



# IM12-06BPO-NC1

IMI

INDUCTIVE PROXIMITY SENSORS

**SICK**  
Sensor Intelligence.



## Ordering information

| Type           | Part no. |
|----------------|----------|
| IM12-06BPO-NC1 | 6027574  |

**Included in delivery:** BEF-MU-M12N1 (1)

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

Illustration may differ



## Detailed technical data

### Features

|                                            |                                                                                                                           |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <b>Housing</b>                             | Cylindrical thread design                                                                                                 |
| <b>Thread size</b>                         | M12 x 1                                                                                                                   |
| <b>Diameter</b>                            | Ø 12 mm                                                                                                                   |
| <b>Sensing range <math>S_n</math></b>      | 6 mm                                                                                                                      |
| <b>Safe sensing range <math>S_a</math></b> | 4.86 mm                                                                                                                   |
| <b>Installation type</b>                   | Flush                                                                                                                     |
| <b>Switching frequency</b>                 | 600 Hz                                                                                                                    |
| <b>Connection type</b>                     | Male connector M12, 4-pin                                                                                                 |
| <b>Switching output</b>                    | PNP                                                                                                                       |
| <b>Output function</b>                     | NC                                                                                                                        |
| <b>Electrical wiring</b>                   | DC 3-wire                                                                                                                 |
| <b>Enclosure rating</b>                    | IP68, IP69K <sup>1)</sup>                                                                                                 |
| <b>Special features</b>                    | Sensing face made of stainless steel V4A, Resistant to cleaning agents, triple sensing range, Visual adjustment indicator |
| <b>Special applications</b>                | Hygienic and washdown zones, Difficult application conditions                                                             |
| <b>Items supplied</b>                      | Mounting nut, V4A stainless steel (2x)<br>Washer, V4A stainless steel, with locking teeth (2x)                            |

<sup>1)</sup> According to EN 60529.

### Mechanics/electronics

|                       |                      |
|-----------------------|----------------------|
| <b>Supply voltage</b> | 10 V DC ... 30 V DC  |
| <b>Ripple</b>         | ≤ 20 % <sup>1)</sup> |

<sup>1)</sup> Of  $V_S$ .

<sup>2)</sup> At  $I_a$  max.

<sup>3)</sup> Of  $S_r$ .

<sup>4)</sup>  $U_B = 20 \text{ V DC ... } 30 \text{ V DC}$ ,  $T_A = 23 \text{ °C} \pm 5 \text{ °C}$ .

|                                                |                                             |
|------------------------------------------------|---------------------------------------------|
| <b>Voltage drop</b>                            | $\leq 2 \text{ V}^{2)}$                     |
| <b>Time delay before availability</b>          | $\leq 40 \text{ ms}$                        |
| <b>Hysteresis</b>                              | 1 % ... 15 %                                |
| <b>Reproducibility</b>                         | $\leq 5 \%^{3) 4)}$                         |
| <b>Temperature drift (of <math>S_r</math>)</b> | $\leq 10 \%$                                |
| <b>EMC</b>                                     | According to EN 60947-5-2                   |
| <b>Continuous current <math>I_a</math></b>     | $\leq 200 \text{ mA}$                       |
| <b>Short-circuit protection</b>                | ✓                                           |
| <b>Reverse polarity protection</b>             | ✓                                           |
| <b>Power-up pulse protection</b>               | ✓                                           |
| <b>Shock and vibration resistance</b>          | 30 g, 11 ms / 10 ... 55 Hz, 1 mm            |
| <b>Ambient operating temperature</b>           | -25 °C ... +85 °C                           |
| <b>Housing material</b>                        | Stainless steel V4A, DIN 1.4404 / AISI 316L |
| <b>Sensing face material</b>                   | Stainless steel V4A, DIN 1.4404 / AISI 316L |
| <b>Housing length</b>                          | 60 mm                                       |
| <b>Thread length</b>                           | 41 mm                                       |
| <b>Tightening torque, max.</b>                 | $\leq 20 \text{ Nm}$                        |
| <b>Protection class</b>                        | III                                         |
| <b>UL File No.</b>                             | E191603                                     |

1) Of  $V_S$ .

