



Capacitive Proximity Sensors





C18 series

M18 cylindrical capacitive sensors



M18 cylindrical

features

- DC or AC supply voltage
- High noise immunity
- Shielded and unshielded models
- Adjustable sensitivity
- Plastic housing



web contents



- Application notes
- Photos
- Catalogue / Manuals



available models

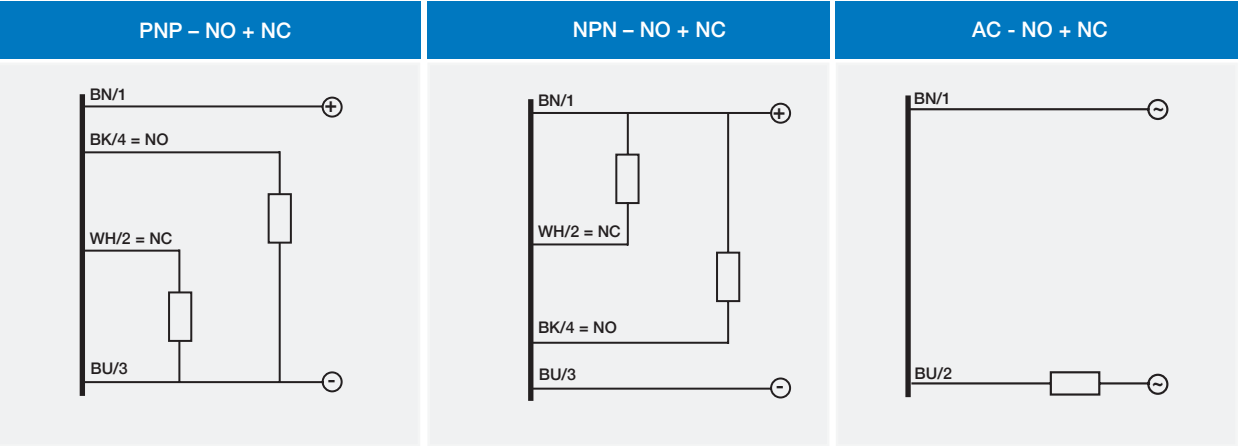
	C18	P	/	B	P	-	1	E
series	C18	M18 capacitive sensor						
housing	P	Plastic housing						
output state	B	NO + NC complementary output						
	A	NO output						
	C	NC output						
output logic	P	PNP logic						
	N	NPN logic						
	0	SCR output						
distance	1	3...8 mm shielded models						
	2	3...12 mm unshielded models						
connect.	E	M12 plug exit						
	A	2 m cable exit						

available models

supply	installation	connections	distance	NPN NO + NC	PNP NO + NC	NO	NC
10...40 Vcc	shielded	cable 2 m	3...8 mm	C18P/BN-1A	C18P/BP-1A	-	-
		M12		C18P/BN-1E	C18P/BP-1E	-	-
	unshielded	cable 2 m	3...12 mm	C18P/BN-2A	C18P/BP-2A	-	-
		M12		C18P/BN-2E	C18P/BP-2E	-	-
20...250 Vac	shielded	cable 2 m	3...8 mm	-	-	C18P/A0-1A	C18P/C0-1A
		M12		-	-	C18P/A0-1E	C18P/C0-1E
	unshielded	cable 2 m	3...12 mm	-	-	C18P/A0-2A	C18P/C0-2A
		M12		-	-	C18P/A0-2E	C18P/C0-2E

technical specification

	C18P/**-1*	C18P/**-2*
		
nominal sensing distance	8 mm	12 mm
hysteresis	≤ 20%	
repeatability	5%	
operating voltage	10 ... 40 Vcc oppure 20 ... 250 Vac	
max ripple content	≤ 10 %	
no-load supply current	≤ 12 mA	
load current	≤ 200 mA (dc models), ≤ 500 mA; max. 2,5 A max. 20 ms (ca models)	
leakage current	≤ 100 µA	
output voltage drop Ud	2,5 Vmax @ IL= 200 mA (dc models), ≤ 10 VAC @ IL ≥ 20 mA (ca models)	
output type	NPN or PNP - NO + NC; SCR - NO or NC	
switching frequency	50 Hz (dc models); 10 Hz (ca models)	
power on delay	≤ 200 ms	
power supply protections	polarity reversal, impulsive overvoltage	
output protection	autoreset short circuit, overvoltage (dc models)	
sensitivity adjustment	●	
storage temperature	-40 ... +85° C	
operating temperature range	-25 ... +80° C (without freeze) (ca models); -35 ... +85° C (without freeze) (dc models)	
temperature drift	≤ 20 %	
EMC	in conformity with the EMC Directive, according to IEC 60947-5-2	
protection degree	IP67 (IEC 60529) NEMA 1,3,4,6,13 (ca models); IP67 - IP68/60 min - IP69K (IEC 60529; 60943-1) NEMA 1,2,4,4x,5,6,6p,12 (models dc)	
LEDs	yellow (output status) (ca-models), yellow (object detected), green (supply/stability) (dc models)	
housing material	thermoplastic polyester	
active head material	polyester	
weight	65 g M12 connector / 150 g cable	
tightening torque	2,6 Nm	



