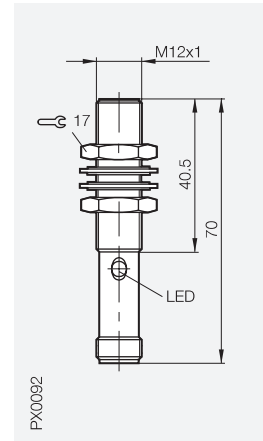
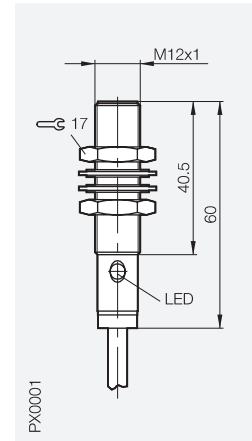
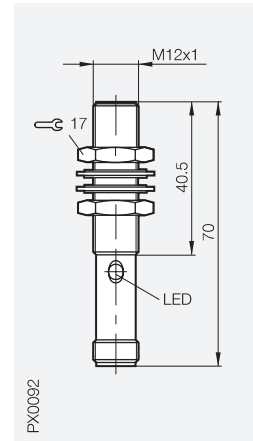
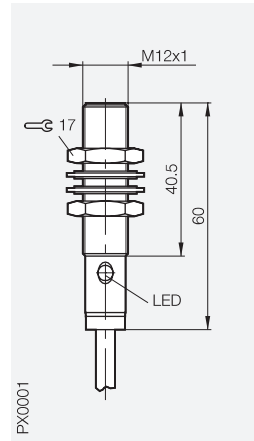


Inductive Sensors

DC 3-/4-Wire
M12
s_n 2 mm

Housing size	M12x1	M12x1	M12x1	M12x1
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 516-325-B0-C	BES 516-325-S 4-C		
	Normally-closed ②	BES 516-370-B0-C	BES 516-370-S 4-C		
	Complementary ③			BES 516-113-B0-C	BES 516-113-S 4-C
NPN	Normally-open ④	BES 516-329-B0-C	BES 516-329-S 4-C		
	Normally-closed ⑤	BES 516-375-B0-C	BES 516-375-S 4-C		
	Complementary ⑥			BES 516-118-B0-C	BES 516-118-S 4-C
Rated operational voltage U _a	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 _a	≤ 1.5 V	≤ 1.5 V	≤ 2.5 V	≤ 2.5 V	≤ 2.5 V
Rated insulation voltage U _i	250 V AC	250 V AC	250 V AC	250 V AC	250 V AC
Load current capacity	200 mA	200 mA	200 mA	200 mA	200 mA
Current consumption (closed/open)	≤ 8 mA/≤ 1 mA	≤ 8 mA/≤ 1 mA	≤ 32 mA/≤ 20 mA	≤ 32 mA/≤ 20 mA	≤ 32 mA/≤ 20 mA
Off-state current I _r	≤ 10 μA	≤ 10 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 capacitance	≤ 0.5 μF	≤ 0.5 μF	≤ 1.0 μF	≤ 1.0 μF	≤ 1.0 μF
Repeat accuracy R	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %
Ambient temperature range T _a	-40...+85 °C	-40...+85 °C	-25...+70 °C	-25...+70 °C	-25...+70 °C
Frequency of operating cycles f	3000 Hz	3000 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 529	IP 68	IP 68	IP 68	IP 68	IP 68
Insulation Class	□	□	□	□	□
Housing material	stainless steel	stainless steel	stainless steel	stainless steel	stainless steel
Material of sensing face	PA 12	PA 12	PA 12	PA 12	PA 12
Connection	cable	connector	cable	connector	connector
No. of wires x gauge	3 x 22 AWG		4 x 24 AWG		
Approvals	UL, cULus	UL, cULus	UL, cULus		UL, cULus
Recommended connector		Micro C04...			Micro C04...