2) At  $I_a \text{ max.}$

3) Of  $S_r$ .

4)  $U_B = 20 \text{ V DC ... } 30 \text{ V DC}$ ,  $T_A = 23 \text{ °C} \pm 5 \text{ °C}$ .

### Safety-related parameters

|                                     |             |
|-------------------------------------|-------------|
| <b>MTTF<sub>D</sub></b>             | 1,627 years |
| <b>DC<sub>avg</sub></b>             | 0 %         |
| <b>T<sub>M</sub> (mission time)</b> | 20 years    |

### Reduction factors

|                                    |                                                |
|------------------------------------|------------------------------------------------|
| <b>Note</b>                        | The values are reference values which may vary |
| <b>St37 steel (Fe)</b>             | Approx. 1                                      |
| <b>Stainless steel (V4A, 316L)</b> | Approx. 0.45                                   |
| <b>Aluminum (Al)</b>               | Approx. 1                                      |
| <b>Copper (Cu)</b>                 | Approx. 0.85                                   |
| <b>Brass (Br)</b>                  | Approx. 1.3                                    |

### Installation note

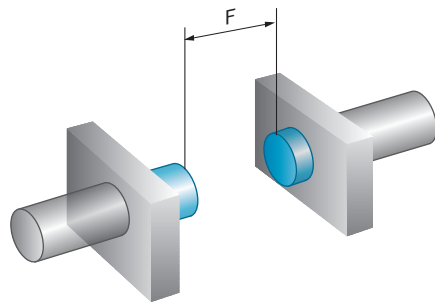
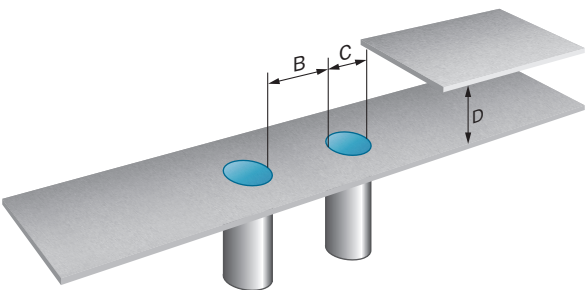
|               |                                       |
|---------------|---------------------------------------|
| <b>Remark</b> | Associated graphic see "Installation" |
| <b>B</b>      | 38 mm                                 |
| <b>C</b>      | 12 mm                                 |
| <b>D</b>      | 18 mm                                 |
| <b>F</b>      | 60 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 |

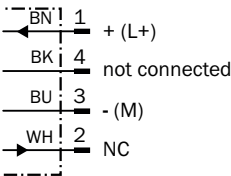
Installation note

Flush installation

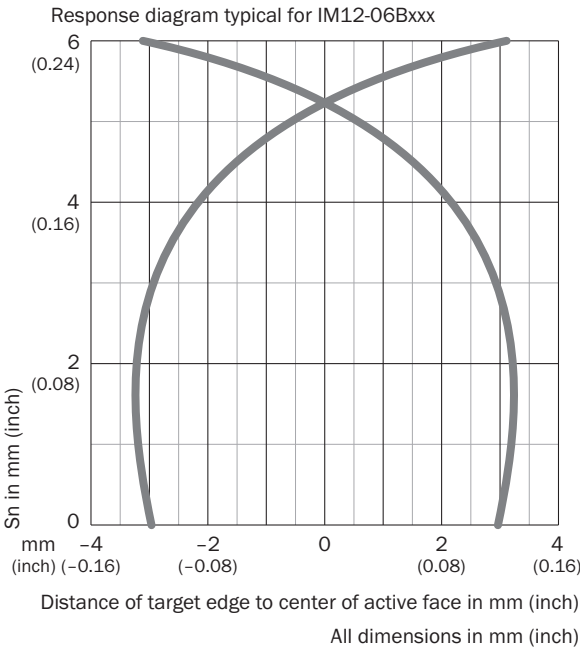


Connection diagram

Cd-008

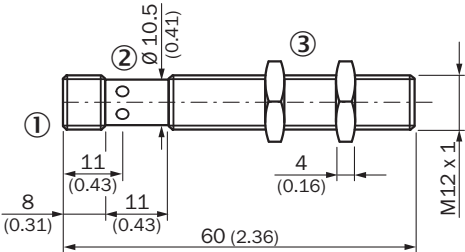


Response diagram



Dimensional drawing (Dimensions in mm (inch))

