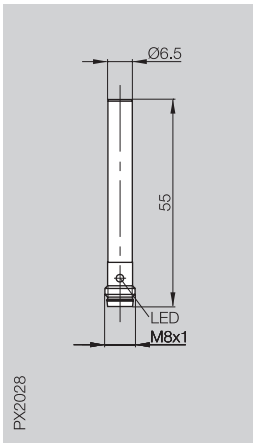
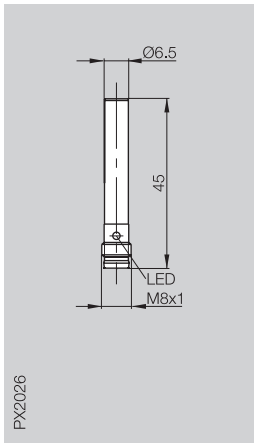
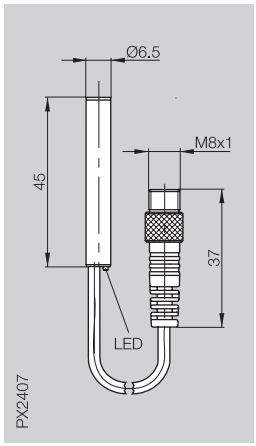
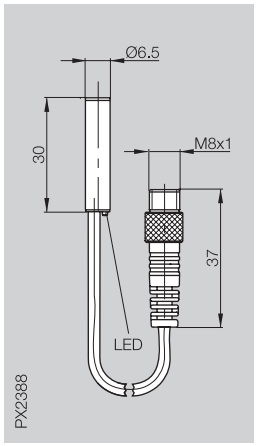
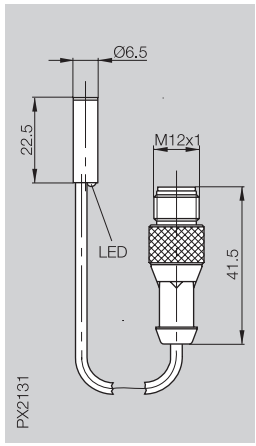
5
Connectors, Holders ...
Page 5.2 ...

Housing size			**M5×0.5**	**M5×0.5**	**M5×0.5**	**M5×0.5**
Mounting (see notes starting p. **1.0.**11)			flush	flush	non-flush	non-flush
Rated operating distance s_n			**1.5 mm**	**1.5 mm**	**5 mm**	**5 mm**
Assured operating distance s_a			0...1.2 mm	0...1.2 mm	0...4.1 mm	0...4.1 mm
						
PNP	NO	①	BES 516-3005-G-E4-C-S26-00,3	BES 516-3005-G-E4-C-PU-02	BES M05ED-PSC50F-S26G	BES M05ED-PSC50F-EP02
	NC	②		BES 516-3022-G-E4-C-PU-02		
NPN	NO	④		BES 516-3006-G-E4-C-PU-02		
	NC	⑤		BES 516-3023-G-E4-C-PU-02		
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	≤ 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			100 mA	100 mA	100 mA	100 mA
No-load supply current I_0 max.			≤ 12 mA	≤ 12 mA	≤ 10 mA	≤ 10 mA
Polarity reversal protected			yes	yes	yes	yes
Short circuit protected			yes	yes	yes	yes
Repeat accuracy R			≤ 5 %	≤ 5 %	≤ 10 %	≤ 10 %
Ambient temperature range T_a			–25...+70 °C	–25...+70 °C	–25...+70 °C	–25...+70 °C
Switching frequency f			3000 Hz	3000 Hz	3000 Hz	3000 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
Insulation class						
Housing material			Stainless steel	Stainless steel	Stainless steel	Stainless steel
Material of sensing face			POM	POM	POM	POM
Connection			0.3 m PUR cable with connector	2 m cable PUR	Connector	2 m cable PUR
No. of wires × cross-section				3×0.14 mm²		3×0.14 mm²
Approval			cULus	cULus	cULus	cULus
Recommended connector			BKS-B 25		BKS-B 25/BKS-B 26	

① Wiring diagrams see page **1.0.**6
Switching distance ■■ see page **1.0.**10

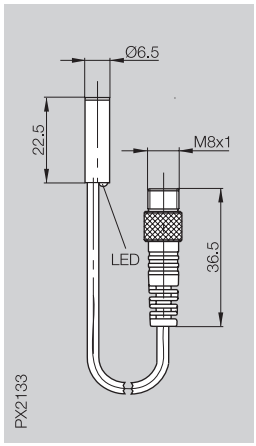
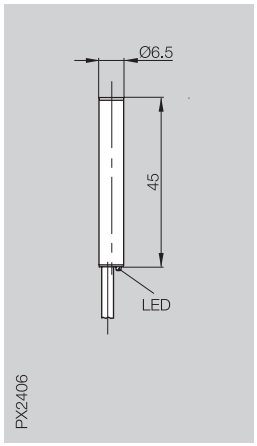
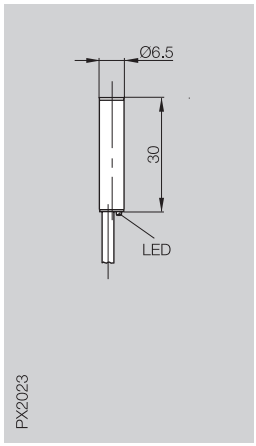
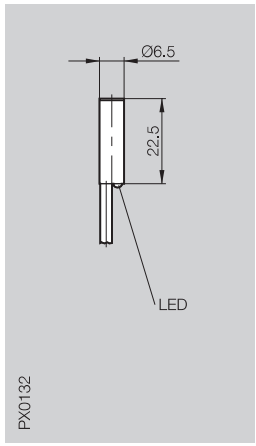
Other cable lengths on request.



	∅ 6.5 mm	**∅ 6.5 mm**	**∅ 6.5 mm**	**∅ 6.5 mm**	**∅ 6.5 mm**
	flush	flush	flush	flush	flush
	1.5 mm	**1.5 mm**	**1.5 mm**	**1.5 mm**	**1.5 mm**
	0...1.2 mm	0...1.2 mm	0...1.2 mm	0...1.2 mm	0...1.2 mm
					
	BES 516-371-S49-C	BES 516-371-E5-C-S49	BES 516-371-E0-C-S49-00,5	BES 516-371-E4-C-S49-00,3	BES 516-371-SA10-S4-00,3
	10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC
	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V
	75 V DC	75 V DC	250 V AC	250 V AC	75 V DC
	200 mA	200 mA	200 mA	200 mA	200 mA
	≤ 9 mA	≤ 9 mA	≤ 9 mA	≤ 9 mA	≤ 10 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	4000 Hz
	DC 13	DC 13	DC 13	DC 13	DC 13
	yes	yes	yes	yes	yes
	IP 67	IP 67	IP 68 per BWN Pr. 20	IP 68 per BWN Pr. 20	IP 67
			⧈	⧈	
	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
	PA 12	PA 12	PA 12	PA 12	PBT
	Connector	Connector	0.5 m PUR cable with connector	0.3 m PUR cable with connector	0.3 m PUR cable with connector
	cULus	cULus	cULus	cULus	
	BKS-_ 48/BKS-_ 49	BKS-_ 48/BKS-_ 49	BKS-_ 48	BKS-_ 48	BKS-_ 19



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Connectors, Holders ... Page 5.2 ...