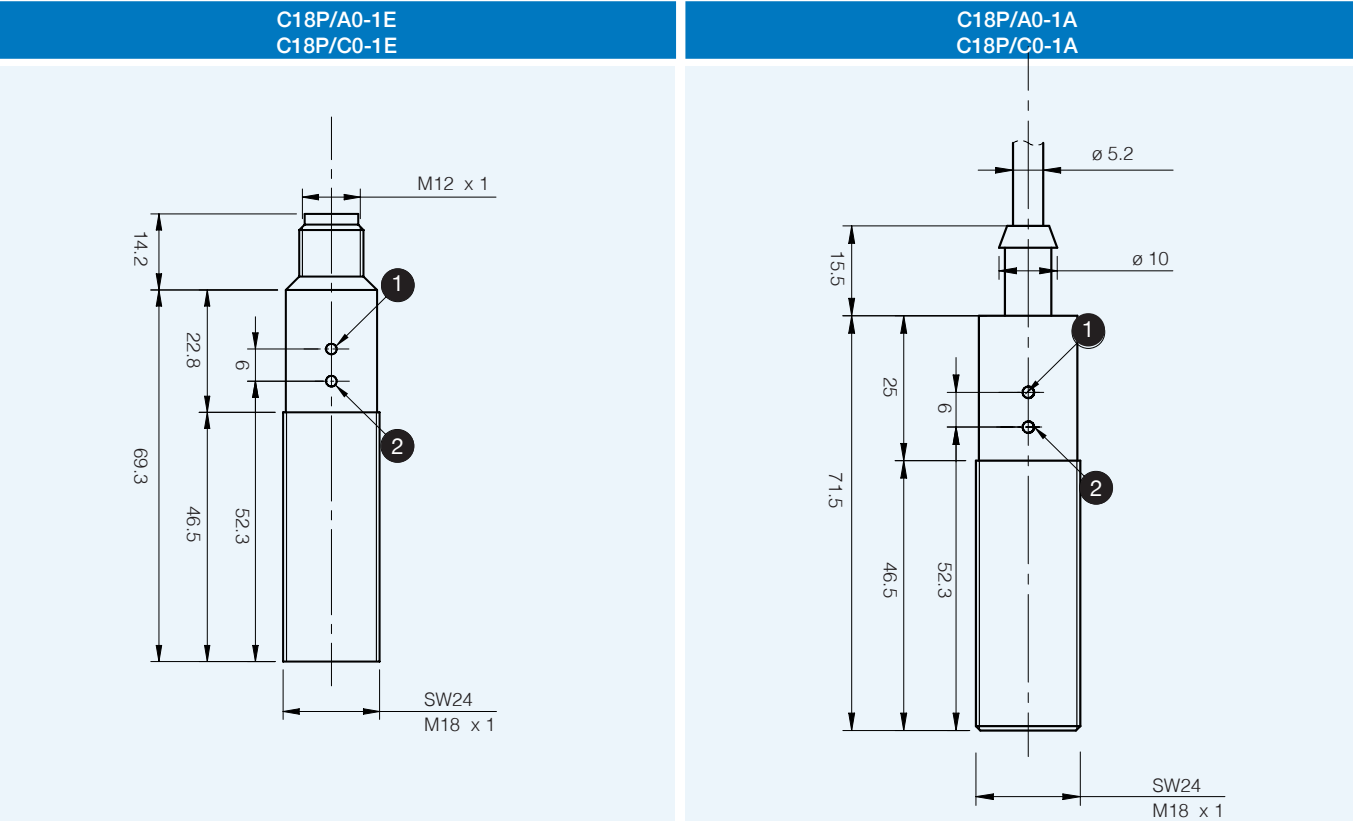
BN brown
BU blue
BK black
WH white

plug



For models with AC power supply using the connection cable series CD12M/AC

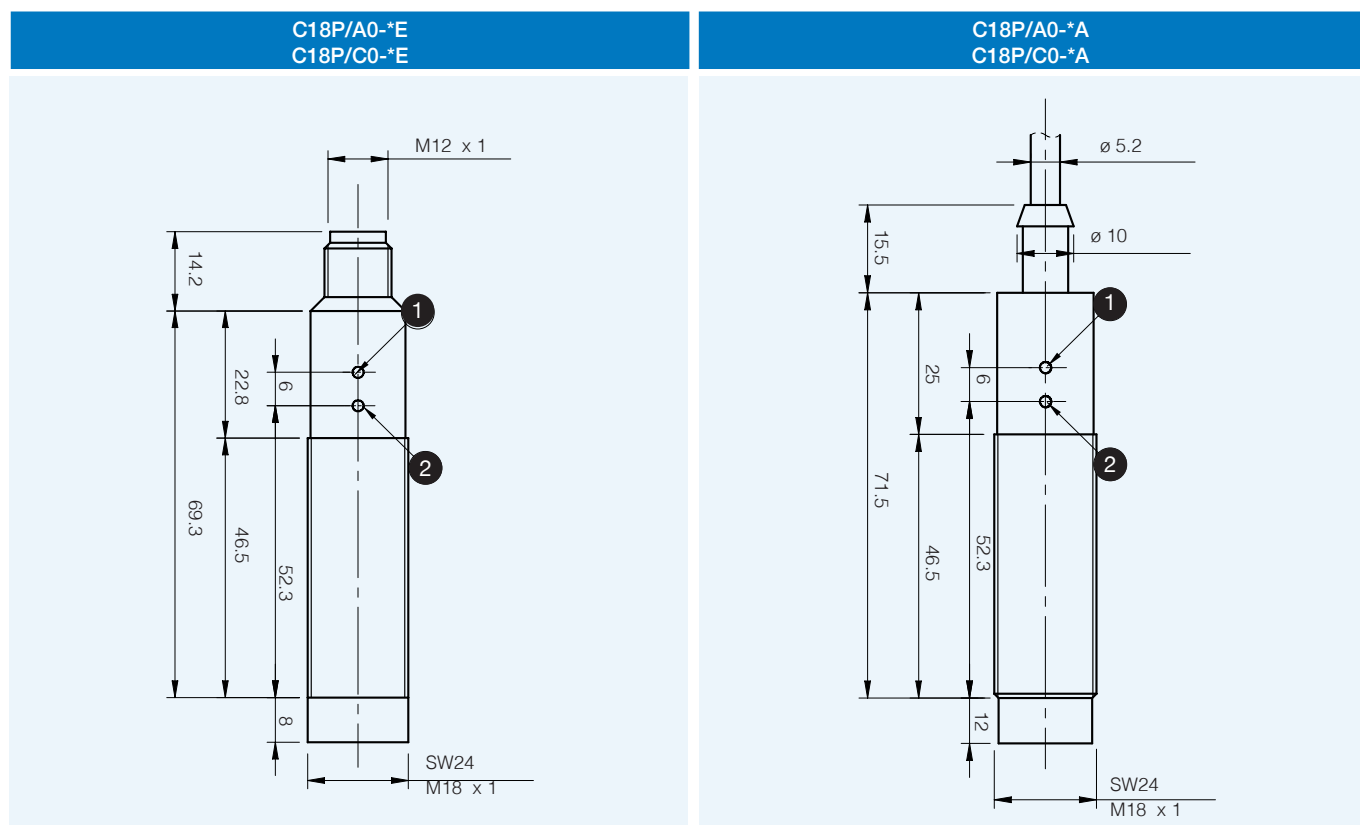
dimensions (mm)



1 LED 2 TRIMMER

dimensions (mm)

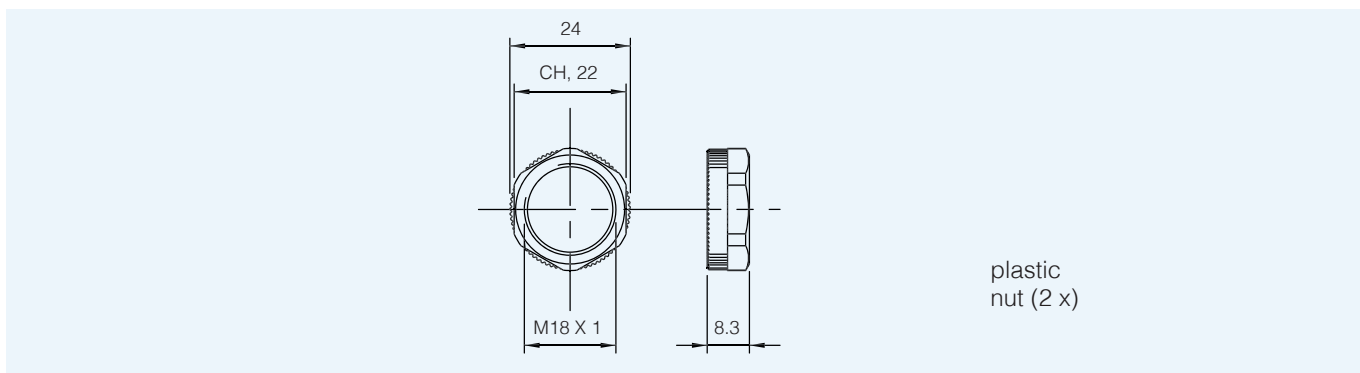
M18 cylindrical



1 LED 2 TRIMMER

dimensions (mm)

accessories included in all models





CE series

Ø 20 mm cylindrical
capacitive sensors



Ø 20 mm cylindrical

features

- Models with or without self-monitoring
- Sensitivity adjustment with trimmer
- NO+NC complementary output
- Stainless steel housing
- IP65 protection degree
- Complete protection against electrical damages
- Axial cable exit or M12 plastic plug cable exit



web contents



- Application notes
- Photos
- Catalogue / Manuals



code description

	CE	1	/	0	P	-	1	A
series	CE	Capacitive proximity sensor						
housing	1	Standard						
	2	With self-monitoring						
output state	0	NO+NC complementary output						
output logic	P	PNP logic output						
distance	1	Standard shielded 10 mm						
connect.	A	Axial cable exit						
	E	M12 plug cable exit						

