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Inductive sensors



SIF1,5-M8N-V2-PO

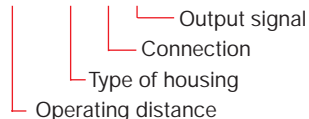


SIN4-M12N-C1-PO

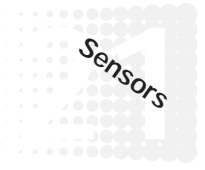
Type	Catalog number	Pack. size/ pieces	Weight 1 piece kg
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Inductive Sensors

SIF0,8-Z4N-V2-PO	1SAF 104 211 R 1000	1	0.020
SIF0,8-Z4N-C8-PO	1SAF 104 411 R 1000	1	0.010
SIF1,5-Z6N-U2-PO	1SAF 106 211 R 1000	1	0.030
SIF1,5-Z6N-C8-PO	1SAF 106 411 R 1000	1	0.010
SIF1,5-M8N-V2-PO	1SAF 108 111 R 1000	1	0.050
SIF1,5-M8N-V2-NO	1SAF 108 111 R 3000	1	0.044
SIF1,5-M8S-U2-PO	1SAF 109 211 R 1000	1	0.040
SIF1,5-M8S-C1-PO	1SAF 108 511 R 1000	1	0.030
SIF1,5-M8E-C1-PO	1SAF 108 511 R 1001	1	0.035
SIF1,5-M8E-C1-NO	1SAF 108 511 R 3001	1	0.035
SIN2-M8N-V2-PO	1SAF 108 122 R 1000	1	0.040
SIN2-M8N-V2-NO	1SAF 108 122 R 3000	1	0.040
SIN2-M8S-U2-PO	1SAF 109 222 R 1000	1	0.040
SIN2-M8N-C1-PO	1SAF 108 522 R 1000	1	0.030
SIN2-M8N-C1-NO	1SAF 108 522 R 3000	1	0.030
SIN3-M8N-V2-PO	1SAF 108 123 R 1000	1	0.050
SIN3-M8N-C8-PO	1SAF 108 423 R 1000	1	0.030
SIF2-M12N-V2-PO	1SAF 112 111 R 1000	1	0.030
SIF2-M12N-V2-PK	1SAF 112 111 R 1200	1	0.074
SIF2-M12N-V2-NO	1SAF 112 111 R 3000	1	0.030
SIF2-M12N-V2-NK	1SAF 112 111 R 3200	1	0.074
SIF2-M12N-V2-DO	1SAF 112 111 R 5000	1	0.040
SIF2-M12N-V2-AO	1SAF 112 111 R 6000	1	0.085
SIF2-M12S-V2-PO	1SAF 113 211 R 1000	1	0.030
SIF2-M12N-C1-PO	1SAF 112 511 R 1000	1	0.020
SIF2-M12N-C1-NO	1SAF 112 511 R 3000	1	0.020
SIF2-M12S-C1-PO	1SAF 113 511 R 1000	1	0.020
SIF2-M12E-C1-PO	1SAF 112 511 R 1001	1	0.065
SIF2-M12E-V2-AC	1SAF 112 111 R 6100	1	0.125
SIN4-M12N-V2-PO	1SAF 112 122 R 1000	1	0.030
SIN4-M12N-V2-PK	1SAF 112 122 R 1200	1	0.074
SIN4-M12N-V2-NO	1SAF 112 122 R 3000	1	0.030
SIN4-M12N-V2-NK	1SAF 112 122 R 3200	1	0.074
SIN4-M12N-V2-DO	1SAF 112 122 R 5000	1	0.040
SIN4-M12S-V2-PO	1SAF 113 122 R 1000	1	0.030
SIN4-M12N-V2-AO	1SAF 112 122 R 6000	1	0.085
SIN4-M12N-C1-PO	1SAF 112 522 R 1000	1	0.020
SIN4-M12S-C1-PO	1SAF 113 522 R 1000	1	0.020
SIN4-M12N-C1-NO	1SAF 112 522 R 3000	1	0.020
SIN6-M12N-V2-PO	1SAF 112 123 R 1000	1	0.090
SIN6-M12N-C1-PO	1SAF 112 523 R 1000	1	0.020



Inductive sensors

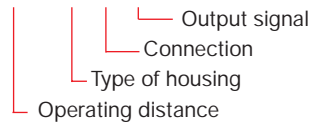


SIF5-M18N-V2-PO



SIF5-M18N-C1-PO

Type	Catalog number	Pack. size/ pieces	Weight 1 piece kg
Inductive Sensors			
SIF5-M18N-V2-PO	1SAF 118 111 R 1000	1	0.100
SIF5-M18N-V2-NO	1SAF 118 111 R 3000	1	0.100
SIF5-M18N-V2-NK	1SAF 118 111 R 3200	1	0.120
SIF5-M18N-V2-PK	1SAF 118 111 R 1200	1	0.120
SIF5-M18N-V2-DO	1SAF 118 111 R 5000	1	0.120
SIF5-M18N-V2-AO	1SAF 118 111 R 6000	1	0.130
SIF5-M18N-V2-AC	1SAF 118 111 R 6100	1	0.130
SIF5-M18N-C1-PO	1SAF 118 511 R 1000	1	0.060
SIF5-M18N-C1-NO	1SAF 118 511 R 3000	1	0.060
SIF5-M18E-C1-PO	1SAF 118 511 R 1001	1	0.125
SIF5-M18E-C1-NO	1SAF 118 511 R 3001	1	0.125
SIN8-M18N-V2-PO	1SAF 118 122 R 1000	1	0.100
SIN8-M18N-V2-PK	1SAF 118 122 R 1200	1	0.120
SIN8-M18N-V2-NO	1SAF 118 122 R 3000	1	0.100
SIN8-M18N-V2-NK	1SAF 118 522 R 3200	1	0.120
SIN8-M18N-V2-DO	1SAF 118 122 R 5000	1	0.120
SIN8-M18N-V2-AO	1SAF 118 122 R 6000	1	0.130
SIN8-M18N-V2-AC	1SAF 118 122 R 6100	1	0.130
SIN8-M18N-C1-PO	1SAF 118 522 R 1000	1	0.060
SIN8-M18N-C1-NO	1SAF 118 522 R 3000	1	0.060
SIN8-M18E-C1-PO	1SAF 118 522 R 1001	1	0.235
SIN12-M18N-V2-PO	1SAF 118 123 R 1000	1	0.120
SIN12-M18N-C1-PO	1SAF 118 523 R 1000	1	0.060
SIF10-M30N-V2-PO	1SAF 130 111 R 1000	1	0.120
SIF10-M30N-V2-PK	1SAF 130 111 R 1200	1	0.130
SIF10-M30N-V2-NO	1SAF 130 111 R 3000	1	0.120
SIF10-M30N-V2-NK	1SAF 130 111 R 3200	1	0.130
SIF10-M30N-V2-DO	1SAF 130 111 R 5000	1	0.200
SIF10-M30N-V2-AO	1SAF 130 111 R 6000	1	0.280
SIF10-M30N-V2-AC	1SAF 130 111 R 6100	1	0.280
SIF10-M30N-C1-PO	1SAF 130 511 R 1000	1	0.130
SIF10-M30N-C1-NO	1SAF 130 511 R 3000	1	0.130
SIF10-M30E-C1-PO	1SAF 130 511 R 1001	1	0.129
SIN15-M30N-V2-PO	1SAF 130 122 R 1000	1	0.120
SIN15-M30N-V2-PK	1SAF 130 122 R 1200	1	0.130
SIN15-M30N-V2-NO	1SAF 130 122 R 3000	1	0.120
SIN15-M30N-V2-NK	1SAF 130 122 R 3200	1	0.130
SIN15-M30N-V2-AO	1SAF 130 122 R 6000	1	0.280
SIN15-M30N-V2-AC	1SAF 130 122 R 6100	1	0.280
SIN15-M30N-C1-PO	1SAF 130 522 R 1000	1	0.120
SIN15-M30N-C1-NO	1SAF 130 522 R 3000	1	0.120
SIN15-M30E-C1-PO	1SAF 130 522 R 1001	1	0.131

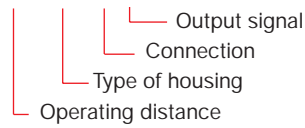


Inductive & capacitive sensors



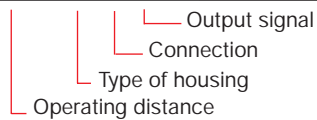
SIF15-Q40N-T-PO

Type	Catalog number	Pack. size/ pieces	Weight 1 piece kg
Inductive Sensors			
SIF2-B28N-V0,1-PO	1SAF 123 111 R 1000	1	0.010
SIF2-B28N-V0,1-N0	1SAF 123 111 R 3000	1	0.010
SIF6-B45N-U2-PO	1SAF 125 111 R 1000	1	0.100
SIF15-Q40N-T-PO	1SAF 144 811 R 1000	1	0.280
SIF15-Q40N-T-PK	1SAF 144 811 R 1200	1	0.280
SIF15-Q40N-T-NO	1SAF 144 811 R 3000	1	0.280
SIF15-Q40N-C1-PO	1SAF 144 511 R 1000	1	0.280
SIF20-Q40N-T-PO	1SAF 144 822 R 1000	1	0.280
SIN20-Q40N-T-AK	1SAF 144 822 R 6200	1	0.280
SIN30-Q40N-T-PO	1SAF 144 823 R 1000	1	0.280
SIN30-Q40N-T-PK	1SAF 144 823 R 1200	1	0.280
SIN30-Q40N-T-AK	1SAF 144 823 R 6200	1	0.280
SIF20-Q40S-C1-PO	1SAF 145 812 R 1000	1	0.140
SIF20-Q40T-C1-PO	1SAF 146 812 R 1000	1	0.140
SIF20-Q40T-C1-PK	1SAF 146 812 R 1200	1	0.140
SIN30-Q40S-C1-PO	1SAF 145 823 R 1000	1	0.140
SIN30-Q40T-C1-PK	1SAF 146 823 R 1200	1	0.140
SIF40-Q80N-T-PK	1SAF 148 811 R 1200	1	0.460
SIN50-Q80N-T-PO	1SAF 148 822 R 1000	1	0.415
SIN50-Q80N-T-PK	1SAF 148 822 R 1200	1	0.415
SIF5-M18N-V2-M	1SAF 118 112 R 8000	1	0.170



SCF10-M30N-V2-AO

Type	Catalog number	Pack. size/ pieces	Weight 1 piece kg
Capacitive Sensors			
SCF10-M30N-V2-PO	1SAF 230 111 R 1000	1	0.280
SCF10-M30N-C1-PO	1SAF 230 511 R 1000	1	0.148
SCF10-M30N-V2-AO	1SAF 230 111 R 6000	1	0.270
SCF10-M30N-V2-PK	1SAF 230 111 R 1200	1	0.240
SCF10-M30N-C1-PK	1SAF 230 511 R 1200	1	0.140

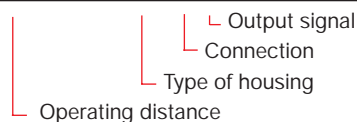


Photoelectric & ultrasonic sensors



SOD500-B45N-C1-PKS

Type	Catalog number	Pack. size/ pieces	Weight 1 piece kg
Photoelectric Sensors			
SOT 20M - B75N-T-KK	1SAF 320 750 R 1100	1	0.190
SOR 1500 - M18N-C1-PO	1SAF 318 542 R 1001	1	0.100
SOR 4000 - M18N-C1-PO	1SAF 318 542 R 1002	1	0.110
SOD 200 - M18N-C1-PO	1SAF 318 553 R 1000	1	0.070
SOR 2000 - B26N-U2-PO	1SAF 323 242 R 1000	1	0.070
SOD 400 - B26N-U2-PO	1SAF 323 253 R 1000	1	0.100
SOR 5000 - B75N-T-POS	1SAF 328 842 R 1000	1	0.200
SOR 5000 - B75N-T-KK	1SAF 328 842 R 1100	1	0.110
SOD 500 - B45N-C1-PKS	1SAF 325 553 R 1210	1	0.060
SOD 500 - B45N-C1-NKS	1SAF 325 553 R 3210	1	0.060
SOR 6000 - B45N-C1-PKS	1SAF 325 545 R 1210	1	0.060
SOR 6000 - B45N-C1-NKS	1SAF 325 545 R 3210	1	0.060
SOT 15M - B45N- C1-PKS	1SAF 325 586 R 1210	1	0.120
SOT 15M - B45N- C1-NKS	1SAF 325 586 R 3210	1	0.120
SORG 2000 - B45N- C1-PKS	1SAF 325 543 R 1210	1	0.060
SORG 2000 - B45N- C1-NKS	1SAF 325 543 R 3210	1	0.060
SOD 800 - B75N-T-POS	1SAF 328 853 R 1000	1	0.200
SOD 2000 - B75N-T-KK	1SAF 328 853 R 1100	1	0.110

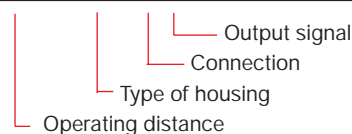


Photoelectric Sensors with Waveguides

Type	Catalog number	Pack. size/ pieces	Weight 1 piece kg
SOLX- B50N-C8-PKS	1SAF 325 160 R 1000	1	0.120
SOLD 50- B50N-PVM6	1SAF 325 152 R 0001	1	0.020
SOLD15- B50N-PVM3	1SAF 325 151 R 0001	1	0.020
SOLT150- B50N-PVM4	1SAF 325 163 R 0001	1	0.011
SOLT150- B50N-PVM3	1SAF 325 163 R 0002	1	0.011

Ultrasonic Sensors

Type	Catalog number	Pack. size/ pieces	Weight 1 piece kg
SUD 500-M30N-C1-POS	1SAF 430 651 R 1002	1	0.200
SUD2000-M30N-C1-POS	1SAF 430 653 R 1002	1	0.200
SUD4000-M30N-C1-POS	1SAF 430 654 R 1002	1	0.210
SUD6000-M30N-C1-POS	1SAF 430 655 R 1002	1	0.400
SUD 500-M30N-C1-NOS	1SAF 430 651 R 3002	1	0.200
SUD2000-M30N-C1-NOS	1SAF 430 653 R 3002	1	0.200
SUD4000-M30N-C1-NOS	1SAF 430 654 R 3002	1	0.210
SUD6000-M30N-C1-NOS	1SAF 430 655 R 3002	1	0.400
SUD 500-M30N-C1-M	1SAF 430 551 R 8002	1	0.220
SUD2000-M30N-C1-M	1SAF 430 553 R 8002	1	0.220
SUD4000-M30N-C1-M	1SAF 430 554 R 8002	1	0.300
SUD6000-M30N-C1-M	1SAF 430 555 R 8002	1	0.400



SUD500-M30N-C1-M

Technical data & Approximate dimensions

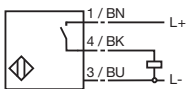
Inductive sensors, small & cylindrical

Inductive Sensors, small, cylindrical

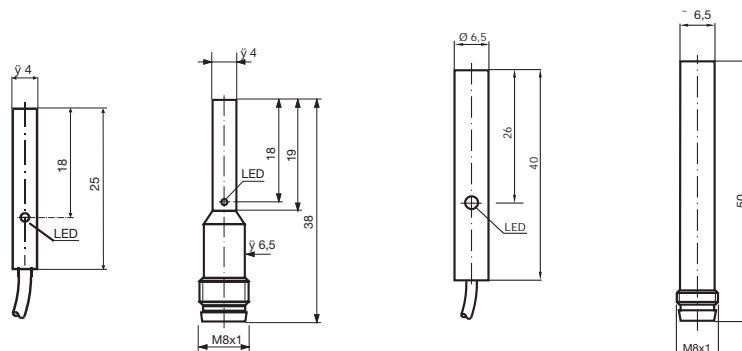
Operating distance S_n , mounting		0.8 mm flush	0.8 mm flush	1.5 mm flush	1.5 mm flush
PNP	NO	SIF0,8-Z4N-V2-PO	SIF0,8-Z4N-C8-PO	SIF1,5-Z6N-U2-PO	SIF1,5-Z6N-C8-PO
	NC				
	Antivalent				
NPN	NO				
	Antivalent				
DC 2-wire	NO				
AC	NO				
	NC				
	Antivalent				
Switching distance	[mm]	0 ... 0.648	0 ... 0.648	0 ... 1.215	0 ... 1.215
Reduction factor r_{V2A}	0.850.850.70.7				
r_{AL}	0.450.450.250.25				
r_{Cu}	0.40.40.20.2				
Operating voltage	[V]	10 ... 30	10 ... 30	10 ... 60	10 ... 60
Operating current	[mA]	200	200	100	100
Switching frequency	[Hz]	3000	3000	500	500
Idle current / residual current	[mA]	10	10	15	15
Line voltage drop	[V]	22233			
Short circuit protection		clocking	clocking	clocking	clocking
Inverse polarity protection		yes	yes	yes	yes
Indication	output signal	LED yellow	LED yellow	LED yellow	-
	voltage	-	-	-	-
Operating temperature range	[°C]	-25 ... 70	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN60947-5-2	EN60947-5-2	EN60947-5-2	EN60947-5-2
Protection class acc. to IEC 60529		IP67	IP67	IP67	IP67
Connection type		2 m, PVC-cable	Connector M8	2 m, PUR-cable	Connector M8
Conductor diameter		0.14 mm ²	-	0.14 mm ²	-
Housing material		stainless steel	stainless steel	stainless steel	stainless steel
Front face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Drawing No.		LS008002	LS000001	FZ015003	FZ015004

Output signals

Output PO



Dimensions in mm



Technical data & Approximate dimensions

Inductive sensors, M 8 x 1 thread

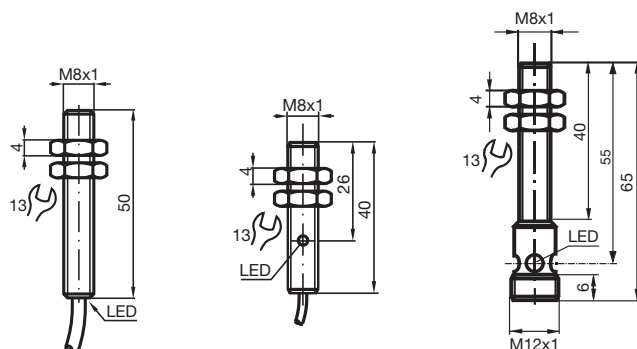
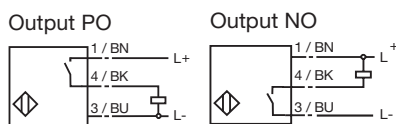


Inductive Sensors, with thread M 8 x 1

Operating distance S_n , mounting		1.5 mm flush	1.5 mm flush	1.5 mm flush
PNP	NO	SIF1,5-M8N-V2-PO	SIF1,5-M8S-U2-PO	SIF1,5-M8S-C1-PO
	NC			
	Antivalent			
NPN	NO	SIF1,5-M8N-V2-NO		
	Antivalent			
DC 2-wire	NO			
AC	NO			
	NC			
	Antivalent			
Switching distance	[mm]	0 ... 1.215	0 ... 1.215	0 ... 1.215
Reduction factor	r_{V2A}	0.75	0.7	0.75
	r_{AL}	0.45	0.25	0.45
	r_{Cu}	0.35	0.2	0.35
Operating voltage	[V]	10 ... 30	10 ... 60	10 ... 30
Operating current	[mA]	100	100	100
Switching frequency	[Hz]	1500	500	1500
Idle current / residual current	[mA]	15	15	15
Line voltage drop	[V]	3	3	3
Short circuit protection		clocking	clocking	clocking
Inverse polarity protection		yes	yes	yes
Indication	output signal	LED yellow	LED yellow	LED yellow
	voltage	-	-	-
Operating temperature range	[°C]	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN60947-5-2	EN60947-5-2	EN60947-5-2
Protection class acc. to IEC 60529		IP67	IP67	IP67
Connection type		2 m, PVC-cable	2 m, PUR-cable	Connector M12
Conductor diameter		0,14 mm ²	0,14 mm ²	-
Housing material		nickel-plated brass	stainless steel	nickel-plated brass
Front face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Drawing No.		FZ015013	FZ015015	FZ015009

Output signals

Dimensions in mm





Technical data & Approximate dimensions

Inductive sensors, M 8 x 1 thread

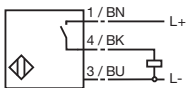
Inductive Sensors, with thread M 8 x 1

Operating distance S_n , mounting		1.5 mm flush	1.5 mm flush
PNP	NO	SIF1,5-M8E-C1-PO	
	NC		
	Antivalent		
NPN	NO		SIF1,5-M8E-C1-NO
	Antivalent		
DC 2-wire	NO		
AC	NO		
	NC		
	Antivalent		
Switching distance	[mm]	0 ... 1.215	0 ... 1.215
Reduction factor	r_{V2A}	0.7	0.67
	r_{AL}	0.25	0.24
	r_{Cu}	0.2	0.21
Operating voltage [V]		10 ... 60	10 ... 60
Operating current [mA]		100	100
Switching frequency [Hz]		500	5000
Idle current / residual current [mA]		15	10
Line voltage drop [V]		3	2.6
Short circuit protection		clocking	clocking
Inverse polarity protection		yes	yes
Indication	output signal	LED yellow	LED yellow
	voltage	-	-
Operating temperature range [°C]		-25 ... 70	-25 ... 70
In compliance with		EN60947-5-2	EN60947-5-2
Protection class acc. to IEC 60529		IP67	IP67
Connection type		Connector M12	Connector M12
Conductor diameter		-	-
Housing material		stainless steel	stainless steel
Front face		PBT (Crastin)	PBT (Crastin)
Drawing No.		EZ015009	EZ015020

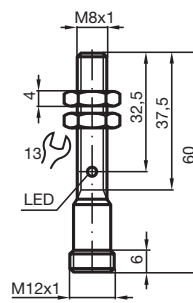
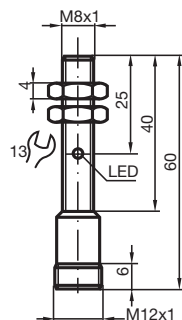
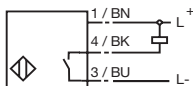
Output signals

Dimensions in mm

Output PO

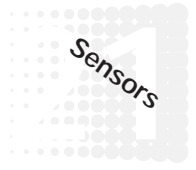


Output NO



Technical data & Approximate dimensions

Inductive sensors, M 8 x 1 thread

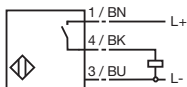


Inductive sensors, with thread M 8 x 1

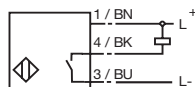
Operating distance S_n , mounting		2 mm non-flush	2 mm non-flush	2 mm non-flush	3 mm quasi flush
PNP	NO	SIN2-M8N-V2-PO	SIN2-M8S-U2-PO	SIN2-M8N-C1-PO	SIN3-M8N-V2-PO
	NC				
	Antivalent				
NPN	NO	SIN2-M8N-V2-NO		SIN2-M8N-C1-NO	
	Antivalent				
DC 2-wires	NO				
AC	NO				
	NC				
	Antivalent				
Switching distance	[mm]	0 ... 1.62	0 ... 1.62	0 ... 1.62	0 ... 2.43
Reduction factor	r_{V2A}	0.75	0.7	0.75	0.77
	r_{AL}	0.45	0.4	0.45	0.36
	r_{Cu}	0.35	0.35	0.35	0.27
Operating voltage	[V]	10 ... 30	10...60	10 ... 30	10 ... 30
Operating current	[mA]	100	100	100	200
Switching frequency	[Hz]	1500	400	1500	1000
Idle current / residual current	[mA]	15	15	15	10
Line voltage drop	[V]	3	3	3	2
Short circuit protection		clocking	clocking	clocking	no
Inverse polarity protection		yes	yes	yes	yes
Indication	output signal	LED yellow	LED yellow	Multi-hole-LED yellow	LED yellow
	voltage	-	-	-	-
Operating temperature range	[°C]	-25 ... 70	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN60947-5-2	EN60947-5-2	EN60947-5-2	EN60947-5-2
Protection class acc. to IEC 60529		IP67	IP67	IP67	IP67
Connection type		2 m, PVC-cable	2 m, PUR-cable	Connector M12	2 m, PVC-cable
Conductor diameter		0.14 mm ²	0.14 mm ²	-	0.14 mm ²
Housing material		nickel-plated brass	stainless steel	nickel-plated brass	chrome-plated brass
Front face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Drawing No.		FZ020038	FZ020002	FZ015032	FZ030001

Output signals

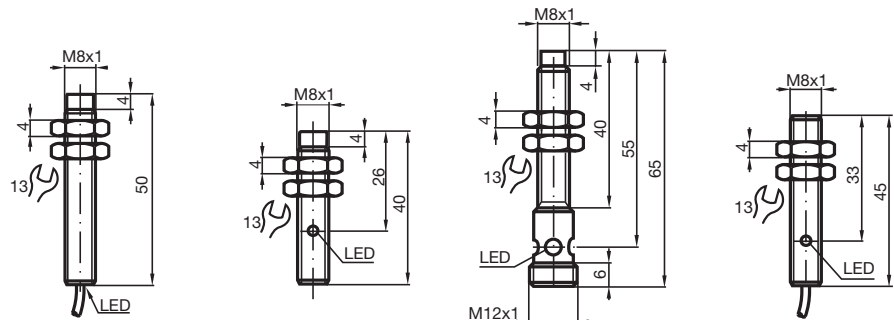
Output PO



Output NO



Dimensions in mm



Technical data & Approximate dimensions

Inductive sensors, M 8 x 1 thread

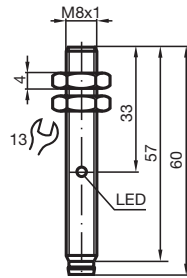
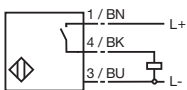
Inductive sensors, with thread M 8 x 1