IM12 Inox, flush



- ① Connection
- ② Display LED
- ③ Fastening nuts (2 x); width across 17, stainless steel V4A

Recommended accessories

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

|                             | 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  |

|                                                                                     | Brief description                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Type            | Part no. |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------|
| 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  |
| Plug connectors and cables                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                 |          |
|    | Head A: female connector, M12, 4-pin, straight<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PVC, unshielded, 2 m<br>This product is generally resistant to chemical cleaning agents (see ECOLAB). Please do not use cleaning agents of any other Kind., Not resistant against lactic acid & hydrogen peroxide (H2O2)                                                                                                                                                  | DOL-1204-G02MNI | 6052613  |
|    | Head A: female connector, M12, 4-pin, straight<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PP, unshielded, 2 m<br>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)                              | DOL-1204-G02MRN | 6058291  |
|    | Head A: female connector, M12, 4-pin, straight<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PVC, unshielded, 5 m<br>This product is generally resistant to chemical cleaning agents (see ECOLAB). Please do not use cleaning agents of any other Kind., Not resistant against lactic acid & hydrogen peroxide (H2O2)                                                                                                                                                  | DOL-1204-G05MNI | 6052615  |
|  | Head A: female connector, M12, 4-pin, straight<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PP, unshielded, 5 m<br>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)                              | DOL-1204-G05MRN | 6058476  |
|  | Head A: female connector, M12, 4-pin, angled<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PVC, unshielded, 2 m<br>This product is generally resistant to chemical cleaning agents (see ECOLAB). Please do not use cleaning agents of any other Kind., Not resistant against lactic acid & hydrogen peroxide (H2O2), only suitable for PNP sensors                                                                                                                     | DOL-1204-L02MNI | 6052621  |
|  | Head A: female connector, M12, 4-pin, angled<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PP, unshielded, 2 m<br>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), only suitable for PNP sensors | DOL-1204-L02MRN | 6058482  |
|  | Head A: female connector, M12, 4-pin, angled<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PVC, unshielded, 5 m<br>This product is generally resistant to chemical cleaning agents (see ECOLAB). Please do not use cleaning agents of any other Kind., Not resistant against lactic acid & hydrogen peroxide (H2O2), only suitable for PNP sensors                                                                                                                     | DOL-1204-L05MNI | 6052622  |

|                                                                                     | Brief description                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Type            | Part no. |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------|
|    | Head A: female connector, M12, 4-pin, angled<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PP, unshielded, 5 m<br>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), only suitable for PNP sensors | DOL-1204-L05MRN | 6058483  |
|    | Head A: female connector, M12, 4-pin, angled<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PVC, unshielded, 2 m<br>This product is generally resistant to chemical cleaning agents (see ECOLAB). Please do not use cleaning agents of any other Kind., Not resistant against lactic acid & hydrogen peroxide (H2O2)                                                                                                                                                    | DOL-1204-W02MNI | 6052614  |
|    | Head A: female connector, M12, 4-pin, angled<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PP, unshielded, 2 m<br>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)                                | DOL-1204-W02MRN | 6058474  |
|    | Head A: female connector, M12, 4-pin, angled<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PVC, unshielded, 5 m<br>This product is generally resistant to chemical cleaning agents (see ECOLAB). Please do not use cleaning agents of any other Kind., Not resistant against lactic acid & hydrogen peroxide (H2O2)                                                                                                                                                    | DOL-1204-W05MNI | 6052616  |
|   | Head A: female connector, M12, 4-pin, angled<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PP, unshielded, 5 m<br>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)                                | DOL-1204-W05MRN | 6058477  |
|  | Head A: female connector, M12, 5-pin, straight<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PP, unshielded, 2 m<br>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)                              | DOL-1205-G02MRN | 6058494  |
|                                                                                     | Head A: female connector, M12, 5-pin, straight<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PP, unshielded, 5 m<br>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)                              | DOL-1205-G05MRN | 6058495  |

## 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)