available models

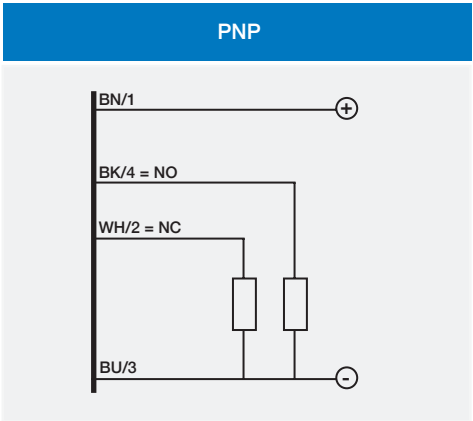
diameter	installation	distance (mm)	plug	self-monitoring	PNP/NO + NC
Ø 20	shielded	10	cable	-	CE1/0P-1A
			M12		CE1/0P-1E
			cable	●	CE2/0P-1A
			M12		CE2/0P-1E

technical specification

Ø 20 mm cylindrical

	CE1/0P-1*	CE2/0P-1*
		
nominal sensing distance Sn	10 mm	
operating distance	1.5...7.2 mm (shielded)	
hysteresis	2...15%	
repeatability	5%	
supply voltage	10...30 Vdc	
ripple	≤ 15%	
no-load supply current	17 mA	
load current	≤ 100 mA	
leakage current	≤ 1 µA	
voltage drop	1.5V max. IL=100 mA	
output type	PNP NO+NC - open collector	
switching frequency	300 Hz	
self-monitoring pulse frequency	period 4-8 ms (6,2 ms nominal) duration 150-300 µs (220 µs nominal)	
power supply protections	polarity reversal, transient	
output protection	short circuit (autoreset)	
temperature range	-25°...+70°C	
temperature drift	20% Sr	
EMC	in conformity with the EMC Directive, according to IEC 60947-5-2	
shocks and vibrations	IEC 60947-5-2	
protection degree	IP 65	
LEDs	yellow (NO output energized)	
housing material	stainless steel	
active head material	LCP	
weight	80 g M12 connector / 200 g cable	

electrical diagrams of connections

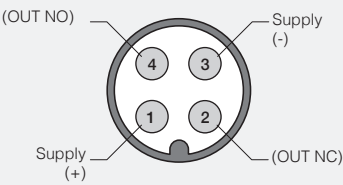


- BN brown
- BU blue
- BK black
- WH white

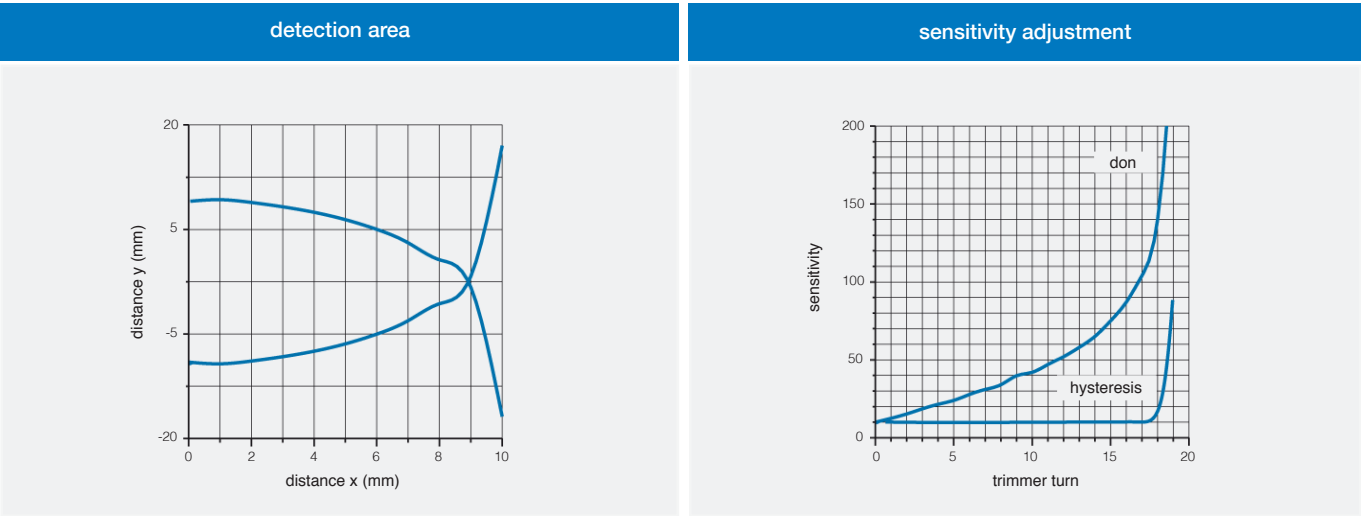


Ø 20 mm cylindrical

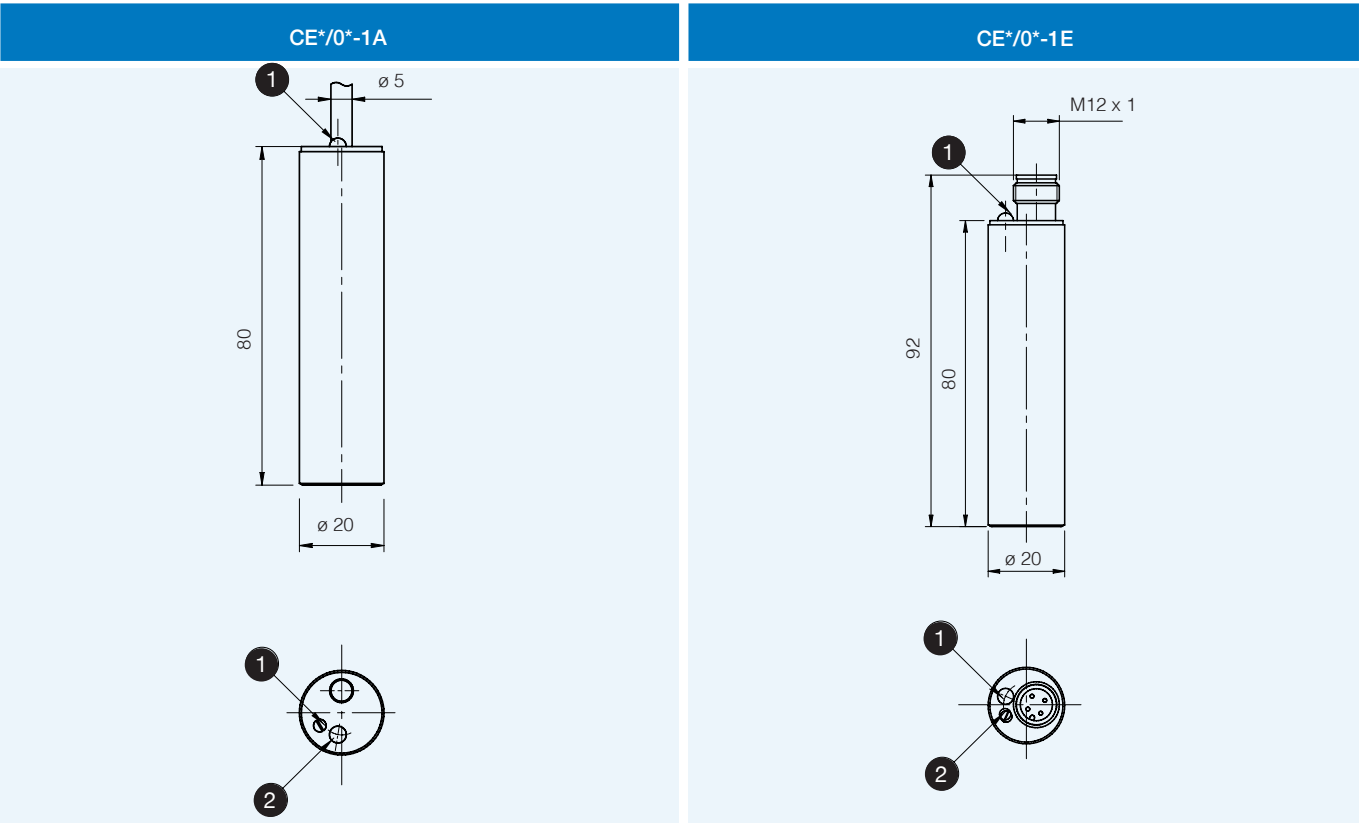
M12 - NO+NC



response diagram



dimensions (mm)