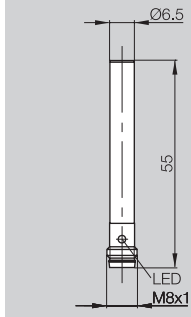
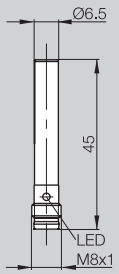
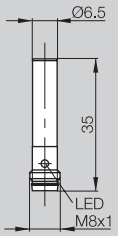
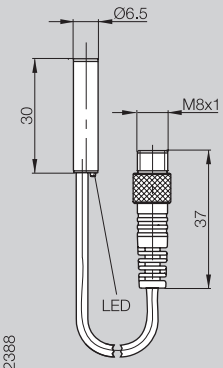
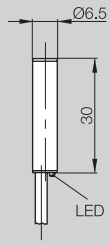
Housing size			Ø **6.5 mm**	Ø **6.5 mm**	Ø **6.5 mm**	Ø **6.5 mm**
Mounting (see notes starting p. **1.0.**11)			flush	flush	flush	flush
Rated operating distance s_n			**1.5 mm**	**1.5 mm**	**1.5 mm**	**1.5 mm**
Assured operating distance s_a			0...1.2 mm	0...1.2 mm	0...1.2 mm	0...1.2 mm
						
PNP	NO	①	BES 516-371-SA10-S49-00,3	BES 516-371-E0-C-02	BES 516-371-E4-C-02	BES 516-371-SA10-02
	NC	②				
NPN	NO	④			BES 516-372-E4-C-02	BES 516-372-SA1-02
	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	250 V AC	250 V AC	75 V DC
Rated operational current I_e			200 mA	200 mA	200 mA	200 mA
No-load supply current I_0 max.			≤ 10 mA	≤ 9 mA	≤ 9 mA	≤ 25 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			4000 Hz	3000 Hz	3000 Hz	1500 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 68 per BWN Pr. 20	IP 68 per BWN Pr. 20	IP 67
Insulation class				⧈	⧈	
Housing material			CuZn coated	Stainless steel	Stainless steel	CuZn coated
Material of sensing face			PBT	PA 12	PA 12	PBT
Connection			0.3 m PUR cable with connector	2 m PVC cable	2 m PVC cable	2 m PVC cable
No. of wires × cross-section				3×0.14 mm²	3×0.14 mm²	3×0.14 mm²
Approval				cULus	cULus	
Recommended connector			BKS-_ 48			

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.



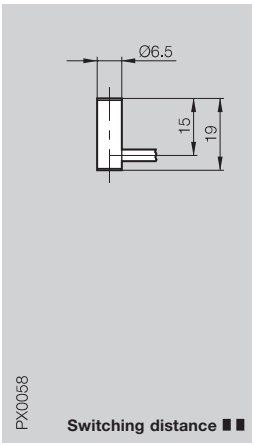
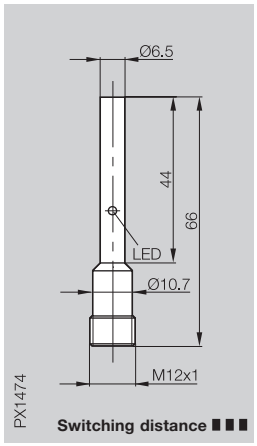
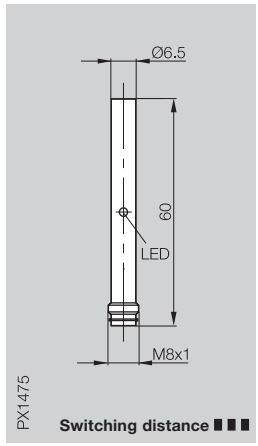
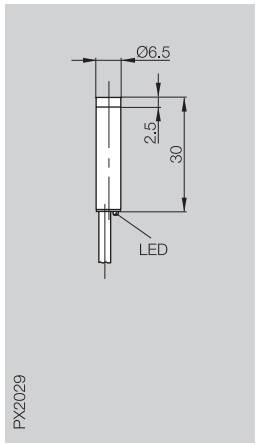
	∅ 6.5 mm	**∅ 6.5 mm**	**∅ 6.5 mm**	**∅ 6.5 mm**	**∅ 6.5 mm**
	flush	flush	flush	flush	flush
	2 mm	**2 mm**	**2 mm**	**2 mm**	**2 mm**
	0...1.6 mm	0...1.6 mm	0...1.6 mm	0...1.6 mm	0...1.6 mm
	 PX2028 **Switching distance ▮▮**	 PX2026 **Switching distance ▮▮**	 PX2419 **Switching distance ▮▮**	 PX2388 **Switching distance ▮▮**	 PX2023 **Switching distance ▮▮**
	BES 516-371-G-S49-C	BES 516-371-G-E5-C-S49 BES 516-3021-G-E5-C-S49	BES 516-371-SA15-C-S49	BES 516-371-G-E4-C-S49-00,3	BES 516-371-G-E4-C-02 BES 516-3021-G-E4-C-02
		BES 516-372-G-E5-C-S49 BES 516-3025-G-E5-C-S49			BES 516-372-G-E4-C-02
	10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC
	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V
	75 V DC	75 V DC	75 V DC	250 V AC	250 V AC
	200 mA	200 mA	200 mA	200 mA	200 mA
	≤ 9 mA	≤ 18 mA	≤ 9 mA	≤ 9 mA	≤ 18 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
	1500 Hz	1500 Hz	1500 Hz	1500 Hz	1500 Hz
	DC 13	DC 13	DC 13	DC 13	DC 13
	yes	yes	yes	yes	yes
	IP 67	IP 67	IP 67	IP 68 per BWN Pr. 20 ⧈	IP 68 per BWN Pr. 20 ⧈
	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
	PA 12	PA 12	PA 12	PA 12	PA 12
	Connector	Connector	Connector	0.3 m PUR cable with connector	2 m PVC cable
					3×0.14 mm²
	cULus	cULus	cULus	cULus	cULus
	BKS-_ 48/BKS-_ 49	BKS-_ 48/BKS-_ 49	BKS-_ 48/BKS-_ 49	BKS-_ 48	



1.1
5
Connectors, Holders ...
Page 5.2 ...