Operating distance S_n , mounting		3 mm quasi flush
PNP	NO	SIN3-M8N-C8-PO
	NC	
	Antivalent	
NPN	NO	
	Antivalent	
DC 2-wire	NO	
AC	NO	
	NC	
	Antivalent	
Switching distance	[mm]	0 ... 2.43
Reduction factor	r_{V2A}	0.77
	r_{AL}	0.36
	r_{Cu}	0.27
Operating voltage	[V]	10 ... 30
Operating current	[mA]	200
Switching frequency	[Hz]	1000
Idle current / residual current	[mA]	10 / -
Line voltage drop [V]		2
Short circuit protection		no
Inverse polarity protection		yes
Indication	output signal	LED yellow
	voltage	-
Operating temperature range	[°C]	-25 ... 70
In compliance with		EN60947-5-2
Protection class acc. to IEC 60529		IP67
Connection type		Connector M8
Conductor diameter		-
Housing material		chrome-plated brass
Front face		PBT (Crastin)
Drawing No.		FZ030002

Output signals

Dimensions in mm

Output PO



Technical data & Approximate dimensions

Inductive sensors, M 12 x 1 thread

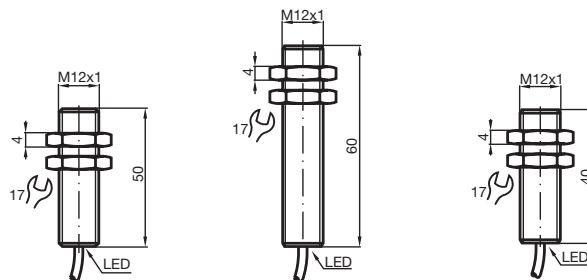
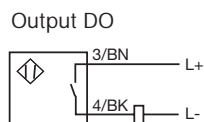
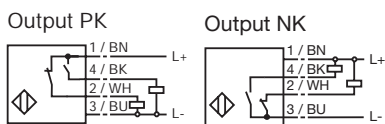
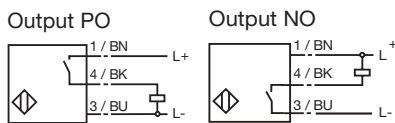


Inductive sensors, with thread M 12 x 1

Operating distance S_n , mounting		2 mm flush	2 mm flush	2 mm flush
PNP	NO	SIF2-M12N-V2-PO		
	NC			
	Antivalent		SIF2-M12N-V2-PK	
NPN	NO	SIF2-M12N-V2-NO		
	Antivalent		SIF2-M12N-V2-NK	
DC 2-wire	NO			SIF2-M12N-V2-DO
AC	NO			
	NC			
	Antivalent			
Switching distance	[mm]	0 ... 1.62	0 ... 1.62	0 ... 1.62
Reduction factor	r_{V2A}	0.7	0.66	0.67
	r_{AL}	0.3	0.25	0.18
	r_{Cu}	0.2	0.15	0.12
Operating voltage	[V]	10 ... 30	10 ... 30	6 ... 60
Operating current	[mA]	200	200	4 ... 100
Switching frequency	[Hz]	1500	1000	2000
Idle current / residual current	[mA]	17	20	0.7
Line voltage drop	[V]	3	3	6
Short circuit protection		clocking	clocking	no
Inverse polarity protection		yes	yes	yes
Indication	output signal	LED yellow	LED yellow	LED yellow
	voltage	-	-	-
Operating temperature range	[°C]	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN60947-5-2	EN60947-5-2	EN60947-5-2
Protection class acc. to IEC 60529		IP67	IP67	IP67
Connection type		2 m, PVC-Kabel	2 m, PVC-Kabel	2 m, PVC-Kabel
Conductor diameter		0.14 mm ²	0.14 mm ²	0.,14 mm ²
Housing material		nickel-plated brass	nickel-plated brass	nickel-plated brass
Front face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Drawing No.		FZ020010	FZ020044	FZ020020

Output signals

Dimensions in mm



Technical data & Approximate dimensions

Inductive sensors, M 12 x 1 thread

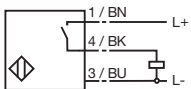
Inductive sensors, with thread M 12 x 1

Operating distance S_n , mounting		2 mm flush	2 mm flush
PNP	NO	SIF2-M12E-C1-PO	
	NC		
	Antivalent		
NPN	NO		
	Antivalent		
DC 2-wire	NO		
AC	NO		
	NC		SIF2-M12E-V2-AC
	Antivalent		
Switching distance	[mm]	0 ... 1.62	0 ... 1.62
Reduction factor	r_{V2A}	0.7	0.65
	r_{AL}	0.23	0.15
	r_{Cu}	0.21	0.1
Operating voltage	[V]	10 ... 60	20 ... 253
Operating current	[mA]	200	
Switching frequency	[Hz]	300025	
Idle current / residual current	[mA]	11	0,8
Line voltage drop	[V]	3	5
Short circuit protection		clocking	no
Inverse polarity protection		yes	no
Indication	output signal	LED yellow	LED red
	voltage	-	-
Operating temperature range	[°C]	-25 ... 70	-25 ... 70
In compliance with		EN60947-5-2	EN60947-5-2
Protection class acc. to IEC 60529		IP67	IP67
Connection type		Connector M12	2 m, PVC-cable
Conductor diameter		-	0.34 mm ²
Housing material		stainless steel	stainless steel
Front face		PBT (Crastin)	PBT (Crastin)
Drawing No.		EZ020014	FZ020014

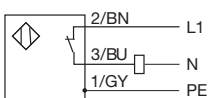
Output signals

Dimensions in mm

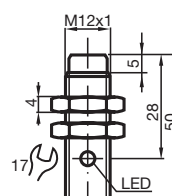
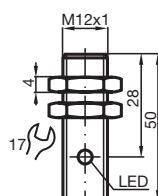
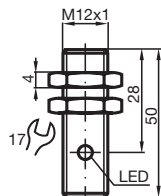
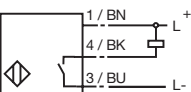
Output PO



Output AC

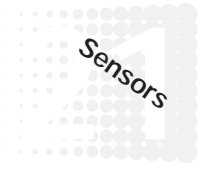


Output NO



Technical data & Approximate dimensions

Inductive sensors, M 12 x 1 thread



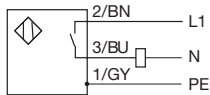
Inductive Sensors, with thread M 12 x 1

Operating distance S_n , mounting		2 mm flush	2 mm flush	2 mm flush	2 mm flush
PNP	NO		SIF2-M12S-V2-PO	SIF2-M12N-C1-PO	SIF2-M12S-C1-PO
	NC				
	Antivalent				
NPN	NO			SIF2-M12N-C1-NO	
	Antivalent				
DC 2-wire	NO				
AC	NO				
	NC	SIF2-M12N-V2-AO			
	Antivalent				
Switching distance	[mm]	0 ... 1.62	0 ... 1.62	0 ... 1.62	0 ... 1.62
Reduction factor	r_{V2A}	0.65	0.7	0.7	0.7
	r_{AL}	0.15	0.3	0.3	0.3
	r_{Cu}	0.1	0.2	0.2	0.2
Operating voltage	[V]	20 ... 253	10 ... 301	0 ... 301	0 ... 30
Operating current	[mA]	5 ... 200	100	200	100
Switching frequency	[Hz]	2510001	500	1000	
Idle current / residual current	[mA]	0,815 / -17 / -15 / -			
Line voltage drop	[V]	5	3	3	3
Short circuit protection		no	clocking	clocking	clocking
Inverse polarity protection		no	yes	yes	yes
Indication	output signal	LED red	LED yellow	Multi-hole LED yellow	LED yellow
	voltage	-	-	-	-
Operating temperature range	[°C]	-25 ... 70	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN60947-5-2	EN60947-5-2	EN60947-5-2	EN60947-5-2
Protection class acc. to IEC 60529		IP67	IP67	IP67	IP67
Connection type		2 m, PVC-cable	2 m, PVC-cable	Connector M12	Connector M12
Conductor diameter			0.34 mm ²	0.14 mm ²	- -
Housing material		stainless steel	nickel-plated brass	nickel-plated brass	nickel-plated brass
Front face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)	
Drawing No.		FZ0200017	WZ000003	FZ020046	WZ060002

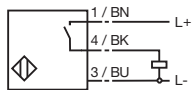
Output signals

Dimensions in mm

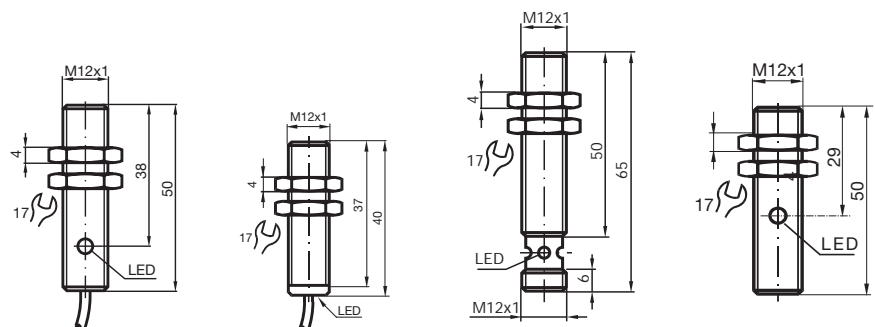
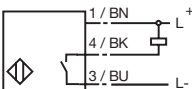
Output AO



Output PO



Output NO



Technical data & Approximate dimensions

Inductive sensors, M 12 x 1 thread

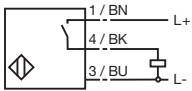
Inductive Sensors, with thread M 12 x 1

Operating distance S_n , mounting		4 mm non-flush	4 mm non-flush	4 mm non-flush	4 mm non-flush
PNP	NO	SIN4-M12N-V2-PO			SIN4-M12S-V2-PO
	NC				
	Antivalent		SIN4-M12N-V2-PK		
NPN	NO	SIN4-M12N-V2-NO			
	Antivalent		SIN4-M12N-V2-NK		
DC 2-wire	NO			SIN4-M12N-V2-DO	
AC	NO				
	NC				
	Antivalent				
Switching distance	[mm]	0 ... 3.24	0 ... 3.24	0 ... 3.24	0 ... 3.24
Reduction factor	r_{V2A}	0.8	0.75	0.74	0.75
	r_{AL}	0.5	0.45	0.37	0.45
	r_{Cu}	0.4	0.4	0.36	0.4
Operating voltage	[V]	10 ... 30	10 ... 30	6 ... 60	10 ... 30
Operating current	[mA]	200	200	4 ... 100	200
Switching frequency	[Hz]	1200	1000	2000	1500
Idle current / residual current	[mA]	17	20	--	0.715
Line voltage drop	[V]	3	3	6	3
Short circuit protection		clocking	clocking	no	clocking
Inverse polarity protection		yes	yes	yes	yes
Indication	output signal	LED yellow	LED yellow	LED yellow	LED yellow
	voltage	-	-	-	-
Operating temperature range	[°C]	-25 ... 70	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN60947-5-2	EN60947-5-2	EN60947-5-2	EN60947-5-2
Protection class acc. to IEC 60529		IP67	IP67	IP67	IP67
Connection type		2 m, PVC-cable	2 m, PVC-cable	2 m, PVC-cable	2 m, PVC-cable
Conductor diameter		0.14 mm ²	0.14 mm ²	0.14 mm ²	0.14 mm ²
Housing material		nickel-plated brass	nickel-plated brass	nickel-plated brass	nickel-plated brass
Front face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Drawing No.		FZ040005	FZ040021	FZ040013	WZ000002

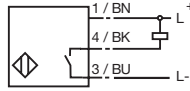
Output signals

Dimensions in mm

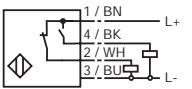
Output PO



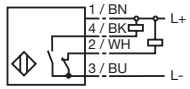
Output NO



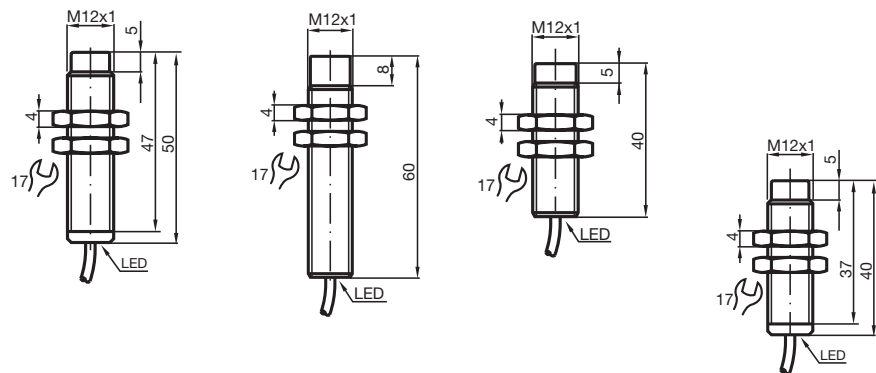
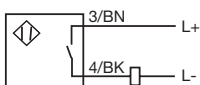
Output PK



Output NK



Ausgang DO



Technical data, Approximate dimensions

Inductive sensors, M 12 x 1 thread



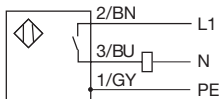
Inductive Sensors, with thread M 12 x 1

Operating distance S_n , mounting		4 mm non-flush	4 mm non-flush	4 mm non-flush
PNP	NO		SIN4-M12N-C1-PO	SIN4-M12S-C1-PO
	NC			
	Antivalent			
NPN	NO		SIN4-M12N-C1-NO	
	Antivalent			
DC 2-wire	NO			
AC	NO	SIN4-M12N-V2-AO		
	NC			
	Antivalent			
Switching distance	[mm]	0 ... 3.24	0 ... 3.24	0 ... 3.24
Reduction factor	r_{V2A}	0.8	0.8	0.75
	r_{AL}	0.45	0.5	0.45
	r_{Cu}	0.4	0.4	0.4
Operating voltage	[V]	20 ... 253	10 ... 301	0 ... 30
Operating current	[mA]	5 ... 200	200	100
Switching frequency	[Hz]	251	200	800
Idle current / residual current	[mA]	- / 0.8	17 / -	15 / -
Line voltage drop	[V]	5	3	3
Short circuit protection		no	taktend	taktend
Inverse polarity protection		no	yes	yes
Indication	output signal	LED red	Multi-hole LED yellow	LED yellow
	voltage	-	-	-
Operating temperature range	[°C]	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN60947-5-2	EN60947-5-2	EN60947-5-2
Protection class acc. to IEC 60529		IP67	IP67	IP67
Connection type		2 m, PVC-cable	Connector M12	Connector M12
Conductor diameter		0.34 mm ²	-	-
Housing material		stainless steel	nickel-plated brass	nickel-plated brass
Front face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Drawing No.		FZ040009	FZ040028	FZ040008

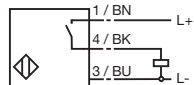
Output signals

Dimensions in mm

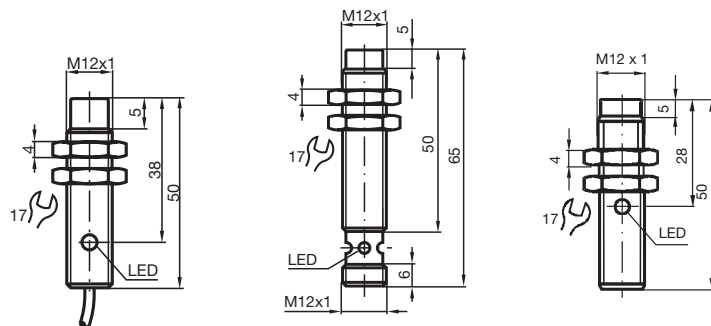
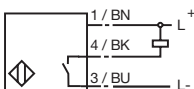
Output AO



Output PO



Output NO



Technical data, Approximate dimensions

Inductive sensors, M 12 x 1 thread

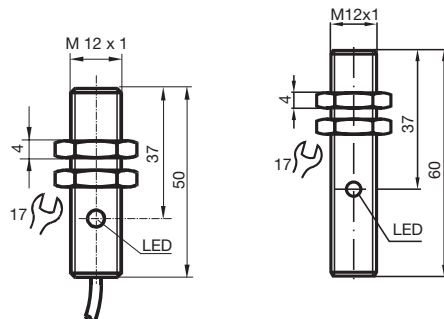
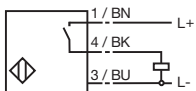
Inductive sensors, with thread M 12 x 1

Operating distance S_n , mounting		6 mm quasi flush	6 mm quasi flush
PNP	NO	SIN6-M12N-V2-PO	SIN6-M12N-C1-PO
	NC		
	Antivalent		
NPN	NO		
	Antivalent		
DC 2-wire	NO		
AC	NO		
	NC		
	Antivalent		
Switching distance	[mm]	0 ... 4.86	0 ... 4.86
Reduction factor	r_{V2A}	0.67	0.67
	r_{AL}	0.28	0.28
	r_{Cu}	0.2	0.2
Operating voltage	[V]	10 ... 30	10 ... 30
Operating current	[mA]	200	200
Switching frequency	[Hz]	800	800
Idle current / residual current	[mA]	10	10
Line voltage drop	[V]	22	
Short circuit protection		no	no
Inverse polarity protection		yes	yes
Indication	output signal	LED yellow	LED yellow
	voltage	-	-
Operating temperature range	[°C]	-25 ... 70	-25 ... 70
In compliance with		EN 60947-5-2	EN 60947-5-2
Protection class acc. to IEC 60529		IP 67	IP 67
Connection type		2 m, PVC-cable	Connector M12
Conductor diameter		0.34 mm ²	-
Housing material		chrome-plated brass	chrome-plated brass
Front face		PBT (Crastin)	PBT (Crastin)
Drawing No.		FZ060001	FZ060002

Output signals

Dimensions in mm

Output PO



Technical data, Approximate dimensions

Inductive sensors, M 18 x 1 thread

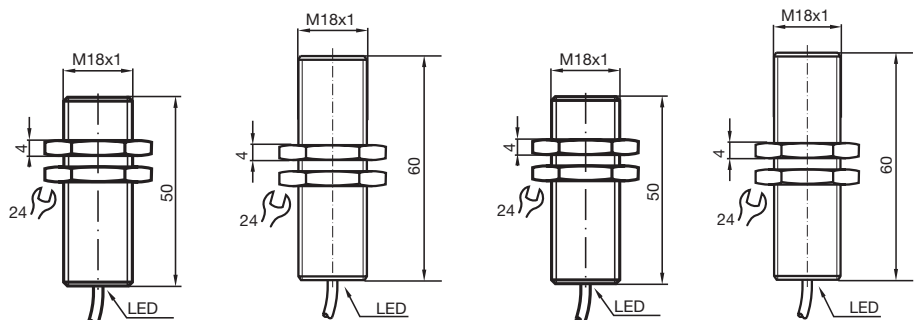
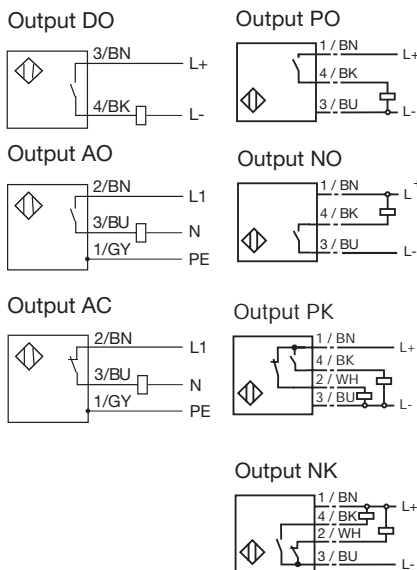


Inductive sensors, with thread M 18 x 1

Operating distance S_n , mounting		5 mm flush	5 mm flush	5 mm flush	5 mm flush
PNP	NO	SIF5-M18N-V2-PO			
	NC				
	Antivalent		SIF5-M18N-V2-PK		
NPN	NO	SIF5-M18N-V2-NO			
	Antivalent		SIF5-M18N-V2-NK		
DC 2-wire	NO			SIF5-M18N-V2-DO	
AC	NO				SIF5-M18N-V2-AO
	NC				SIF5-M18N-V2-AC
	Antivalent				
Switching distance	[mm]	0 ... 4.05	0 ... 4.05	0 ... 4.05	0 ... 4.05
Reduction factor	r_{V2A}	0.7	0.66	0.72	0.62
	r_{AL}	0.3	0.25	0.34	0.2
	r_{Cu}	0.3	0.15	0.31	0.15
Operating voltage	[V]	10 ... 30	10 ... 30	6 ... 60	20 ... 253
Operating current	[mA]	200	200	4... 100	200
Switching frequency	[Hz]	800	800	1500	20
Idle current / residual current	[mA]	20 / -	20 / -	- / 0,7	- / 1,7
Line voltage drop	[V]	3	3	6	8
Short circuit protection		clocking	clocking	no	no
Inverse polarity protection		yes	yes	yes	no
Indication	output signal	LED yellow	LED yellow	LED yellow	LED yellow
	voltage	-	-	-	-
Operating temperature range	[°C]	-25 ... 70	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN 60947-5-2	EN 60947-5-2	EN 60947-5-2	EN 60947-5-2
Protection class acc. to IEC 60529		IP 67	IP 67	IP 67	IP 67
Connection type		2 m, PVC-cable	2 m, PVC-cable	2 m, PVC-cable	2 m, PVC-cable
Conductor diameter		0.14 mm ²	0.34 mm ²	0.34 mm ²	0.34 mm ²
Housing material		nickel-plated brass	nickel-plated brass	nickel-plated brass	nickel-plated brass
Front face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Drawing No.		FZ050008	FZ050020	FZ050008	FZ050020

Output signals

Dimensions in mm





Technical data, Approximate dimensions

Inductive sensors, M 18 x 1 thread

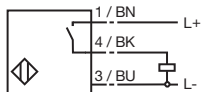
Inductive sensors, with thread M 18 x 1

Operating distance S_n , mounting		5 mm flush	8 mm non-flush	8 mm non-flush
PNP	NO	SIF5-M18N-C1-PO	SIN8-M18N-V2-PO	
	NC			
	Antivalent			SIN8-M18N-V2-PK
NPN	NO	SIF5-M18N-C1-NO	SIN8-M18N-V2-NO	
	Antivalent			SIN8-M18N-V2-NK
DC 2-wire	NO			
AC	NO			
	NC			
	Antivalent			
Switching distance	[mm]	0 ... 4.05	0 ... 6.48	0 ... 6.48
Reduction factor	r_{V2A}	0.7	0.7	0.75
	r_{AL}	0.3	0.5	0.45
	r_{Cu}	0.3	0.4	0.4
Operating voltage	[V]	10 ... 30	10 ... 30	10 ... 30
Operating current	[mA]	200	200	200
Switching frequency	[Hz]	800	500	700
Idle current / residual current	[mA]	20	18	20
Line voltage drop	[V]	3	3	3
Short circuit protection		clocking	clocking	
Inverse polarity protection		yes	yes	yes
Indication	output signal	Mult-hole LED yellow	LED yellow	LED yellow
	voltage	-	-	-
Operating temperature range	[°C]	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN 60947-5-2	EN 60947-5-2	EN 60947-5-2
Protection class acc. to ICE 60529		IP 67	IP 67	IP 67
Connection type		Connector M12	2m, PVC-cable	2m, PVC-cable
Conductor diameter		-	0.34 mm ²	0.34 mm ²
Housing material		nickel-plated brass	nickel-plated brass	nickel-plated brass
Front face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Drawing No.		FZ050032	FZ080003	FZ080013

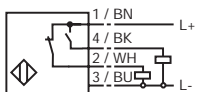
Output signals

Dimensions in mm

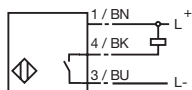
Output PO



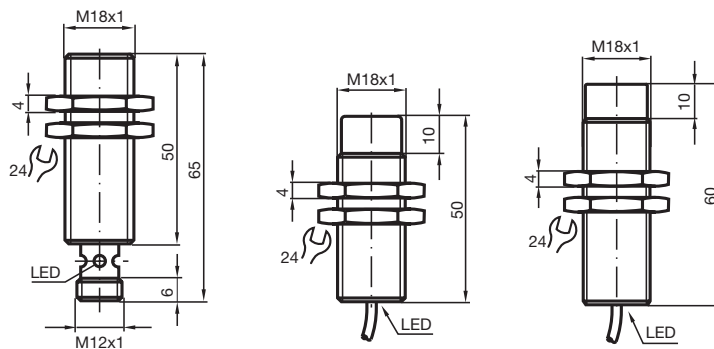
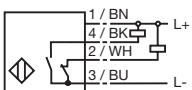
Output PK



