



# CMB18-12NPPEC0SA00

CMB

CAPACITIVE PROXIMITY SENSORS

**SICK**  
Sensor Intelligence.



### Ordering information

Type	part no.
CMB18-12NPPECOSA00	6080640

Other models and accessories → [www.sick.com/CMB](http://www.sick.com/CMB)

Illustration may differ



### Detailed technical data

#### Features

<b>Housing</b>	Metric
<b>Thread size</b>	M18 x 1
<b>Diameter</b>	Ø 18 mm
<b>Sensing range <math>S_n</math></b>	0 mm ... 12 mm
<b>Safe sensing range <math>S_a</math></b>	9.18 mm <sup>1)</sup>
<b>Installation type</b>	Non-flush
<b>Switching frequency</b>	50 Hz
<b>Connection type</b>	Male connector M12, 4-pin
<b>Switching output</b>	PNP
<b>Switching output detail</b>	PNP
<b>Output function</b>	Complementary
<b>Output characteristic</b>	Wire configurable
<b>Electrical wiring</b>	DC 4-wire
<b>Adjustment</b>	
	Potentiometer Sensitivity (11 turns)
	Wire/pin Sensitivity
	IO-Link Sensitivity, sensor parameters and Smart Task functions
<b>Enclosure rating</b>	IP67 IP68 <sup>2)</sup> IP69K
<b>Special features</b>	Visual adjustment indicator

<sup>1)</sup> For flush mounting in electrically conductive materials  $S_a = 0.8 \times S_r$  at temperatures  $<0 \text{ }^\circ\text{C}$  and  $>60 \text{ }^\circ\text{C}$ .

<sup>2)</sup> 1 m water depth / 60 min.

<b>Pin 2 configuration</b>	External input, Teach-in, switching signal
<b>Items supplied</b>	Mounting nut, PA12 plastic (2x) Screwdriver for potentiometer adjustment (1 x)

1) For flush mounting in electrically conductive materials  $S_a = 0.8 \times S_r$  at temperatures  $<0\text{ }^\circ\text{C}$  and  $>60\text{ }^\circ\text{C}$ .

2) 1 m water depth / 60 min.

### Mechanics/electronics

<b>Supply voltage</b>	10 V DC ... 36 V DC
<b>Ripple</b>	$\leq 10\%$ <sup>1)</sup>
<b>Voltage drop</b>	$\leq 2.5\text{ V DC}$ <sup>2)</sup>
<b>Current consumption</b>	$\leq 20\text{ mA}$ <sup>3)</sup>
<b>Time delay before availability</b>	$\leq 300\text{ ms}$
<b>Hysteresis</b>	3 % ... 20 %
<b>Reproducibility</b>	$\leq 5\%$ <sup>4)</sup> <sup>5)</sup>
<b>Temperature drift (of <math>S_r</math>)</b>	$\pm 10\%$
<b>EMC</b>	EN 61000-4-2 ESD: $> 40\text{ kV CD}$ and AD EN 61000-4-3 Radiated RF: $20\text{ V/m}$ EN 61000-4-4 burst: $\pm 4\text{ kV} / 5\text{ kHz}$ EN 61000-4-5 Surge: Voltage supply $> 2\text{ kV}$ with $500\text{ ohm}$ ; switching output $> 2\text{ kV}$ with $500\text{ ohm}$ EN 61000-4-6 HF: $> 20\text{ V}_{\text{rms}}$ EN 61000-4-8 mains frequency magnetic fields: Permanent $> 60\text{ A/m}$ , $75,9\text{ }\mu\text{ tesla}$ ; briefly $> 600\text{ A/m}$ , $759\text{ }\mu\text{ tesla}$
<b>Continuous current <math>I_a</math></b>	$\leq 200\text{ mA}$
<b>Short-circuit protection</b>	✓
<b>Power-up pulse protection</b>	✓
<b>Shock and vibration resistance</b>	EN 60068-2-27 shock resistance $E_a$ : $30\text{ g } 11\text{ ms}$ ; 3 shocks in each direction of the 3 coordinate axes IEC 60068-2-31 drop test: 2 times from 1 m, 100 times from 0.5 m EN 60068-2-6 vibration resistance $F_c$ : $10\text{ Hz} \dots 150\text{ Hz}$ , $1\text{ mm} / 15\text{ g}$
<b>Ambient operating temperature</b>	$-30\text{ }^\circ\text{C} \dots +85\text{ }^\circ\text{C}$ <sup>6)</sup>
<b>Ambient temperature, storage</b>	$-40\text{ }^\circ\text{C} \dots +85\text{ }^\circ\text{C}$
<b>Housing material</b>	Plastic, PBT
<b>Housing length</b>	85 mm
<b>Thread length</b>	47 mm
<b>Tightening torque, max.</b>	$\leq 2.6\text{ Nm}$
<b>UL File No.</b>	NRKH.E191603

1) Of  $U_b$ .