DC 3-wire
Ø 6.5 mm
s_n 2 mm, 2.5 mm, 3 mm

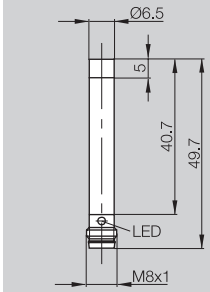
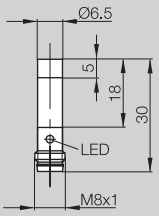
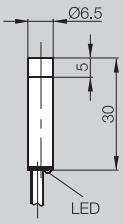
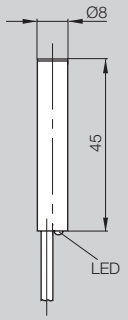
Ø6.5 mm

Housing size			**Ø 6.5 mm**	**Ø 6.5 mm**	**Ø 6.5 mm**	**Ø 6.5 mm**
Mounting (see notes starting p. **1.0.**11)			flush	quasi flush	quasi flush	non-flush
Rated operating distance s_n			**2 mm**	**3 mm**	**3 mm**	**2.5 mm**
Assured operating distance s_a			0...1.6 mm	0...2.4 mm	0...2.4 mm	0...2 mm
						
PNP	NO	①	BES 516-371-SA13-PU-02	BES G06MH1-PSC30B-S04G	BES G06MI-PSC30B-S49G	BES 516-349-E4-C-02
	NC	②			BES G06MI-POC30B-S49G	
NPN	NO	④		BES G06MH1-NSC30B-S04G	BES G06MI-NSC30B-S49G	BES 516-350-E4-C-02
	NC	⑤			BES G06MI-NOC30B-S49G	
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	250 V AC
Rated operational current I_e			200 mA	200 mA	200 mA	200 mA
No-load supply current I_0 max.			≤ 10 mA	≤ 12 mA	≤ 12 mA	≤ 18 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			2000 Hz	1000 Hz	1000 Hz	2000 Hz
Utilization category			DC 13	DC 13	DC 13	DC 13
Function indicator			no	yes	yes	yes
Degree of protection per IEC 60529			IP 65	IP 67	IP 67	IP 68 per BWN Pr. 20
Insulation class						⧈
Housing material			Stainless steel	CuZn coated	CuZn coated	Stainless steel
Material of sensing face			PBT	PBT	PBT	PA 12
Connection			2 m cable PUR	Connector	Connector	2 m PVC cable
No. of wires × cross-section			3×0.14 mm²			3×0.14 mm²
Approval						cULus
Recommended connector				BKS-_ 19/BKS-_ 20	BKS-_ 48/BKS-_ 49	

① Wiring diagrams see page **1.0.**6
Switching distance ■■ see page **1.0.**10

Other cable lengths on request.



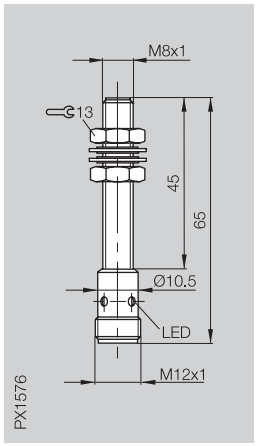
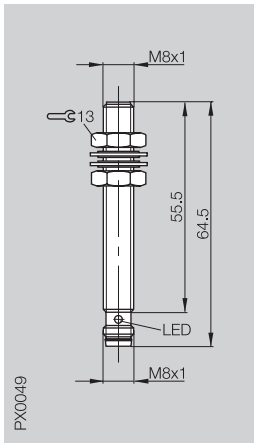
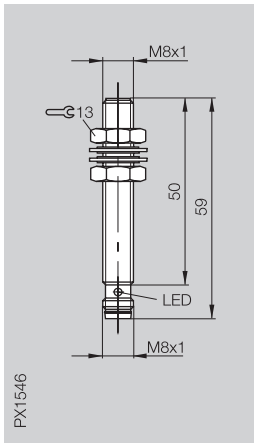
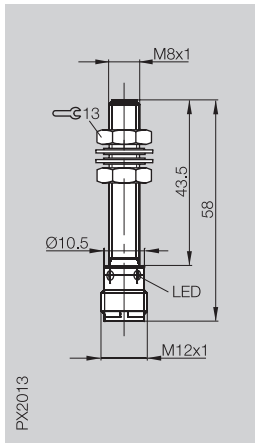
Ø 6.5 mm	**Ø 6.5 mm**	**Ø 6.5 mm**		**Ø 8 mm**
non-flush	non-flush	non-flush		flush
4 mm	**4 mm**	**4 mm**		**1.5 mm**
0...3.2 mm	0...3.2 mm	0...3.2 mm		0...1.2 mm
 PX1613 **Switching distance ■■**	 PX2416 **Switching distance ■■**	 PX2415 **Switching distance ■■**		 PX2162
BES G06EF-PSC40F-S49G	BES G06EB-PSC40F-S49G BES G06EB-POC40F-S49G	BES G06ED-PSC40F-BV02 BES G06ED-POC40F-BV02		BES G08EG-PSC15B-BV02
	BES G06EB-NSC40F-S49G BES G06EB-NOC40F-S49G	BES G06ED-NSC40F-BV02 BES G06ED-NOC40F-BV02		
10...30 V DC	10...30 V DC	10...30 V DC		10...30 V DC
≤ 2.5 V	≤ 2.5 V	≤ 2.5 V		≤ 2.5 V
75 V DC	75 V DC	250 V AC		250 V AC
200 mA	200 mA	200 mA		200 mA
≤ 12 mA	≤ 18 mA	≤ 18 mA		≤ 9 mA
yes	yes	yes		yes
yes	yes	yes		yes
≤ 5 %	≤ 5 %	≤ 5 %		≤ 5 %
–25...+70 °C	–25...+70 °C	–25...+70 °C		–25...+70 °C
5000 Hz	1500 Hz	1500 Hz		3000 Hz
DC 13	DC 13	DC 13		DC 13
yes	yes	yes		yes
IP 67	IP 67	IP 68 per BWN Pr. 20		IP 68 per BWN Pr. 20
		⧈		⧈
Stainless steel	Stainless steel	Stainless steel		Stainless steel
PBT	PA 12	PA 12		PBT
Connector	Connector	2 m PVC cable		2 m PVC cable
		3×0.14 mm²		3×0.14 mm²
cULus	cULus	cULus		cULus
BKS-_ 48/BKS-_ 49	BKS-_ 48/BKS-_ 49			





1.1

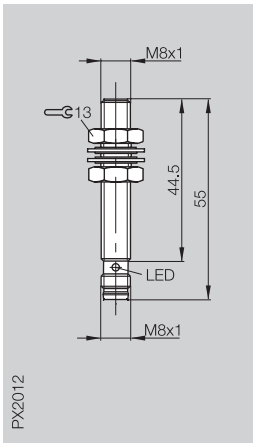
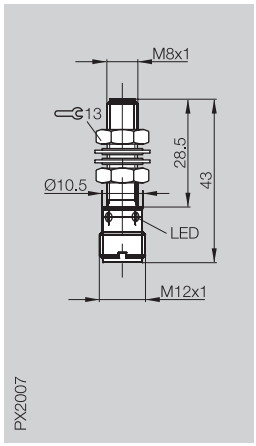
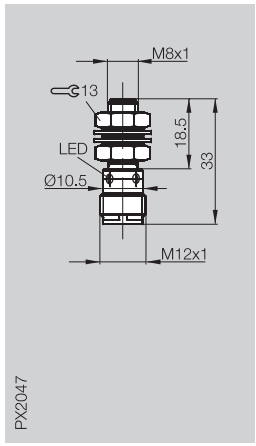
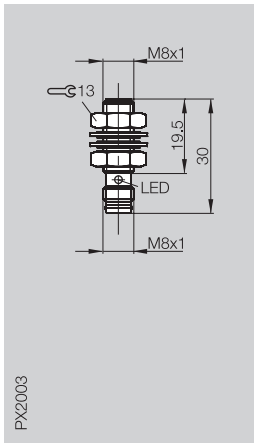
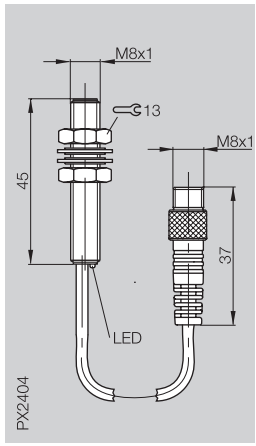
5
Connectors, Holders ...
Page 5.2 ...

