



# IMB12-04BPSVC0SX01

IMB

INDUCTIVE PROXIMITY SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

Type	Part no.
IMB12-04BPSVC0SX01	1099569

**Included in delivery:** Cable housing/cover (1), BEF-MU-M12N (1)

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

### Detailed technical data

#### Features

<b>Housing</b>	Cylindrical thread design
<b>Housing</b>	Standard design
<b>Thread size</b>	M12 x 1
<b>Diameter</b>	Ø 12 mm
<b>Sensing range <math>S_n</math></b>	4 mm
<b>Safe sensing range <math>S_a</math></b>	3.24 mm
<b>Installation type</b>	Flush
<b>Switching frequency</b>	2,000 Hz
<b>Connection type</b>	Male connector M12, 4-pin <sup>1)</sup>
<b>Switching output</b>	PNP
<b>Output function</b>	NO
<b>Electrical wiring</b>	DC 3-wire
<b>Enclosure rating</b>	IP67 <sup>2)</sup>
<b>Special features</b>	Resistant against coolant lubricants, Visual adjustment indicator, IO-Link
<b>Special applications</b>	Zones with coolants and lubricants, Mobile machines, Difficult application conditions, Explosive areas
<b>Items supplied</b>	Mounting nut, V2A stainless steel, with locking teeth (2x) Cable housing/cover

<sup>1)</sup> With gold plated contact pins.

<sup>2)</sup> According to EN 60529.

## Mechanics/electronics

<b>Supply voltage</b>	10 V DC ... 30 V DC
<b>Ripple</b>	≤ 10 %
<b>Voltage drop</b>	≤ 2 V <sup>1)</sup>
<b>Hysteresis</b>	3 % ... 20 %
<b>Reproducibility</b>	≤ 2 % <sup>2) 3)</sup>
<b>Temperature drift (of S<sub>r</sub>)</b>	± 10 %
<b>EMC</b>	According to EN 60947-5-2
<b>Continuous current I<sub>a</sub></b>	≤ 200 mA <sup>4)</sup>
<b>No load current</b>	≤ 10 mA
<b>Short-circuit protection</b>	✓
<b>Reverse polarity protection</b>	✓
<b>Power-up pulse protection</b>	✓
<b>Shock and vibration resistance</b>	100 g / 2 ms / 500 cycles; 150 g / 1 Mio cycles; 10 Hz ... 55 Hz / 1 mm; 55 Hz ... 500 Hz / 60 g
<b>Ambient operating temperature</b>	-20 °C ... +85 °C
<b>Housing material</b>	Stainless steel V2A, DIN 1.4305 / AISI 303
<b>Sensing face material</b>	Plastic, LCP
<b>Housing length</b>	65 mm
<b>Thread length</b>	48 mm
<b>Tightening torque, max.</b>	Typ. 20 Nm <sup>5)</sup> Typ. 32 Nm <sup>6)</sup>
<b>ATEX marking</b>	II 3G Ex ec IIC T4 Gc X, II 3D Ex tc IIIC T135 °C Dc X
<b>Ex area category</b>	3G, 3D
<b>Protection class</b>	III
<b>UL File No.</b>	E181493

<sup>1)</sup> At I<sub>a</sub> max.

<sup>2)</sup> Ub and Ta constant.

<sup>3)</sup> Of S<sub>r</sub>.

<sup>4)</sup> Depend on ambient temperature. For details see operating instructions under „performance data of the sensor“.

<sup>5)</sup> When using the non-toothed side of the nut.

<sup>6)</sup> Valid if toothed side of nut is used.

## Safety-related parameters

<b>MTTF<sub>D</sub></b>	1,971 years
<b>DC<sub>avg</sub></b>	0 %

## Communication interface

<b>Communication interface</b>	IO-Link V1.0
<b>Communication Interface detail</b>	COM2 (38,4 kBaud)
<b>Process data length</b>	1 Byte
<b>Process data structure</b>	Bit 0 = S <sub>r</sub> reached Bit 1 = S <sub>a</sub> reached

### Reduction factors

<b>Note</b>	The values are reference values which may vary
<b>St37 steel (Fe)</b>	1
<b>Stainless steel (V2A, 304)</b>	Approx. 0.65
<b>Aluminum (Al)</b>	Approx. 0.35
<b>Copper (Cu)</b>	Approx. 0.24
<b>Brass (Br)</b>	Approx. 0.38