Output NO



Output NK



Technical data, Approximate dimensions

Inductive sensors, M 18 x 1 thread

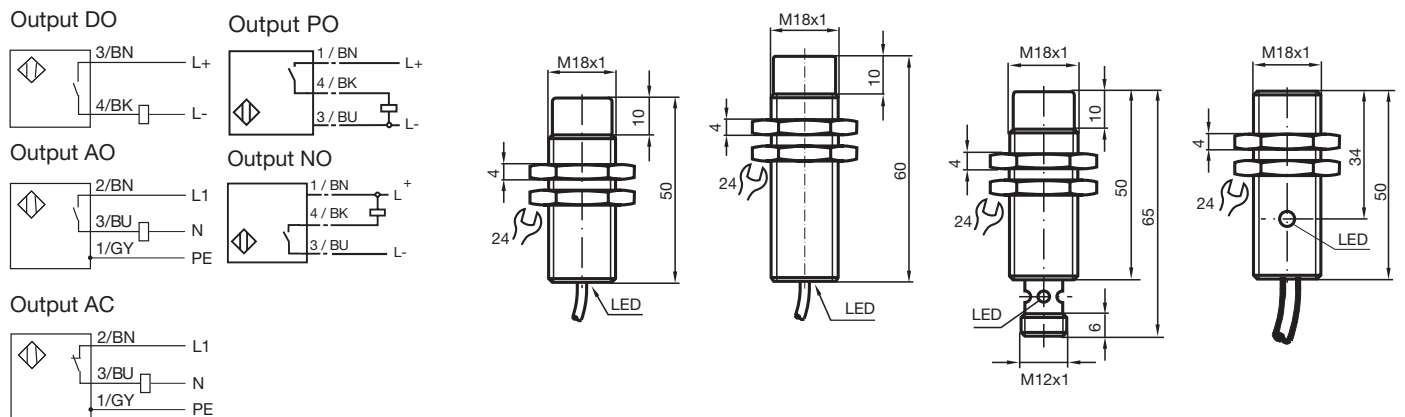


Inductive sensors, with thread M 18 x 1

Operating distance S_n , mounting		8 mm non-flush	8 mm non-flush	8 mm non-flush	12 mm quasi flush
PNP	NO			SIN8-M18N-C1-PO	SIN12-M18N-V2-PO
	NC				
	Antivalent				
NPN	NO			SIN8-M18N-C1-NO	
	Antivalent				
DC 2-wire	NO	SIN8-M18N-V2-DO			
AC	NO		SIN8-M18N-V2-AO		
	NC		SIN8-M18N-V2-AC		
	Antivalent				
Switching distance	[mm]	0 ... 6.5	0 ... 6.5	0 ... 6.48	0 ... 9.72
Reduction factor	r_{V2A}	0.73	0.72	0.7	0.63
	r_{AL}	0.43	0.42	0.5	0.26
	r_{Cu}	0.42	0.4	0.4	0.2
Operating voltage	[V]	6 ... 60	20 ... 253	10 ... 30	10 ... 30
Operating current	[mA]		4 ... 100	200	200 200
Switching frequency	[Hz]		1000	20	500 500
Idle current / residual current	[mA]	- / 0.7	- / 1.7	18 / -	10 / -
Line voltage drop	[V]	6	8	3	2
Short circuit protection		no	no	clocking	no
Inverse polarity protection		yes	no	yes	yes
Indication	output signal	LED yellow	LED yellow	Multi-hole LED yellow	LED yellow
	voltage	-	-	-	-
Operating temperature range	[°C]	-25 ... 70	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN 60947-5-2	EN 60947-5-2	EN 60947-5-2	EN 60947-5-2
Protection class acc. to ICE 60529		IP 67	IP 67	IP 67	IP 67
Connection type		2 m, PVC-cable	2 m, PVC-cable	Connector M12	2 m, PVC-cable
Conductor diameter		0.34 mm ²	0.34 mm ²	-	0.5 mm ²
Housing material		nickel-plated brass	nickel-plated brass	nickel-plated brass	chrome-plated brass
Front face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Drawing No.		FZ080003	FZ080010	FZ080020	FZ120001

Output signals

Dimensions in mm



Technical data, Approximate dimensions

Inductive sensors, M 18 x 1 thread

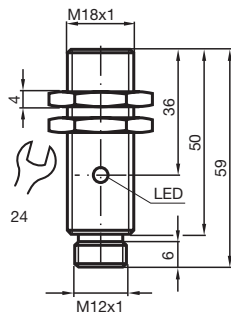
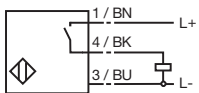
Inductive sensors, with thread M 18 x 1

Operating distance S_n , mounting		12 mm quasi flush
PNP	NO	SIN12-M18N-C1-PO
	NC	
	Antivalent	
NPN	NO	
	Antivalent	
DC 2-wire	NO	
AC	NO	
	NC	
	Antivalent	
Switching distance	[mm]	0 ... 9.72
Reduction factor	r_{VZA}	0.63
	r_{AL}	0.26
	r_{Cu}	0.2
Operating voltage	[V]	10 ... 30
Operating current	[mA]	200
Switching frequency	[Hz]	500
Idle current / residual current	[mA]	10 / -
Line voltage drop	[V]	2
Short circuit protection		no
Inverse polarity protection		yes
Indication	output signal	LED yellow
	voltage	-
Operating temperature range	[°C]	-25 ... 70
In compliance with		EN 60947-5-2
Protection class acc. to ICE 60529		IP 67
Connection type		Connector M12
Conductor diameter		-
Housing material		chrome-plated brass
Front face		PBT (Crastin)
Drawing No.		FZ120002

Output signals

Dimensions in mm

Output PO



Technical data, Approximate dimensions

Inductive sensors, M 18 x 1 thread



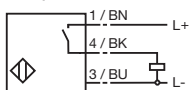
Inductive sensors, with thread M 18 x 1

Operating distance S_n , mounting		5 mm flush	8 mm non-flush
PNP	NO	SIF5-M18E-C1-PO	SIN8-M18E-C1-PO
	NC		
	Antivalent		
NPN	NO	SIF5-M18E-C1-NO	
	Antivalent		
DC 2-wire	NO		
AC	NO		
	NC		
	Antivalent		
Switching distance	[mm]	0 ... 4.05	0 ... 6.48
Reduction factor	r_{V2A}	0.62	0.72
	r_{AL}	0.2	0.42
	r_{Cu}	0.15	0.4
Operating voltage	[V]	10 ... 60	10 ... 60
Operating current	[mA]	200	200
Switching frequency	[Hz]	1500	1000
Idle current / residual current	[mA]	8.5	8.5
Line voltage drop	[V]	33	
Short circuit protection		clocking	clocking
Inverse polarity protection		yes	yes
Indication	output signal	LED yellow	LED yellow
	voltage	-	-
Operating temperature range	[°C]	-25 ... 70	-25 ... 70
In compliance with		EN 60947-5-2	EN 60947-5-2
Protection class acc. to ICE 60529		IP 67	IP 67
Connection type		Connector M12	Connector M12
Conductor diameter		-	-
Housing material		stainless steel	stainless steel
Front face		PBT (Crastin)	PBT (Crastin)
Drawing No.		EZ050013	SIN8-M18E-C1-PO

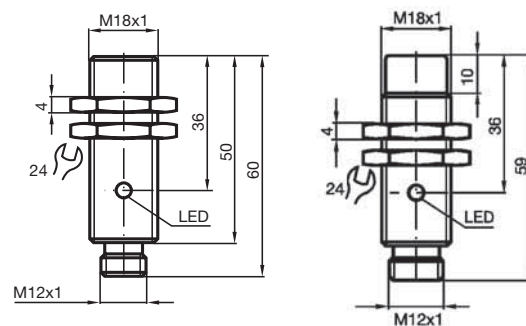
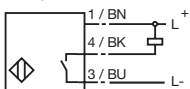
Output signals

Dimensions in mm

Output PO



Output NO



Technical data, Approximate dimensions

Inductive sensors, M 30 x 1.5 thread

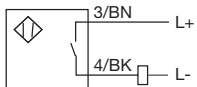
Inductive sensors, with thread M 30 x 1,5

Operating distance S_n , mounting		10 mm flush	10 mm flush	10 mm flush	10 mm flush
PNP	NO	SIF10-M30N-V2-PO			
	NC				
	Antivalent		SIF10-M30N-V2-PK		
NPN	NO	SIF10-M30N-V2-NO			
	Antivalent		SIF10-M30N-V2-NK		
DC 2-wire	NO			SIF10-M30N-V2-DO	
AC	NO				SIF10-M30N-V2-AO
	NC				SIF10-M30N-V2-AC
	Antivalent				
Switching distance	[mm]	0 ... 8.1	0 ... 8.1	0 ... 8.1	0 ... 8.1
Reduction factor	r_{V2A}	0.8	0.66	0.7	0.71
	r_{AL}	0.3	0.25	0.3	0.29
	r_{CU}	0.3	0.15	0.25	0.26
Operating voltage	[V]	10 ... 30	10 ... 30	6 ... 60	20 ... 253
Operating current	[mA]	200	2004 ...	1005 ...	200
Switching frequency	[Hz]	200	200	700	200
Idle current / residual current	[mA]	20 / -	20 / -	- / 0.7	- / 1.7
Line voltage drop	[V]	3	3	6	8
Short circuit protection		clocking	clocking	no	no
Inverse polarity protection		yes	yes	yes	no
Indication	output signal	LED yellow	LED yellow	LED yellow	LED yellow
	voltage	-	-	-	-
Operating temperature range	[°C]	-25 ... 70	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN 60947-5-2	EN 60947-5-2	EN 60947-5-2	EN 60947-5-2
Protection class acc. to ICE 60529		IP 67	IP 67	IP 67	IP 67
Connection type		2 m, PVC-Kabel	2 m, PVC-Kabel	2 m, PVC-Kabel	2 m, PVC-Kabel
Conductor diameter		0.34 mm ²	0.34 mm ²	0.34 mm ²	0.34 mm ²
Housing material		nickel-plated brass	nickel-plated brass	nickel-plated brass	nickel-plated brass
Front face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Drawing No.		FZ100007	FZ100021	FZ100007	FZ100021

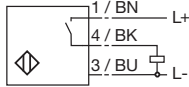
Output signals

Dimensions in mm

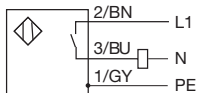
Output DO



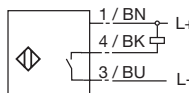
Output PO



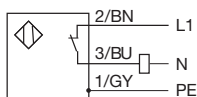
Output AO



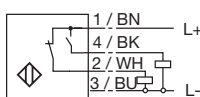
Output NO



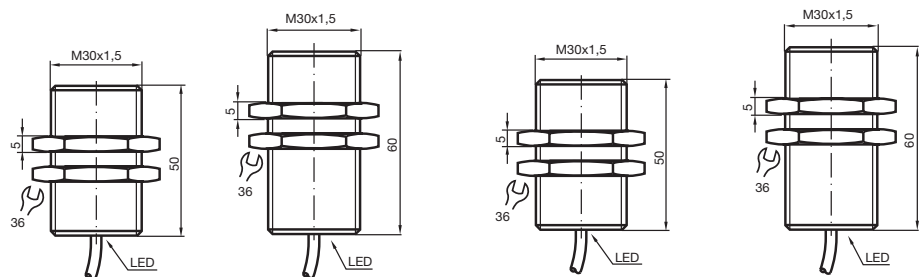
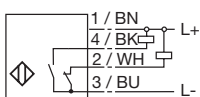
Output AC



Output PK



Output NK



Technical data, Approximate dimensions

Inductive sensors, M 30 x 1.5 thread



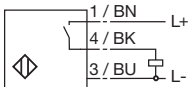
Inductive sensors, with thread M 30 x 1,5

Operating distance S_n , mounting		10 mm flush	15 mm non-flush	15 mm non-flush
PNP	NO	SIF10-M30N-C1-PO	SIN15-M30N-V2-PO	
	NC			
	Antivalent			SIN15-M30N-V2-PK
NPN	NO	SIF10-M30N-C1-NO	SIN15-M30N-V2-NO	
	Antivalent			SIN15-M30N-V2-NK
DC 2-wire	NO			
AC	NO			
	NC			
	Antivalent			
Switching distance	[mm]	0 ... 8.1	0 ... 12.15	0 ... 12.15
Reduction factor	r_{V2A}	0.8	0.8	0.75
	r_{AL}	0.3	0.5	0.45
	r_{Cu}	0.3	0.4	0.4
Operating voltage	[V]	10 ... 30	10 ... 30	10 ... 30
Operating current	[mA]	200	200	200
Switching frequency	[Hz]	200	200	200
Idle current / residual current	[mA]	20 / -	15 / -	20 / -
Line voltage drop	[V]	3	3	3
Short circuit protection	clockinglockinglocking			
Inverse polarity protection	yesyesyes			
Indication	output signal	Multi hole LED yellow	LED yellow	LED yellow
	voltage	-	-	-
Operating temperature range	[°C]	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN 60947-5-2	EN 60947-5-2	EN 60947-5-2
Protection class acc. to ICE 60529		IP 67	IP 67	IP 67
Connection type		Connector M12	2m, PVC-cable	2m, PVC-cable
Conductor diameter		-	0.34 mm ²	0.34 mm ²
Housing material		nickel-plated brass	nickel-plated brass	nickel-plated brass
Front face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Drawing No.		FZ100035	FZ150003	FZ150014

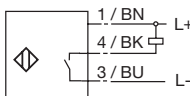
Output signals

Dimensions in mm

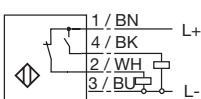
Output PO



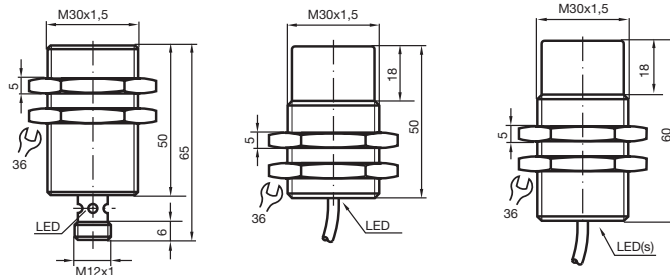
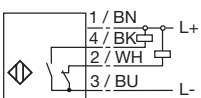
Output NO



Output PK



Output NK



Technical data, Approximate dimensions

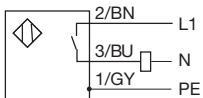
Inductive sensors, M 30 x 1.5 thread

Inductive sensors, with thread M 30 x 1,5

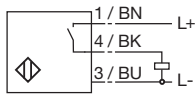
Operating distance S_{pr} , mounting		15 mm non-flush	15 mm non-flush
PNP	NO		SIN15-M30N-C1-PO
	NC		
	Antivalent		
NPN	NO		SIN15-M30N-C1-NO
	Antivalent		
DC 2-wire	NO		
AC	NO	SIN15-M30N-V2-AO	
	NC	SIN15-M30N-V2-AC	
	Antivalent		
Switching distance	[mm]	0 ... 12.2	0 ... 12.15
Reduction factor	r_{V2A}	0.82	0.8
	r_{AL}	0.43	0.5
	r_{Cu}	0.41	0.4
Operating voltage	[V]	20 ... 253	10 ... 30
Operating current	[mA]	5 ... 200	200
Switching frequency	[Hz]	20	200
Idle current / residual current	[mA]	- / 1.7	20 / -
Line voltage drop	[V]	8	3
Short circuit protection		no	clocking
Inverse polarity protection		no	yes
Indication	output signal	LED yellow	Multi-hole LED yellow
	voltage	-	-
Operating temperature range	[°C]	25 ... 70	-25 ... 70
In compliance with		EN 60947-5-2	EN 60947-5-2
Protection class acc. to ICE 60529		IP 67	IP 67
Connection type		2 m, PVC-cable	Connector M12
Conductor diameter		0.34 mm ²	-
Housing material		nickel-plated brass	nickel-plated brass
Front face		PBT (Crastin)	PBT (Crastin)
Drawing No.		FZ 150014	FZ 150027

Output signals

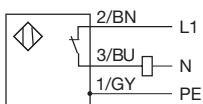
Output AO



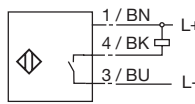
Output PO



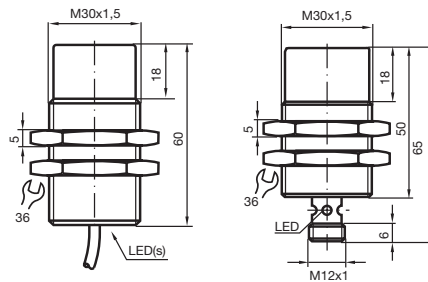
Output AC



Output NO



Dimensions in mm



Technical data, Approximate dimensions

Inductive sensors, M 30 x 1.5 thread

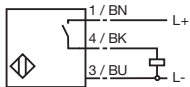


Inductive sensors, with thread M 30 x 1,5

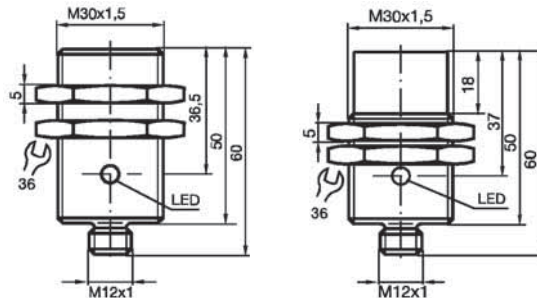
Operating distance S_n , mounting		15 mm flush	15 mm non-flush
PNP	NO	SIF10-M30E-C1-PO	SIN15-M30E-C1-PO
	NC		
	Antivalent		
NPN	NO		
	Antivalent		
DC 2-wire	NO		
AC	NO		
	NC		
	Antivalent		
Switching distance	[mm]	0 ... 8.1	0 ... 12.15
Reduction factor	r_{V2A}	0.72	0.71
	r_{AL}	0.34	0.4
	r_{Cu}	0.32	0.38
Operating voltage	[V]	10 ... 60	10 ... 60
Operating current	[mA]	200	200
Switching frequency	[Hz]	650	500
Idle current / residual current	[mA]	9	12
Line voltage drop	[V]	2.8	2.8
Short circuit protection		clocking	clocking
Inverse polarity protection		yes	yes
Indication	output signal	LED yellow	LED yellow
	voltage	-	-
Operating temperature range	[°C]	-25 ... 70	-25 ... 70
In compliance with		EN 60947-5-2	EN 60947-5-2
Protection class acc. to ICE 60529		IP 67	IP 67
Connection type		Connector M12	Connector M12
Conductor diameter		-	-
Housing material		stainless steel	stainless steel
Front face		PBT (Crastin)	PBT (Crastin)
Drawing No.		SIF10-M30E-C1-PO	SIN15-M30E-C1-PO

Output signals

Output PO



Dimensions in mm



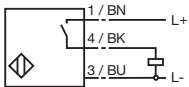
Technical data, Approximate dimensions Inductive sensors , block & square housings

Inductive sensors, Block and square housings

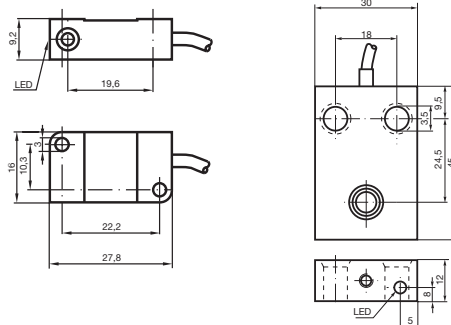
Operating distance S_n , mounting		2 mm flush	6 mm flush
PNP	NO	SIF2-B28N-V0,1-PO	SIF6-B45N-U2-PO
	NC		
	Antivalent		
NPN	NO	SIF2-B28N-V0,1-NO	
	Antivalent		
DC 2-wire	NO		
AC	NO		
	NC		
	Antivalent		
Switching distance	[mm]	0 ... 1.62	0 ... 4.8
Reduction factor	r_{V2A}	0.7	0.7
	r_{AL}	0.35	0.22
	r_{Cu}	0.2	0.2
Operating voltage	[V]	10 ... 30	10 ... 60
Operating current	[mA]	100	200
Switching frequency	[Hz]	1000	500
Idle current / residual current	[mA]	15 / -	20 / -
Line voltage drop	[V]	3	3
Short circuit protection		clocking	clocking
Inverse polarity protection		yes	yes
Indication	output signal	LED yellow	LED yellow
	voltage	-	-
Operating temperature range	[°C]	-25 ... 70	-25 ... 70
In compliance with		EN 60947-5-2	EN 60947-5-2
Protection class acc. to ICE 60529		IP 67	IP 67
Connection type		0.1 m, PVC-cable	2 m, PUR-cable
Conductor diameter		0.14 mm ²	0.34 mm ²
Housing material		PBT (Crastin)	PBT (Crastin)
Front face		PBT (Crastin)	PBT (Crastin)
Drawing No.		FQ030001	FF00001

Output signals

Output PO



Dimensions in mm



Technical data, Approximate dimensions

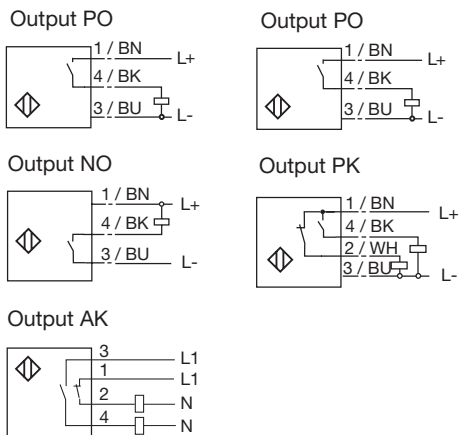
Inductive sensors , block & square housings



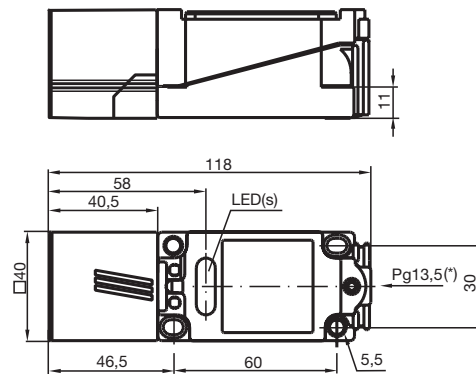
Inductive sensors, Block- and square housings

Operating distance S_n , mounting		15 mm flush	15 mm flush	20 mm flush	20 mm non-flush
PNP	NO	SIF15-Q40N-T-PO	SIF15-Q40N-C1-PO	SIF20-Q40N-T-PO	
	NC				
	Antivalent	SIF15-Q40N-T-PK			
NPN	NO	SIF15-Q40N-T-NO			
	Antivalent				
DC 2-wire	NO				
AC	NO				
	NC				
	Antivalent				SIN20-Q40N-T-AK
Switching distance	[mm]	0 ... 12.15	0 ... 12,15	0 ... 16,2	0 ... 16.2
Reduction factor	r_{V2A}	0.75	0.75	0.8	0.8
	r_{AL}	0.3	0.3	0.3	0.35
	r_{Cu}	0.25	0.25	0.3	0.35
Operating voltage	[V]	10 ... 60	20 ... 253	10 ... 60	20 ... 253
Operating current	[mA]	200	8 ... 500	200	8 ... 500
Switching frequency	[Hz]	150	20	150	20
Idle current / residual current	[mA]	10 / -- / 1.9510 / -- / 1.95			
Line voltage drop	[V]	2.8	12	2.8	12
Short circuit protection		clocking	no	clocking	no
Inverse polarity protection		yes	no	yes	no
Indication	output signal	LED yellow	LED yellow	LED yellow	LED yellow
	voltage	-	-	-	-
Operating temperature range	[°C]	-25 ... 70	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN 60947-5-2	EN 60947-5-2	EN 60947-5-2	EN 60947-5-2
Protection class acc. to ICE 60529		IP 68	IP 68	IP 68	IP 68
Connection type		terminal connection	Connector M12	terminal connection	terminal connection
Conductor diameter		up to 2,5 mm ²	up to 2,5 mm ²	up to 2,5 mm ²	up to 2,5 mm ²
Housing material		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Front face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Drawing No.		CV150002	CV150002	CV150002	CV150002

Output signals



Dimensions in mm

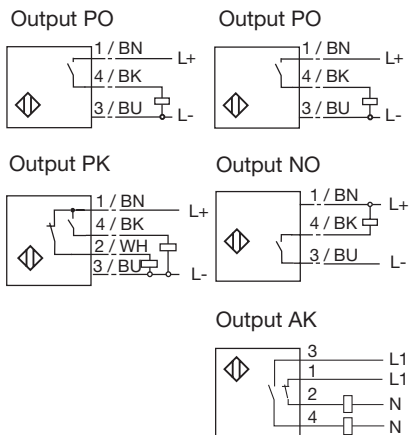


(*) Cable inlet acc. to new standard henceforth in M20

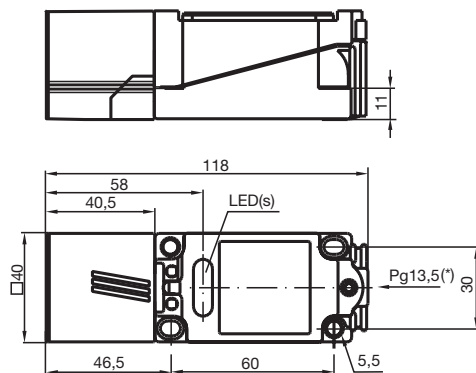
Inductive sensors, Block- and square housings

Operating distance S_n , mounting		30 mm non-flush	30 mm non-flush
PNP	NO	SIN30-Q40N-T-PO	
	NC		
	Antivalent	SIN30-Q40N-T-PK	
NPN	NO		
	Antivalent		
DC 2-wire	NO		
AC	NO		
	NC		
	Antivalent		SIN30-Q40N-T-AK
Switching distance	[mm]	0 ... 24.3	0 ... 24.3
Reduction factor	r_{V2A}	0.8	0.8
	r_{AL}	0.45	0.45
	r_{Cu}	0.4	0.4
Operating voltage	[V]	10 ... 60	20 ... 253
Operating current	[mA]	200	8 ... 500
Switching frequency	[Hz]	100	20
Idle current / residual current	[mA]	10 / -	- / 1.95
Line voltage drop	[V]	2,8	12
Short circuit protection		clocking	no
Inverse polarity protection		yes	no
Indication	output signal	LED yellow	LED yellow
	voltage	-	-
Operating temperature range	[°C]	-25 ... 70	-25 ... 70
In compliance with		EN 60947-5-2	EN 60947-5-2
Protection class acc. to ICE 60529		IP 68	IP 68
Connection type		terminal connection	terminal connection
Conductor diameter		up to 2.5 mm ²	up to 2.5 mm ²
Housing material		PBT (Crastin)	PBT (Crastin)
Front face		PBT (Crastin)	PBT (Crastin)
Drawing No.		CV150002	CV150002

Output signals



Dimensions in mm



(*) Cable inlet acc. to new standard henceforth in M20

Technical data, Approximate dimensions

Inductive sensors, block & square housings



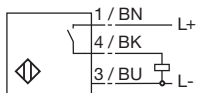
Inductive sensors, Block and square housings