1 LED 2 TRIMMER

CE





CT series

M30 cylindrical capacitive sensors



M30 cylindrical

features

- Sensitivity adjustment with trimmer
- Metal housing
- IP65 protection degree
- Complete protection against electrical damages
- Axial cable exit or M12 plug cable exit



web contents



- Application notes
- Photos
- Catalogue / Manuals



code description

CT 1 / A N - 1 A

series	CT	Capacitive proximity sensor
housing	1	Standard
output state	A	NO output state
	C	NC output state
output logic	N	NPN logic output
	P	PNP logic output
distance	1	Standard shielded 15 mm
	2	Standard unshielded 20 mm
connect.	A	Axial cable exit
	H	M12 plug cable exit

available models

diameter	installation	distance (mm)	plug	NPN/NO	NPN/NC	PNP/NO	PNP/NC
M30	shielded	15	cable	CT1/AN-1A	CT1/CN-1A	CT1/AP-1A	CT1/CP-1A
			M12	CT1/AN-1H	CT1/CN-1H	CT1/AP-1H	CT1/CP-1H
	unshielded	20	cable	CT1/AN-2A	CT1/CN-2A	CT1/AP-2A	CT1/CP-2A
			M12	CT1/AN-2H	CT1/CN-2H	CT1/AP-2H	CT1/CP-2H

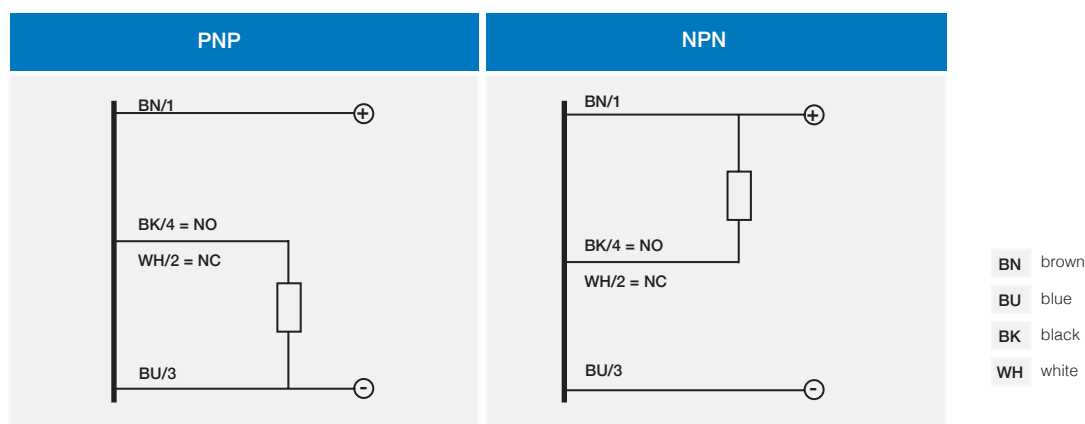
CT

technical specification

M30 cylindrical

	CT1/0*-1*	CT2/0*-1*
		
nominal sensing distance S_n	2...15 mm	2...20 mm
operating distance	2...12 mm	2...16 mm
hysteresis	2...20 %	
repeatability	10 %	
supply voltage	10...30 Vdc	
ripple	≤ 10 %	
no-load supply current	8 mA	
load current	≤ 200 mA	
leakage current	≤ 10 mA	
voltage drop	0.75/1.8 V max. $I_L=10/200$ mA	
output type	NPN or PNP - NO or NC - open collector	
switching frequency	100 Hz	
time delay before availability	100 ms	
power supply protections	impulsive polarity reversal, transient	
output protection	short circuit (autoreset)	
temperature range	-25°...+70°C	
temperature drift	20% Sr	
EMC	in conformity with the EMC Directive according to IEC 60947-5-2	
shocks and vibrations	IEC 60947-5-2	
protection degree	IP 65	
LEDs	green (supply), red (output energized)	
housing material	nichel plated brass	
active head material	PBT	
weight	185 g M12 connector 260 g cable	
tightening torque	50 Nm	

electrical diagrams of connections





M12 - NO	M12 - NC

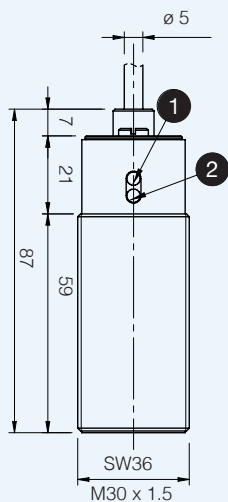
response diagram

CT1/**-1* detection area	CT1/**-1* sensitivity adjustment
CT1/**-2* detection area	CT1/**-2* sensitivity adjustment

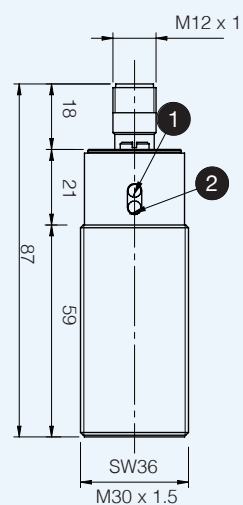
dimensions (mm)

M30 cylindrical

CT1/**-1A

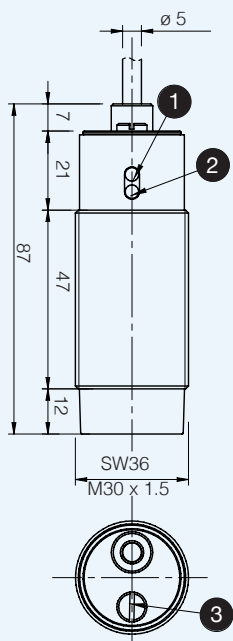


CT1/**-1H

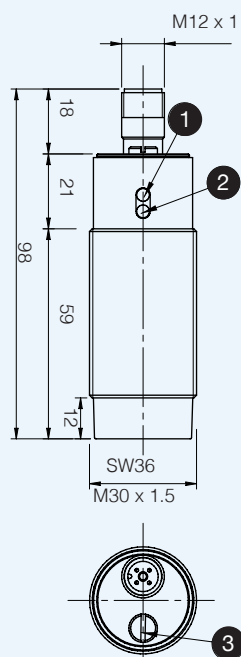




CT1/**-2A



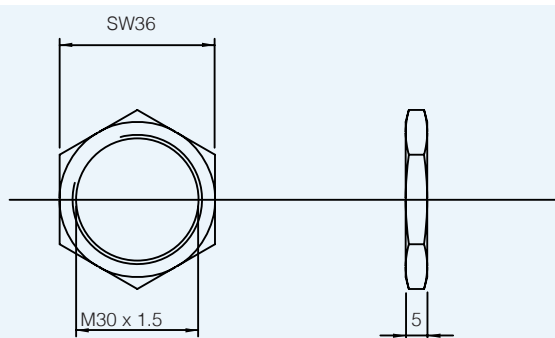
CT1/**-2H



- 1 red LED (supply) 2 yellow LED (active NO output) 3 TRIMMER

dimensions (mm)

accessories included in all models



metallic
nut (2 x)