2) At  $I_a$  max.

3) Without load.

4) Of  $S_r$ .

5) Supply voltage  $U_B$  and constant ambient temperature  $T_a$ .

6)  $+120\text{ }^\circ\text{C}$  short time, at the front of the sensor.

### Safety-related parameters

<b>MTTF<sub>D</sub></b>	916 years
<b>DC<sub>avg</sub></b>	0%

<b>T<sub>M</sub> (mission time)</b>	20 years
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### Communication interface

<b>Communication interface</b>	IO-Link V1.1
<b>Communication Interface detail</b>	COM2 (38,4 kBaud)
<b>Cycle time</b>	> 5 ms
<b>Process data length</b>	4 Byte
<b>Process data structure</b>	Bit 0 = switching signal Q <sub>L1</sub> Bit 1 = switching signal Q <sub>L2</sub> Bit 2 = Sensor switching channel Qint1 Bit 3 = Sensor switching channel Qint2 Bit 4 = Contamination alarm for switching channel Qint1 Bit 5 = Contamination channel for Qint2 Bit 6 = Temperature alarm Bit 7 = Short-circuit Bit 16 ... 31 = Analog value (digit value, not linearized)

### Reduction factors

<b>Note</b>	The values are reference values which may vary
<b>Metal</b>	1
<b>Water</b>	1
<b>PVC</b>	Approx. 0.4
<b>Oil</b>	Approx. 0.25
<b>Glass</b>	0.6
<b>Ceramics</b>	0.5
<b>Alcohol</b>	0.7
<b>Wood</b>	0.2 ... 0.7

### Installation note

<b>Remark</b>	Associated graphic see "Installation"
<b>A</b>	18 mm
<b>B</b>	36 mm
<b>C</b>	18 mm
<b>D</b>	36 mm
<b>E</b>	8 mm
<b>F</b>	36 mm

### Smart Task

<b>Smart Task name</b>	Base logics
<b>Logic function</b>	Direct AND OR Window Hysteresis
<b>Timer function</b>	Deactivated Switch-on delay Off delay ON and OFF delay Impulse (one shot)
<b>Inverter</b>	Yes
<b>Switching signal</b>	

Switching signal Q <sub>L1</sub>	Switching output
Switching signal Q <sub>L2</sub>	Switching output

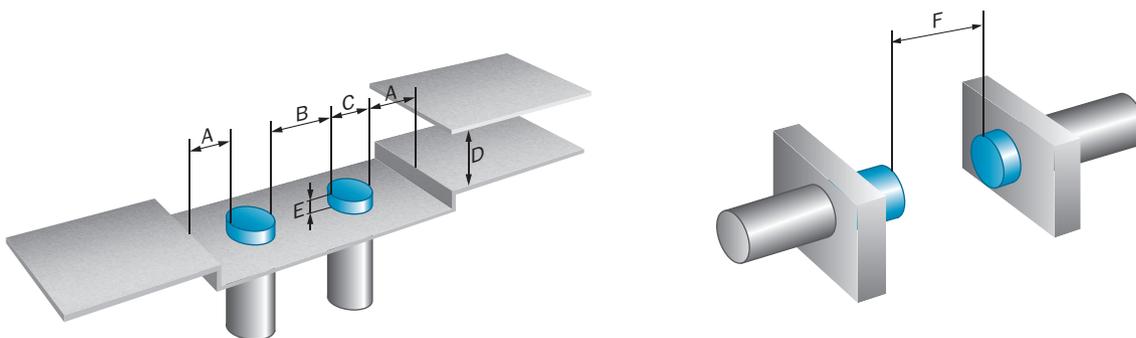
Certificates

<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>China-RoHS</b>	✓
<b>ECOLAB certificate</b>	✓
<b>cULus certificate</b>	✓
<b>IO-Link</b>	✓