Operating distance S_n , mounting		20 mm, flush	30 mm, non-flush	20 mm, flush	30 mm non-flush
PNP	NO	SIF20-Q40S-C1-PO	SIN30-Q40S-C1-PO	SIF20-Q40T-C1-PO	
	NC				
	Antivalent			SIF20-Q40T-C1-PK	SIN30-Q40T-C1-PK
NPN	NO				
	Antivalent				
DC 2-wire	NO				
AC	NO				
	NC				
	Antivalent				
Switching distance	[mm]	0 ... 16,2	0 ... 24,3	0 ... 16,2	0 ... 24,3
Reduction factor	r_{V2A}	0.85	0.85	0.85	0.85
	r_{AL}	0.4	0.5	0.4	0.5
	r_{Cu}	0.35	0.45	0.35	0.45
Operating voltage	[V]	10 ... 30	10 ... 30	10 ... 30	10 ... 30
Operating current	[mA]	200	200	200	200
Switching frequency	[Hz]	150	150	150	150
Idle current / residual current	[mA]	20 / -	20 / -	20 / -	20 / -
Line voltage drop	[V]	3	3	3	3
Short circuit protection		clocking	clocking	clocking	clocking
Inverse polarity protection		yes	yes	yes	yes
Indication	output signal	Multi-hole LED yellow	Multi-hole LED yellow	LED yellow	LED yellow
	voltage	-	-	-	-
Operating temperature range	[°C]	-25 ... 70	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with		EN 60947-5-2	EN 60947-5-2	EN 60947-5-2	EN 60947-5-2
Protection class acc. to ICE 60529		IP 67	IP 67	IP 67	IP 67
Connection type		Connector M12	Connector M12	Connector M12	Connector M12
Conductor diameter		-	-	-	-
Housing material		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Front face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Drawing No.		CV150006	CV150006	CV150007	CV150007

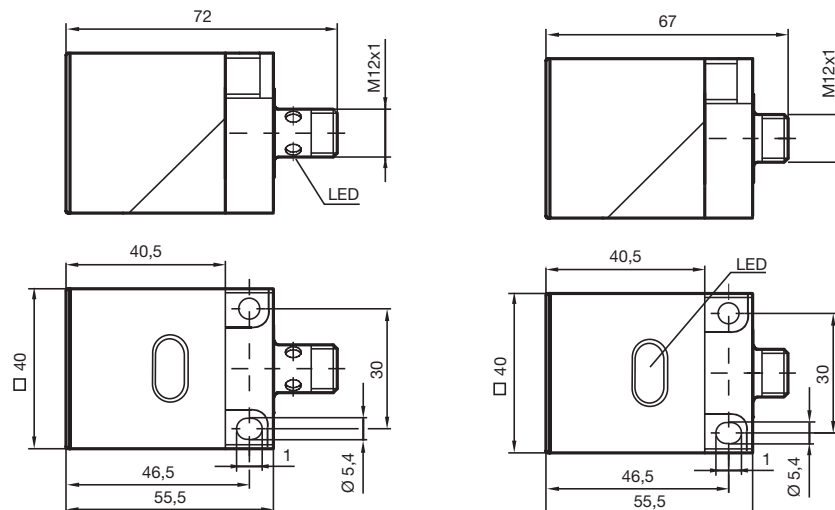
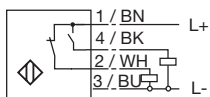
Output signals

Dimensions in mm

Output PO



Output PK



Technical data, Approximate dimensions

Inductive sensors, block & square housings

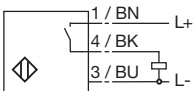
Inductive sensors, Block- and square housings

Operating distance S_n , mounting		40 mm flush	50 mm non-flush
PNP	NO		SIN50-Q80N-T-PO
	NC		
	Antivalent	SIF40-Q80N-T-PK	SIN50-Q80N-T-PK
NPN	NO		
	Antivalent		
DC 2-wire	NO		
AC	NO		
	NC		
	Antivalent		
Switching distance	[mm]	0 ... 32.4	0 ... 40.5
Reduction factor	r_{V2A}	0.83	0.85
	r_{AL}	0.38	0.4
	r_{Cu}	0.38	0.3
Operating voltage	[V]	10 ... 60	10 ... 60
Operating current	[mA]	200	200
Switching frequency	[Hz]	100	100
Idle current / residual current	[mA]	20 / -20 / -	
Line voltage drop	[V]	3	3
Short circuit protection		clocking	clocking
Inverse polarity protection		yes	yes
Indication	output signal	LED yellow	LED yellow
	voltage	LED green	LED green
Operating temperature range	[°C]	-25 ... 7	-25 ... 70
In compliance with		EN 60947-5-2	EN 60947-5-2
Protection class acc. to ICE 60529		IP 67	IP 67
Connection type		terminal connection	terminal connection
Conductor diameter		up to 2.5 mm ²	up to 2.5 mm ²
Housing material		PBT (Crastin)	PBT (Crastin)
Front face		PBT (Crastin)	PBT (Crastin)
Drawing No.		CFP40001	CFP40002

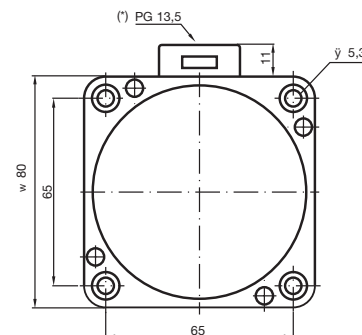
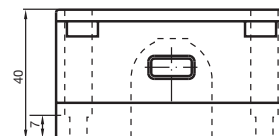
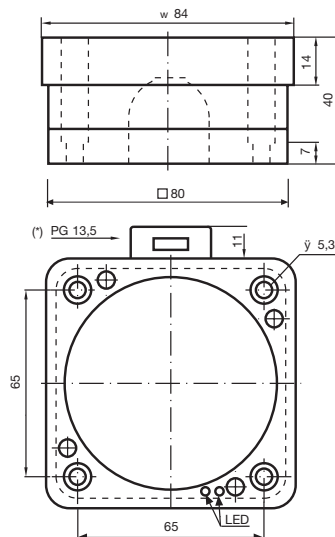
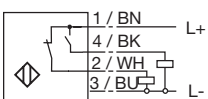
Output signals

Dimensions in mm

Output PO



Output PK

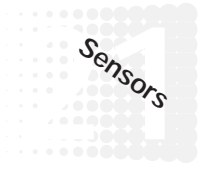


(*) Cable input according to new norm henceforth in M20

(*) Cable input according to new norm henceforth in M20

Technical data, Approximate dimensions

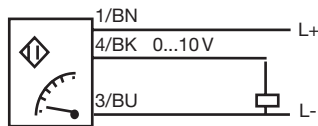
Inductive sensors, Analog sensor



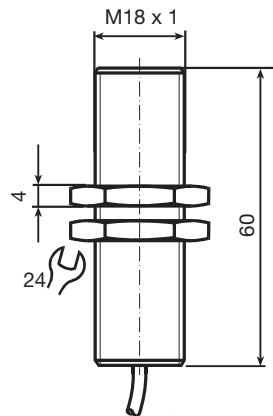
Inductive sensors: Analog sensor

Metering range	2 mm... 5mm	
Type	SIF5-M18N-V2-M	
Operating voltage	V	15...30
Compensation tolerance zero-point	%	±2
Frequency limit (3 dB)	Hz	ca. 110
Reproducibility	µm	6
Output signal	mA	0...20
Load resistance	Ω	0... 500
Output ripple		ca. ± 0.15% of final value
Inverse polarity protection		yes
Temperature drift		ca. ± 0.1%K of final value
Idle current	mA	8
Operating temperature range	°C	-10... 70
In compliance with	EN 60947-5-2	
Protection class acc. to IEC 60529	IP 67	
Connection type	2 m PVC - cable	
Conductor diameter	0.5mm ²	
Housing material	nickel-plated brass	
Front face	PBT (Crastin)	
Drawing No.	WZ000004	

Output signals



Approximate dimensions



Technical data, Approximate dimensions

Capacitive sensors, M 30 x 1.5 thread

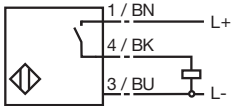
Capacitive sensors, with thread M 30 x 1,5

Operating distance S_n , mounting		10 mm flush	10 mm flush	10 mm flush
PNP	NO	SCF10-M30N-V2-PO	SCF10-M30N-C1-PO	
	NC			
NPN	NO	SCF10-M30N-V2-PK	SCF10-M30N-C1-PK	
	Antivalent			
DC 2-Draht	NO			SCF10-M30N-V2-AO
AC	NO			
	NC			
	Antivalent			
Switching distance	[mm]	1 ... 10	1 ... 10	1 ... 10
Reduction factor		r_{V2A} -	-	-
		r_{AL} -	-	-
		r_{Cu} -	-	-
Operating voltage	[V]	10 ... 60	10 ... 60	20 ... 253
Operating current	[mA]	200	200	200
Switching frequency	[Hz]	10	10	10
Idle current / residual current	[mA]	20 / 0.5	20 / 0.5	- / 1.5
Line voltage drop	[V]	2,8	2,8	8
Short circuit protection		clocking	clocking	no
Inverse polarity protection		yes	yes	yes
Indication	output signal voltage	LED yellow	LED yellow	LED yellow
		-	-	-
Operating temperature range	[°C]	-25 ... 70	-25 ... 70	-25 ... 70
In compliance with Protection class acc. to ICE 60529		EN 60947-5-2 IP 67	EN 60947-5-2 IP 67	EN 60947-5-2 IP 67
Connection type		2 m, PVC-cable	Connector	2 m, PVC-cable
Conductor diameter		0.75 mm ²	-	0.75 mm ²
Housing material		stainless steel	stainless steel	stainless steel
Front face		PBT (Crastin)	PBT (Crastin)	PBT (Crastin)
Drawing No.		LS100018	LS100019	LS100018

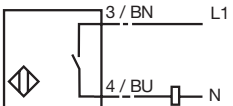
Output signals

Approximate dimensions

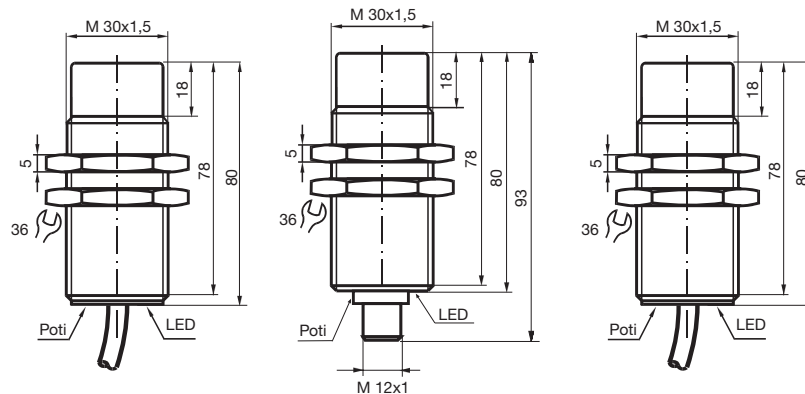
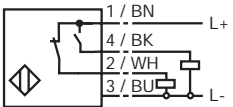
Output PO



Output AO



Output PK



Technical data, Approximate dimensions

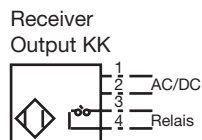
Photoelectric sensors, Through beam



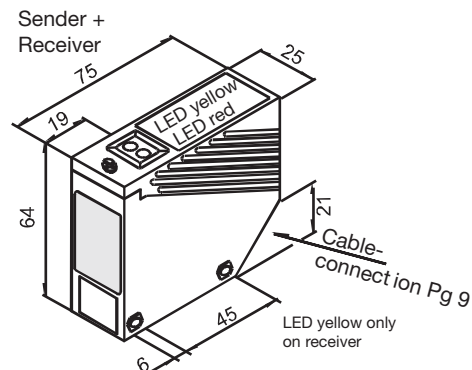
Photoelectric sensors: Through beam sensors

Device identification	STO20M-B75N-T-KK
Sensing range Output	20,000 mm DC, PNP
Operating data Polarized Reference value Range setting Switching frequency (1:1) / response time Readiness delay Range hysteresis Detectable object	No through beam photoelectric sensor with potentiometer 25 Hz / ≤ ms ≤ 50 - opaque
Operating mode LED yellow LED red Type of light External light limit (daylight / halogen light)	Light ON/dark ON, selectable only receiver: Output status rec.: stability control output, send.: net on IR-light 940 nm ≤ 10,000 Lux / ≤ 7,500 Lux
Operating temperature range Storage temperature range	-25°C... +55°C -40°C... +55°C
Electrical data Operating voltage Idle current Output Rated operational current Line voltage drop Stability control output Rated operational current Short-circuit and overload protection Inverse polarity protection	12... 240 VDC ± 10% 24... 240 VAC ± 10%: 50...60 Hz — NC / NO relay: ≤ 240 VAC, ≤ 30 VDC, ≤ 3A — — — no no
Mechanical data Protection class acc. to EN 60529 Optical system Permissible shock and vibration resistance Connection type Weight In compliance with Drawing No.	IP 65 PMMA lenses, pole filter shock b ≤ 30 g, T ≤ 11ms; vibrations f ≤ 55 Hz, a ≤ 1 mm Terminal compartment, cable ø 10 mm emitter: 90 g; receiver: 100g EN 60 947-5-2 CO000008

Output signals



Approximate dimensions



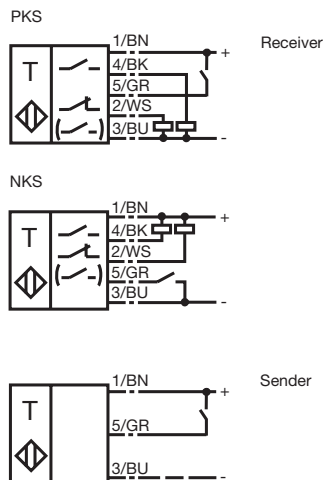
Technical data, Approximate dimensions

Photoelectric sensors, Through beam

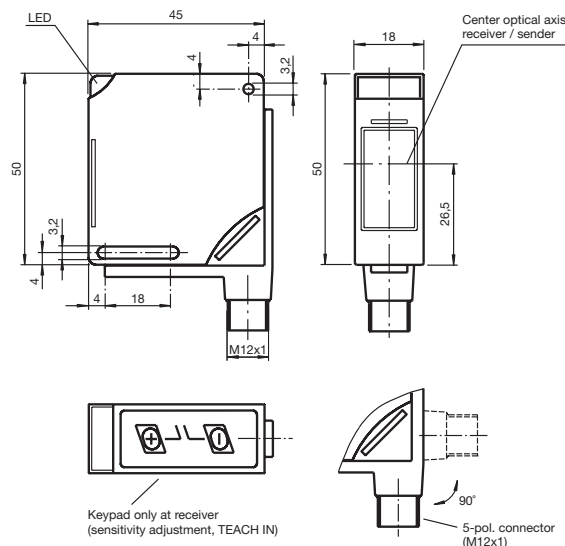
Photoelectric sensors: Through beam sensors

Device identification	SOT15M-B45N-C1-PKS	SOT15M-B45N-C1-NKS
Sensing range Output	2,000 mm ... 15,000 mm DC, PNP	2,000 mm ... 15,000 mm DC, NPN
Operating data Polarized Reference value Range setting Switching frequency (1:1) / response time Readiness delay Range hysteresis Detectable object:	no receiver with +/- keys max. 1 kHz / ≤ 3 ms < 400 ms, with switch-on standardisation - opaque, reflective	no receiver with +/- keys max. 1 kHz / ≤ 3 ms < 400 ms, with switch-on standardisation - opaque, reflective
LED red LED yellow LED green Type of light External light limit (daylight / halogen light)	stability control output flashing 2 Hz, fault indication in teach-in mode 1,5 s switching condition operating status, in teach-in mode flashing visible red light 660 mm ≤ 10,000 Lux / ≤ 7,500 Lux	stability control output flashing 2 Hz, fault indication in teach-in mode 1,5 s switching condition operating status, in teach-in mode flashing visible red light 660 mm ≤ 10,000 Lux / ≤ 7,500 Lux
Operating temperature range Storage temperature range	-25 °C ... +55 °C -40 °C ... +55 °C	-25 °C ... +55 °C -40 °C ... +55 °C
Electrical data Operating voltage Idle current Rated operational current Line voltage drop Input voltage Short-circuit and overload protection Inverse polarity protection	10 VDC ... 30 VDC ±10% ca. 25 mA per device 200 mA per device ≤ 2,5 V for control / test: < 2 V off / > 7 V on yes yes	10 VDC ... 30 VDC ±10% ca. 25 mA per device 200 mA per device ≤ 2,5 V for control / test: < 2 V off / > 7 V on yes yes
Mechanical data Protection class acc. to EN 60529 Optical system Permissible shock- and vibration resistance Connection type Weight In compliance with Housing material	> IP 67, materials approved for use in food production PMMA lenses shock $b \leq 30$ g, $T \leq 11$ ms vibrations $f \leq 55$ Hz, $a \leq 1$ mm Connector M12 x 1, 5 - pole, 90 ° pivoting 60 g per device EN 60 947-5-2 PBT (Crastin), plug and dovetail AISi	> IP 67, materials approved for use in food production PMMA lenses shock $b \leq 30$ g, $T \leq 11$ ms vibrations $f \leq 55$ Hz, $a \leq 1$ mm Connector M12 x 1, 5 - pole, 90 ° pivoting 60 g per device EN 60 947-5-2 PBT (Crastin), plug and dovetail AISi

Output signals



Approximate dimensions



Technical data, Approximate dimensions

Photoelectric sensors, Retroflective



Photoelectric sensors: Retroreflective sensors

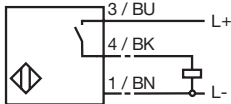
Device identification	SOR1500-M18N-C1-PO	SOR4000-M18N-C1-PO
Sensing range Output	1,500 mm DC, PNP	4,000 mm DC, PNP
Operating data Polarized Reference value Range setting Switching frequency (1:1) / response time Readiness delay Range hysteresis Detectable object:	yes Retroreflector 50mm x 50mm with potentiometer 300 Hz / ≤ 1,5 ms ≤ 50 ms - opaque, reflective	yes Retroreflector 50mm x 50mm with potentiometer ≤ 500 Hz ≤ 25 ms - opaque, reflective
Mode of operation LED yellow LED red Type of light External light limit (daylight / halogen light)	Light ON/dark ON, selectable by wiring switching condition - red light 660 nm ≤ 10,000 Lux / ≤ 3,000 Lux	Light ON/dark ON, selectable electronically switching condition - red light 660 nm ≤ 10,000 Lux / ≤ 3,000 Lux
Operating temperature range Storage temperature range	-25°C ... +55°C -40°C ... +70°C	-25°C ... +55°C -40°C ... +70°C
Electrical data Operating voltage Idle current Output Rated operational current Line voltage drop Stability control output Rated operational current Short-circuit and overload protection Inverse polarity protection	10 VDC ... 30 VDC, ripple 10% _{ss} ≤ 20 mA NC/NO 100 mA ≤ 2,5 V - - yes yes	10 VDC ... 30 VDC ≤ 25 mA NC/NO 100 mA ≤ 2,5 V - - yes yes
Mechanical data Protection class acc. to EN 60529 Optical system Permissible shock- and vibration resistance Connection type Housing material Weight In compliance with Drawing No.	IP 67 PMMA lenses, pole filter shock b ≤ 30 g, T ≤ 11 ms vibrations f ≤ 55 Hz, a ≤ 1mm Connector M12 nickel-plated brass 45 g EN 60 947-5-2 CO00001A	IP 67 PMMA lenses, pole filter shock b ≤ 30 g, T ≤ 11 ms vibrations f ≤ 55 Hz, a ≤ 1mm Connector M12 nickel-plated brass 45 g EN 60 947-5-2 CO00001B

Output signals

Approximate dimensions

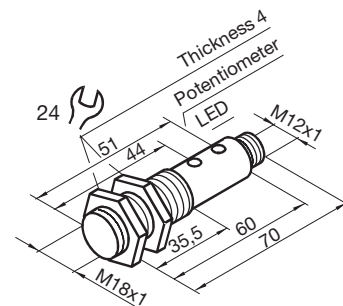
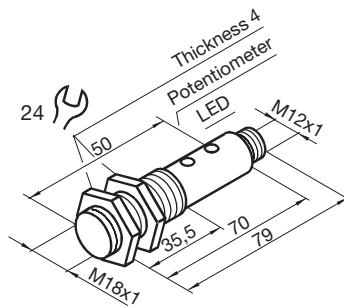
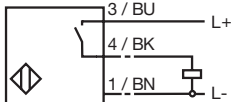
Output PO

Incidence of light → Output high



Output PO

Incidence of light → Output high



Technical data, Approximate dimensions

Photoelectric sensors, Retroflective

Photoelectric sensors: Retroreflective sensors

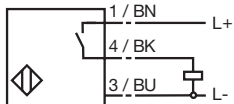
Device identification	SOR2000-B26N-U2-PO
Sensing range Output	2,000 mm DC, PNP
Operating data Polarized Reference value Range setting Switching frequency (1:1) / response time Readiness delay Range hysteresis Detectable object:	no Retroreflector 50mm x 50mm with potentiometer 500 Hz / ≤ 1 ms ≤ 30 ms - opaque
Operating mode LED yellow LED red Type of light External light limit (daylight / halogen light)	Light ON/dark ON, selectable switching condition stability control output IR-light 950 nm ≤ 20,000 Lux / ≤ 5,000 Lux
Operating temperature range Storage temperature range	-25°C ... +70°C -25°C ... +70°C
Electrical data Operating voltage Idle current Output Rated operational current Line voltage drop Stability control output Rated operational current Short-circuit and overload protection Inverse polarity protection	10 VDC ... 30 VDC, ripple 10% _{ss} ≤ 30 mA NC/NO 200 mA ≤ 2,5 V - - yes yes
Mechanical data Protection class acc. to EN 60529 Optical system Permissible shock and vibration resistance Connection type Housing material Weight In compliance with Drawing No.	IP67 PC lenses shock b ≤ 30 g, T ≤ 11 ms vibrations f ≤ 55 Hz, a ≤ 1mm 2 m cable, 3 x 0.14mm ² , PUR black PBT (Crastin) 20 g EN 60 947-5-2 CO000003

Output signals

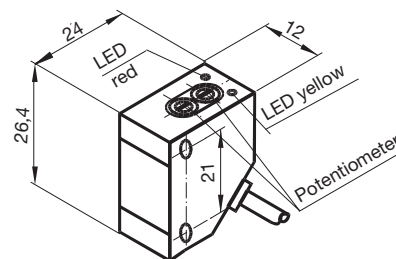
Output PO

Output low / high:

Selection with Potentiometer



Approximate dimensions



Technical data, Approximate dimensions

Photoelectric sensors, Retroflective



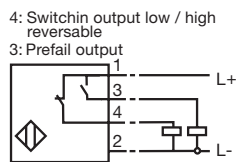
Photoelectric sensors: Retroreflective sensors

Device identification	SOR5000-B75N-T-POS	SOR5000-B75N-T-KK
Sensing range Output	5,000 mm DC, PNP	5,000 mm DC, PNP
Operating data Polarized Reference value Range setting Switching frequency (1:1) / response time Readiness delay Range hysteresis Detectable object:	yes Retroreflector 50mm x 50mm with potentiometer 300 Hz / ≤ 15 ms ≤ 50 ms - opaque, reflective	yes Retroreflector 50mm x 50mm with potentiometer 25 Hz / ≤ 20 ms ≤ 50 ms - opaque, reflective
Mode of operation LED yellow LED red Type of light External light limit (daylight / halogen light)	Light ON/dark ON, switchable switching condition stability control output red light 660 nm ≤ 10,000 Lux / ≤ 7,500 Lux	Light ON/dark ON, switchable switching condition stability control output red light 660 nm ≤ 10,000 Lux / ≤ 7,500 Lux
Operating temperature range Storage temperature range	-25°C ... +55°C -40°C ... +55°C	-25°C ... +55°C -40°C ... +55°C
Electrical data Operating voltage Idle current Output Rated operational current Line voltage drop Stability control output Rated operational current Short-circuit and overload protection Inverse polarity protection	10 VDC ... 30 VDC, ripple 10% _{ss} ≤ 35 mA NC/NO 200 mA ≤ 3 V NO 200 mA short-circuit/overload proof yes yes	12 ... 240 VDC ±10% 24 ... 240 VAC ±10%, 50 ... 60 Hz - NC/NO relay: ≤ 240 VAC, 30 VDC, ≤ 3A - - no no
Mechanical data Protection class acc. to EN 60529 Optical system Permissible shock- and vibration resistance Connection type Housing material Weight In compliance with Drawing No.	IP 66 PMMA lenses, polarisation filter shock b ≤ 30 g, T ≤ 11 ms vibrations f ≤ 55 Hz, a ≤ 1 mm Terminal compartment, cable ø 10 mm PBT (Crastin) 100 g EN 60 947-5-2 CO000006	IP 66 PMMA lenses, polarisation filter shock b ≤ 30 g, T ≤ 11 ms vibrations f ≤ 55 Hz, a ≤ 1 mm Terminal compartment, cable ø 10 mm PBT (Crastin) 110 g EN 60 947-5-2 CO000006

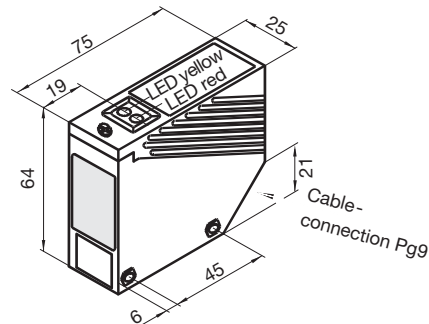
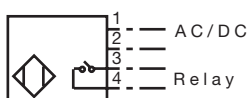
Output signals