① connection diagrams see page t.6

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

Inductive Sensors

DC 3-Wire
M12
s_n 2 mm

M12x1 flush 2 mm 0...1.6 mm	M12x1 flush 2 mm 0...1.6 mm	M12x1 flush 2 mm 0...1.6 mm	M12x1 flush 2 mm 0...1.6 mm	M12x1 flush 2 mm 0...1.6 mm
PX0818	PX0392a	PX0129	PX0532a	PX0127
BES 516-325-E4-C BES 516-370-E4-C	BES 516-325-E5-C-S 4 BES 516-370-E5-C-S 4	BES 516-325-E5-Y-S 49	BES 516-325-SA 56	BES 516-325-SA 45
BES 516-329-E4-C BES 516-375-E4-C	BES 516-329-E5-C-S 4 BES 516-375-E5-C-S 4			
24 V DC 10...30 V DC ≤ 2.5 V 75 V DC 130 mA ≤ 25 mA/≤ 12 mA ≤ 80 μA yes yes ≤ 1.0 μF	24 V DC 10...30 V DC ≤ 2.5 V 75 V DC 130 mA ≤ 25 mA/≤ 12 mA ≤ 80 μA yes yes ≤ 1.0 μF	24 V DC 10...30 V DC ≤ 3.5 V 75 V DC 130 mA ≤ 25 mA/≤ 12 mA ≤ 80 μA yes yes ≤ 1.0 μF	24 V DC 10...30 V DC ≤ 1.7 V/≤ 1 V at I _a ≤ 50 mA 75 V DC 200 mA ≤ 25 mA/≤ 12 mA ≤ 80 μA yes yes ≤ 1.0 μF	24 V DC 10...30 V DC ≤ 2.5 V 75 V DC 200 mA ≤ 20 mA/≤ 12 mA ≤ 80 μA yes yes ≤ 1.0 μF
≤ 5 % -25...+70 °C 1000 Hz DC 13 yes	≤ 5 % -25...+70 °C 1000 Hz DC 13 yes	≤ 5 % -25...+70 °C 1000 Hz DC 13 yes	≤ 5 % -25...+70 °C 800 Hz DC 13 yes	≤ 5 % -25...+70 °C 1000 Hz DC 13 no
IP 68	IP 68	IP 67	IP 67	IP 67
nickel plated brass PA 12 cable 3 × 22 AWG UL, cULus	nickel plated brass PA 12 connector UL, cULus Micro C04...	nickel plated brass PA 12 connector UL, cULus Nano C49...	stainless steel PA 12 cable 3 × 22 AWG	nickel plated brass PA 12 connector Micro C04...

- For mounting brackets & accessories see pg. 1.120
- For mating connectors see pg. 6.1

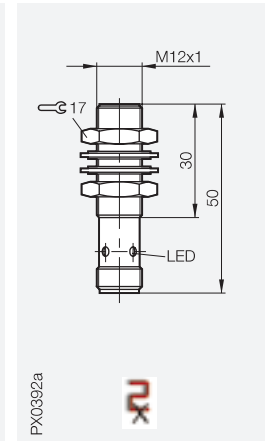
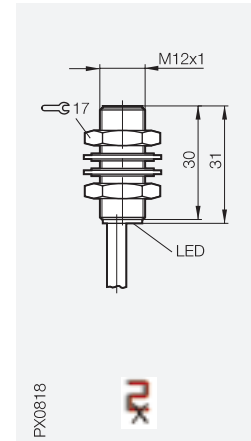
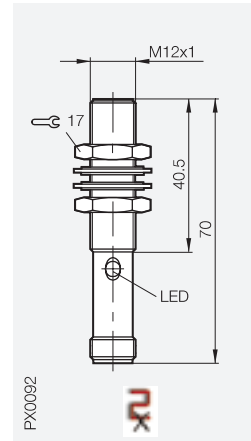
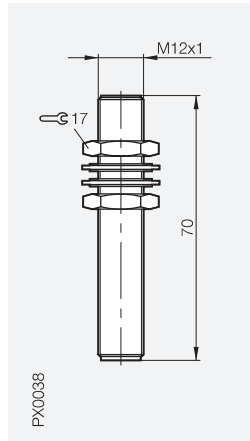