### Installation note

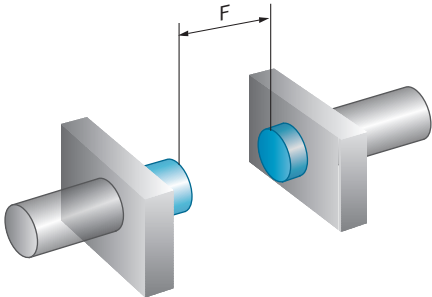
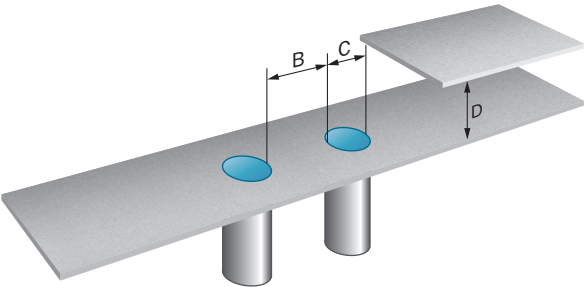
<b>Remark</b>	Associated graphic see "Installation"
<b>B</b>	12 mm
<b>C</b>	12 mm
<b>D</b>	12 mm
<b>F</b>	32 mm

### Classifications

<b>eCl@ss 5.0</b>	27270101
<b>eCl@ss 5.1.4</b>	27270101
<b>eCl@ss 6.0</b>	27270101
<b>eCl@ss 6.2</b>	27270101
<b>eCl@ss 7.0</b>	27270101
<b>eCl@ss 8.0</b>	27270101
<b>eCl@ss 8.1</b>	27270101
<b>eCl@ss 9.0</b>	27270101
<b>eCl@ss 10.0</b>	27270101
<b>eCl@ss 11.0</b>	27270101
<b>eCl@ss 12.0</b>	27274001
<b>ETIM 5.0</b>	EC002714
<b>ETIM 6.0</b>	EC002714
<b>ETIM 7.0</b>	EC002714
<b>ETIM 8.0</b>	EC002714
<b>UNSPSC 16.0901</b>	39122230

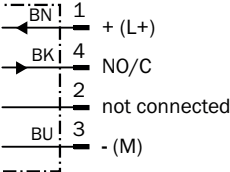
Installation note

Flush installation



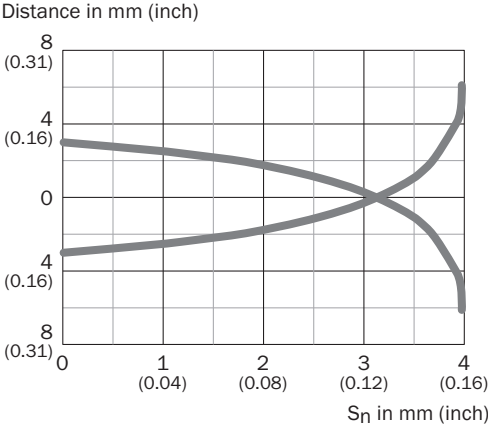
Connection diagram

Cd-456



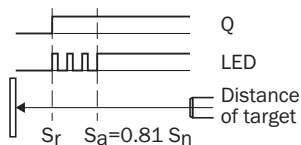
Characteristic curve

Response diagram



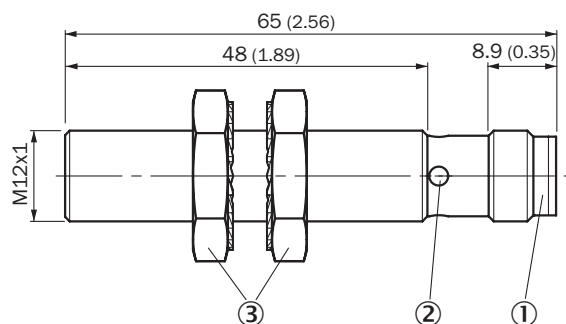
### Adjustments

Installation aid



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

IMB12 Standard, connector, M12, flush









- ① Connection
- ② Display LED
- ③ Fastening nuts (2 x); width across 17, stainless steel V2A

### Recommended accessories

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

	Brief description	Type	Part no.
Universal bar clamp systems			
	Plate N05N for universal clamp bracket, M12, Stainless steel 1.4571 (sheet), Stainless steel 1.4408 (clamp), Universal clamp (5322627), mounting hardware	BEF-KHS-N05N	2051621
Device protection (mechanical)			
	CAP-M12-TB	CAP-M12-TB	2083430
Mounting brackets and plates			
	Mounting plate for M12 sensors, stainless steel, without mounting hardware	BEF-WG-M12N	5320950
	Mounting bracket for M12 housing, stainless steel, without mounting hardware	BEF-WN-M12N	5320949