Approximate dimensions

Output POS



Output KK



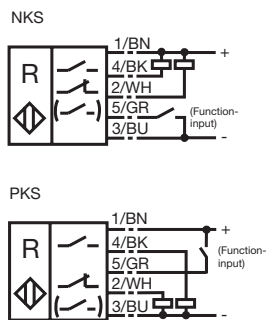
Technical data, Approximate dimensions

Photoelectric sensors, Retroreflective

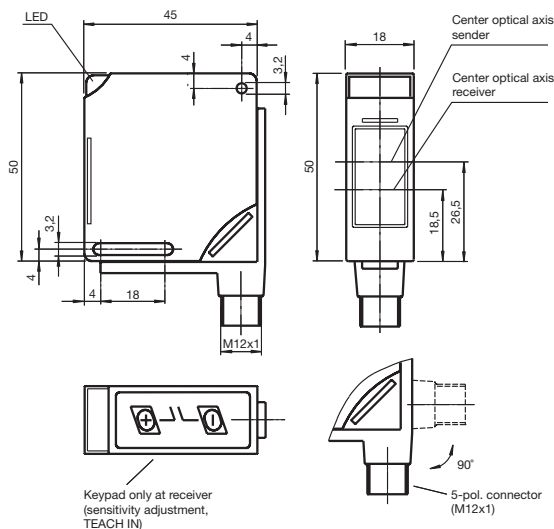
Photoelectric sensors: Retroreflective sensors

Device identification	SOR6000-B45N-C1-PKS	SOR6000-B45N-C1-NKS
Sensing range	0 mm ... 4,000 mm with 50 x 50 mm ² Reflector 0 mm ... 6,000 mm with 100 x 100 mm ² Reflector	0 mm ... 4,000 mm with 50 x 50 mm ² Reflector 0 mm ... 6,000 mm with 100 x 100 mm ² Reflector
Output	DC, PNP	DC, NPN
Operating data Polarized Reference value Range setting Switching frequency (1:1) / response time Readiness delay Range hysteresis Detectable object:	no included reflector 50 x 50 mm ² alternatively 100 x 100 mm ² reflector with +/- keys max. 1 kHz / ≤ 3 ms < 80 ms, with Einschaltnorm adjustable opaque, reflective	no included reflektor 50 x 50 mm ² alternatively 100 x 100 mm ² reflector with +/- keys max. 1 kHz / ≤ 3 ms < 80 ms, with Einschaltnorm adjustable opaque, reflective
LED red LED yellow LED green Type of light External light limit (daylight / halogen light)	Stability control output flashing 2 Hz, Fault indication in teach-in mode 1,5 s switching condition operating status, in teach-in mode flashing visible red light 660 mm ≤ 10,000 Lux / ≤ 7,500 Lux	Stability control output flashing 2 Hz, Fault indication in teach-in mode 1,5 s switching condition operating status, in teach-in mode flashing visible red light 660 mm ≤ 10,000 Lux / ≤ 7,500 Lux
Operating temperature range Storage temperature range	-25 °C ... +55 °C -40 °C ... +55 °C	-25 °C ... +55 °C -40 °C ... +55 °C
Electrical data Operating voltage Idle current Rated operational current Line voltage drop Input voltage Short-circuit and overload protection Inverse polarity protection	10 VDC ... 30 VDC ±10% ca. 25 mA 200 mA ≤ 2,5 V for control / test: < 2 V off / > 7 V on yes yes	10 VDC ... 30 VDC ±10% ca. 25 mA 200 mA ≤ 2,5 V for control / test: < 2 V off / > 7 V on yes yes
Mechanical data Protection class acc. to EN 60529 Optical system Permissible shock- and vibration resistance Connection type Housing material Weight In compliance with	> IP 67, materials approved for use in food production PMMA lenses shock b ≤ 30 g, T ≤ 11 ms vibrations f ≤ 55 Hz, a ≤ 1 mm Connector M12 x 1, 5 - pole, 90 ° pivoting PBT (Grastin), plug and dovetail AISi 60 g EN 60 947-5-2	> IP 67, materials approved for use in food production PMMA lenses shock b ≤ 30 g, T ≤ 11 ms vibrations f ≤ 55 Hz, a ≤ 1 mm Connector M12 x 1,5-pole, 90 ° pivoting PBT (Grastin), plug and dovetail AISi 110 g EN 60 947-5-2

Output signals



Approximate dimensions



Technical data, Approximate dimensions

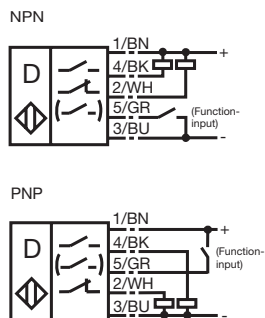
Photoelectric sensors, Retroflective



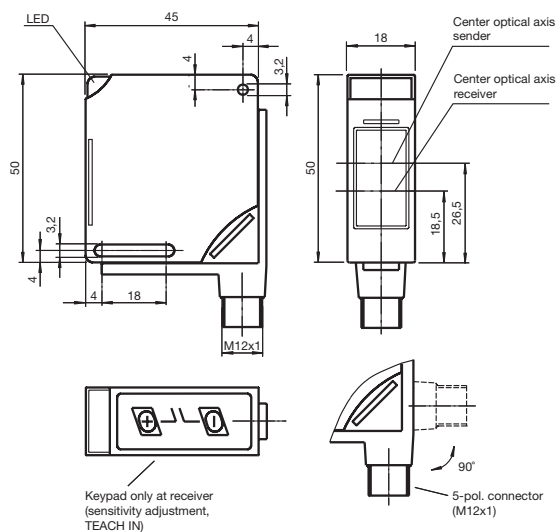
Photoelectric sensors: Retroreflective sensors for the detection of transparent objects

Device identification	SORG2000-B45N-C1-PKS	SORG2000-B45N-C1-NKS
Sensing range Output	0 mm ... 2,000 mm with 50 x 50 mm ² reflector DC, PNP	0 mm ... 2,000 mm with 50 x 50 mm ² reflector DC, NPN
Operating data Polarized Reference value Range setting Switching frequency (1:1) / response time Readiness delay Range hysteresis Detectable object:	yes Reflector 50 x 50 mm ² with +/- keys max. 1 kHz / ≤ 3 ms < 80 ms, with Einschaltnorm adjustable opaque, transparent (z.B. Klarglas, PET, Folien)	yes Reflektor 50 x 50 mm ² with +/- keys max. 1 kHz / ≤ 3 ms < 80 ms, with Einschaltnorm adjustable opaque, transparent (z.B. Klarglas, PET, Folien)
LED red LED yellow LED green Type of light External light limit (daylight / halogen light)	Stability control output flashing 2 Hz, Fault indication in teach-in mode 1,5 s switching condition operating status, in teach-in mode flashing visible red light 660 mm ≤ 10,000 Lux / ≤ 7,500 Lux	Stability control output flashing 2 Hz, Fault indication in teach-in mode 1,5 s switching condition operating status, in teach-in mode flashing visible red light 660 mm ≤ 10,000 Lux / ≤ 7,500 Lux
Operating temperature range Storage temperature range	-25 °C ... +55 °C -40 °C ... +55 °C	-25 °C ... +55 °C -40 °C ... +55 °C
Electrical data Operating voltage Idle current Rated operational current Line voltage drop Input voltage Short-circuit and overload protection Inverse polarity protection	10 VDC ... 30 VDC ±10% ca. 25 mA 200 mA ≤ 2,5 V for control / test: < 2 V off / > 7 V on yes yes	10 VDC ... 30 VDC ±10% ca. 25 mA 200 mA ≤ 2,5 V for control / test: < 2 V off / > 7 V on yes yes
Mechanical data Protection class acc. to EN 60529 Optical system Permissible shock- and vibration resistance Connection type 90 ° schwenkbar Housing material Weight In compliance with	> IP 67, materials approved for use in food production PMMA lenses shock b ≤ 30 g, T ≤ 11 ms vibrations f ≤ 55 Hz, a ≤ 1mm Connector M12 x 1, 5 - pole, 90 ° pivoting PBT (Grastin), plug and dovetail AISI 60 g EN 60 947-5-2	> IP 67, materials approved for use in food production PMMA lenses shock b ≤ 30 g, T ≤ 11 ms vibrations f ≤ 55 Hz, a ≤ 1mm Connector M12 x 1, 5 - pole, PBT (Grastin), plug and dovetail AISI 60 g EN 60 947-5-2

Output signals



Approximate dimensions



Technical data, Approximate dimensions

Photoelectric sensors, Diffuse Retroflective

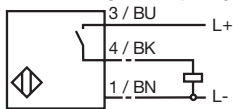
Photoelectric sensors: Diffuse Reflective sensors

Device identification	SOD200-M18N-C1-PO	SOD400-B26N-U2-PO
Sensing range Output	200 mm DC, PNP	400 mm DC, PNP
Operating data Polarized Reference value Range setting Switching frequency (1:1) / response time Readiness delay Range hysteresis Detectable object:	no white 200mm x 200mm with potentiometer 300 Hz / ≤ 1,5 ms ≤ 50 ms ≤ 15 % opaque	no white 100mm x 100mm with potentiometer 500 Hz / ≤ 1 ms ≤ 30 ms ≤ 15 % opaque, transparent
Operating mode LED yellow LED red Type of light External light limit (daylight / halogen light)	Light ON/dark ON, selectable by wiring switching condition - IR-light 940 nm ≤ 10,000 Lux / ≤ 3,000 Lux	Light ON/dark ON, switchable switching condition stability control output IR-light 950 nm ≤ 20,000 Lux / ≤ 5,000 Lux
Operating temperature range Storage temperature range	-25°C ... +55°C -40°C ... +70°C	-25°C ... +70°C -25°C ... +70°C
Electrical data Operating voltage Idle current Output Rated operational current Line voltage drop Stability control output Rated operational current Short-circuit and overload protection Inverse polarity protection	10 VDC ... 30 VDC, ripple 10% _{ss} ≤ 20 mA NC / NO 100 mA ≤ 2,5 V - - yes yes	10 VDC ... 30 VDC, ripple 10% _{ss} ≤ 30 mA NC/NO 200 mA ≤ 2,5 V - - yes yes
Mechanical data Protection class acc. to EN 60529 Optical system Permissible shock- and vibration resistance Connection type Housing material Weight In compliance with Drawing No.	IP 67 PC lenses shock b ≤ 30 g, T ≤ 11 ms vibrations f ≤ 55 Hz, a ≤ 1 mm Connector M12 nickel-plated brass 45 g EN 60 947-5-2 CO000001	IP 67 PC lenses shock b ≤ 30 g, T ≤ 11 ms vibrations f ≤ 55 Hz, a ≤ 1 mm 2m cable PUR black, 3 x 0.14 mm ² PBT (Crastin) 20 g EN 60 947-5-2 CO000003

Output signals

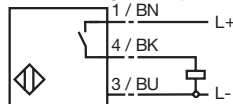
Output PO

Incidence of light → Output high



Output PO

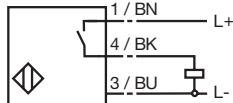
Incidence of light → Output low



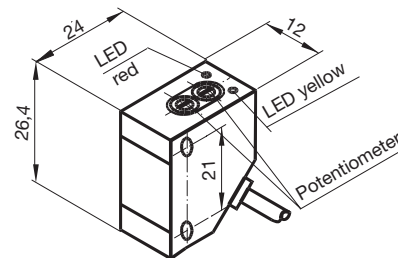
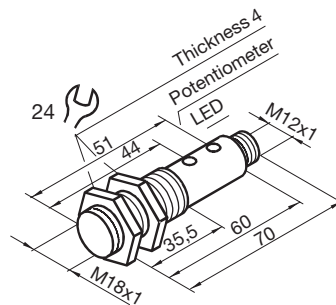
Output PO

Output low / high:

Selection with Potentiometer



Approximate dimensions



Technical data, Approximate dimensions

Photoelectric sensors, Diffuse Retroflective



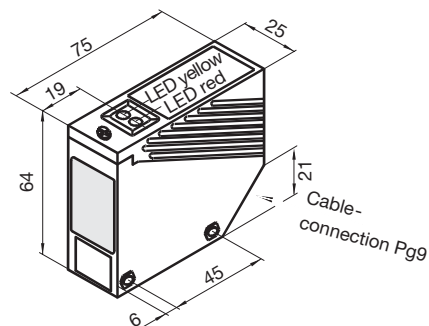
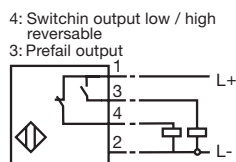
Photoelectric sensors: Diffuse Reflective sensors

Device identification	SOD800-B75N-T-POS
Sensing range Output	800 mm DC, PNP
Operating data Polarized Reference value Range setting Switching frequency (1:1) / response time Readiness delay Range hysteresis Detectable object:	no white 100mm x 100mm with potentiometer 300 Hz / ≤ 15 ms ≤ 50 ms ≤ 15 % opaque, transparent
Operating mode LED yellow LED red Type of light External light limit (daylight / halogen light)	Light ON/dark ON, switchable switching condition stability control output IR-light 940 nm ≤ 10,000 Lux / ≤ 7,500 Lux
Operating temperature range Storage temperature range	-25°C ... +70°C -40°C ... +80°C
Electrical data Operating voltage Idle current Output Rated operational current Line voltage drop Stability control output Rated operational current Short-circuit and overload protection Inverse polarity protection	10 VDC ... 30 VDC, ripple 10% _{ss} ≤ 25 mA NC/NO 200 mA short circuit/overload proof ≤ 3 V NO 10 mA yes yes
Mechanical data Protection class acc. to EN 60529 Optical system Permissible shock- and vibration resistance Connection type Housing material Weight In compliance with Drawing No.	IP 66 PMMA lenses shock b ≤ 30 g, T ≤ 11 ms vibrations f ≤ 55 Hz, a ≤ 1mm Terminal compartment, cable ø 10 mm PBT (Crastin) 100 g EN 60 947-5-2 CO000006

Output signals

Approximate dimensions

Output POS



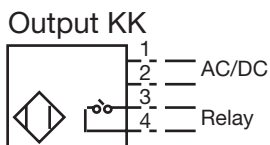
Technical data, Approximate dimensions

Photoelectric sensors, Diffuse Retroflective

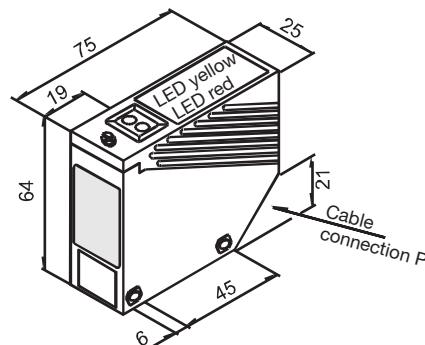
Photoelectric sensors: Diffuse Reflective sensors

Device identification	SOD2000-B75N-T-KK
Sensing range Output	2,000 mm DC, PNP
Operating data Polarized Reference value Range setting Switching frequency (1:1) / response time Readiness delay Range hysteresis Detectable object	no white 200mm x 200mm with potentiometer 300 Hz / ≤ 1,5 ms ≤ 50 ms ≤ 15 % opaque, transparent
Operating mode LED yellow LED red Type of light External light limit (daylight / halogen light)	Light ON/dark ON, switchable switching condition stability control output IR-light 940 nm ≤ 10,000 Lux / ≤ 7,500 Lux
Operating temperature range Storage temperature range	-25°C ... +55°C -40°C ... +55°C
Electrical data Operating voltage Idle current Output Rated operational current Line voltage drop Stability control output Rated operational current Short-circuit and overload protection Inverse polarity protection	12 ... 240 VDC, ±10% 24 ... 240 VAC, ±10%; 50 ... 60 Hz - NC/NO relay: ≤ 240 VAC, ≤ 30 VDC, ≤ 3 A - - - - no no
Mechanical data Protection class acc. to EN 60529 Optical system Permissible shock- and vibration resistance Connection type Weight In compliance with Drawing No.	IP 66 PMMA lenses shock b ≤ 30 g, T ≤ 11 ms vibrations f ≤ 55 Hz, a ≤ 1 mm Terminal compartment, cable ø 10 mm 110 g EN 60 947-5-2 CO000007

Output signals



Approximate dimensions



Technical data, Approximate dimensions

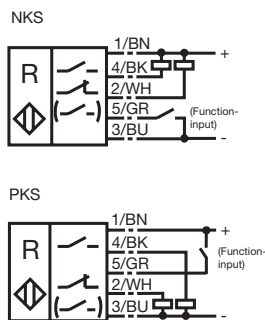
Photoelectric sensors, Diffuse Retroreflective



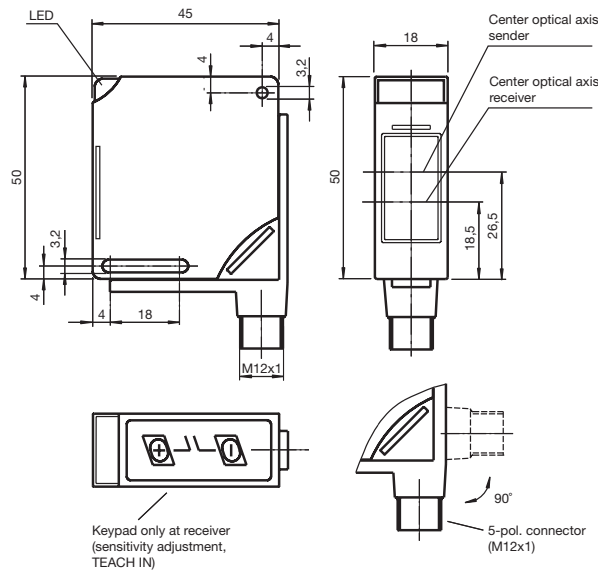
Photoelectric sensors: Diffuse Reflective sensors

Device identification	SOD500-B45N-C1-PKS	SOD500-B45N-C1-NKS
Sensing range Output	DC, PNP	DC, NPN
Operating data Polarized Reference value Range setting Switching frequency (1:1) / response time Readiness delay Range hysteresis Detectable object:	no standard white 100 x 100 mm ² with +/- keys max. 1 kHz / ≤ 3 ms < 80 ms, with activation standard adjustable opaque	no standard white 100 x 100 mm ² with +/- keys max. 1 kHz / ≤ 3 ms < 80 ms, with activation standard adjustable opaque
LED red LED yellow LED green Type of light External light limit (daylight / halogen light)	stability control output flashing 2 Hz, Fault indication in learning mode 1,5 s switching condition Operation indication, flashing in teach-in mode visible red light 660 mm ≤ 10,000 Lux / ≤ 7,500 Lux	stability control output flashing 2 Hz, Fault indication in learning mode 1,5 s switching condition Operation indication, flashing in teach-in mode visible red light 660 mm ≤ 10,000 Lux / ≤ 7,500 Lux
Operating temperature range Storage temperature range	-25 °C ... +55 °C -40 °C ... +55 °C	-25 °C ... +55 °C -40 °C ... +55 °C
Electrical data Operating voltage Idle current Rated operational current Line voltage drop Input voltage Short-circuit and overload protection Inverse polarity protection	10 VDC ... 30 VDC ±10% ca. 25 mA 200 mA ≤ 2,5 V for control/ test: < 2 V off / > 7 V on yes yes	10 VDC ... 30 VDC ±10% ca. 25 mA 200 mA ≤ 2,5 V for control/ test: < 2 V off / > 7 V on yes yes
Mechanical data Protection class acc. to EN 60529 Optical system Permissible shock- and vibration resistance Connection Housing material Weight In compliance with	> IP 67, materials approved for use in food production PMMA lenses shock b ≤ 30 g, T ≤ 11 ms vibrations f ≤ 55 Hz, a ≤ 1 mm Connector M12 x 1.5 - pole, 90 ° pivoting PBT (Grastin), plug and dovetail AISi 60 g EN 60 947-5-2	> IP 67, materials approved for use in food production PMMA lenses shock b ≤ 30 g, T ≤ 11 ms vibrations f ≤ 55 Hz, a ≤ 1 mm Connector M12 x 1.5-pole, 90 ° pivoting PBT (Grastin), plug and dovetail AISi 60 g EN 60 947-5-2

Output signals



Approximate dimensions



Technical data, Approximate dimensions

Fiber-optic photoelectric sensors, Diffuse reflective & thru beam

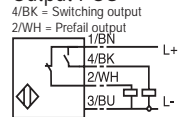
Fibre-optic photoelectric sensors: diffuse-reflective and thru-beam

Device identification	SOLX-B50N-C8-PKS	Programming via encoding switch																																																																																								
Output Sensing ranges with optical waveguides Diffuse-reflective SOLD50-B50N-PVM6: 50 mm SOLD15-B50N-PVM3: 15 mm Thru-beam SOLT150-B50N-PVM4: 150 mm SOLT150-B50N-PVM3: 150 mm	DC, PNP 50 mm 15 mm 150 mm 150 mm	Switch output: NO/ NC Pulse frequency: frequency 1 / frequency 2 Pulse prolongation: 0 ms / 20 ms ±20% only for diffuse-reflective op. Switching rate: 200 Hz / 1,5 kHz																																																																																								
Reference target Centered/ right angle Range setting Switching rate (mark:space1:1) no stability control at 1,5 kHz Response time at 200 Hz / 1.5 kHz Readiness delay Repeatability Detectable object Operating mode Pulse prolongation (als Lichttaster) Protection against mutual interaction LED yellow DUAL-LED green LED red, blinking at 2 Hz Type of light External light limits: daylight/ halogen light Operating temperature range Storage temperature range	white object 50mm x 50mm with potentiometer 200 Hz / 1.5 kHz switchable 2.5 ms / 0.3 ms 20 ms ≤ 0,5 % of sensing range depending on fibre-optic waveguide type Light ON/dark ON selectable 20 ms ± 20 %, switchable 2 pulse frequencies, selectable output status Power on Stability control indication (dynamic) red light 660 nm ≤ 40 000 Lux / ≤ 30 000 Lux -25°C.... +70°C -40°C.... +80°C	<table border="1"> <thead> <tr> <th>Encoding switch</th> <th>Switch output</th> <th>Pulse freq.</th> <th>Pulse prolong.1)</th> <th>Switching rate</th> </tr> </thead> <tbody> <tr><td>0</td><td>NO</td><td>1</td><td>0 ms</td><td>200 Hz</td></tr> <tr><td>1</td><td>NO</td><td>1</td><td>0 ms</td><td>1.5 kHz</td></tr> <tr><td>2</td><td>NO</td><td>1</td><td>20 ms</td><td>200 Hz</td></tr> <tr><td>3</td><td>NO</td><td>1</td><td>20 ms</td><td>1.5 kHz</td></tr> <tr><td>4</td><td>NO</td><td>2</td><td>0 ms</td><td>200 Hz</td></tr> <tr><td>5</td><td>NO</td><td>2</td><td>0 ms</td><td>1.5 kHz</td></tr> <tr><td>6</td><td>NO</td><td>2</td><td>20 ms</td><td>200 Hz</td></tr> <tr><td>7</td><td>NO</td><td>2</td><td>20 ms</td><td>1.5 kHz</td></tr> <tr><td>8</td><td>NC</td><td>1</td><td>0 ms</td><td>200 Hz</td></tr> <tr><td>9</td><td>NC</td><td>1</td><td>0 ms</td><td>1.5 kHz</td></tr> <tr><td>A</td><td>NC</td><td>1</td><td>20 ms</td><td>200 Hz</td></tr> <tr><td>B</td><td>NC</td><td>1</td><td>20 ms</td><td>1.5 kHz</td></tr> <tr><td>C</td><td>NC</td><td>2</td><td>0 ms</td><td>200 Hz</td></tr> <tr><td>D</td><td>NC</td><td>2</td><td>0 ms</td><td>1.5 kHz</td></tr> <tr><td>E</td><td>NC</td><td>2</td><td>20 ms</td><td>200 Hz</td></tr> <tr><td>F</td><td>NC</td><td>2</td><td>20 ms</td><td>1.5 kHz</td></tr> </tbody> </table>	Encoding switch	Switch output	Pulse freq.	Pulse prolong.1)	Switching rate	0	NO	1	0 ms	200 Hz	1	NO	1	0 ms	1.5 kHz	2	NO	1	20 ms	200 Hz	3	NO	1	20 ms	1.5 kHz	4	NO	2	0 ms	200 Hz	5	NO	2	0 ms	1.5 kHz	6	NO	2	20 ms	200 Hz	7	NO	2	20 ms	1.5 kHz	8	NC	1	0 ms	200 Hz	9	NC	1	0 ms	1.5 kHz	A	NC	1	20 ms	200 Hz	B	NC	1	20 ms	1.5 kHz	C	NC	2	0 ms	200 Hz	D	NC	2	0 ms	1.5 kHz	E	NC	2	20 ms	200 Hz	F	NC	2	20 ms	1.5 kHz			
Encoding switch	Switch output	Pulse freq.	Pulse prolong.1)	Switching rate																																																																																						
0	NO	1	0 ms	200 Hz																																																																																						
1	NO	1	0 ms	1.5 kHz																																																																																						
2	NO	1	20 ms	200 Hz																																																																																						
3	NO	1	20 ms	1.5 kHz																																																																																						
4	NO	2	0 ms	200 Hz																																																																																						
5	NO	2	0 ms	1.5 kHz																																																																																						
6	NO	2	20 ms	200 Hz																																																																																						
7	NO	2	20 ms	1.5 kHz																																																																																						
8	NC	1	0 ms	200 Hz																																																																																						
9	NC	1	0 ms	1.5 kHz																																																																																						
A	NC	1	20 ms	200 Hz																																																																																						
B	NC	1	20 ms	1.5 kHz																																																																																						
C	NC	2	0 ms	200 Hz																																																																																						
D	NC	2	0 ms	1.5 kHz																																																																																						
E	NC	2	20 ms	200 Hz																																																																																						
F	NC	2	20 ms	1.5 kHz																																																																																						
Elektrical data Operational voltage 10 VDC... 30 VDC, ripple 10% _{ss} Idle currents 30 mA Switch output NO/NC, switchable Rated operational current 200 mA Line voltage drop ≤ 2.5 V Stability control output NO (dynamical) Rated operational current 10 mA, short-circuit/overload proof Short-circuit and overload prediction yes Reverse polarity prediction	yes	1) only for diffuse-reflective operation Plastic fibre-optic waveguides for Type B50N: The length of the fibre-optic waveguides is 2 m. A cutting tool is also supplied. The minimum bending radius is 15 mm. The fibre-optic waveguide may not be bent in the area of 15 mm at the sensor and waveguide head. The fibre-optic waveguides must be pressed into the sensor's opening, whereby slight resistance will be felt. Fix the fibre-optic waveguide in positions with the screw. Fibre-optic waveguides for diffuse mode Reference target 50mm x 50mm white SOLD50-B50N-PVM6 Nominal range: 50 mm SOLD15-B50N-PVM3 Nominal range 15 mm Fibre-optic waveguides for thru-beam mode SOLT150-B50N-PVM4 (1 set = 2 pieces) Nominal range 150 mm SOLT150-B50N-PVM3 (1 set = 2 pieces) Nominal range 150 mm																																																																																								
Mechanical data Prediction class acc. to EN 60529 Permissible shock- and vibration loading Mounting Connection Housing material Weight In compliance with	IP 63 shock b ≤ 30 g, T ≤ 11 ms vibrations f ≤ 55 Hz, a ≤ 1 mm DIN rail C8-connection, 4 pin PBT (Crastin) 80 g EN 60 947-5-2																																																																																									

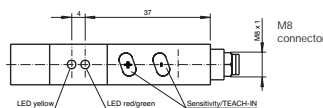
Output signals

Dimensions in mm

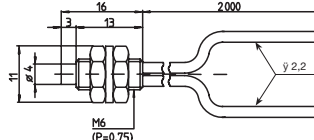
Output POS



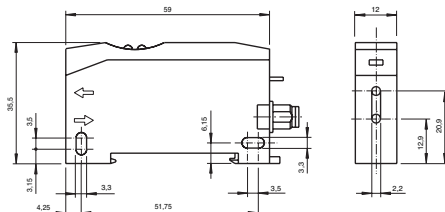
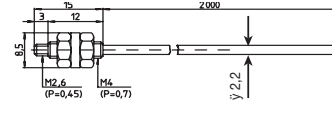
SOLX-B50N-C8-PKS



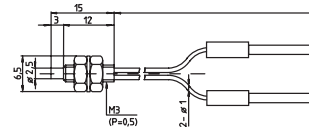
SOLD50-B50N-PVM6



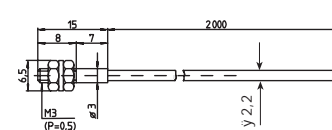
SOLT150-B50N-PVM4



SOLD15-B50N-PVM3



SOLT150-B50N-PVM3



Tuning on target object, Series B45 Photoelectric sensors



Dynamic TEACH-IN for moving objects



If necessary, press the "+"- and "-"- keys at the same time for 5 s (until the green LED flashes once). The sensor is now "unlocked".