C30 series

M30 cylindrical capacitive sensors



M30 cylindrical

features

- DC or AC supply voltage
- High noise immunity
- Shielded and unshielded models
- Adjustable sensitivity
- Metallic or plastic housing



web contents



- Application notes
- Photos
- Catalogue / Manuals



code description

C30 P / B P - 1 E

series	C30	M30 capacitive sensor
housing	P	Plastic housing
	M	Metal housing
output state	B	NO + NC complementary output
	0	NO / NC selectable output
output logic	P	PNP logic
	N	NPN logic
	0	SCR output
distance	1	2...16 mm shielded models
	2	4...25 mm unshielded models
connect.	E	M12 plug exit
	A	2 m cable exit

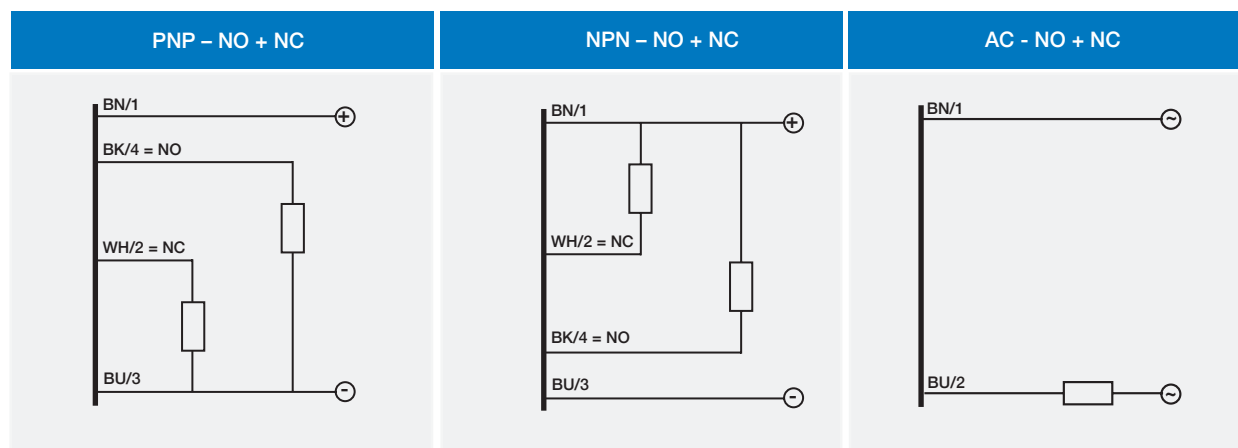
available models

M30 cylindrical

supply	housing	installation	distance (mm)	connections	NPN NO + NC	PNP NO + NC	SCR NO + NC
10...40 Vcc	stainless steel	shielded	2...16	2 m plug	C30M/BN-1A	C30M/BP-1A	-
		unshielded	4...25		C30M/BN-2A	C30M/BP-2A	-
		shielded	2...16	M12	C30M/BN-1E	C30M/BP-1E	-
		unshielded	4...25		C30M/BN-2E	C30M/BP-2E	-
	plastic	shielded	2...16	2 m plug	C30P/BN-1A	C30P/BP-1A	-
		unshielded	4...25		C30P/BN-2A	C30P/BP-2A	-
		shielded	2...16	M12	C30P/BN-1E	C30P/BP-1E	-
		unshielded	4...25		C30P/BN-2E	C30P/BP-2E	-
20...250 Vac	stainless steel	shielded	2...16	2 m plug	-	-	C30M/00-1A
		unshielded	4...25		-	-	C30M/00-2A
		shielded	2...16	M12	-	-	C30M/00-1E
		unshielded	4...25		-	-	C30M/00-2E
	plastic	shielded	2...16	2 m plug	-	-	C30P/00-1A
		unshielded	4...25		-	-	C30P/00-2A
		shielded	2...16	M12	-	-	C30P/00-1E
		unshielded	4...25		-	-	C30P/00-2E

technical specification

	C30*/**-1*	C30*/**-2*
		
nominal sensing distance Sn	16 mm	25 mm
hysteresis	≤ 20 %	
repeatability	5 %	
operating voltage	10 ... 40 Vcc oppure 20 ... 250 Vac	
max ripple content	≤ 10 %	
no-load supply current	≤ 12 mA	
load current	≤ 200 mA (dc models), ≤ 500 mA; max. 2.5 A max. 20 ms (ca models)	
leakage current	≤ 100 µA	
output voltage drop Ud	2.5 Vmax @ IL= 200 mA (dc models), ≤ 10 VAC @ IL ≥ 20 mA (ca models)	
output type	NPN or PNP - NO + NC; SCR - NO / NC	
switching frequency	50 Hz (dc models); 10 Hz (ca models)	
power on delay	≤ 200 ms	
power supply protections	polarity reversal, impulsive overvoltage	
output protection	autoreset short circuit, overvoltage (dc models)	
sensitivity adjustment	●	
storage temperature	-40 ... +85° C	
operating temperature range	-25 ... +80° C (without freeze)	
temperature drift	≤ 20 %	
EMC	in conformity with the EMC Directive, according to EN 60947-5-2	
protection degree	IP67 (EN 60529) NEMA 1,3,4,6,13	
LEDs	yellow (output status LOn/DOn)	
housing material	thermoplastic polyester	
active head material	polyester	
weight	plastic version: 100 g connector M12 / 180 g cable metallic version: 150 g connector / 230 g cable+	
tightening torque	50 Nm	