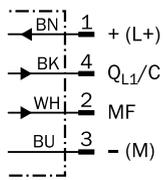
Classifications

<b>ECLASS 5.0</b>	27270102
<b>ECLASS 5.1.4</b>	27270102
<b>ECLASS 6.0</b>	27270102
<b>ECLASS 6.2</b>	27270102
<b>ECLASS 7.0</b>	27270102
<b>ECLASS 8.0</b>	27270102
<b>ECLASS 8.1</b>	27270102
<b>ECLASS 9.0</b>	27270102
<b>ECLASS 10.0</b>	27270102
<b>ECLASS 11.0</b>	27270102
<b>ECLASS 12.0</b>	27274201
<b>ETIM 5.0</b>	EC002715
<b>ETIM 6.0</b>	EC002715
<b>ETIM 7.0</b>	EC002715
<b>ETIM 8.0</b>	EC002715
<b>UNSPSC 16.0901</b>	39122230

Installation note Non-flush installation

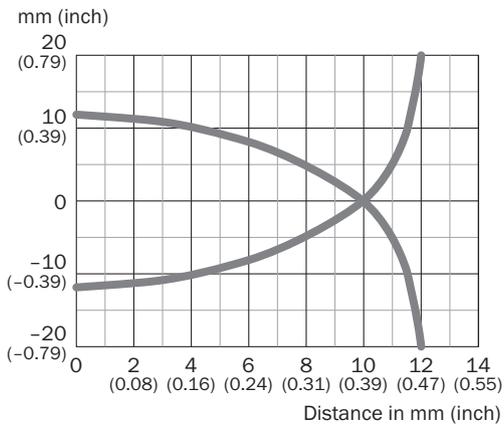


### Connection diagram Cd-526

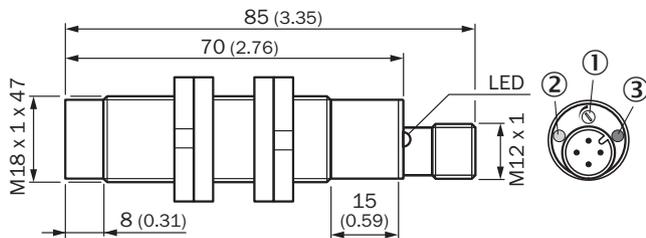


Q<sub>L1</sub>/C = Switching output,  
 IO-Link communication  
 MF = Multifunction

### Response diagram CMB18, Non-flush installation



### Dimensional drawing CMB18, non-flush, connector



Dimensions in mm (inch)

- ① Potentiometer for sensitivity adjustment
- ② LED yellow: status indicator
- ③ LED green: operating indicator

## Recommended accessories

 Other models and accessories → [www.sick.com/CMB](http://www.sick.com/CMB)

	Brief description	Type	part no.
network devices			
		IOLA2US-01101 (SiLink2 Master)	1061790
		SIG200-0A0412200	1089794
connectors and cables			
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 4-pin, straight, A-coded</li> <li>• <b>Description:</b> Unshielded</li> <li>• <b>Connection systems:</b> Screw-type terminals</li> <li>• <b>Permitted cross-section:</b> ≤ 0.75 mm<sup>2</sup></li> </ul>	STE-1204-G	6009932
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 4-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 5 m, 4-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul>	YF2A14-050VB3XLEAX	2096235
Mounting systems			
	<ul style="list-style-type: none"> <li>• <b>Description:</b> Mounting bracket for M18 sensors</li> <li>• <b>Material:</b> Steel</li> <li>• <b>Details:</b> Steel, zinc coated</li> <li>• <b>Items supplied:</b> Without mounting hardware</li> <li>• <b>Suitable for:</b> GR18, V180-2, V18, W15, Z1, Z2</li> </ul>	BEF-WN-M18	5308446
	<ul style="list-style-type: none"> <li>• <b>Description:</b> Mounting plate for M18 sensors</li> <li>• <b>Material:</b> Steel</li> <li>• <b>Details:</b> Steel, zinc coated</li> <li>• <b>Items supplied:</b> Without mounting hardware</li> <li>• <b>Suitable for:</b> GR18, V180-2, V18, W15, Z1, Z2</li> </ul>	BEF-WG-M18	5321870

## SICK AT A GLANCE

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.”

## WORLDWIDE PRESENCE:

Contacts and other locations –[www.sick.com](http://www.sick.com)