1

Inductive Sensors

DC 3-Wire
M12
s_n 2 mm, 4 mm

Housing size	M12x1	M12x1	M12x1	M12x1
Mounting	flush	flush	flush	flush
Rated operating distance s _n	2 mm	4 mm	4 mm	4 mm
Assured operating distance s _a	0...1.6 mm	0...3.2 mm	0...3.2 mm	0...3.2 mm



PNP	Normally-open ①	BES 516-325-SA 52	BES 516-325-G-S 4-C	BES 516-325-G-E4-Y	BES 516-325-G-E5-Y-S 4
	Normally-closed ②			BES 516-370-G-E4-Y	BES 516-370-G-E5-Y-S 4
	Complementary ③				
NPN	Normally-open ④			BES 516-329-G-E4-Y	BES 516-329-G-E5-Y-S 4
	Normally-closed ⑤			BES 516-375-G-E4-Y	
	Complementary ⑥				
Rated operational voltage U _B	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 _A at I _B	≤ 1.5 V	≤ 1.5 V	≤ 3.5 V	≤ 3.5 V	
Rated insulation voltage U _i	250 V AC	75 V DC	75 V DC	75 V DC	
Load current capacity	200 mA	200 mA	130 mA	130 mA	
Current consumption (closed/open)	≤ 8 mA/≤ 1 mA	≤ 20 mA/≤ 8 mA	≤ 25 mA/≤ 12 mA	≤ 25 mA/≤ 12 mA	
Off-state current I _r	≤ 10 μA	≤ 80 μA	≤ 80 μA	≤ 80 μA	
Protected against polarity reversal	yes	yes	yes	yes	
Short circuit protected	yes	no	yes	yes	
Load capacitance	≤ 0.5 μF	≤ 1.0 μF	≤ 1.0 μF	≤ 1.0 μF	
Repeat accuracy R	≤ 5 %	≤ 5 %	≤ 5 %	≤ 5 %	
Ambient temperature range T _a	-40...+85 °C	-25...+70 °C	-25...+70 °C	-25...+70 °C	
Frequency of operating cycles f	3000 Hz	600 Hz	600 Hz	600 Hz	
Utilization categories	DC 13	DC 13	DC 13	DC 13	
Function indication	no	yes	yes	yes	
Degree of protection per IEC 529	IP 67	IP 67	IP 68	IP 67	
Insulation Class	□	□			
Housing material	stainless steel	nickel plated brass	nickel plated brass	nickel plated brass	
Material of sensing face	PA 12	PA 12	PA 12	PA 12	
Connection	connector	connector	cable	connector	
No. of wires x gauge			3 x 22 AWG		
Approvals		UL, cULus	UL, cULus	UL, cULus	
Recommended connector	Micro C04...	Micro C04...		Micro C04...	