Move the objects to be detected (one object should be enough) through the sensing range in the desired distance. The green LED will flash with a higher frequency (4 Hz) for a short period of time. The teach-in has been successful when an object is within the sensing range and the LED flashes with its original frequency again.

Note

It might happen that the change in frequency is not always noticeable.



Press the "+"- and "-"- keys at the same time (about 1 s) until the red LED is turned off. The sensor now is in the "teach in" mode and announces that through a flashing (2 Hz) green LED.



To conclude the TEACH-IN you now have to press either the "+"- or the "-"- key. This way the sensor returns to "normal mode".

Static TEACH-IN of objects with a set distance



If necessary, press the "+"- and "-"- keys at the same time for 5 s (until the green LED flashes once). The sensor is now "unlocked".



The green LED will flash with a higher frequency (4 Hz) for a short period of time. The teach-in has been successful when the LED flashes with its original frequency again.



Move the objects to be detected into the sensing range in the desired distance. Press the "+"- and "-"- keys at the same time (about 1 s) until the red LED is turned off. The sensor now is in the "teach in" mode and announces that through a flashing (2 Hz) green LED.

Note

The sensor is not yet unlocked if the red LED does not start flashing when pressing the keys.



To conclude the TEACH-IN you now have to press either the "+"- or the "-"- key. This way the sensor returns to "normal mode".



OPUS software set

This program is a multi-lingual user interface for the read-in and editing the parameters of photoelectric sensors of series B45. It is a menu-driven program that contains numerous help- and support functions.

The sensors communicate with the PC using an photoelectric-serial interface.

The program shows, which sensor is connected. The program data used as well as the parameters obtained from the sensor can be saved on hard drive or disc, printed out and exported to a database for external use.

The software opens up a variety of setting options for sensors:

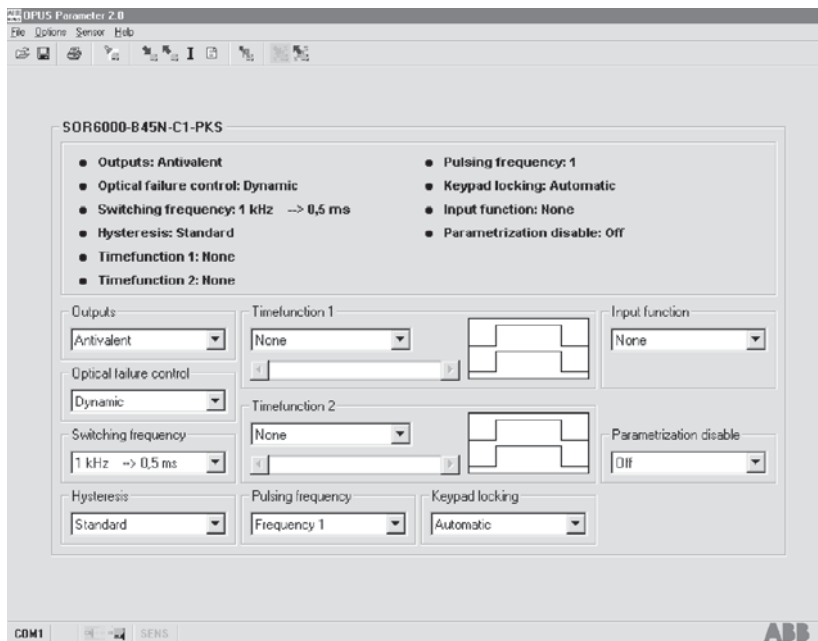
- Choosing the output function: NO/NC
- Type of stability control: dynamic/static
- Switching frequency: 1.5 kHz ... 20 Hz
- Hystereses: small/standard/large
- Readiness delay: none/ 0.1 s ... 25.5 s
- Falling delay/ impulse extension/wiper function
- 3 different pulse frequencies
- Key-lock: off/automatic/always
- Choice of kind of function input: test-/logical-input/div.
- Set-up lock: on/off
- Default read-in/reset

Requirements:

The OPUS parameterization software runs on every PC or Laptop using Windows 3.x, 95 or later that has a free interface for the connection to the sensors.

Included:

- 2 disks 3,5", 1.44 MB for the installation of the OPUS software
- One B45 combi clip
- Manual



Technical data, Approximate dimensions

Ultrasonic sensors (switch output)

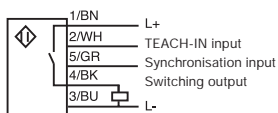


Ultrasonic sensors (switch output)

Device identification:	SUD500-M30N-C1-POS (...-NOS)	SUD2000-M30N-C1-POS (...-NOS)
Sensing range: Output signal:	60...500 mm (NOS), 30...500 mm (POS) PNP, NO (NPN, NO)	200...2000 mm (NOS), 80...2000 mm (POS) PNP, NO (NPN, NO)
Characteristics: Standard test target (min. flat surface) Beam divergence angle Transducer frequency Response time Hysteresis Repeatability Temperature drift	100 mm x 100 mm approx. 5 ° at -3 dB approx. 375 kHz approx. 38 ms ≤ 1 % of set operating distance ≤ 1 % 0,2 % / K	100 mm x 100 mm v. 5 ° at -3 dB approx. 175 kHz approx. 145 ms ≤ 1 % of set operating distance ≤ 1 % 0,2 % / K
Electrical data: Operating voltage U_B / ripple Reverse polarity protection Rated operational current Switch output (PNP-output) Teach-in input (2/WH): Synchronisation input (5/GR) for continuous measurement Synchronisation (used for 2 or more sensors) Measuring time/ switching rate approx. Change of output signals after: Synchronisation pulse / pause length Synchronisation input levels (5/GR) / impedance: Indicators: LED green LED red LED yellow	20 ... 30 VDC / +/- 10 % _{ss} yes ≤ 60 mA 200 mA, U_B -3V short-circuit/overload proof near switch point- U_B near switch point- U_B near switch point ≤ 1s low level or open input Start with falling edge 6,5 ms / ≤ 13Hz 5 impulses / ≥ 60 ms ≥ 100 μs / ≥ 100 μs Low P. 0...1 V, High P. 5V ...+ U_B ca. 27 kΩ Power on, Teach-in function, object detected Fault, object uncertain Output status indicator, Teach-in function, no object detected	20 ... 30 VDC / +/- 10 % _{ss} yes ≤ 60 mA 200 mA, U_B -3V short-circuit/overload proof far switch point+ U_B far switch point+ U_B far switch point ≥ 1s low level or open input Start with falling edge approx. 25 ms / ≤ 3,4 Hz 5 impulses / ≥ 150 ms 100 μs / ≥ 100 μs Low P. 0...1 V, High P. 5V ...+ U_B ca. 27 kΩ Power on, Teach-in function, object detected Fault, object uncertain Output status indicator, Teach-in function, no object detected
Mechanical data: Operating temperature range Storage temperature range Protection class acc. to DIN 40 050 Housing material Transducer material Cover and head Permissible shock- and vibration resistance Connection In compliance with Drawing No.	-25°C ... +70°C -40°C ... +85°C IP 65 nickel-plated brass Epoxy resin/hollow glass bead composite expanded PUR (Polyurethan) PBT (Crastin) b ≤ 30 g, T ≤ 11 ms f ≤ 55 Hz, a ≤ 1 mm Connector M12 EN 60974-5-2 CU000001	-25°C ... +70°C -40°C ... +85°C IP 65 nickel-plated brass Epoxy resin/hollow glass bead composite expanded PUR (Polyurethan) PBT (Crastin) b ≤ 30 g, T ≤ 11 ms f ≤ 55 Hz, a ≤ 1 mm Connector M12 EN 60974-5-2 CU000001

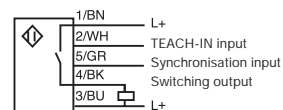
Output signals

Output POS

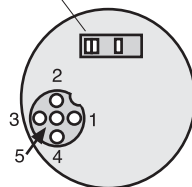


LS000013

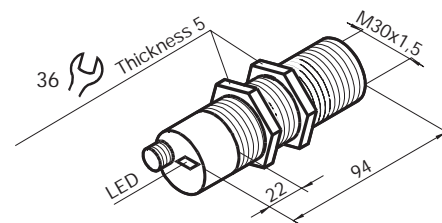
Output NOS



Connector side of sensor
LEDs: green / red / yellow



Dimensions in mm



Technical data, Approximate dimensions

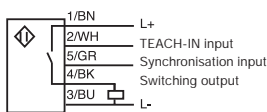
Ultrasonic sensors (switch output)

Ultrasonic sensors (switch output)

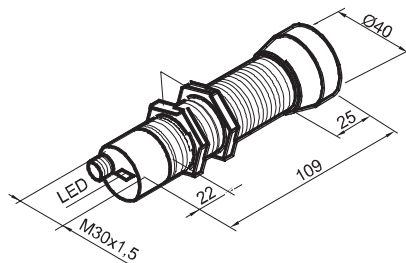
Device identification:	SUD4000-M30N-C1-POS (...-NOS)	SUD6000-M30N-C1-POS (...-NOS)
Sensing range: Output signal:	500...4000 mm (NOS), 200...4000 mm (POS) PNP, NO (NPN, NO)	800...6000 mm (NOS), 350...6000 mm (POS) PNP, NO (NPN, NO)
Characteristics: Standard test target (min. flat surface) Beam divergence angle Transducer frequency Response time Hysteresis Repeatability Temperature drift	100 mm x 100 mm approx. 5° at -3 dB approx. 85 kHz approx. 280 ms ≤ 1 % of set operating distance ≤ 1 % 0.2 % / K	100 mm x 100 mm approx. 5° at -3 dB approx. 65 kHz approx. 480 ms ≤ 1 % of set operating distance ≤ 1 % 0.2 % / K
Electrical data: Operating voltage U_B / ripple Reverse polarity protection Rated operational current Switch output (PNP-output) Synchronisation input (5/GR) for continuous measurement Synchronisation (used for s2 or more sensors) Measuring time/ switching rate c_a Change of output signals after: Synchronisation pulse / pause length Synchronisation input levels (5/GR) / impedance Indicators: LED green LED red LED yellow	20 ... 30 VDC / +/- 10 % _{ss} yes ≤ 60 mA 200 mA, U_B -3V short-circuit/overload proof ≥ 1s low level or open input Start with falling edge 48 ms / ≤ 1,7 Hzca. 5 impulses / ≥ 265 ms ≥ 100 μs / ≥ 100 μs Low P. 0...1 V, High P. 5V ...+ U_B approx. 27 kΩ Power on, Teach-in function, object detected Fault, object uncertain Output status indicator, Teach-in function, no object detectednt	20 ... 30 VDC / +/- 10 % _{ss} yes ≤ 60 mA 200 mA, U_B -3V short-circuit/overload proof ≤ 1s low level or open input Start with falling edge 66 ms / ≤ 1,2 Hz 5 impulses / ≥ 355 ms ≤ 100 μs / ≥ 100 μs Low P. 0...1 V, High P. 5V ...+ U_B approx. 27 kΩ Power on, Teach-in function, object detected Fault, object uncertain Output status indicator, Teach-in function, no object detected
Mechanical data: Operating temperature range Storage temperature range Protection class acc. to DIN 40 050 Housing material Transducer material Cover and head Permissible shock- and vibration resistance Connection In compliance with Drawing No.	-25°C ... +70°C -40°C ... +85°C IP 65 nickel-plated brass Epoxy resin/hollow glass bead composite expanded PUR (Polyurethan) PBT (Crastin) b ≤ 30g, T ≤ 11 ms f ≤ 55 Hz, a ≤ 1 mm Connector M12 EN 60974-5-2 CU000002	-25 °C ... +70 °C -40 °C ... +85 °C IP 65 nickel-plated brass Epoxy resin/hollow glass bead composite expanded PUR (Polyurethan) PBT (Crastin) b ≤ 30 g, T ≤ 11 ms f ≤ 55 Hz, a ≤ 1 mm Round Connector M12 EN 60974-5-2 CU000003

Output signals

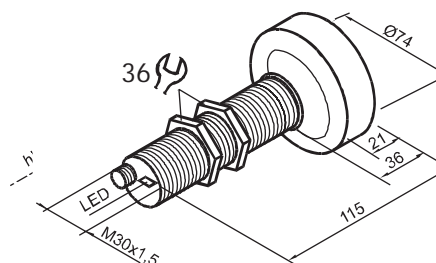
Output POS



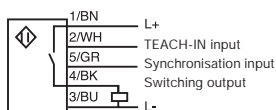
LS000013 Connector side of sensor
LEDs: green / red / yellow



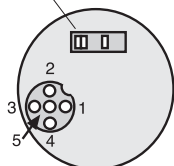
Dimensions in mm



Output NOS



LS000013A



Technical Data

Ultrasonic sensors (switch output)



Ultrasonic sensors (switch output)

Setting the switching points:

The ultrasonic sensor is provided with a switch output with 2 teachable switch points. These are set by applying the supply voltage $-U_B$ or $+U_B$ at the teach-in input. The supply voltage should be applied to the teach-in input for at least 1 s. During the teach-in process, the LEDs indicate whether the sensor has detected the target. The switch points A1 and A2 are taught by voltage $-U_B$ and $+U_B$ respectively.

Five different modes can be set:

1. Window mode, NO function
2. Window mode, NC function
3. One switch point, NO function
4. One switch point, NC function
5. Detection of presence of an object

1. Teach-in Window mode, NO function

- Set object at near switch point
- Teach in switch point A1 with $-U_B$
- Set object at far switch point
- Teach in switch point A2 with $+U_B$

2. Teach-in Window mode, NC function

- Set object at near switch point
- Teach in switch point A2 with $+U_B$
- Set object at far switch point
- Teach in switch point A1 with $-U_B$

3. Teach-in one switch point, NO function

- Set object at near switch point
- Teach in switch point A2 with $+U_B$
- Cover sensor with the palm of your hand or remove all objects from the detection range of sensor
- Teach in switch point A1 with $-U_B$

4. Teach-in one switch point, NC function

- Set object at near switch point
- Teach in switch point A1 with $-U_B$
- Cover sensor with the palm of your hand or remove all objects from the detection range of sensor
- Teach in switch point A2 with $+U_B$

5. Teach-in detection of presence of object

- Cover sensor with the palm of your hand or remove all objects from the detection range of sensor
- Teach in switch point A1 with $-U_B$
- Teach in switch point A2 with $+U_B$

Presetting the switch points:

A1: near range

A2: nominal range

Synchronisation:

The sensor features a synchronisation input in order to suppress mutual interference. If the input is not connected, the sensor operates with an internally generated pulse rate. The sensor can be synchronised by applying a square-wave voltage. A synchronisation pulse at the synchronisation input enables one measuring cycle to be completed. The pulse width must be greater than 100 μ s. The measuring cycle commences with the falling edge. The state of the switch output changes after the switching threshold has been exceeded five times, as determined internally by five measurements. A low level 1 s or an open synchronisation input result in normal operation of the sensor. Synchronisation cannot be carried out during teach-in and vice versa.

Two operating modes are possible:

1. Multiple sensors are controlled with the same synchronising signal but the sensors operate on the same pulse
2. The synchronising pulses are fed cyclically to only one sensor at one time. The sensors operate in multiplex mode. A high level at the synchronisation input deactivates the sensor.

Indication as a function of operating condition	LED green	LED red	LED yellow
Teach-in switch point			
Object detected	flashing	off	off
No object detected	flashing	off	off
Object uncertain (teach-in invalid)	off	flashing	off
Normal operation	off	off	output status
Fault (e.g. compressed air)	off	flashing	last status

Mode of operation of the switch output depending on setting

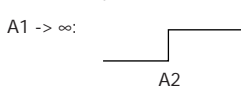
Window mode, NO function



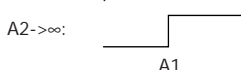
Window mode, NC function



one switch point, NO function



one switch point, NC function



A $\rightarrow \infty$, A2 $\rightarrow \infty$: Detection for presence of object

Object detected: switch output closed / no object detected: switch output open

Accessory: Programming device SZP2>PROG

The programming device ZP2>PROG is available as accessory for the easy programming of ultrasonic sensors with switch output. The device is equipped with a 2 m cable, whose connector/socket can be placed between the connector of the ultrasonic sensor and its connection cable. The sensing range of the sensor can be memorized with two keys A1 and A2. Otherwise follow the teach-in process according to the description above.

Technical data:

Dimensions:

H x W x D [mm]: 22 x 39 x 69

Electric connection:

2 m cable with device connector and socket M12



Technical data, Approximate dimensions

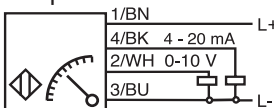
Ultrasonic sensors (analog output)

Ultrasonic sensors (Analog outputs)

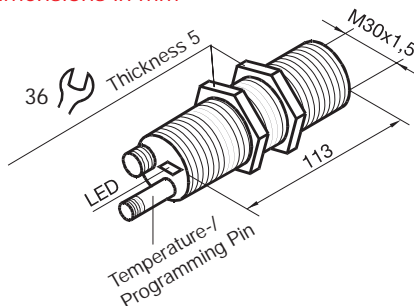
Device identification:	SUD500-M30N-C1-M	SUD2000-M30N-C1-M
General data		
Sensing range	30 ... 500 mm	80 ... 2000 mm
Operating range	50 ... 500 mm	120 ... 2000 mm
Blind zone	0 ... 30 mm	0 ... 80 mm
Standard test target	100 mm x 100 mm	
Transducer frequency	approx. 380 kHz	approx. 180 kHz
Response time	21 ms minimum 63 ms default	65 ms minimum 195 ms default
Indicator/Operating elements		
LED green	permanent: Power on flashing: standby or teach-in function: object detected	
LED yellow 1	permanent: object in operating range flashing: teach-in function	
LED yellow 2	permanent: object in sensing range flashing: teach-in function	
LED red	permanent: temperature-/program plug not plugged in flashing: fault or teach-in function object not detected	
Temperature-/program plugs	temperature compensation, teach-in of operating range, switching of output functions	
Electrical data		
Operating voltage	10 ... 30 V DC, ripple 10 %ss	
Power consumption P _o	≤ 900 mw	
In-/Output		
synchronisation	bidirectional 0-level: -U _B ...+1 V 1-level: +4 V...+U _B input impedancy: > 12 KΩ	
	synchronisation impulse: ≥ 100 µs synchronisation impulse pause: ≥ 2 ms	
Synchronisation frequency		
Common mode	≤ 95 Hz	≤ 30 Hz
Multiplex mode	≤ 95/n Hz, n = number of sensors	≤ 30/n Hz, n = number of sensors
Output		
Output type	1 current output: 4 ... 20 mA 1 voltage output: 0 ... 10 V Evaluation limit [mm]/4000,	
Resolution	but ≤ 0.05 mm	but ≤ 0.35 mm
Characteristic deviation	≤ 0,2 % of final value	
Reproducibility	≤ 0,1 % of final value	
Load impedancy	current output: ≤ 500 Ohm voltage output: ≥ 1000 Ohm	
Temperature influence	≤ 2 % of final value (with temperature compensation) ≤ 0.2 %/K (without temperature compensation)	
Norms		
In compliance with	EN 60947-5-2	
Ambient conditions		
Ambient temperature	-25 ... 70 °C (248 ... 343 K)	
Storage temperature	-40 ... 85 °C (233 ... 358 K)	
Mechanical Data		
Protection Class	IP65	
Connection	Connector VI 5 (M12 x 1), 5-pole	
Material		
Housing	stainless steel 1.4303 plastic parts PBT	
Transducer	Epoxy resin/hollow glass bead composite; expanded PUR (polyurethane)	

Output signals

Output M



Dimensions in mm



Technical data, Approximate dimensions

Ultrasonic sensors (analog output)

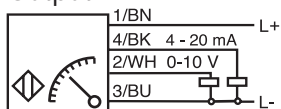


Ultrasonic sensors (Analog outputs)

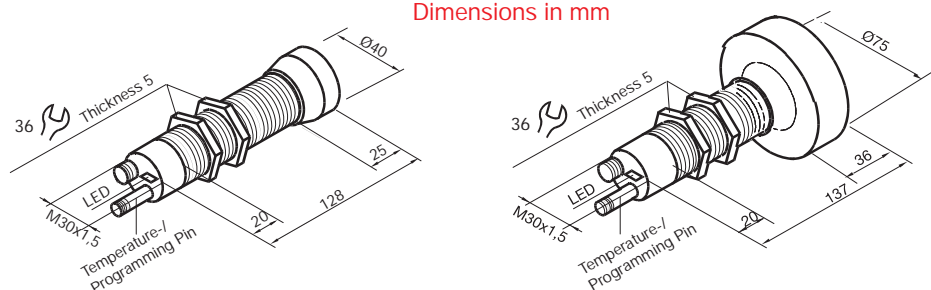
Device identification:	SUD4000-M30N-C1-M	SUD6000-M30N-C1-M
General data		
Sensing range	200 ... 4000 mm	350 ... 6000 mm
Operating range	240 ... 4000 mm	400 ... 2000 mm
Blind zone	0 ... 200 mm	0 ... 350 mm
Standard test target	100 mm x 100 mm	
Transducer frequency	ca. 85 kHz	ca. 65 kHz
Response time	145 ms minimum 440 ms default	285 ms minimum 850 ms default
Indicator/Operating elements		
LED green	permanent: Power on flashing: standby teach-in function: object detected	
LED yellow 1	permanent: object in operating range flashing: teach-in function	
LED yellow 2	permanent: object in sensing range flashing: teach-in function	
LED red	permanent: temperature-/program plug not plugged in flashing: fault or teach-in function object not detected	
Temperature-/program plug	temperature compensation, teach-in of operating range , switching of output functions	
Electrical data		
Operating voltage	10 ... 30 V DC , ripple 10 %ss	
Power consumption Po	≤ 900 mw	
In-/Output		
synchronisation	bidirectional 0-level: -U _B ...+1 V 1-level: +4 V...+U _B Eingangsimpedanz: > 12 KΩ synchronisation impulse: ≥100 μs synchronisation impulse pause: ≥ 2 ms	
Synchronisation frequency		
Common mode operation	≤ 13 Hz	≤ 7 Hz
Multiplex operation	≤ 13/n Hz, n = number of sensors	≤ 7/n Hz, n = number of sensors
Output		
Output type	1 current output: 4 ... 20 mA 1 voltage output: 0 ... 10 V evaluation limit [mm]/4000, but ≤ 0,35 mm	
Resolution	≤ 0,2 % of final value	
Characteristic deviation	≤ 0,1 % of final value	
Reproducibility	current output: ≤ 500 Ohm voltage output: ≥ 1000 Ohm	
Load impedancy	≤ 2 % of final value (with temperature compensation) ≤ 0,2 %/K (without temperatur compensation)	
Temperature influence		
Norms		
In compliance with	EN 60947-5-2	
Ambient conditions		
Ambient temperature	-25 ... 70 °C (248 ... 343 K)	
Storage temperature	-40 ... 85 °C (233 ... 358 K)	
Mechanical Data		
Protection Class	IP65	
Connection	Connector VI 5 (M12 x 1), 5-pole	
Material	stainless steel 1.4303 plastic parts PBT	
Housing		
Transducer	Epoxy resin/hollow glass bead composite; expanded PUR (polyurethane)	

Output signals

Output M



Dimensions in mm



Technical data

Ultrasonic sensors (analog output)

Ultrasonic sensors (analog output)

Description of the sensor functions

This ultrasonic sensor is equipped with a four-pin temperature/teach-in plug, which can be inserted in four different positions. These positions have the significances shown in the table

Plug position	Significance
A1	Teach-in evaluation limit A1
A2	Teach-in evaluation limit A2
E2/E3	Rising/falling ramp Output characteristics of the voltage output go through the zero point
T	Temperature compensation

Description of the teach-in procedure

Teach-in of program evaluation limit 1 resp. 2

- Disconnect the supply voltage
- Disconnect the plug
- Connect the supply voltage (reset)
- Set target on desired switch position
- Insert and then remove program plug into Position A1 resp. A2
- This triggers the teach-in of the evaluation limits A1 resp. A2

Note

The values of the object position will be memorized with the removal of the temperature/teach-in plug.
You can supervise the teach-in process with the LEDs. The green LED flashes if the object has been detected, the red LED flashes, when no object has been detected.