Housing size	**M8×1**	**M8×1**	**M8×1**	**M8×1**	
Mounting (see notes starting p. **1.0.**11)	flush	flush	flush	flush	
Rated operating distance s_n	**1.5 mm**	**1.5 mm**	**1.5 mm**	**1.5 mm**	
Assured operating distance s_a	0...1.2 mm	0...1.2 mm	0...1.2 mm	0...1.2 mm	
					
PNP NO ①	BES M08MH1-PSC15B-S04G	BES 516-324-SA33	BES M08MI-PSC15B-S49G	BES M08EH-PSC15B-S04G	
PNP NC ②	BES M08MH1-POC15B-S04G			BES M08EH-POC15B-S04G	
NPN NO ④	BES M08MH1-NSC15B-S04G		BES M08MI-NSC15B-S49G	BES M08EH-NSC15B-S04G	
NPN NC ⑤	BES M08MH1-NOC15B-S04G			BES M08EH-NOC15B-S04G	
Supply voltage U_B	12...30 V DC	10...30 V DC	12...30 V DC	10...30 V DC	
Voltage drop U_d at I_e	≤ 3 V	≤ 2.5 V	≤ 3 V	≤ 2.5 V	
Rated insulation voltage U_i	75 V DC	75 V DC	75 V DC	250 V AC	
Rated operational current I_e	100 mA	200 mA	100 mA	200 mA	
No-load supply current I_0 max.	PNP ≤ 12 mA, NPN ≤ 18 mA	≤ 25 mA	PNP ≤ 12 mA, NPN ≤ 18 mA	PNP ≤ 9 mA, NPN ≤ 18 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	1000 Hz	1000 Hz	1000 Hz	3000 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 68 per BWN Pr. 20	
Insulation class				⧈	
Housing material	CuZn coated	Stainless steel	CuZn coated	Stainless steel	
Material of sensing face	PA 12	PBT	PA 12	PBT	
Connection	Connector	Connector	Connector	Connector	
Approval	cULus		cULus	cULus	
Recommended connector	BKS-_ 19/BKS-_ 20	BKS-_ 48/BKS-_ 49	BKS-_ 48/BKS-_ 49	BKS-_ 19/BKS-_ 20	

① Wiring diagrams see page **1.0.**6

Other cable lengths on request.

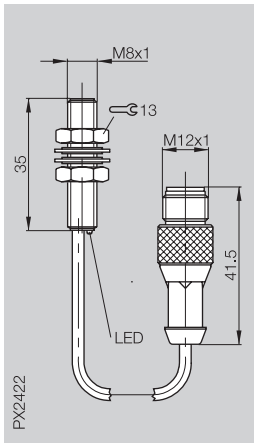


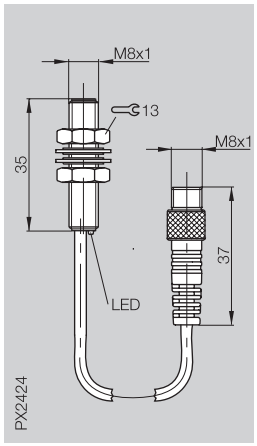
	M8×1	**M8×1**	**M8×1**	**M8×1**	**M8×1**
	flush	flush	flush	flush	flush
	1.5 mm	**1.5 mm**	**1.5 mm**	**1.5 mm**	**1.5 mm**
	0...1.2 mm	0...1.2 mm	0...1.2 mm	0...1.2 mm	0...1.2 mm
					
	BES 516-324-S49-C BES 516-377-S49-C	BES M08EE-PSC15B-S04G BES M08EE-POC15B-S04G	BES M08EC-PSC15B-S04G	BES M08EC-PSC15B-S49G BES M08EC-POC15B-S49G	BES 516-324-E0-C-S49-00,2 BES 516-377-E0-C-S49-00,2
	BES 516-343-S49-C BES 516-378-S49-C	BES M08EE-NSC15B-S04G		BES M08EC-NSC15B-S49G	
	10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC
	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V
	250 V AC	250 V AC	250 V AC	250 V AC	250 V AC
	200 mA	200 mA	200 mA	200 mA	200 mA
	PNP ≤ 9 mA, NPN ≤ 18 mA	PNP ≤ 9 mA, NPN ≤ 18 mA	≤ 9 mA	PNP ≤ 9 mA, NPN ≤ 18 mA	≤ 9 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	3000 Hz
	DC 13	DC 13	DC 13	DC 13	DC 13
	yes	yes	yes	yes	yes
	IP 68 per BWN Pr. 20	IP 68 per BWN Pr. 20	IP 68 per BWN Pr. 20	IP 68 per BWN Pr. 20	IP 68 per BWN Pr. 20
	⧈	⧈	⧈	⧈	⧈
	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
	PA 12	PBT	PBT	PBT	PA 12
	Connector	Connector	Connector	Connector	0.2 m PUR cable with connector
	cULus	cULus	cULus	cULus	cULus
	BKS-_ 48/BKS-_ 49	BKS-_ 19/BKS-_ 20	BKS-_ 19/BKS-_ 20	BKS-_ 48/BKS-_ 49	BKS-_ 48

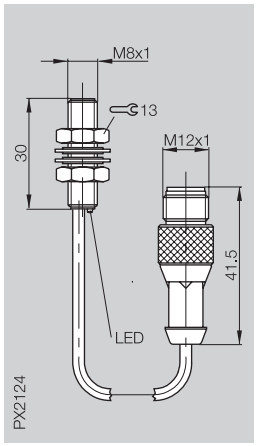


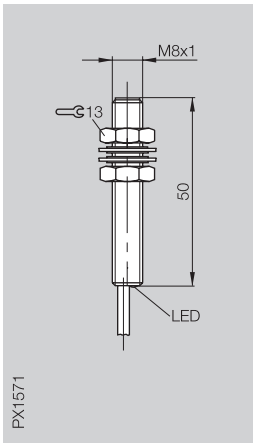
1.1
5
Connectors, Holders ... Page 5.2 ...

