



**CAPACITIVE PROXIMITY SENSORS** 



## CM30-25NPP-EC1 | CM

CAPACITIVE PROXIMITY SENSORS



#### Ordering information

Туре	Part no.
CM30-25NPP-EC1	6058157

Other models and accessories -> www.sick.com/CM





#### Detailed technical data

#### Features

Housing	Cylindrical thread design
Thread size	M30 x 1.5
Diameter	Ø 30 mm
Sensing range S <sub>n</sub>	0 mm 25 mm
Safe sensing range S <sub>a</sub>	19.13 mm <sup>1)</sup>
Installation type	Non-flush
Switching frequency	50 Hz
Connection type	Male connector M12, 4-pin
Switching output	PNP
Output function	Complementary
Output characteristic	Wire configurable
Electrical wiring	DC 4-wire
Adjustment	Potentiometer, 11 turns (Sensitivity)
Enclosure rating	IP67 IP68 <sup>2)</sup> IP69K
Items supplied	Mounting nut, PA12 plastic (2x) Screwdriver for potentiometer adjustment (1 x)

 $^{(1)}$  For flush mounting in electrically conductive materials Sa = 0.8 x Sr at temperatures <0 °C and >60 °C.

 $^{2)}$  1 m water depth / 60 min.

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#### Mechanics/electronics

Supply voltage10 V DC 36 V DC.Ripple210 K JRipple2 V DC 2Current consumption12 mA 3Time delay before availability2 200 msHysteresis3 % 20 %Reproducibility2 5 % 4 %Continuous current Ig2 10 %Sort-circuit protectionReverse polarity protectionAmbient operating temperatureAmbient operating temperatureAmbient operating temperatureHousing materialHousing lengthLousing lengthLousing lengthLousing lengthLousing lengthLousing lengthLousing lengthLiptentionKett Ellenot.Kett Ellenot.<		
Votage drop2 V DC <sup>2</sup> Current consumption12 mA <sup>3</sup> Time delay before availability200 msHysteresis3%20%Reproducibility5% 4 <sup>15</sup> Temperature drift (of S,)±10%EMCAccording to EN 60947-5-2Continuous current I,6Short-circuit protection7Power-up pulse protection4Noment reprature drift of space-00 cm : 485 cc <sup>6</sup> )Ambient operating temperature-a0 cm : 485 cc <sup>6</sup> )Anbient operating temperaturePatic., PBTHousing length14 mmThread length5.5 mmTimed length5.5 mm	Supply voltage	10 V DC 36 V DC
Current consumption12 mA <sup>3</sup> Time delay before availability<00 msHysteresis3%20%Reproducibility<5%. <sup>4</sup> )Temperature drift (of S.)£10 %EMCAccording to EN 60947-5-2Continuous current I,<200 mAShort-circuit protection<1Power-up pulse protection<1Ambient operating temperatureAmbient operating temperatureAmbient operating temperatureHousing materialPostic., PBTHousing length14 mmThread length5.5 mmTigthening torque, max.5.5 Nm	Ripple	< 10 % <sup>1)</sup>
Time delay before availability200 msHysteresis3%20%Reproducibility5%4%Temperature drift of S,1410%EMCCoording to EN 60947-5-2Continuous current Ia200 mAShort-circuit protection4Reverse polarity protection4Power-up pulse protection4Ambient operating temperature-0° c+85° c. <sup>6)</sup> Ambient temperature, storagePostG, PBTHousing materialPostG, PBTHousing length-14 mmThread length5.5 mmTimed length5.5 mm	Voltage drop	$\leq$ 2 V DC <sup>2)</sup>
Hysteresis3%20%Reproducibility≤5% <sup>4)5</sup> Temperature drift (of S,)±10%EMCAccording to EN 60947-5-2Continuous current I <sub>a</sub> ≤200 mAShort-circuit protection·Power-up pulse protection·Power-up pulse protection·Ambient operating temperature-30°C+85°C <sup>6)</sup> Ambient operating temperaturePastic, PBTHousing material?4 mmHousing length74 mmThread length55 mmTightening torque, max.57.5 Nm	Current consumption	12 mA <sup>3)</sup>
Reproducibility     ≤5% <sup>4)5</sup> Temperature drift (of S,)     ±10%       EMC     According to EN 60947-5-2       Continuous current I <sub>a</sub> ≤200 mA       Short-circuit protection     ✓       Reverse polarity protection     ✓       Power-up pulse protection     ✓       Ambient operating temperature     -acording to EN 60068       Ambient operating temperature     -a0°C…+85°C <sup>6)</sup> Aubient temperature, storage     Plastic, PBT       Housing material     Yum       Housing length     74 mm       Tiptening torque, max.     ₹7.5 Nm	Time delay before availability	≤ 200 ms