① connection diagrams see page t.6

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

Inductive Sensors

DC 3-/4-Wire
M12
s_n 4 mm

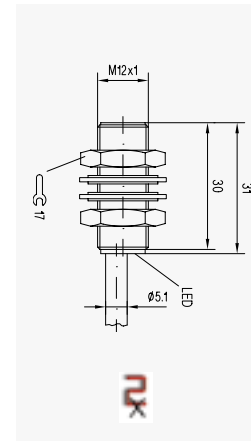
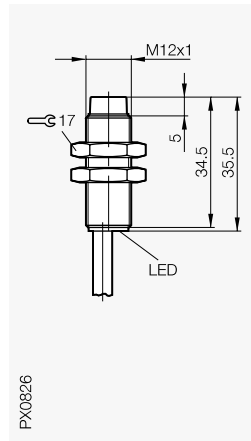
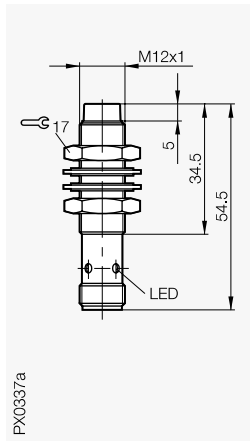
M12x1 flush 4 mm 0...3.2 mm	M12x1 non flush 4 mm 0...3.2 mm	M12x1 non flush 4 mm 0...3.2 mm	M12x1 non flush 4 mm 0...3.2 mm	M12x1 non flush 4 mm 0...3.2 mm
BES 516-325-G-E5-Y-S 49 BES 516-370-G-E5-Y-S 49	BES 516-356-B0-C BES 516-3019-B0-C	BES 516-356-S 4-C BES 516-3019-S 4-C		
BES 516-329-G-E5-Y-S 49 BES 516-375-G-E5-Y-S 49	BES 516-357-B0-C BES 516-3030-B0-C	BES 516-357-S 4-C BES 516-3030-S 4-C	BES 516-131-B0-C	BES 516-131-S 4-C
			BES 516-122-B0-C	BES 516-122-S 4-C
24 V DC 10...30 V DC ≤ 3.5 V 75 V DC 130 mA ≤ 25 mA/≤ 12 mA ≤ 80 µA yes yes ≤ 1.0 µF	24 V DC 10...30 V DC ≤ 1.5 V 250 V AC 200 mA ≤ 8 mA/≤ 1 mA ≤ 10 µA yes yes ≤ 0.5 µF	24 V DC 10...30 V DC ≤ 1.5 V 250 V AC 200 mA ≤ 8 mA/≤ 1 mA ≤ 10 µA yes yes ≤ 0.5 µF	24 V DC 10...30 V DC ≤ 2.5 V 250 V AC 200 mA ≤ 32 mA/≤ 20 mA ≤ 80 µA yes yes ≤ 1.0 µF	24 V DC 10...30 V DC ≤ 2.5 V 250 V AC 200 mA ≤ 32 mA/≤ 20 mA ≤ 80 µA yes yes ≤ 1.0 µF
≤ 5 % -25...+70 °C 600 Hz DC 13 yes	≤ 5 % -40...+85 °C 1500 Hz DC 13 yes	≤ 5 % -40...+85 °C 1500 Hz DC 13 yes	≤ 5 % -25...+70 °C 400 Hz DC 13 yes	≤ 5 % -25...+70 °C 400 Hz DC 13 yes
IP 67	IP 68	IP 68	IP 68	IP 68
nickel plated brass PA 12 connector	stainless steel PA 12 cable	stainless steel PA 12 connector	stainless steel PA 12 cable	stainless steel PA 12 connector
UL, cULus Nano C49...	UL, cULus	UL, cULus Micro C04...	UL, cULus	UL, cULus Micro C04...

- For mounting brackets & accessories see pg. 1.120
- For mating connectors see pg. 6.1



1

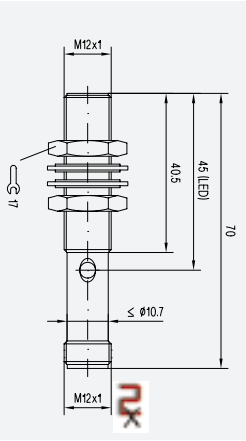
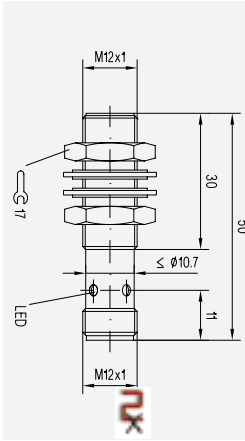
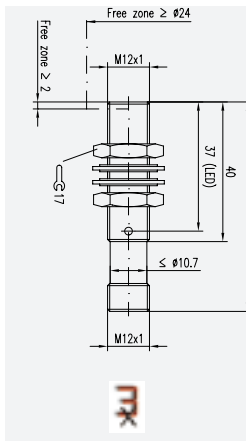
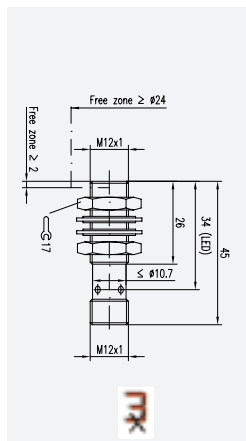
Housing size	M12×1	M12×1	M12×1
Mounting	non flush	non flush	flush
Rated operating distance s _n	4 mm	4 mm	4 mm
Assured operating distance s _a	0...3.2 mm	0...3.2 mm	0...4.8 mm