Housing size	**M8×1**	**M8×1**	**M8×1**	**M8×1**	
Mounting (see notes starting p. **1.0.**11)	flush	flush	flush	flush	
Rated operating distance s_n	**1.5 mm**	**1.5 mm**	**1.5 mm**	**1.5 mm**	
Assured operating distance s_a	0...1.2 mm	0...1.2 mm	0...1.2 mm	0...1.2 mm	









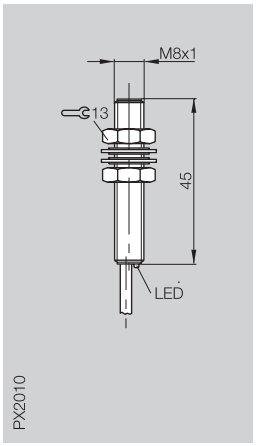
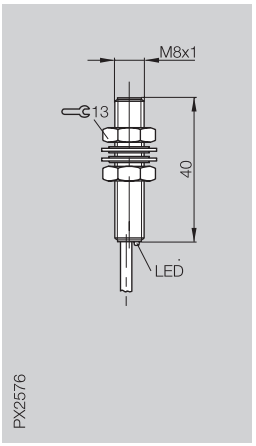
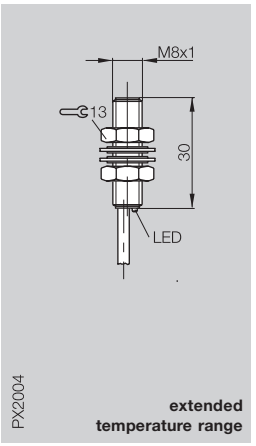
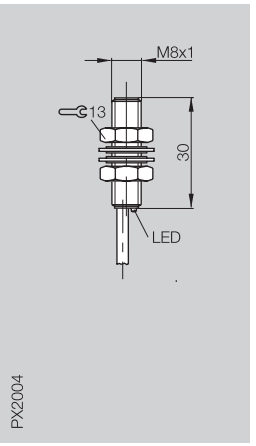
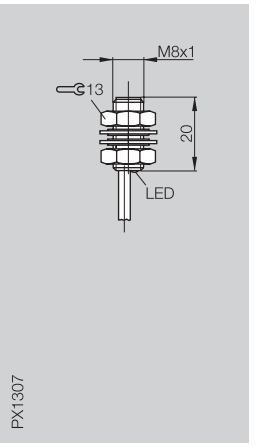
PNP	NO	①	BES 516-324-E3-C-S4-00,3	BES 516-324-E3-C-S49-00,3	BES 516-324-E4-C-S4-00,3	BES M08MI-PSC15B-BV02
	NC	②	BES 516-377-E3-C-S4-PU-00,3			BES M08MI-POC15B-BV02
NPN	NO	④				BES M08MI-NSC15B-BV02
	NC	⑤				

Supply voltage U_B	10...30 V DC	10...30 V DC	10...30 V DC	12...30 V DC
Voltage drop U_d at I_e	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V
Rated insulation voltage U_i	250 V AC	250 V AC	250 V AC	75 V DC
Rated operational current I_e	200 mA	200 mA	200 mA	100 mA
No-load supply current I_0 max.	≤ 9 mA	≤ 9 mA	≤ 9 mA	PNP ≤ 10 mA, NPN ≤ 18 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	3000 Hz	3000 Hz	3000 Hz	1000 Hz
Utilization category	DC 13	DC 13	DC 13	DC 13
Function indicator	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 67
Insulation class	⧈	⧈	⧈	
Housing material	Stainless steel	Stainless steel	Stainless steel	CuZn coated
Material of sensing face	PA 12	PA 12	PA 12	PA 12
Connection	0.3 m PUR cable with connector	0.3 m PUR cable with connector	0.3 m PUR cable with connector	2 m PVC cable
No. of wires × cross-section				3×0.14 mm²
Approval	cULus	cULus	cULus	cULus
Recommended connector	BKS-_ 19	BKS-_ 48	BKS-_ 19	

① Wiring diagrams see page **1.0.**6

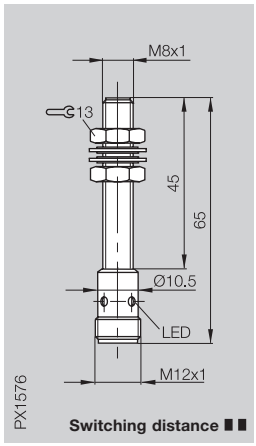
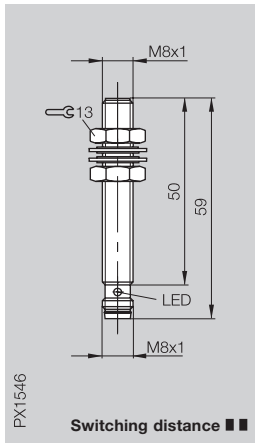
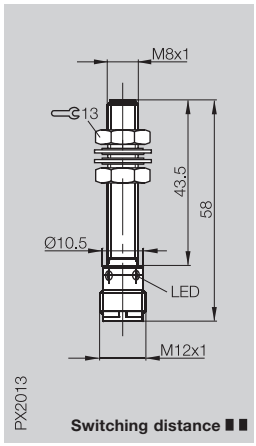
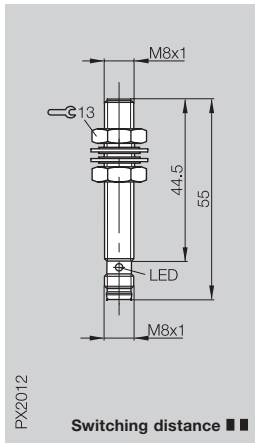
Other cable lengths on request.



	M8×1	**M8×1**	**M8×1**	**M8×1**	**M8×1**
	flush	flush	flush	flush	flush
	1.5 mm	**1.5 mm**	**1.5 mm**	**1.5 mm**	**1.5 mm**
	0...1.2 mm	0...1.2 mm	0...1.2 mm	0...1.2 mm	0...1.2 mm
					
	BES 516-324-E0-C-02 BES 516-377-E0-C-02	BES M08EF-PSC15B-BP02 BES M08EF-POC15B-BP02	BES 516-324-SA45-E4-C-PU-03	BES 516-324-E4-C-02 BES 516-377-E4-C-02	BES 516-324-SA44-C-02
	BES 516-343-E0-C-02 BES 516-378-E0-C-02			BES 516-343-E4-C-02 BES 516-378-E4-C-02	
	10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC
	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V
	250 V AC	250 V AC	250 V AC	250 V AC	75 V DC
	200 mA	200 mA	200 mA	200 mA	200 mA
	PNP ≤ 9 mA, NPN ≤ 11 mA	≤ 9 mA	≤ 9 mA	PNP ≤ 9 mA, NPN ≤ 11 mA	≤ 25 mA
	yes	yes	yes	yes	yes
	yes	yes	yes	yes	yes
	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %
	–25...+70 °C	–25...+70 °C	–40...+85 °C	–25...+70 °C	–25...+70 °C
	3000 Hz	3000 Hz	3000 Hz	3000 Hz	1500 Hz
	DC 13	DC 13	DC 13	DC 13	DC 13
	yes	yes	yes	yes	yes
	IP 68 per BWN Pr. 20	IP 68 per BWN Pr. 20	IP 68 per BWN Pr. 20	IP 68 per BWN Pr. 20	IP 67
	⧈	⧈	⧈	⧈	
	Stainless steel	Stainless steel	Stainless steel	Stainless steel	Stainless steel
	PA 12	PBT	PA 12	PA 12	PBT
	2 m PVC cable	2 m cable PUR	3 m cable PUR	2 m PVC cable	3 m PVC cable
	3×0.14 mm²	3×0.14 mm²	3×0.14 mm²	3×0.14 mm²	3×0.14 mm²
	cULus	cULus	cULus	cULus	



1.1
5
Connectors, Holders ... Page 5.2 ...