Temperature drift (of S,)± 10%EMCAccording to EN 60947-5-2Continuous current Ia≤ 200 mAShort-circuit protection·Reverse polarity protection·Power-up pulse protection·Shock and vibration resistance·Ambient operating temperature·Ambient operating temperature·Housing materialPost: PBTHousing length·Thread length·Tightening torque, max.·	Hysteresis	3 % 20 %
EMCAccording to EN 60947-5-2Continuous current Ia< 200 mAShort-circuit protectionReverse polarity protectionPower-up pulse protectionShock and vibration resistanceAccording to EN 60068Ambient operating temperature-30 °C +85 °C <sup>6)</sup> Ambient temperature, storagePlastic, PBTHousing material74 mmHousing length55 mmTiread length< 7.5 Nm	Reproducibility	< 5 % <sup>4) 5)</sup>
Continuous current la200 mAShort-circuit protection-Reverse polarity protection-Power-up pulse protection-Shock and vibration resistanceAccording to EN 60068Ambient operating temperature-30 °C +85 °C <sup>6)</sup> Ambient temperature, storage-40 °C +85 °C <sup>6)</sup> Housing materialPlastic, PBTHousing length74 mmThread length45.5 mmTightening torque, max.> 75.Nm	Temperature drift (of S <sub>r</sub> )	± 10 %
Short-circuit protection✓Reverse polarity protection✓Power-up pulse protection✓Shock and vibration resistanceAccording to EN 60068Ambient operating temperature-30 °C +85 °C <sup>6)</sup> Ambient temperature, storagePlastic, PBTHousing materialPlastic, PBTThread length45.5 mmTightening torque, max.≤ 7.5 Nm	EMC	According to EN 60947-5-2
Reverse polarity protection✓Power-up pulse protection✓Shock and vibration resistanceAccording to EN 60068Ambient operating temperature $-30^\circ$ C +85 $^\circ$ C $^{6)}$ Ambient temperature, storage→lastic, PBTHousing length74 mmThread length45.5 mmTightening torque, max. $< 75$ Nm	Continuous current I <sub>a</sub>	≤ 200 mA
Power-up pulse protection✓Shock and vibration resistanceAccording to EN 60068Ambient operating temperature-30 ° C +85 ° C <sup>6)</sup> Ambient temperature, storage-40 ° C +85 ° CHousing materialPlastic, PBTHousing length74 mmThread length45.5 mmTightening torque, max.> 7.5 Nm	Short-circuit protection	✓
Shock and vibration resistanceAccording to EN 60068Ambient operating temperature $-30  ^\circ C \dots + 85  ^\circ C  ^{(0)}$ Ambient temperature, storage $-40  ^\circ C \dots + 85  ^\circ C$ Housing materialPlastic, PBTHousing length74 mmThread length45.5 mmTightening torque, max. $< 7.5  Nm$	Reverse polarity protection	✓
Ambient operating temperature-30 °C +85 °C <sup>6)</sup> Ambient temperature, storage-40 °C +85 °CHousing materialPlastic, PBTHousing length74 mmThread length45.5 mmTightening torque, max.>7.5 Nm	Power-up pulse protection	✓
Ambient temperature, storage-40 °C +85 °CHousing materialPlastic, PBTHousing length74 mmThread length45.5 mmTightening torque, max.< 7.5 Nm	Shock and vibration resistance	According to EN 60068
Housing material Plastic, PBT   Housing length 74 mm   Thread length 45.5 mm   Tightening torque, max. ≤ 7.5 Nm	Ambient operating temperature	-30 °C +85 °C <sup>6)</sup>
Housing length 74 mm   Thread length 45.5 mm   Tightening torque, max. < 7.5 Nm	Ambient temperature, storage	-40 °C +85 °C
Thread length 45.5 mm   Tightening torque, max. ≤ 7.5 Nm	Housing material	Plastic, PBT
Tightening torque, max. ≤ 7.5 Nm	Housing length	74 mm
	Thread length	45.5 mm
UL File No. NRKH.E191603	Tightening torque, max.	≤ 7.5 Nm
	UL File No.	NRKH.E191603

- <sup>1)</sup> Of Ub.
- <sup>2)</sup> At I<sub>a</sub> max.
- <sup>3)</sup> Without load.
- <sup>4)</sup> Of Sr.
- $^{\rm 5)}$  Ub and Ta constant.
- $^{(6)}$  +120 °C short time, at the front of the sensor.