PNP	Normally-open	BES 516-356-E5-C-S 4	BES 516-356-E4-C	BES-516-325-G-E4-Y
	Normally-closed	BES 516-3019-E5-C-S4	BES 516-3019-E4-C	BES-516-370-G-E4-Y
	Complementary			
NPN	Normally-open	BES 516-357-E5-C-S 4	BES 516-357-E4-C	BES-516-329-G-E4-Y
	Normally-closed		BES 516-3030-E4-C	BES-516-375-G-E4-Y
	Complementary			
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 _A at I _e	≤ 2.5 V	≤ 2.5 V	≤ 3.5 V	
Rated insulation voltage U _i	75 V DC	75 V DC		
Load current capacity	130 mA	130 mA		
Current consumption (closed/open)	≤ 25 mA/≤ 12 mA	≤ 25 mA/≤ 15 mA	≤ 12 mA/≤ 10 mA	
Off-state current I _r	≤ 80 μA	≤ 80 μA		
Protected against polarity reversal	yes	yes	yes	
Short circuit protected	yes	yes	yes	
Load capacitance	≤ 1.0 μF	≤ 1.0 μF	≤ 1.0 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	400 Hz	400 Hz	800 Hz	
Utilization categories	DC 13	DC 13		
Function indication	yes	yes	yes	
Degree of protection per IEC 529	IP 68	IP 68	IP 67	
Insulation Class				
Housing material	nickel plated brass	nickel plated brass	chrome plated brass	
Material of sensing face	PA 12	PA 12	PBTP	
Connection	connector	cable	cable	
No. of wires × gauge		3 × 22 AWG	3 × 22 AWG	
Approvals	UL, cULus	UL, cULus	UL, cULus	
Recommended connector	Micro C04...			

connection diagrams see page t.6

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

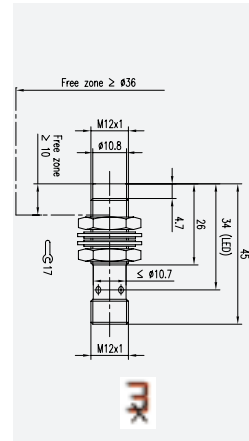
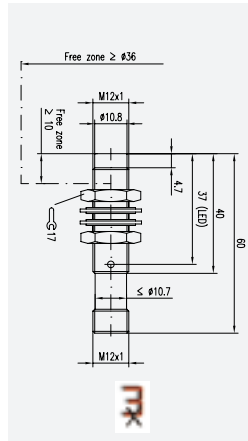
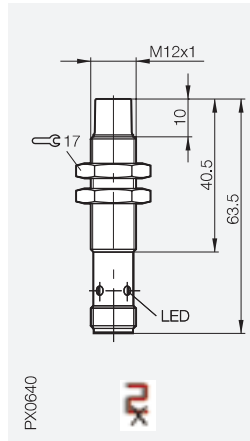
M12x1 flush 4 mm 0...4.8 mm	M12x1 flush 4 mm 0...4.8 mm	M12x1 flush 6 mm 0...4.8 mm	M12x1 flush 6 mm 0...4.8 mm	
				