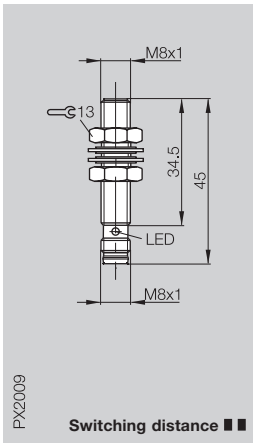
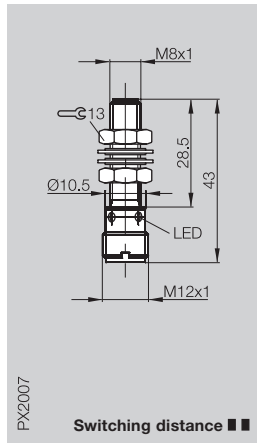
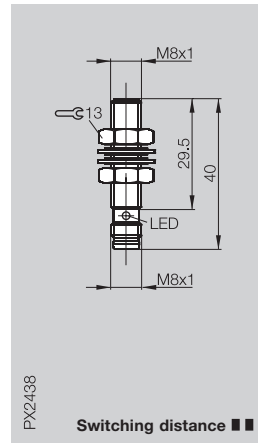
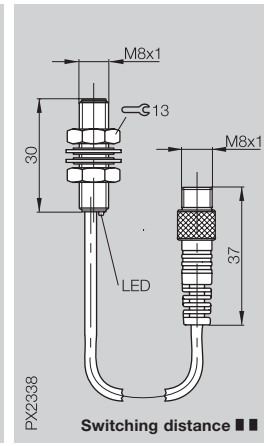
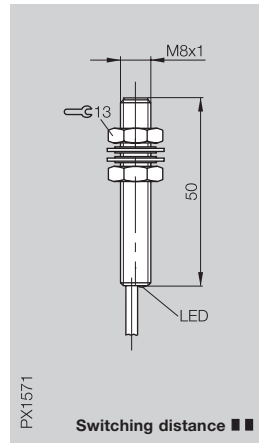
Housing size		**M8×1**	**M8×1**	**M8×1**	**M8×1**	
Mounting (see notes starting p. **1.0.**11)		flush	flush	flush	flush	
Rated operating distance s_n		**2 mm**	**2 mm**	**2 mm**	**2 mm**	
Assured operating distance s_a		0...1.6 mm	0...1.6 mm	0...1.6 mm	0...1.6 mm	
						
PNP	NO ①	BES M08MH1-PSC20B-S04G	BES M08MI-PSC20B-S49G	BES M08EH-PSC20B-S04G	BES 516-324-G-S49-C	
	NC ②		BES M08MI-POC20B-S49G		BES 516-377-G-S49-C	
NPN	NO ④	BES M08MH1-NSC20B-S04G	BES M08MI-NSC20B-S49G			
	NC ⑤					
Supply voltage U_B		12...30 V DC	12...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	250 V AC	250 V AC	
Rated operational current I_e		200 mA	200 mA	200 mA	200 mA	
No-load supply current I_0 max.		PNP ≤ 10 mA, NPN ≤ 18 mA	PNP ≤ 10 mA, NPN ≤ 18 mA	≤ 9 mA	≤ 9 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		700 Hz	700 Hz	1500 Hz	1500 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 68 per BWN Pr. 20	IP 68 per BWN Pr. 20	
Insulation class				⧈	⧈	
Housing material		CuZn coated	CuZn coated	Stainless steel	Stainless steel	
Material of sensing face		PA 12	PA 12	PBT	PBT	
Connection		Connector	Connector	Connector	Connector	
No. of wires × cross-section						
Approval		cULus	cULus	cULus	cULus	
Recommended connector		BKS-_ 19/BKS-_ 20	BKS-_ 48/BKS-_ 49	BKS-_ 19/BKS-_ 20	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.

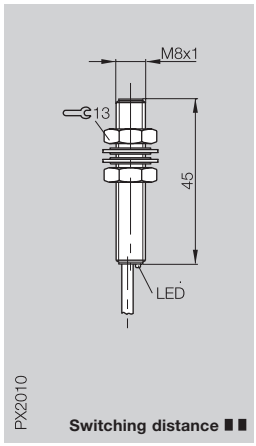
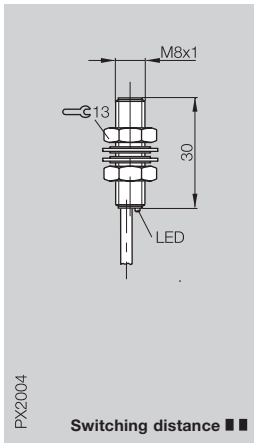
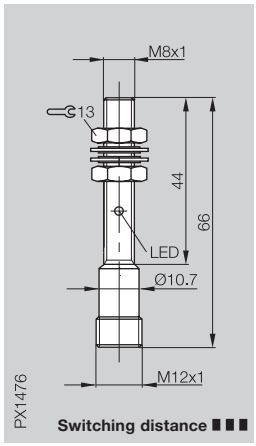
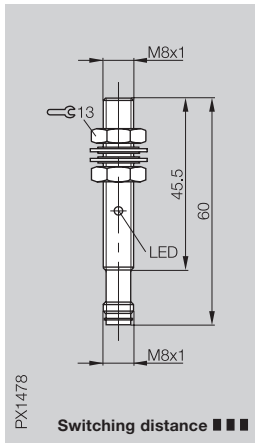


	M8×1	**M8×1**	**M8×1**	**M8×1**	**M8×1**
	flush	flush	flush	flush	flush
	2 mm	**2 mm**	**2 mm**	**2 mm**	**2 mm**
	0...1.6 mm	0...1.6 mm	0...1.6 mm	0...1.6 mm	0...1.6 mm
					