	Brief description	Type	Part no.
<b>Plug connectors and cables</b>			
	<p>Head A: female connector, M12, 4-pin, straight Head B: Flying leads Cable: Sensor/actuator cable, PP, unshielded, 2 m This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid &amp; hydrogen peroxide (H2O2)</p>	DOL-1204-G02MRN	6058291
	<p>Head A: female connector, M12, 4-pin, straight Head B: Flying leads Cable: Sensor/actuator cable, PP, unshielded, 5 m This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid &amp; hydrogen peroxide (H2O2)</p>	DOL-1204-G05MRN	6058476
	<p>Head A: female connector, M12, 4-pin, angled Head B: Flying leads Cable: Sensor/actuator cable, PP, unshielded, 2 m This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid &amp; hydrogen peroxide (H2O2), only suitable for PNP sensors</p>	DOL-1204-L02MRN	6058482
	<p>Head A: female connector, M12, 4-pin, angled Head B: Flying leads Cable: Sensor/actuator cable, PP, unshielded, 5 m This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid &amp; hydrogen peroxide (H2O2), only suitable for PNP sensors</p>	DOL-1204-L05MRN	6058483
	<p>Head A: female connector, M12, 4-pin, angled Head B: Flying leads Cable: Sensor/actuator cable, PP, unshielded, 2 m This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid &amp; hydrogen peroxide (H2O2)</p>	DOL-1204-W02MRN	6058474
	<p>Head A: female connector, M12, 4-pin, angled Head B: Flying leads Cable: Sensor/actuator cable, PP, unshielded, 5 m This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid &amp; hydrogen peroxide (H2O2)</p>	DOL-1204-W05MRN	6058477
	<p>Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 10 m</p>	YF2A14-100UB3XLEAX	2095609
	<p>Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 15 m</p>	YF2A14-150UB3XLEAX	2095610
	<p>Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 20 m</p>	YF2A14-200UB3XLEAX	2095611
	<p>Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 25 m</p>	YF2A14-250UB3XLEAX	2095615

	Brief description	Type	Part no.
	Head A: female connector, M12, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 10 m	YG2A14-100UB3XLEAX	2095768
	Head A: female connector, M12, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 15 m	YG2A14-150UB3XLEAX	2095769
	Head A: female connector, M12, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 20 m	YG2A14-200UB3XLEAX	2095770
	Head A: female connector, M12, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 25 m	YG2A14-250UB3XLEAX	2095771
	Head A: male connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 10 m	YM2A14-100UB3XLEAX	2095859
	Head A: male connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 15 m	YM2A14-150UB3XLEAX	2095866
	Head A: male connector, M12, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 10 m	YN2A14-100UB3XLEAX	2096629
	Head A: female connector, M12, 4-pin, angled Head B: male connector, M12, 4-pin, straight Cable: Sensor/actuator cable, PP, unshielded, 2 m This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid & hydrogen peroxide (H2O2)	DSL-1204-B02MRN	6058502
	Head A: female connector, M12, 4-pin, angled Head B: male connector, M12, 4-pin, straight Cable: Sensor/actuator cable, PP, unshielded, 5 m This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid & hydrogen peroxide (H2O2)	DSL-1204-B05MRN	6058503
	Head A: female connector, M12, 4-pin, straight Head B: male connector, M12, 4-pin, straight Cable: Sensor/actuator cable, PP, unshielded, 2 m This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid & hydrogen peroxide (H2O2)	DSL-1204-G02MRN	6058499
	Head A: female connector, M12, 4-pin, straight Head B: male connector, M12, 4-pin, straight Cable: Sensor/actuator cable, PP, unshielded, 5 m This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid & hydrogen peroxide (H2O2)	DSL-1204-G05MRN	6058500
	Head A: female connector, M12, 4-pin, straight, A-coded Head B: male connector, M12, 4-pin, straight, A-coded Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 10 m	YF2A14-100UB3M2A14	2096002

Recommended services

Additional services → [www.sick.com/IMB](http://www.sick.com/IMB)

	Type	Part no.
Function Block Factory		
<ul style="list-style-type: none"><li><b>Description:</b> The Function Block Factory supports common programmable logic controllers (PLCs) from various manufacturers, such as Siemens, Beckhoff, Rockwell Automation and B&amp;R. More information on the FBF can be found <a _blank"="" href="https://fbf.cloud.sick.com target=">here</a>.</li></ul>	Function Block Factory	On request

## 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)