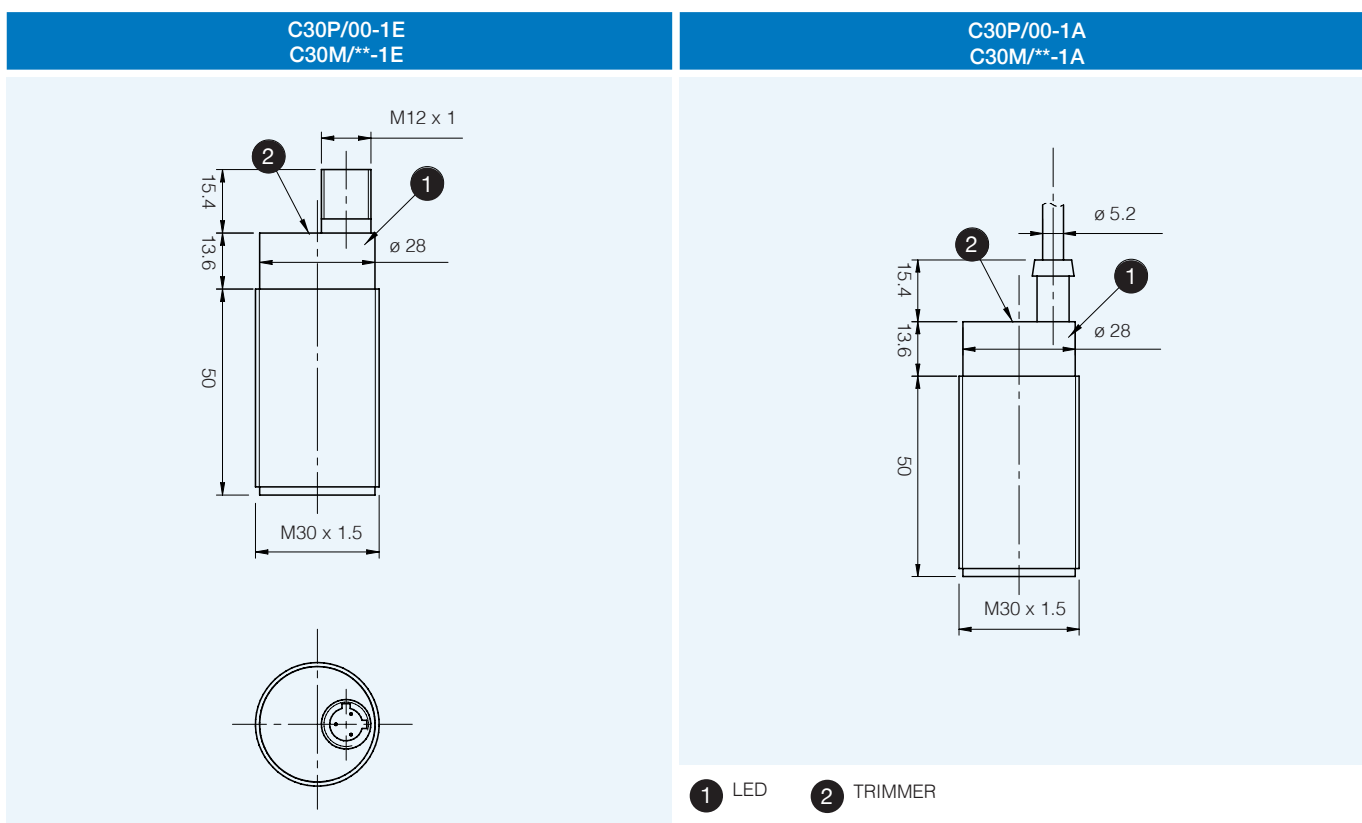
BN brown
BU blue
BK black
WH white

plug



dimensions (mm)

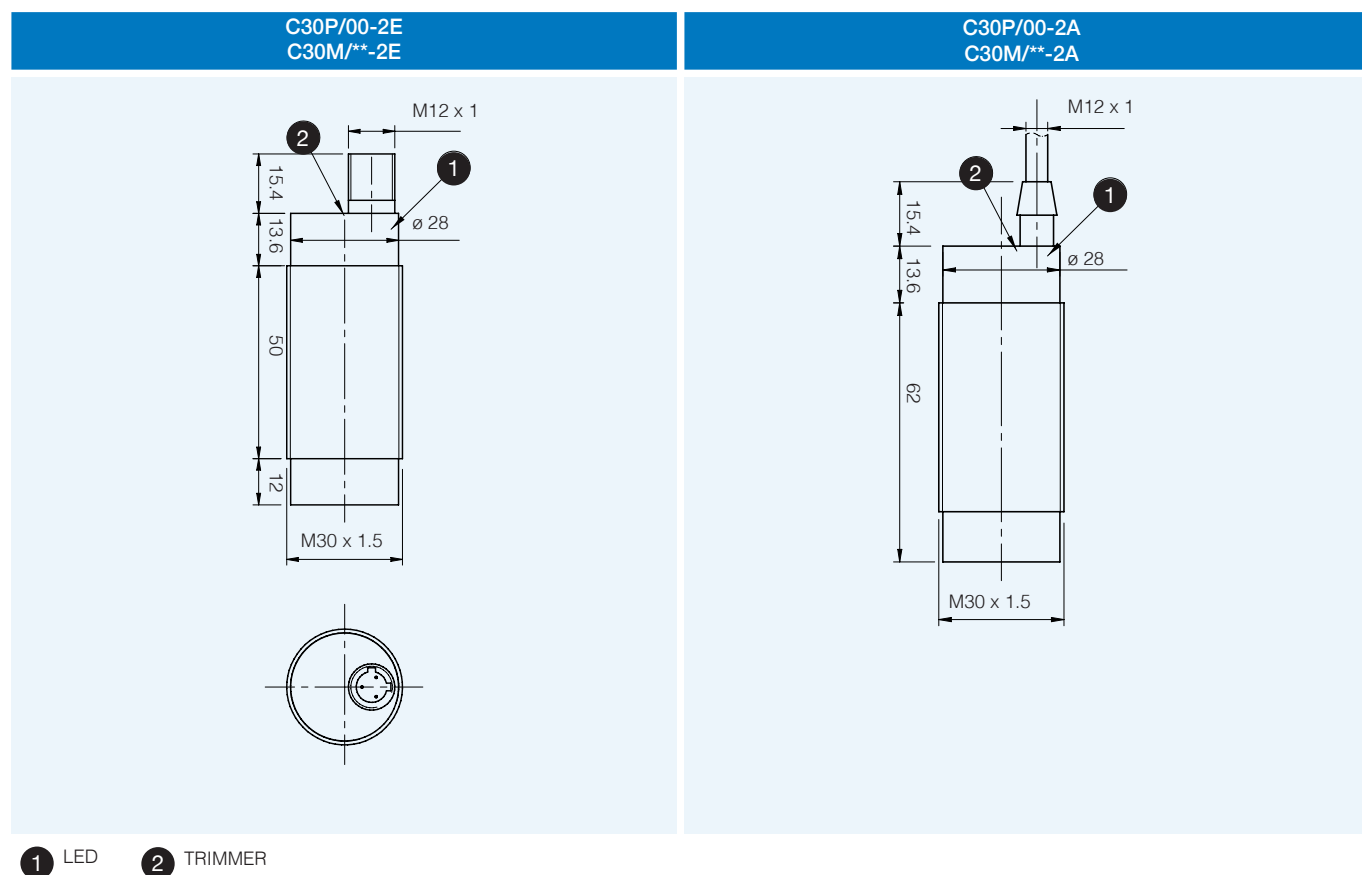
For models with AC power supply using the connection cable series CD12M / AC



1 LED 2 TRIMMER

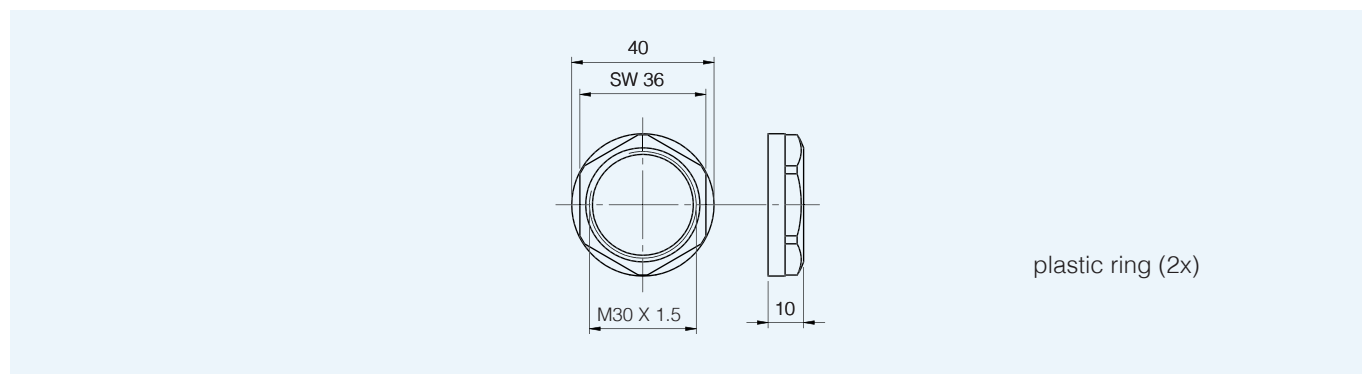
dimensions (mm)