	BES 516-324-G-E5-C-S49 BES 516-377-G-E5-C-S49	BES M08EE-PSC20B-S04G	BES M08EE-PSC20B-S49G BES M08EE-POC20B-S49G	BES 516-324-G-E4-C-S49-00,2 BES 516-377-G-E4-C-S49-00,3	BES M08MI-PSC20B-BV02
	BES 516-343-G-E5-C-S49 BES 516-378-G-E5-C-S49		BES M08EE-NSC20B-S49G BES M08EE-NOC20B-S49G		BES M08MI-NSC20B-BV02
	10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC	12...30 V DC
	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V
	250 V AC	250 V AC	250 V AC	250 V AC	75 V DC
	200 mA	200 mA	200 mA	200 mA	200 mA
	PNP ≤ 9 mA, NPN ≤ 11 mA	≤ 9 mA	PNP ≤ 9 mA, NPN ≤ 11 mA	≤ 9 mA	PNP ≤ 10 mA, NPN ≤ 18 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
	1500 Hz	1500 Hz	1500 Hz	1500 Hz	700 Hz
	DC 13	DC 13	DC 13	DC 13	DC 13
	yes	yes	yes	yes	yes
	IP 68 per BWN Pr. 20	IP 68 per BWN Pr. 20	IP 68 per BWN Pr. 20	IP 68 per BWN Pr. 20	IP 67
	Stainless steel	Stainless steel	Stainless steel	Stainless steel	CuZn coated
	PA 12	PBT	PBT	PA 12	PBT
	Connector	Connector	Connector	0.2 m/0.3 m PUR cable with connector	2 m PVC cable
					3×0.14 mm²
	cULus	cULus	cULus	cULus	cULus
	BKS-_ 48/BKS-_ 49	BKS-_ 19/BKS-_ 20	BKS-_ 48/BKS-_ 49	BKS-_ 48	



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Connectors, Holders ...
Page 5.2 ...

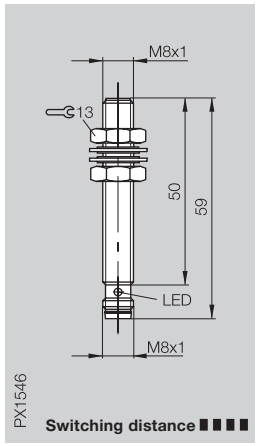
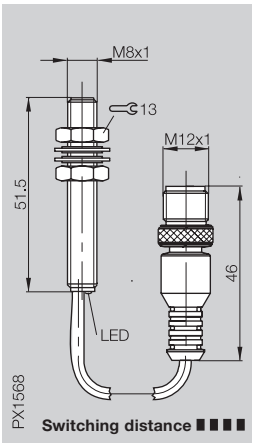
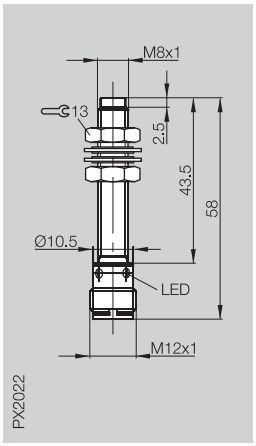
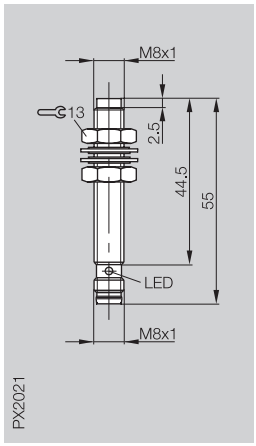
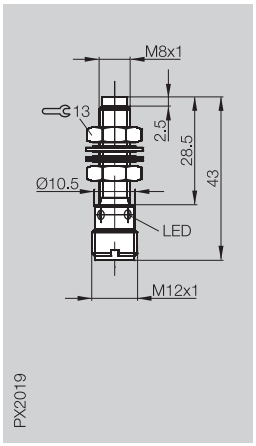
Housing size			**M8×1**	**M8×1**	**M8×1**	**M8×1**
Mounting (see notes starting p. **1.0.**11)			flush	flush	quasi flush	quasi flush
Rated operating distance s_n			**2 mm**	**2 mm**	**3 mm**	**3 mm**
Assured operating distance s_a			0...1.6 mm	0...1.6 mm	0...2.4 mm	0...2.4 mm
						
PNP	NO	①	BES 516-324-G-E0-C-02	BES 516-324-G-E4-C-02	BES M08MH1-PSC30B-S04G	BES M08MH1-PSC30B-S49G
	NC	②		BES 516-377-G-E4-C-02		
NPN	NO	④		BES 516-343-G-E4-C-02	BES M08MH1-NSC30B-S04G	BES M08MH1-NSC30B-S49G
	NC	⑤		BES 516-378-G-E4-C-02		
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			250 V AC	250 V AC	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.			≤ 9 mA	PNP ≤ 9 mA, NPN ≤ 11 mA	≤ 12 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			1500 Hz	1500 Hz	1000 Hz	1000 Hz
Utilization category			DC 13	DC 13	DC 13	DC 13
Function indicator			yes	yes	yes	yes
Degree of protection per IEC 60529			IP 68 per BWN Pr. 20	IP 68 per BWN Pr. 20	IP 67	IP 67
Insulation class			⧈	⧈		
Housing material			Stainless steel	Stainless steel	CuZn coated	CuZn coated
Material of sensing face			PA 12	PA 12	PBT	PBT
Connection			2 m PVC cable	2 m PVC cable	Connector	Connector
No. of wires × cross-section			3×0.14 mm²	3×0.14 mm²		
Approval			cULus	cULus		
Recommended connector					BKS-_ 19/BKS-_ 20	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.

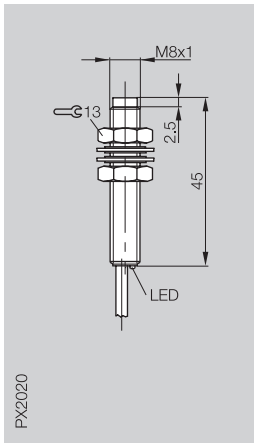
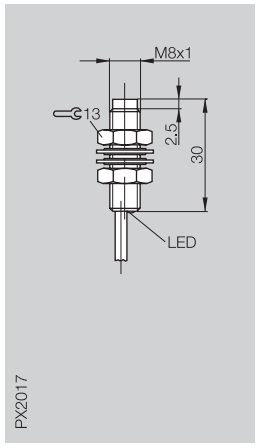
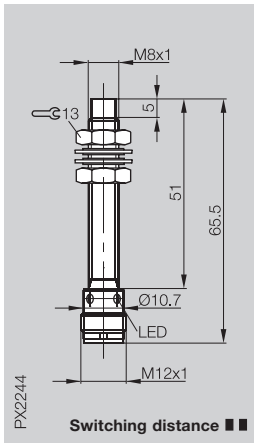
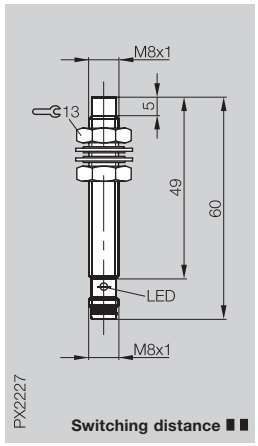


	M8×1	**M8×1**	**M8×1**	**M8×1**	**M8×1**
	quasi flush	quasi flush	non-flush	non-flush	non-flush
	4 mm	**4 mm**	**2.5 mm**	**2.5 mm**	**2.5 mm**
	0...2.9 mm	0...2.9 mm	0...2 mm	0...2 mm	0...2 mm
					