Insert plug into position T to end the teach-in process and to save the taught-in distance. The sensor goes back to normal operation.

Teach-in of analog functions

- Disconnect the supply voltage
- Disconnect the plug
- Connect the supply voltage (reset)
- Insert teach-in plug in position E2/E3
- Repeated plug-ins allow for the programming of 3 different operation modes in cyclical sequence:
 - 1) rising ramp, LED A2 flashes
 - 2) falling ramp, LED A1 flashes
 - 3) zero point straight line

LED A1 and A2 flash

Insert plug into position T to end the teach-in process and to save the taught-in distance.

The sensor goes back to normal operation.

Note

If the temperature/teach-in plug is not inserted into the T-position the sensor will go back to normal operation (with the values saved last) without temperature compensation.

Synchronisation

The sensor is equipped with a synchronisation input for the suppression of inter-fereces. If this input is not on-line the sensor uses with an internally produced clock-speed. The sensor can be synchronised by impressing a square wave voltage.

A falling range will lead to the emission of a single ultrasonic impulse. A low level $\approx 1s$ or an open synchronisation input will lead to the normal operation mode.

A high-level $\approx 1s$ will lead to the stand-by operation mode of the sensor (green LED "ON"). The outputs remain in the status they where in before.

While teaching-in the sensors can not be synchronised and vice versa.

Different modes of operation are possible:

1. 2 (or up to 5) sensors can be synchronized by connecting their respective synchronisation inputs. This way the sensors emit ultrasonic impulses in turn.
2. Several sensors are controlled by the same synchronisation signal. The sensors operate in common mode
3. The synchronisations impulses are cyclically fed to one sensor at a time. The sensors operate in multiplex mode.
4. A high-level at the synchronisation input deactivates the sensor

The response time of a sensor increases in synchronised mode since the synchronisation also increases the measuring cycle time.

Note

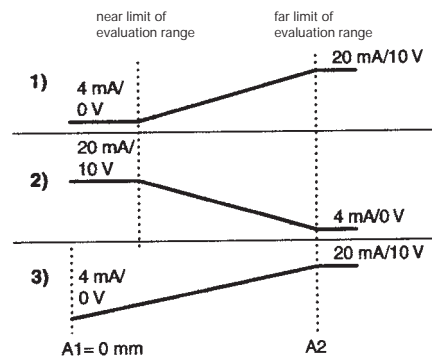
If you don't want to use the synchronisation make sure that either the synchronisation input is grounded or that the sensor is operated with a 4-pole connection cable.

Default

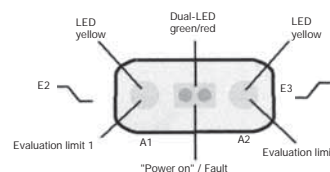
- A1: Close-up range
- A2: Nominal range
- Direction of action: rising ramp

Programming of the analog output

Analog functions



LED-Window



LED-indicator/Analog output

Indications depending on operating mode	Dual LED green	Dual LED red	LED yellow A1	LED yellow A2	Analog output
Teach-in evaluation limit 1					
Object detected	flashing	off	flashing	off	un-changed
Object not detected	off	flashing	flashing	off	
Teach-in evaluation limit 2					
Object detected	flashing	off	off	flashing	un-changed
Object not detected	off	flashing	off	flashing	
Teach-in operation mode (E2/E3)					
rising ramp	on	off	off	un-flashing	changed
falling ramp	on	off	flashing	off	
zero-point straight-line	on	off	flashing (common mode)	flashing (common mode)	
Normal operation					
temperature compensated	on	off	on, if object in evaluation range	on, if object in evaluation range	Analog value
Plug disconn./shorted	off	on			
Standby	flashing	off	last status	last status	unchanged
Fault (e.g. compressed air)	off	flashing	last status	last status	unchanged or fault value

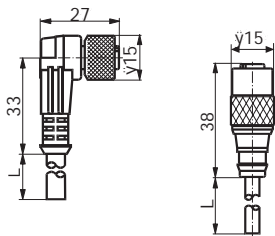
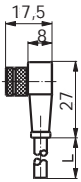
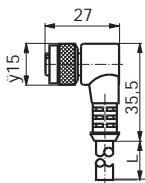
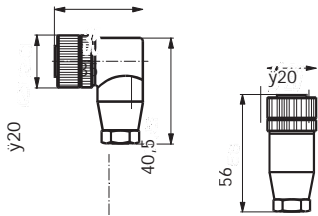
Approximate dimensions

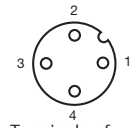
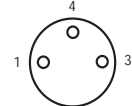
Ultrasonic sensors (analog output)



Accessories

Dimension in mm



SZC1>4POL-0	Socket M12 angled 4 pin	Terminals of plug on Sensor
SZC1/4POL-0	Socket M12 straight 4 pin	 (cannot be used on ultrasonic sensors)
SZC1>U5-3POL-LED0	Cable socket M12 angled Cable 5 m, PUR, 3 polig, LED 1 - 3 LED 4 - 3	Terminals of plug on sensor 1 - BN 3 - BU 4 - BK (not available: 2-WH and 5 - GR)
SZC8>U5-3POL-LED0	Cable socket M8 angled Cable 5 m, PUR, 3 pin, LED 1 - 3 LED 4 - 3	Terminals of plug on sensor 1 - BN 3 - BU 4 - BK 
SZC1>V5-4POL-0	Cable socket M12 angled Cable 5 m, PVC	Terminals 1 - BN 2 - WH
SZC1/V5-4POL-0	Cable socket M12 straight Cable 5 m, PVC	3 - BU 4 - BK

Accessories Catalog numbering system



MB-5 KIT



ST-1



RFL-1



SZP2>PROG



OPUS-Software

Type	Catalog number	Pack. size/ pieces	Weight 1 piece kg
Accessories			
SZP2>PROG	1SAF 912 030 R 7000	1	0.020
SZC1>4POL-0	1SAF 912 020 R 4000	1	0.050
SZC1>4POL-0	1SAF 912 010 R 4000	1	0.050
SZC1>U5-3POL-LED0	1SAF 912 225 R 3100	1	0.200
SZC8>U5-3POL-LED0	1SAF 908 225 R 3100	1	0.200
SZC1>V5-4POL-0	1SAF 912 125 R 4000	1	0.200
SZC1/V5-4POL-0	1SAF 912 115 R 4000	1	0.200
MB5-Kit	1SAF 950 988 R 9403	1	0.100
ST-1	1SAF 950 988 R 9401	1	0.141
RFL-1	1SAF 950 988 R 9402	1	0.120
OPUS-Software	1SAF 950 988 R 9404	1	0.020
MH04-Mounting tool	1SAF 950 988 R 9405	1	0.282

Catalog numbering system

Inductive / Capacitive / Photoelectric and Ultrasonic Sensors

Type of Sensor

- SI** = Inductive
- SC** = Capacitive
- SO** = Photoelectric
- SU** = Ultrasonic
- SOL** = Light guide

Installation method

- F** = flush mounting (inductive and capacitive)
- N** = non-flush mounting (inductive and capacitive)
- R** = Retroreflective
- D** = Diffuse reflective (photoelectric and ultrasonic)
- T** = Through beam (photoelectric)

Sensing range

in mm

Housing

- Z** = cylindrical **4, 6** = diameter (mm)
- M** = Thread **8, 12, 18, 30** = diameter (mm)
- Q** = block with square front **30, 40, 80** = diagonal (mm)
- B** = block **26, 40, 45, 75** = corner distance (mm)
- N** = normal type length
- S** = short type length
- T** = short type length
- E** = stainless steel

Connections

- V2** = PVC, 2m cable
- U2** = PUR, 2m Kable
- C1** = M12 connector with 3-5 pins
- C3** = M12 connector, AC
- C8** = M8 connector with 3 pins
- T** = Terminal connection

Output signals

- PO** = 24 VDC, 3-wire PNP, NO
- PC** = 24 VDC, 3-wire PNP, NC
- PK** = 24 VDC, 4-wire PNP, NO/NC combination
- NO** = 24 VDC, 3-wire NPN, NO
- NK** = 24 VDC, 4-wire NPN, NO/NC combination
- DO** = 24 VDC, 2-wire, NO
- AO** = 230 VAC, 2-wire, NO
- AC** = 230 VAC, 2-wire, NC
- AK** = 230 VAC, 4-wire, NO/NC combination.
- KK** = 12 ... 240 VDC / 24 ... 240 VAC, 4-wire PNP, Relais output
- M** = analog signal

SI F2 M12N V2

PO



Index

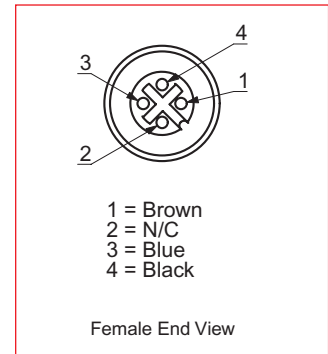
C1 Micro style	21.56 - 21.63
3 Wire 90°	21.57
3 Wire 90° PNP, NPN	21.58
3 Wire straight	21.56
3 Wire straight	21.64
4 Wire 90°	21.60
4 Wire straight	21.59
5 Wire 90°	21.62
5 Wire straight	21.61
Custom wire straight	21.63
C2 Micro style	21.64 - 21.65
3 Wire 90°	
3 Wire straight	21.64
C7 Mini style	21.66 - 21.67
3 Wire 90°	21.67
3 Wire straight	21.66
C8 Nano style	21.68 - 21.70
3 Wire 90°	21.69
3 Wire 90° PNP, NPN	21.70
3 Wire straight	21.68

Connectors & cables

C1 Micro style

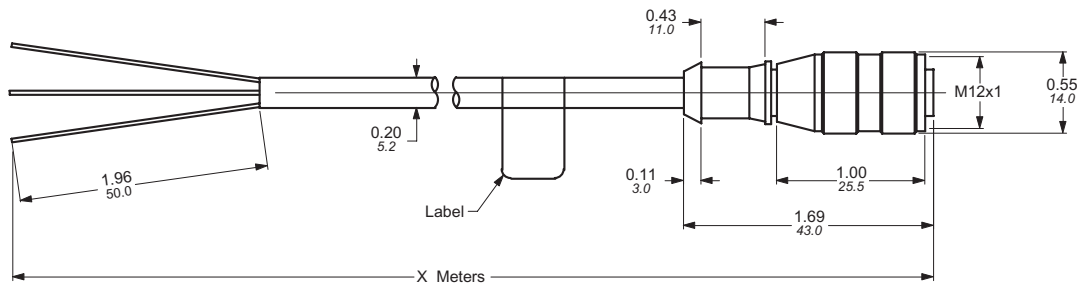
3 Wire straight

Wire type		3 Wire straight	3 Wire straight
Catalog number		C1-3WS-V2	C1-3WS-V4
List price		\$ 14.40	\$ 17.40
Cable length	meters	2	4
Number of conductors		3	3
Conductor colors		1 - Brown 2 - NC 3 - Blue 4 - Black	1 - Brown 2 - NC 3 - Blue 4 - Black
Wire size		20 AWG	20 AWG
Coupling nut		Nickel-plated brass	Nickel-plated brass
Connector		Thermoplastic PUR	Thermoplastic PUR
Contacts		Gold-plated brass	Gold-plated brass
Cable		Oil resistant gray PVC jacket 250V, 105C UL recognized CSA certified	Oil resistant gray PVC jacket 250V, 105C UL recognized CSA certified
Conductors		High flex stranding, PVC insulation	High flex stranding, PVC insulation
Temperature	°F	-40 ... +221	-40 ... +221
Protection	IEC	IP68	IP68
LED output indication		—	—



Approximate dimensions

C1-3WS-V2
C1-3WS-V4

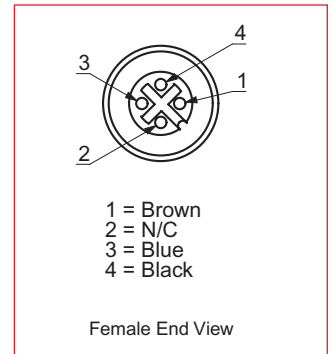


Connectors & cables

C1 Micro style

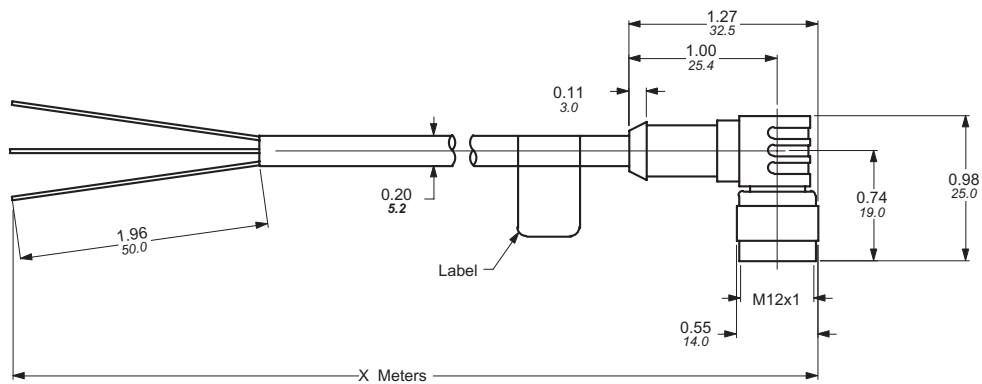
3 Wire 90°

Wire type		3 Wire 90°	3 Wire 90°
Catalog number		C1-3W9-V2	C1-3W9-V4
List price		\$ 14.40	\$ 17.40
Cable length	meters	2	4
Number of conductors		3	3
Conductor colors		1 - Brown 2 - NC 3 - Blue 4 - Black	1 - Brown 2 - NC 3 - Blue 4 - Black
Wire size		20 AWG	20 AWG
Coupling nut		Nickel-plated brass	Nickel-plated brass
Connector		Thermoplastic PUR	Thermoplastic PUR
Contacts		Gold-plated brass	Gold-plated brass
Cable		Oil resistant gray PVC jacket 250V, 105C UL recognized CSA certified	Oil resistant gray PVC jacket 250V, 105C UL recognized CSA certified
Conductors		High flex stranding, PVC insulation	High flex stranding, PVC insulation
Temperature	°F	-40 ... +221	-40 ... +221
Protection	IEC	IP68	IP68
LED output indication		—	—



Approximate dimensions

C1-3W9-V2
C1-3W9-V4

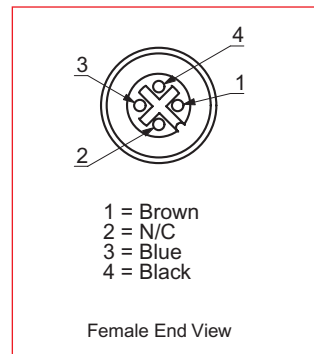


Connectors & cables

C1 Micro style

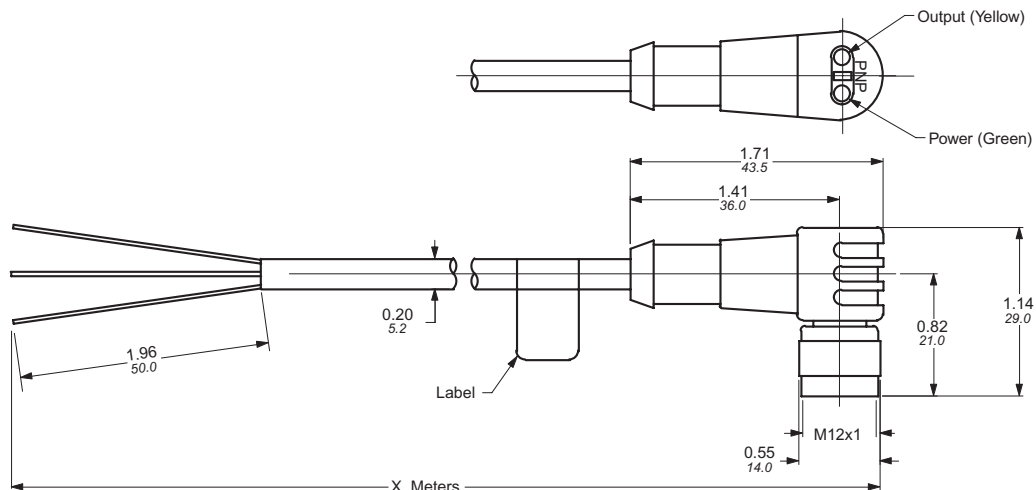
3 Wire 90° PNP, NPN

Wire type		3 Wire 90° PNP	3 Wire 90° NPN
Catalog number		C1-3W9LP-V2	C1-3W9LN-V2
List price		\$ 25.90	\$ 25.90
Cable length	meters	2	2
Number of conductors		3	3
Conductor colors		1 - Brown 2 - NC 3 - Blue 4 - Black	1 - Brown 2 - NC 3 - Blue 4 - Black
Wire size		22 AWG	22 AWG
Coupling nut		Nickel-plated brass	Nickel-plated brass
Connector		Thermoplastic PUR	Thermoplastic PUR
Contacts		Gold-plated brass	Gold-plated brass
Cable		Oil resistant gray PVC jacket 300V, 90C	Oil resistant gray PVC jacket 300V, 90C
Conductors		High flex stranding, PVC insulation	High flex stranding, PVC insulation
Temperature	°F	-40 ... +221	-40 ... +221
Protection	IEC	IP68	IP68
LED output indication		PNP	NPN

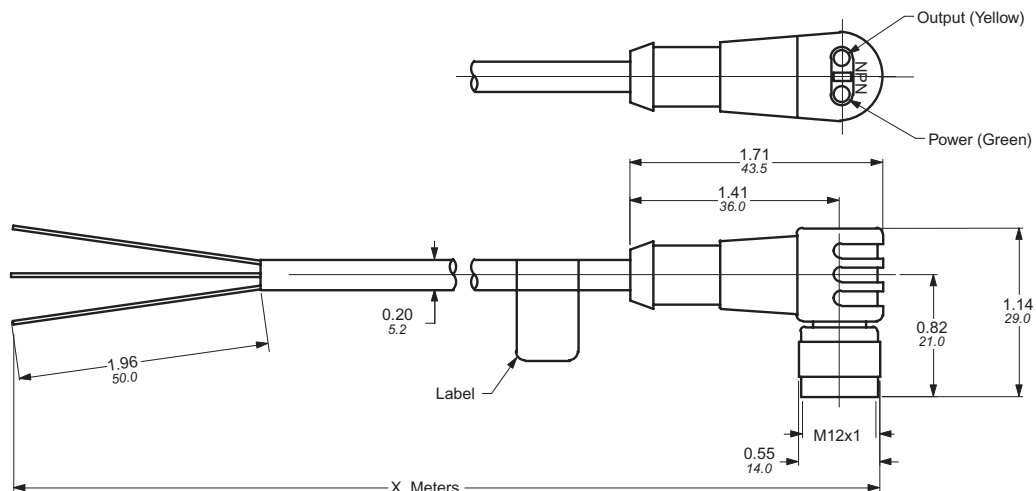


Approximate dimensions

C1-3W9LP-V2



C1-3W9LN-V2

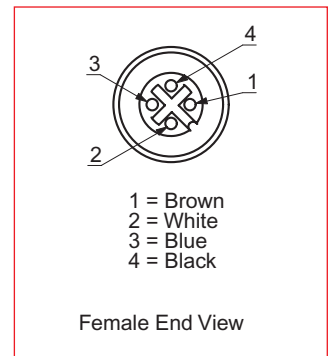


Connectors & cables

C1 Micro style

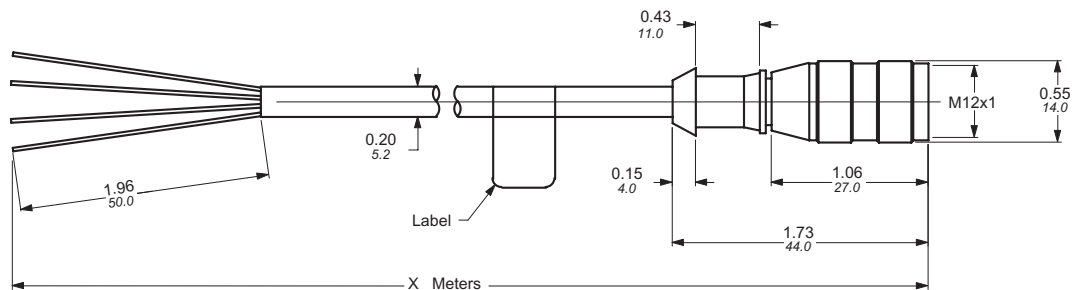
4 Wire straight

Wire type		4 Wire straight	4 Wire straight
Catalog number		C1-4WS-V2	C1-4WS-V4
List price		\$ 16.60	\$ 20.30
Cable length	meters	2	4
Number of conductors		4	4
Conductor colors		1 - Brown 2 - White 3 - Blue 4 - Black	1 - Brown 2 - White 3 - Blue 4 - Black
Wire size		22 AWG	22 AWG
Coupling nut		Nickel-plated brass	Nickel-plated brass
Connector		Thermoplastic PUR	Thermoplastic PUR
Contacts		Gold-plated brass	Gold-plated brass
Cable		Oil resistant gray PVC jacket 300V, 105C UL recognized CSA certified	Oil resistant gray PVC jacket 300V, 90C UL recognized CSA certified
Conductors		High flex stranding, PVC insulation	High flex stranding, PVC insulation
Temperature	°F	-40 ... +221	-40 ... +221
Protection	IEC	IP68	IP68
LED output indication		—	—



Approximate dimensions

C1-4WS-V2
C1-4WS-V4

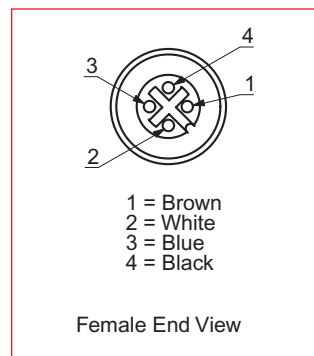


Connectors & cables

C1 Micro style

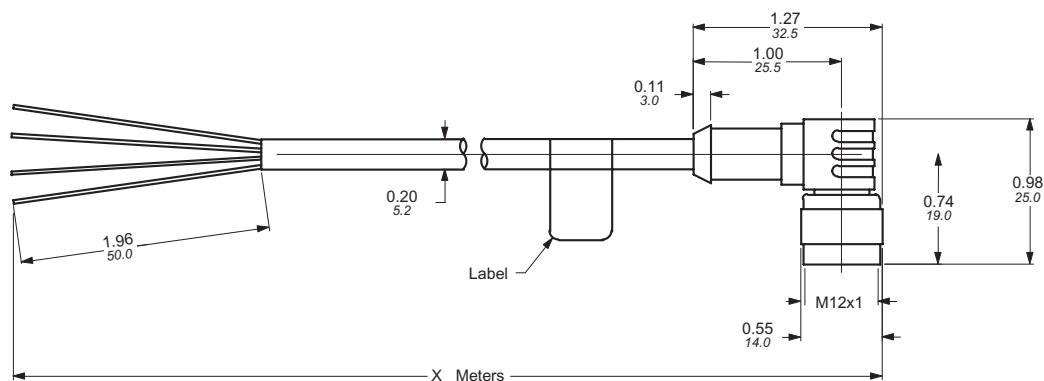
4 Wire 90°

Wire type		4 Wire 90°	4 Wire 90°
Catalog number		C1-4W9-V2	C1-4W9-V4
List price		\$ 16.60	\$ 20.30
Cable length	meters	2	4
Number of conductors		4	4
Conductor colors		1 - Brown 2 - White 3 - Blue 4 - Black	1 - Brown 2 - White 3 - Blue 4 - Black
Wire size		22 AWG	22 AWG
Coupling nut		Nickel-plated brass	Nickel-plated brass
Connector		Thermoplastic PUR	Thermoplastic PUR
Contacts		Gold-plated brass	Gold-plated brass
Cable		Oil resistant gray PVC jacket 300V, 105C UL recognized CSA certified	Oil resistant gray PVC jacket 300V, 105C UL recognized CSA certified
Conductors		High flex stranding, PVC insulation	High flex stranding, PVC insulation
Temperature	°F	-40 ... +221	-40 ... +221
Protection	IEC	IP68	IP68
LED output indication		—	—