M30 cylindrical



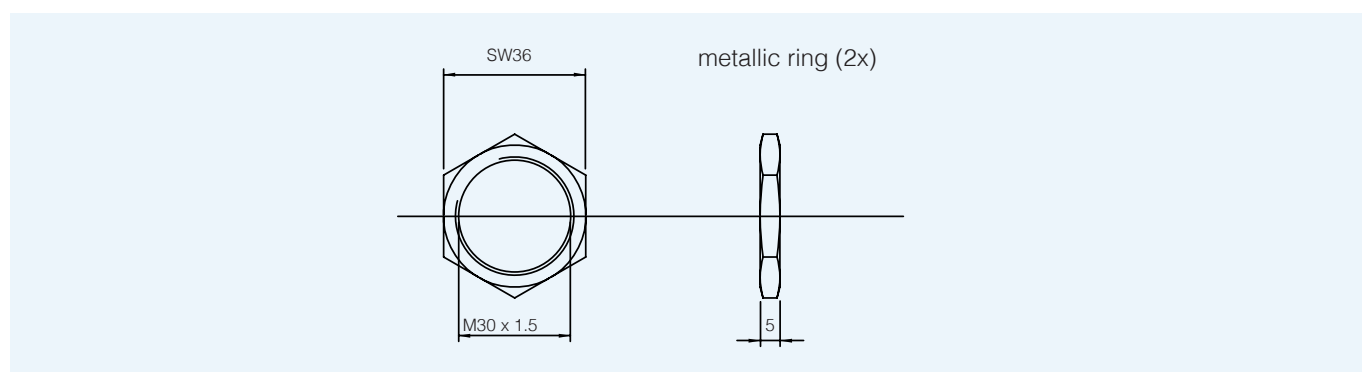
dimensions (mm)

accessories included in all plastic models



dimensions (mm)

accessories included in all metal models





CQ50 series

7 x 30 x 50 mm cubic
capacitive sensors



7 x 30 x 50 mm cubic

features

- DC supply voltage
- No adjustable sensitivity
- Flat polycarbonate plastic housing



web contents



- Application notes
- Photos
- Catalogue / Manuals



code description

	CQ	50	/	A	P	-	3	A
series	CQ	Capacitive sensor (rectangular)						
dimens.	50	50 x 30 x 7 mm						
output state	A	NO output						
	C	NC output						
output logic	P	PNP logic						
	N	NPN logic						
distance	1	5 mm range						
	2	6 mm range						
	3	7 mm range						
	4	10 mm range						
connect.	A	Cable exit						

available models

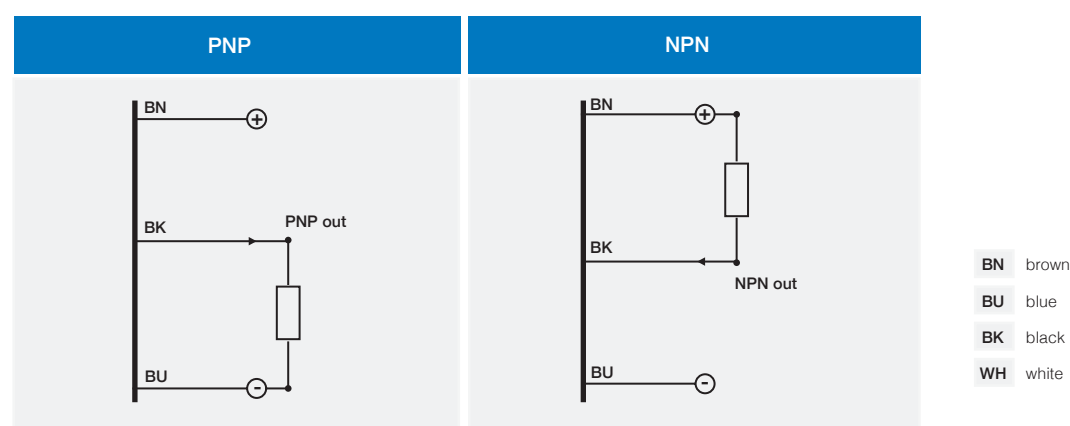
supply	distance (mm)	connection	NPN NC	NPN NO	PNP NO
5 Vcc	5	2 m cable	-	CQ50/AN-1A	-
10...30 Vcc	6		-	CQ50/AN-2A	-
	7		CQ50/CN-3A	-	CQ50/AP-3A
	10		CQ50/CN-4A	-	CQ50/AP-4A

technical specification

7 x 30 x 50 mm cubic

	CQ50/**-1A	CQ50/**-2A	CQ50/**-3A	CQ50/**-4A
				
nominal sensing distance Sn	5 mm	6 mm	7 mm	10 mm
hysteresis	≤ 20%			
repeatability	5%			
operating voltage	5 Vcc	10 ... 30 Vcc		
max ripple content	≤ 10 %			
no-Load supply current	≤ 10 mA			
load current	≤ 50 mA			
leakage current	≤ 100 µA			
output voltage drop Ud	1.5 V max @ IL= 50 mA			
output type	NPN or PNP - NO or NC			
switching frequency	10 Hz			
power on delay	≤ 100 ms			
power supply protections	polarity reversal, impulsive overvoltage			
output protection	autoreset short circuit, overvoltage			
sensitivity adjustment	-			
storage temperature	≤ 20%			
operating temperature range	0 ...+ 60° C (without freeze)			
temperature drift	-30 ...+ 75° C			
EMC	in conformity with the EMC Directive, according to EN 60947-5-2			
protection degree	IP67 (EN 60529) NEMA 1,3,4,6,13			
housing material	noryl			
active head material	noryl			
weight	70 g			

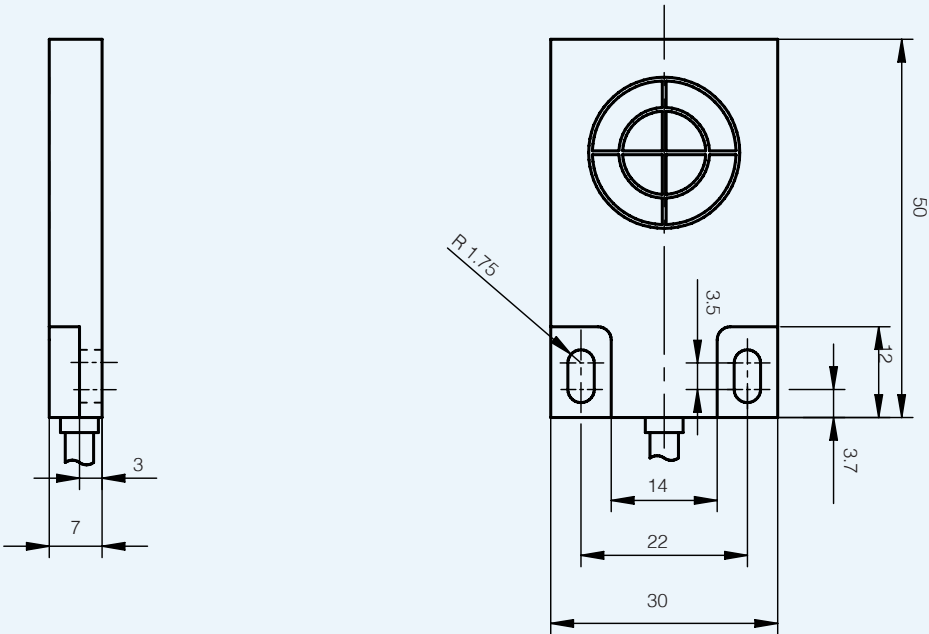
electrical diagrams of connections





7 x 30 x 50 mm cubic

CQ50/**-A





CQ50



CQ55 series

15 x 35 x 55 mm cubic
capacitive sensors



15 x 35 x 55 mm cubic

features

- DC supply voltage
- Adjustable sensitivity
- Flat polycarbonate plastic housing



web contents



- Application notes
- Photos
- Catalogue / Manuals



code description

	CQ	55	/	B	P	-	3	E
series	CQ	Capacitive sensor (rectangular)						
dimens.	55	55 x 35 x 15 mm						
output state	B	NO + NC complementary output						
output logic	P	PNP logic						
	N	NPN logic						
distance	3	Long distance 4...25 mm (shielded 16 mm - unshielded 25 mm)						
connect.	A	Cable exit						
	E	M12 plug exit						

available models

supply	installation	distance (mm)	connection	NPN NO + NC	PNP NO + NC
10...40 Vcc	shielded / unshielded	4...25	2 m cable	CQ55/BN-3A	CQ55/BP-3A
			M12 plug	CQ55/BN-3E	CQ55/BP-3E