#### Safety-related parameters

MTTFD	919 years
DC <sub>avg</sub>	0 %
T <sub>M</sub> (mission time)	20 years

#### **Reduction factors**

Note	The values are reference values which may vary
Metal	1
Water	1
PVC	Approx. 0.4
Oil	Approx. 0.25
Glass	0.6
Ceramics	0.5
Alcohol	0.7

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Wood	0.2 0.7
Installation note	
Remark	Associated graphic see "Installation"
A	30 mm
-	<b>20</b> mm

В	60 mm
С	30 mm
D	75 mm
E	14.5 mm In critical distances, the sensor should be tested in the application
F	75 mm

#### Classifications

eCl@ss 5.0	27270102
eCl@ss 5.1.4	27270102
eCl@ss 6.0	27270102
eCl@ss 6.2	27270102
eCl@ss 7.0	27270102
eCl@ss 8.0	27270102
eCl@ss 8.1	27270102
eCl@ss 9.0	27270102
eCl@ss 10.0	27270102
eCl@ss 11.0	27270102
eCl@ss 12.0	27274201
ETIM 5.0	EC002715
ETIM 6.0	EC002715
ETIM 7.0	EC002715
ETIM 8.0	EC002715
UNSPSC 16.0901	39122230

#### Installation note

Non-flush installation



#### Shock and vibration resistance

Shock (IEC 60068-2-27):	30 G / 11ms, 3 pos, 3 neg per axis	
Rough handling shocks (IEC 60068-2-31):	2 times from 1m, 100 times from 0,5m	
Vibration (IEC 60068-2-6):	10 to 150 Hz, 1 mm / 15 G	

#### Electromagnetic compatibility (EMC)

Electrostatic discharge (EN61000-4-2):	Contact discharge > 40 kV Air discharge > 40 kV	
Electrical fast transients/burst (EN 61000-4-4):	+/- 4 kV	
Surge (EN 61000-4-5):	Power supply > 2 kV (with 500 0hm) Sensor output > 2 kV (with 500 0hm)	
Wire conducted disturbances (EN 61000-4-6):	> 20 Vrms	
Power-frequency magnetic fields (EN 61000-4-8):	Continous > 60 A/m, 75.9 µ tesla Short-time > 600 A/m, 759 µ tesla	
Radiated RF electromagnetic fields (EN 61000-4-3):	> 20 V/m	

#### **Connection diagram**

#### Cd-006



#### Characteristic curve

#### CM30, Non-flush installation



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#### Dimensional drawing (Dimensions in mm (inch))

CM30, non-flush, connector



- $\textcircled{\sc 0}$  Potentiometer for sensitivity adjustment
- ② LED yellow: output active
- ③ LED green: operating indicator

#### **Recommended accessories**

Other models and accessories -> www.sick.com/CM

	Brief description	Туре	Part no.			
Mounting bra	Mounting brackets and plates					
	Mounting plate for M30 sensors, steel, zinc coated, without mounting hardware	BEF-WG-M30	5321871			
40	Mounting bracket for M30 sensors, steel, zinc coated, without mounting hardware	BEF-WN-M30	5308445			
Plug connecto	ors and cables					
<b>N</b>	Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 2 m	YF2A14- 020UB3XLEAX	2095607			
<b>N</b>	Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 2 m	YF2A14- 020VB3XLEAX	2096234			
No.	Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 5 m	YF2A14- 050UB3XLEAX	2095608			
-	Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m	YF2A14- 050VB3XLEAX	2096235			
	Head A: female connector, M12, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 2 m	YG2A14- 020UB3XLEAX	2095766			
	Head A: female connector, M12, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 2 m	YG2A14- 020VB3XLEAX	2095895			
	Head A: female connector, M12, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 5 m	YG2A14- 050UB3XLEAX	2095767			

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Brief description	Туре	Part no.
Head A: female connector, M12, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m	YG2A14- 050VB3XLEAX	2095897
Head A: female connector, M12, 4-pin, straight Cable: unshielded	DOS-1204-G	6007302
Head A: female connector, M12, 4-pin, angled Cable: unshielded	DOS-1204-W	6007303
Head A: male connector, M12, 4-pin, straight Cable: unshielded	STE-1204-G	6009932
Head A: male connector, M12, 4-pin, angled Cable: unshielded	STE-1204-W	6022084

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SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is "Sensor Intelligence."

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