BES-516-325-G-S4-L	BES-516-325-G-E5-Y-S4 BES-516-370-G-E5-Y-S4	BES-M12MG1-PSC60B-S04G BES-M12MG1-POC60B-S04G	BES-M12MD1-PSC60B-S04G	
	BES-516-329-G-E5-Y-S4	BES-M12MG1-NSC60B-S04G BES-M12MG1-NOC60B-S04G	BES-M12MD1-NSC60B-S04G	
24 V DC 10...30 V DC ≤ 1.5V 75 V DC 200 mA ≤ 20 mA/≤ 8 mA ≤ 80 µA yes yes ≤ 1.0 µF	24 V DC 10...30 V DC ≤ 3.5V 75 V DC 130 mA ≤ 25 mA/≤ 12 mA ≤ 80 µA yes yes ≤ 1.0 µF	24 V DC 10...30 V DC ≤ 2.0 V 75 V DC 200 mA ≤ 12 mA/≤ 10 mA ≤ 100 µA yes yes ≤ 1.0 µF	24 V DC 10...30 V DC ≤ 2.0 V 75 V DC 200 mA ≤ 12 mA/≤ 10 mA ≤ 100 µA yes yes ≤ 1.0 µF	
≤ 5 % -25...+70 °C 600 Hz DC 13 yes	≤ 5 % -25...+70 °C 600 Hz DC 13 yes	≤ 5 % -25...+70 °C 800 Hz DC 13 yes	≤ 5 % -25...+70 °C 800 Hz DC 13 yes	
IP 67	IP 67	IP 67	IP 67	
nickel plated brass LCP connector	nickel plated brass PA12 connector	chrome plated brass PBT connector	chrome plated brass PBT connector	
UL, cULus Micro C04...	UL, cULus Micro C04...	Micro C04...	Micro C04...	

- For mounting brackets & accessories see pg. 1.120
- For mating connectors see pg. 6.1

Inductive Sensors

DC 3-Wire
M12
s_n 8 mm, 10 mm

Housing size	M12x1	M12x1	M12x1
Mounting	non flush	non flush	non flush
Rated operating distance s _n	8 mm	10 mm	10 mm
Assured operating distance s _a	0...6.5 mm	0...8 mm	0...8 mm



PNP	Normally-open ①	BES 516-356-G-SA 21-S 4-C	BES-M12MF1-PSC10F-S04G	BES-M12MC1-PSC10F-S04G
	Normally-closed ②	BES 516-3019-G-SA 6-S 4-C		
	Complementary ③			
NPN	Normally-open ④	BES 516-357-G-SA 5-S 4-C	BES-M12MF1-NSC10F-S04G	BES-M12MC1-NSC10F-S04G
	Normally-closed ⑤			
	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	≤ 2.0 V	≤ 2.0 V	≤ 2.0 V	
Rated insulation voltage U _i	75 V DC	75 V DC	75 V DC	
Load current capacity	200 mA	200 mA	200 mA	
Current consumption (closed/open)	≤ 12 mA/10 mA	≤ 12 mA/10 mA	≤ 12 mA/10 mA	
Off-state current I _r	≤ 80 µA	≤ 100 µA	≤ 100 µA	
Protected against polarity reversal	yes	yes	yes	
Short circuit protected	yes	yes	yes	
Load capacitance	≤ 0.15 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	3000 Hz	400 Hz	400 Hz	
Utilization categories	DC 13	DC 13	DC 13	
Function indication	yes	yes	yes	
Degree of protection per IEC 529	IP 66	IP 67	IP 67	
Insulation Class				
Housing material	stainless steel	chrome plated brass	chrome plated brass	
Material of sensing face	PA 12	PBT	PBT	
Connection	connector	connector	connector	
No. of wires x gauge				
Approvals				
Recommended connector	Micro C04...	Micro C04...	Micro C04...	

① connection diagrams see page t.6

- For mounting brackets & accessories see pg. 1.120
- For mating connectors see pg. 6.1

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