CQ55

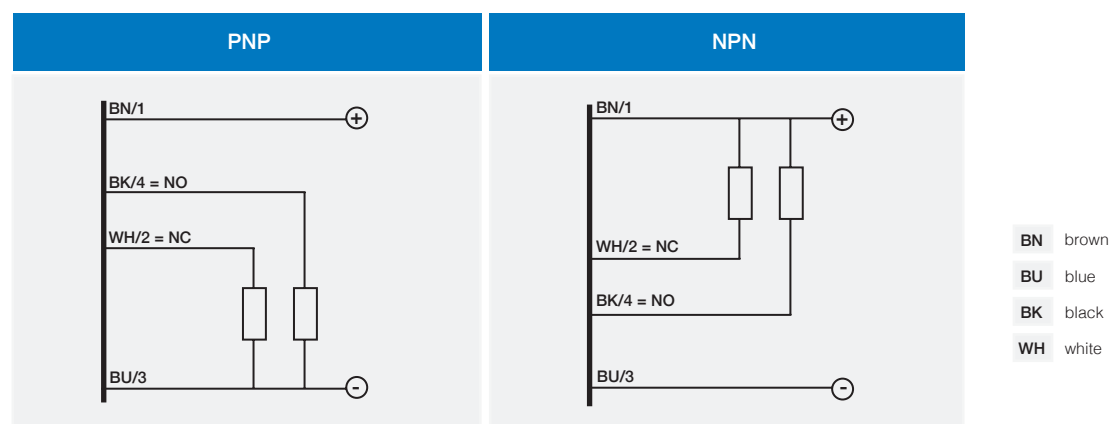
technical specification

according to IEC EN 60947-5-2

15 x 35 x 55 mm cubic

	CQ55/**-3*
	
nominal sensing distance S_n	25 mm
hysteresis	$\leq 20\%$
repeatability	5%
operating voltage	5 Vdc
max ripple content	$\leq 10\%$
no-load supply current	$\leq 10\text{ mA}$
load current	$\leq 200\text{ mA}$
leakage current	$\leq 10\text{ }\mu\text{A}$
output voltage drop U_d	2..5 V max @ $I_L = 200\text{ mA}$
output type	NPN or PNP - NO + NC
switching frequency	50 Hz
power on delay	$\leq 100\text{ ms}$
power supply protections	polarity reversal, impulsive overvoltage
output protection	autoreset short circuit, overvoltage
sensitivity adjustment	•
storage temperature	-40 ... +85° C
operating temperature range	-25 ... +80° C (without freeze)
temperature drift	$\leq 20\%$
EMC	in conformity with the EMC Directive, according to EN 60947-5-2
protection degree	IP67 (EN 60529) NEMA 1,3,4,6,13
LEDs	yellow (output status LOn/DOn)
housing material	PC
active head material	PC
weight	65 g connector / 150 g cable

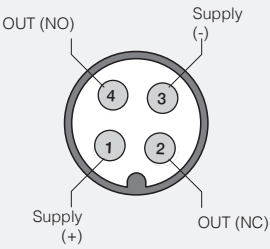
electrical diagrams of connections



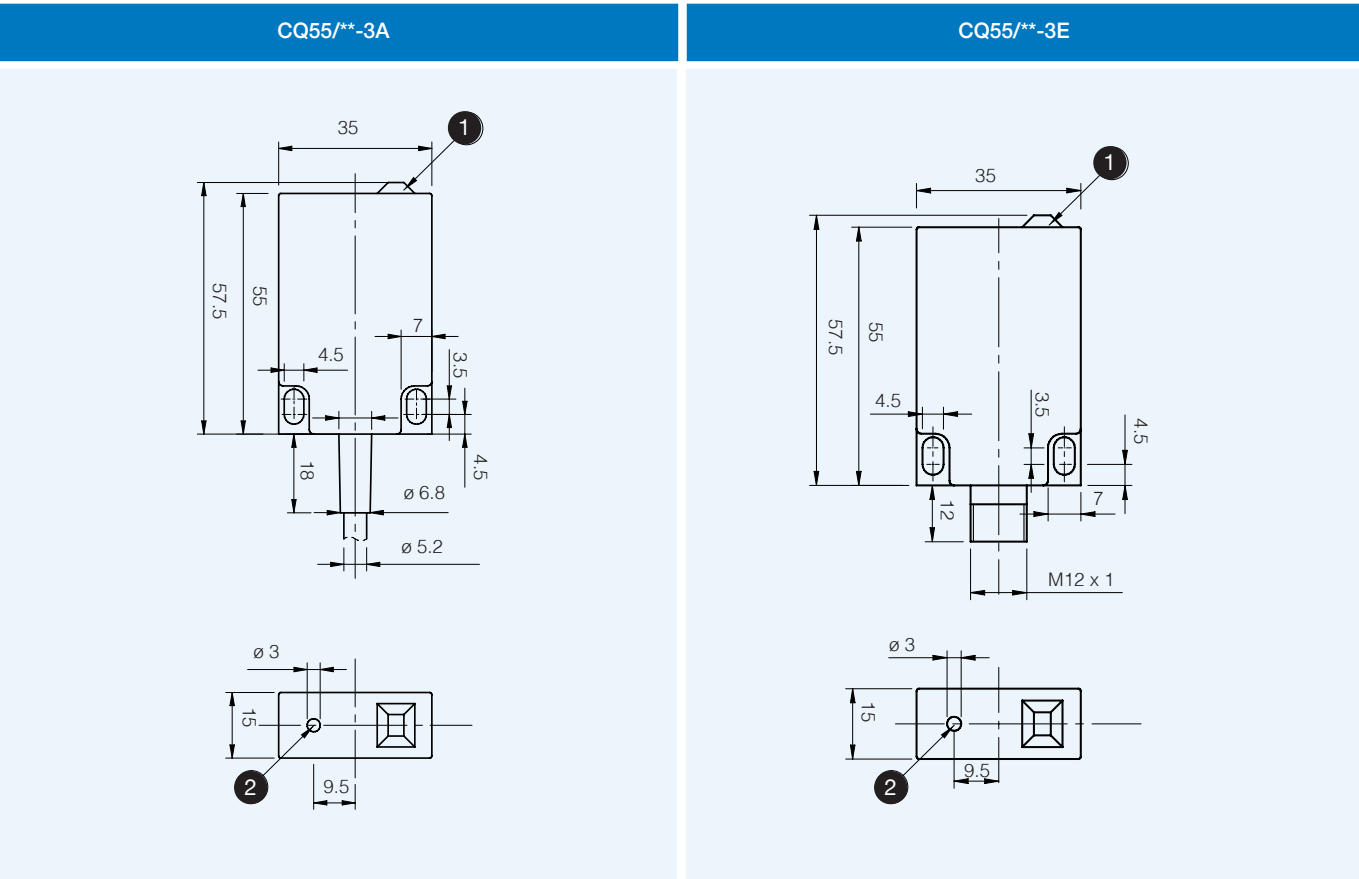


15 x 35 x 55 mm cubic

M12 CQ55/**-E



dimensions (mm)



- 1 LED
- 2 TRIMMER