Approximate dimensions

C1-4W9-V2
C1-4W9-V4

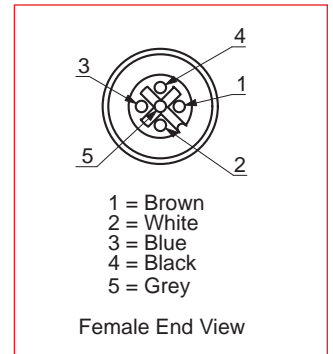


Connectors & cables

C1 Micro style

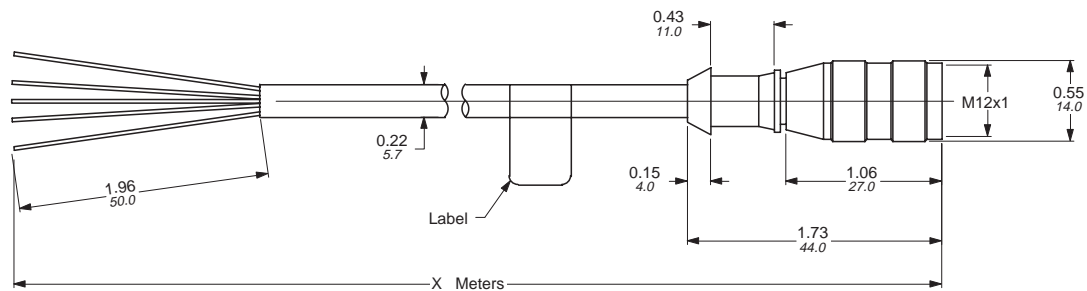
5 Wire straight

Wire type		5 Wire straight	5 Wire straight
Catalog number		C1-5WS-V2	C1-5WS-V4
List price		\$ 17.70	\$ 22.50
Cable length	meters	2	4
Number of conductors		5	5
Conductor colors		1 - Brown 2 - White 3 - Blue 4 - Black 5 - Grey	1 - Brown 2 - White 3 - Blue 4 - Black 5 - Grey
Wire size		22 AWG	22 AWG
Coupling nut		Nickel-plated brass	Nickel-plated brass
Connector		Thermoplastic PUR	Thermoplastic PUR
Contacts		Gold-plated brass	Gold-plated brass
Cable		Oil resistant gray PVC jacket 300V, 105C UL recognized CSA certified	Oil resistant gray PVC jacket 300V, 105C UL recognized CSA certified
Conductors		High flex stranding, PVC insulation	High flex stranding, PVC insulation
Temperature	°F	-40 ... +221	-40 ... +221
Protection	IEC	IP68	IP68
LED output indication		—	—



Approximate dimensions

C1-5WS-V2
C1-5WS-V4

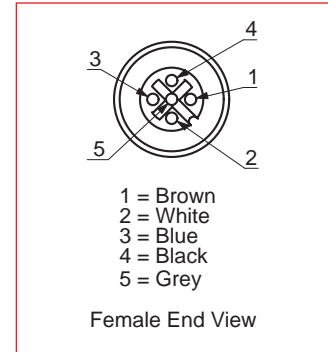


Connectors & cables

C1 Micro style

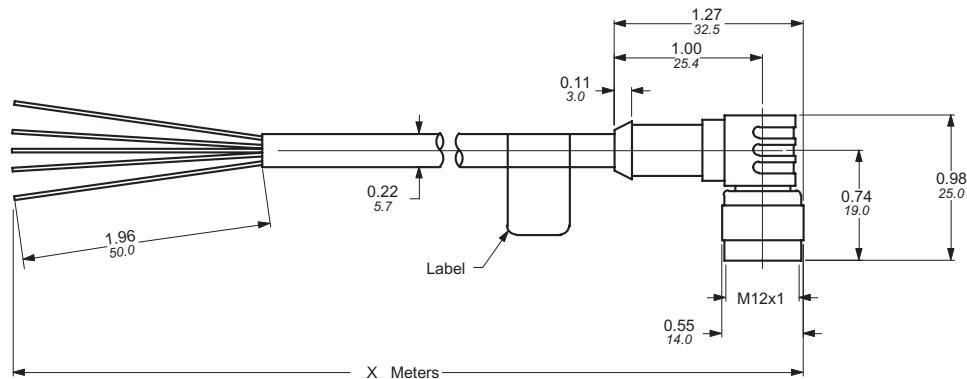
5 Wire 90°

Wire type		5 Wire 90°	5 Wire 90°
Catalog number		C1-5W9-V2	C1-5W9-V4
List price		\$ 17.70	\$ 22.50
Cable length	meters	2	4
Number of conductors		5	5
Conductor colors		1 - Brown 2 - White 3 - Blue 4 - Black 5 - Grey	1 - Brown 2 - White 3 - Blue 4 - Black 5 - Grey
Wire size		22 AWG	22 AWG
Coupling nut		Nickel-plated brass	Nickel-plated brass
Connector		Thermoplastic PUR	Thermoplastic PUR
Contacts		Gold-plated brass	Gold-plated brass
Cable		Oil resistant gray PVC jacket 300V, 90C UL recognized CSA certified	Oil resistant gray PVC jacket 300V, 90C UL recognized CSA certified
Conductors		High flex stranding, PVC insulation	High flex stranding, PVC insulation
Temperature	°F	-40 ... +221	-40 ... +221
Protection	IEC	IP68	IP68
LED output indication		—	—



Approximate dimensions

C1-5W9-V2
C1-5W9-V4

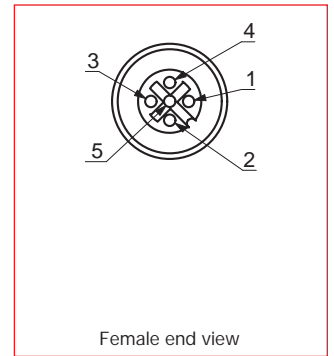


Connectors & cables

C1 Micro style

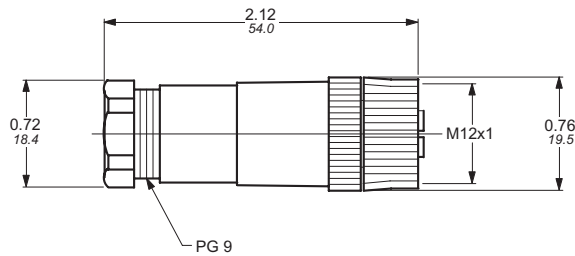
Custom wire straight

Wire type		Custom wire straight	Custom wire straight
Catalog number		C1-XWS	C1-XW9
List price		\$ 23.70	\$ 23.70
Cable length	meters	Customer supplies cable	Customer supplies cable
Number of conductors		Custom build from 1-5 wire cable	Custom build from 1-5 wire cable
Conductor colors		—	—
		—	—
		—	—
		—	—
Coupling nut		PBT	PBT
Contacts		Nickel-plated brass	Nickel-plated brass
Maximum wire size		18 AWG	18 AWG
Cable grip range	mm	4 - 8	4 - 8
Temperature	°F	-40 ... +185	-40 ... +185
Protection	IEC	IP67	IP67
LED output indication		—	—

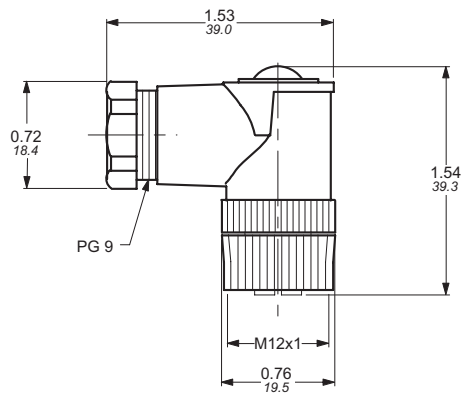


Approximate dimensions

C1-XWS



C1-XW9

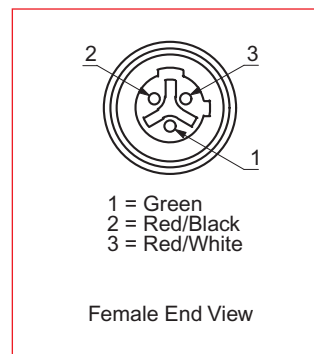


Connectors & cables

C2 Micro style

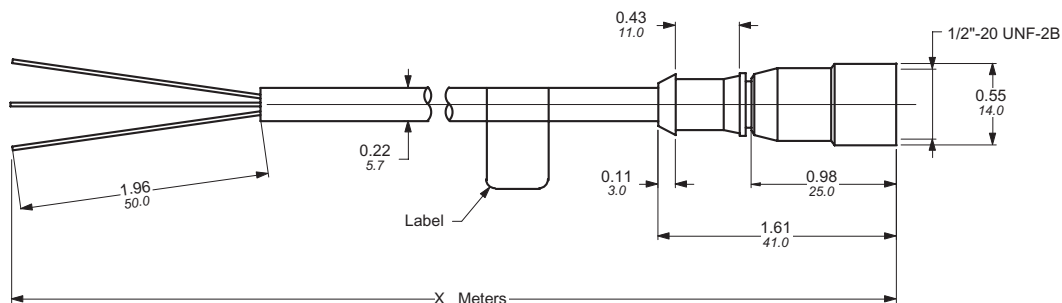
3 Wire straight

Wire type		3 Wire straight	3 Wire straight
Catalog number		C2-3WS-V2	C2-3WS-V6
List price		\$ 19.80	\$ 29.10
Cable length	meters	2	6
Number of conductors		3	3
Conductor colors		1 - Green 2 - Red/Black 3 - Red/White	1 - Green 2 - Red/Black 3 - Red/White
Wire size		22 AWG	22 AWG
Coupling nut		Nickel-plated brass	Nickel-plated brass
Connector		Thermoplastic PUR	Thermoplastic PUR
Contacts		Gold-plated brass	Gold-plated brass
Cable		Oil resistant gray PVC jacket 300V, 105C UL recognized CSA certified	Oil resistant gray PVC jacket 300V, 105C UL recognized CSA certified
Conductors		High flex stranding, PVC insulation	High flex stranding, PVC insulation
Temperature	°F	-13 ... +221	-13 ... +221
Protection	IEC	IP67	IP67
LED output indication		—	—



Approximate dimensions

C2-3WS-V2
C2-3WS-V6

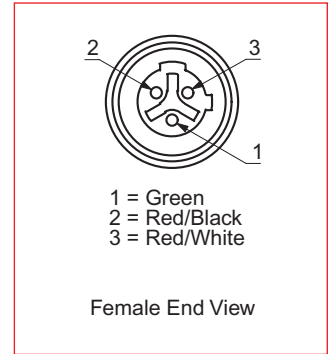


Connectors & cables

C2 Micro 1/2" – 20 style

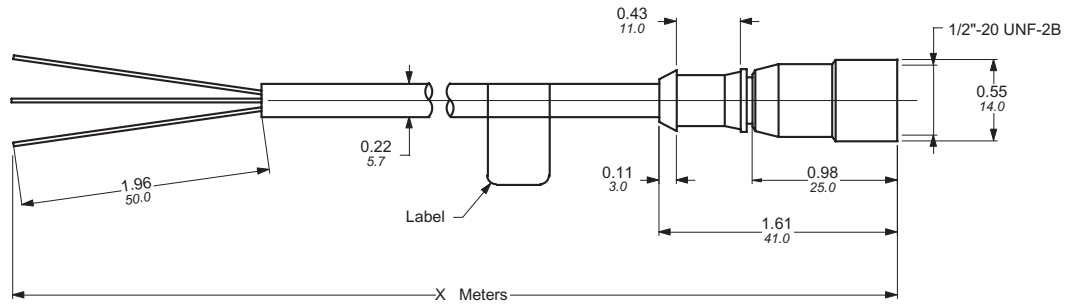
3 Wire 90°

Wire type		3 Wire 90°	3 Wire 90°
Catalog number		C2-3W9-V2	C2-3W9-V6
List price		\$ 19.80	\$ 29.10
Cable length	meters	2	6
Number of conductors		3	3
Conductor colors		1 - Green 2 - Red/Black 3 - Red/White	1 - Green 2 - Red/Black 3 - Red/White
Wire size		22 AWG	22 AWG
Coupling nut		Nickel-plated brass	Nickel-plated brass
Connector		Thermoplastic PUR	Thermoplastic PUR
Contacts		Gold-plated brass	Gold-plated brass
Cable		Oil resistant gray PVC jacket 300V, 105C UL recognized CSA certified	Oil resistant gray PVC jacket 300V, 105C UL recognized CSA certified
Conductors		High flex stranding, PVC insulation	High flex stranding, PVC insulation
Temperature	°F	-13 ... +221	-13 ... +221
Protection	IEC	IP67	IP67
LED output indication		—	—



Approximate dimensions

C2-3W9-V2
C2-3W9-V6

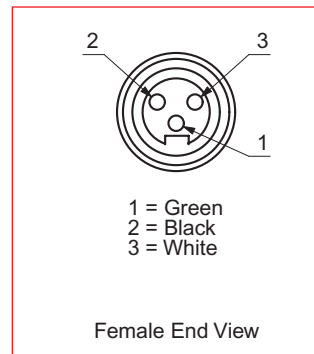


Connectors & cables

C7 Mini style

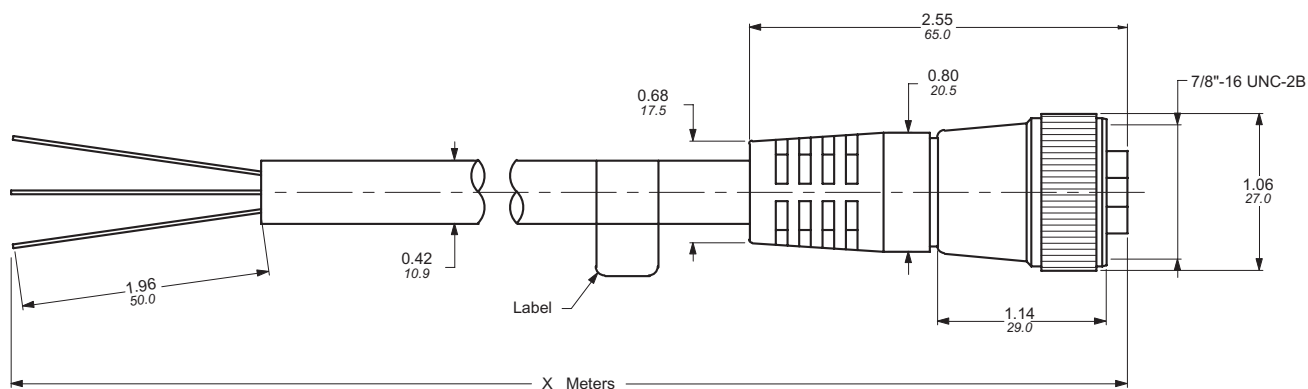
3 Wire straight

Wire type		3 Wire straight	3 Wire straight
Catalog number		C7-3WS-V2	C7-3WS-V6
List price		\$ 17.60	\$ 29.00
Cable length	meters	2	6
Number of conductors		3	3
Conductor colors		1 - Green 2 - Black 3 - White	1 - Green 2 - Black 3 - White
Wire size		16 AWG	16 AWG
Coupling nut		Nickel-plated brass	Nickel-plated brass
Connector		Thermoplastic PUR	Thermoplastic PUR
Contacts		Gold-plated brass	Gold-plated brass
Cable		Oil resistant gray PVC jacket 600V, 105C UL recognized CSA certified	Oil resistant gray PVC jacket 600V, 105C UL recognized CSA certified
Conductors		High flex stranding, PVC insulation	High flex stranding, PVC insulation
Temperature	°F	-40 ... +221	-40 ... +221
Protection	IEC	IP67	IP67
LED output indication		—	—



Approximate dimensions

C7-3WS-V2
C7-3WS-V6

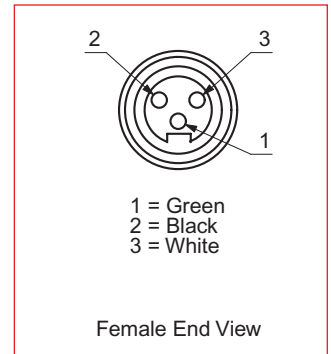


Connectors & cables

C7 Mini style

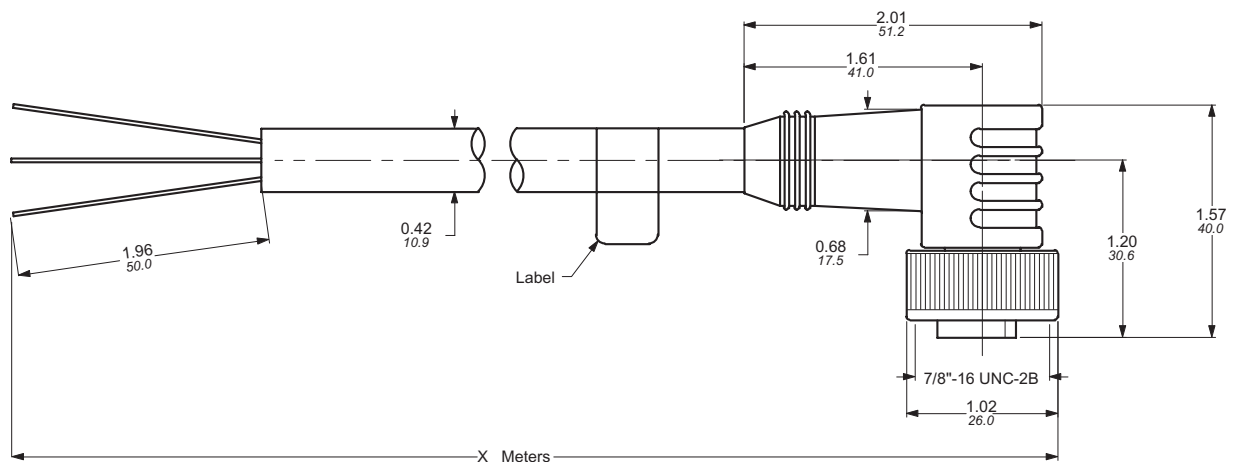
3 Wire 90°

Wire type		3 Wire 90°	3 Wire 90°
Catalog number		C7-3W9-V2	C7-3W9-V6
List price		\$ 17.60	\$ 29.00
Cable length	meters	2	6
Number of conductors		3	3
Conductor colors		1 - Green 2 - Black 3 - White	1 - Green 2 - Black 3 - White
Wire size		16 AWG	16 AWG
Coupling nut		Nickel-plated brass	Nickel-plated brass
Connector		Thermoplastic PUR	Thermoplastic PUR
Contacts		Gold-plated brass	Gold-plated brass
Cable		Oil resistant gray PVC jacket 600V, 105C UL recognized CSA certified	Oil resistant gray PVC jacket 600V, 105C UL recognized CSA certified
Conductors		High flex stranding, PVC insulation	High flex stranding, PVC insulation
Temperature	°F	-40 ... +221	-40 ... +221
Protection	IEC	IP67	IP67
LED output indication		—	—



Approximate dimensions

C7-3W9-V2
C7-3W9-V6

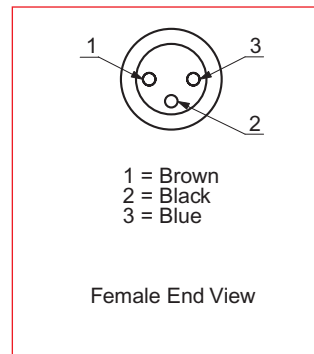


Connectors & cables

C8 Nano style

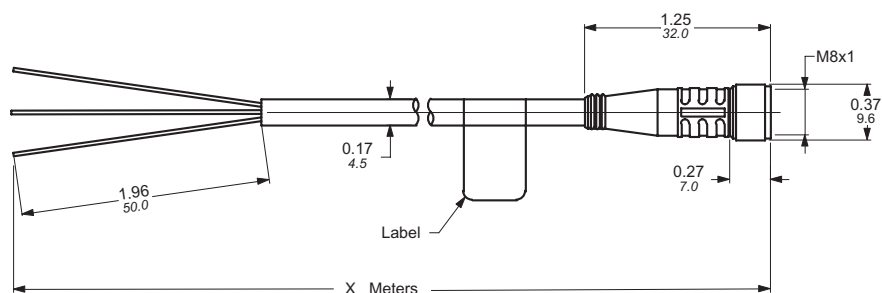
3 Wire straight

Wire type		3 Wire straight	3 Wire straight
Catalog number		C8-3WS-V2	C8-3WS-V6
List price		\$ 13.50	\$ 22.70
Cable length	meters	2	6
Number of conductors		3	3
Conductor colors		1 - Brown 2 - Black 3 - Blue	1 - Brown 2 - Black 3 - Blue
Wire size		24 AWG	24 AWG
Coupling nut		Nickel-plated brass	Nickel-plated brass
Connector		Thermoplastic PUR	Thermoplastic PUR
Contacts		Gold-plated brass	Gold-plated brass
Cable		Oil resistant gray PVC jacket 300V, 105C	Oil resistant gray PVC jacket 300V, 105C
Conductors		High flex stranding, PVC insulation	High flex stranding, PVC insulation
Temperature	°F	-40 ... +194	-40 ... +194
Protection	IEC	IP67	IP67
LED output indication		—	—



Approximate dimensions

C8-3WS-V2
C8-3WS-V6

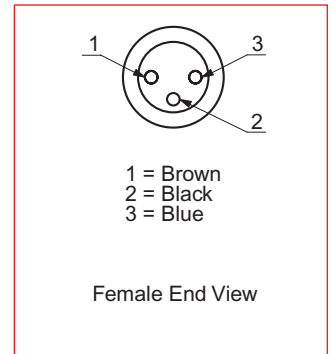


Connectors & cables

C8 Nano style

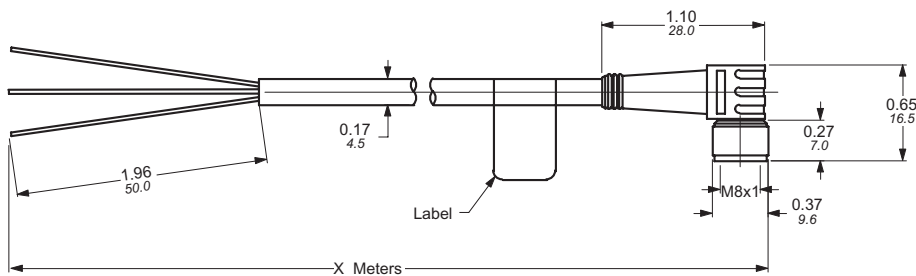
3 Wire 90°

Wire type		3 Wire 90°	3 Wire 90°
Catalog number		C8-3W9-V2	C8-3W9-V6
List price		\$ 13.50	\$ 22.70
Cable length	meters	2	6
Number of conductors		3	3
Conductor colors		1 - Brown 2 - Black 3 - Blue	1 - Brown 2 - Black 3 - Blue
Wire size		24 AWG	24 AWG
Coupling nut		Nickel-plated brass	Nickel-plated brass
Connector		Thermoplastic PUR	Thermoplastic PUR
Contacts		Gold-plated brass	Gold-plated brass
Cable		Oil resistant gray PVC jacket 300V, 105C	Oil resistant gray PVC jacket 300V, 105C
Conductors		High flex stranding, PVC insulation	High flex stranding, PVC insulation
Temperature	°F	-40 ... +194	-40 ... +194
Protection	IEC	IP67	IP67
LED output indication		—	—



Approximate dimensions

C8-3W9-V2
C8-3W9-V6

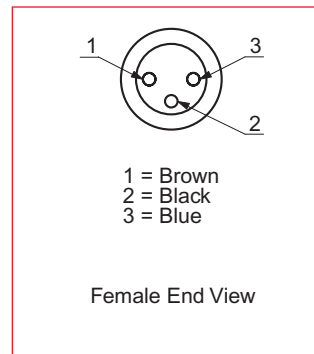


Connectors & cables

C8 Nano style

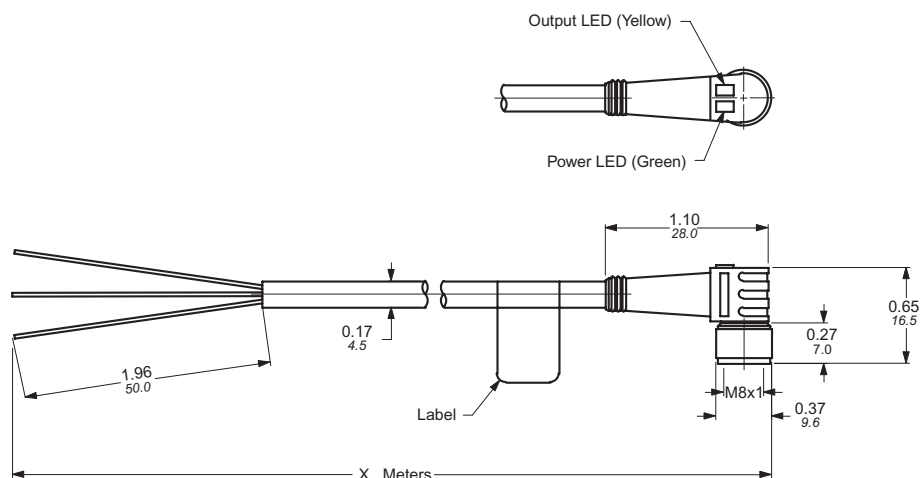
3 Wire 90° PNP, NPN

Wire type		3 Wire 90° PNP	3 Wire 90° NPN
Catalog number		C8-3W9LP-V2	C8-3W9LN-V2
List price		\$ 28.20	\$ 28.20
Cable length	meters	2	2
Number of conductors		3	3
Conductor colors		1 - Brown 2 - Black 3 - Blue	1 - Brown 2 - Black 3 - Blue
Wire size		24 AWG	24 AWG
Coupling nut		Nickel-plated brass	Nickel-plated brass
Connector		Thermoplastic PUR	Thermoplastic PUR
Contacts		Gold-plated brass	Gold-plated brass
Cable		Oil resistant gray PVC jacket 300V, 105C	Oil resistant gray PVC jacket 300V, 105C
Conductors		High flex stranding, PVC insulation	High flex stranding, PVC insulation
Temperature	°F	-40 ... +194	-40 ... +194
Protection	IEC	IP68	IP68
LED output indication		PNP	NPN



Approximate dimensions

C8-3W9LP-V2



C8-3W9LN-V2