	BES M08MI-PSC40B-S49G	BES M08MI-PSC40B-BP00,2-GS04	BES M08EG-PSC25F-S04G BES M08EG-POC25F-S04G	BES 516-383-S49-C	BES M08ED-PSC25F-S04G
	BES M08MI-NSC40B-S49G	BES M08MI-NSC40B-BP00,2-GS04	BES M08EG-NSC25F-S04G		BES M08ED-NSC25F-S04G
	10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC
	≤ 2.8 V	≤ 2.8 V	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V
	75 V DC	75 V DC	250 V AC	250 V AC	250 V AC
	200 mA	200 mA	200 mA	200 mA	200 mA
	≤ 10 mA	≤ 10 mA	PNP ≤ 9 mA, NPN ≤ 18 mA	≤ 9 mA	≤ 11 mA
	yes	yes	yes	yes	yes
	yes	yes	yes	yes	yes
	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %
	0...+60 °C	0...+60 °C	–25...+70 °C	–25...+70 °C	–25...+70 °C
	800 Hz	800 Hz	2000 Hz	2000 Hz	2000 Hz
	DC 13	DC 13	DC 13	DC 13	DC 13
	yes	yes	yes	yes	yes
	IP 67	IP 67	IP 68 per BWN Pr. 20	IP 68 per BWN Pr. 20	IP 68 per BWN Pr. 20
			⧈	⧈	⧈
	CuZn coated	CuZn coated	Stainless steel	Stainless steel	Stainless steel
	PBT	PBT	PBT	PA 12	PBT
	Connector	0.2 m PUR cable with connector	Connector	Connector	Connector
	cULus	cULus	cULus	cULus	cULus
	BKS-_ 48/BKS-_ 49	BKS-_ 19	BKS-_ 19/BKS-_ 20	BKS-_ 48/BKS-_ 49	BKS-_ 19/BKS-_ 20



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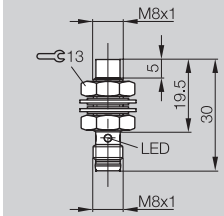
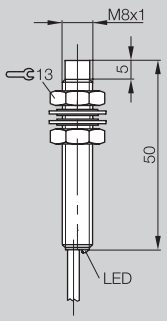
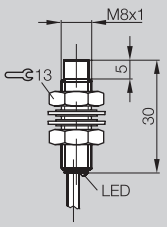
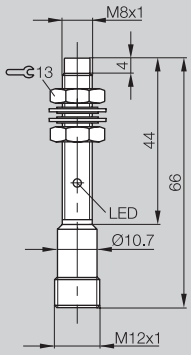
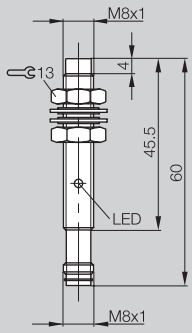
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Connectors, Holders ...
Page 5.2 ...

Housing size			**M8×1**	**M8×1**	**M8×1**	**M8×1**
Mounting (see notes starting p. **1.0.**11)			non-flush	non-flush	non-flush	non-flush
Rated operating distance s_n			**2.5 mm**	**2.5 mm**	**4 mm**	**4 mm**
Assured operating distance s_a			0...2 mm	0...2 mm	0...3.2 mm	0...3.2 mm
						
PNP	NO	①	BES 516-383-E0-C-02	BES 516-383-E4-C-02	BES M08EH-PSC40F-S04G	BES M08EH-PSC40F-S49G
	NC	②			BES M08EH-POC40F-S04G	BES M08EH-POC40F-S49G
NPN	NO	④	BES 516-384-E0-C-02	BES 516-384-E4-C-02	BES M08EH-NSC40F-S04G	BES M08EH-NSC40F-S49G
	NC	⑤			BES M08EH-NOC40F-S04G	BES M08EH-NOC40F-S49G
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			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
No-load supply current I_0 max.			PNP ≤ 9 mA, NPN ≤ 18 mA	PNP ≤ 9 mA, NPN ≤ 18 mA	≤ 14 mA	≤ 14 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			2000 Hz	2000 Hz	1500 Hz	1500 Hz
Utilization category			DC 13	DC 13	DC 13	DC 13
Function indicator			yes	yes	yes	yes
Degree of protection per IEC 60529			IP 68 per BWN Pr. 20	IP 68 per BWN Pr. 20	IP 67	IP 68 per BWN Pr. 20
Insulation class			⧈	⧈	⧈	⧈
Housing material			Stainless steel	Stainless steel	Stainless steel	Stainless steel
Material of sensing face			PA 12	PA 12	PBT	PBT
Connection			2 m PVC cable	2 m PVC cable	Connector	Connector
No. of wires × cross-section			3×0.14 mm²	3×0.14 mm²		
Approval			cULus	cULus	cULus	cULus
Recommended connector					BKS-_ 19/BKS-_ 20	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.



	M8×1	**M8x1**	**M8x1**	**M8×1**	**M8×1**
	non-flush	non-flush	non-flush	non-flush	non-flush
	4 mm	**4 mm**	**4 mm**	**6 mm**	**6 mm**
	0...3.2 mm	0...3.2 mm	0...3.2 mm	0...4.9 mm	0...4.9 mm
	 PX2403 **Switching distance ■■**	 PX2228 **Switching distance ■■**	 PX2402 **Switching distance ■■**	 PX1479 **Switching distance ■■■**	 PX1481 **Switching distance ■■■**
	BES M08EB-PSC40F-S49G BES M08EB-POC40F-S49G	BES M08EG-PSC40F-BV02 BES M08EG-POC40F-BV02	BES M08ED-PSC40F-BV02 BES M08ED-POC40F-BV02	BES M08MG1-PSC60F-S04G	BES M08MG1-PSC60F-S49G BES M08MG1-POC60F-S49G
	BES M08EB-NSC40F-S49G BES M08EB-NOC40F-S49G	BES M08EG-NSC40F-BV02 BES M08EG-NOC40F-BV02	BES M08ED-NSC40F-BV02 BES M08ED-NOC40F-BV02	BES M08MG1-NSC60F-S04G	BES M08MG1-NSC60F-S49G BES M08MG1-NOC60F-S49G
	10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC	10...30 V DC
	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V
	250 V AC	250 V AC	250 V AC	75 V DC	75 V DC
	200 mA	200 mA	200 mA	200 mA	200 mA
	≤ 18 mA	≤ 14 mA	≤ 18 mA	≤ 12 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
	1500 Hz	1500 Hz	1500 Hz	500 Hz	500 Hz
	DC 13	DC 13	DC 13	DC 13	DC 13
	yes	yes	yes	yes	yes
	IP 68 per BWN Pr. 20	IP 68 per BWN Pr. 20	IP 68 per BWN Pr. 20	IP 67	IP 67
	⧈	⧈	⧈		
	Stainless steel	Stainless steel	Stainless steel	CuZn coated	CuZn coated
	PBT	PBT	PA 12	PBT	PBT
	Connector	2 m PVC cable	2 m PVC cable	Connector	Connector
		3x0.14 mm²	3x0.14 mm²		
	cULus	cULus	cULus		
	BKS-_ 48/BKS-_ 49			BKS-_ 19/BKS-_ 20	BKS-_ 48/BKS-_ 49



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Connectors, Holders ...
Page 5.2 ...