# IMC08-04NPPVC0SA71

IMC

**INDUCTIVE PROXIMITY SENSORS**

**SICK**
Sensor Intelligence.

# IMC08-04NPPVC0SA71 | IMC

## INDUCTIVE PROXIMITY SENSORS

## Ordering information

| Type | Part no. |
|---|---|
| IMC08-04NPPVC0SA71 | 1079285 |

**Included in delivery:** BEF-MU-M08N (1)

Other models and accessories ➜ www.sick.com/IMC

Illustration may differ

## Detailed technical data

### Features

| | |
|---|---|
| **Housing** | Cylindrical thread design |
| **Thread size** | M8 x 1 |
| **Diameter** | Ø 8 mm |
| **Sensing range $S_n$** | 0 mm ... 4 mm [1] |
| **Safe sensing range $S_a$** | 3.24 mm |
| **Number of switching points** | Up to 4 adjustable switching points or windows |
| **Switching modes** | Single point, Window mode, Two point mode, Visual adjustment indicator |
| **Switching frequency Qint.1 / Qint.2 on Pin2** | 1,000 Hz |
| **Installation type** | Non-flush |
| **Connection type** | Male connector M12, 4-pin [2] |
| **Switching output** | PNP |
| **Output Q/C** | Switching output or IO-Link mode |
| **Output MFC** | Switching output or input |
| **Output function** | NC / NO |
| **Output characteristic** | Programmable |
| **Electrical wiring** | DC 4-wire |
| **Enclosure rating** | IP68 [3]<br>IP69K [4] |
| **Special features** | Smart Task, Resistant against coolant lubricants, IO-Link |

[1] Adjustable.
[2] With gold plated contact pins.
[3] According to EN 60529.
[4] According to ISO 20653:2013-03.

| | |
|---|---|
| **Special applications** | Zones with coolants and lubricants, Difficult application conditions |
| **Special characteristic** | Resistant against coolant lubricants |
| **Pin 2 configuration** | External input, Teach-in, switching signal |
| **Items supplied** | Mounting nut, V2A stainless steel, with locking teeth (2x) |

[1] Adjustable.

[2] With gold plated contact pins.

[3] According to EN 60529.

[4] According to ISO 20653:2013-03.

## Mechanics/electronics

| | |
|---|---|
| **Supply voltage** | 10 V DC … 30 V DC [1] |
| **Ripple** | ≤ 10 % |
| **Voltage drop** | ≤ 2 V [2] |
| **Hysteresis** | Programmable [3] |
| **Reproducibility** | ≤ 5 % [4] [5] |
| **Temperature drift (of $S_r$)** | ± 10 % |
| **EMC** | According to EN 60947-5-2 |
| **Continuous current $I_a$** | ≤ 200 mA [6] |
| **Short-circuit protection** | ✓ |
| **Reverse polarity protection** | ✓ |
| **Power-up pulse protection** | ✓ |
| **Shock and vibration resistance** | 100 g / 2 ms / 500 cycles; 150 g / 1 Mio cycles; 10 Hz … 55 Hz / 1 mm; 55 Hz … 500 Hz / 60 g |
| **Ambient operating temperature** | –40 °C … +75 °C |
| **Housing material** | Stainless steel V2A, DIN 1.4305 / AISI 303 |
| **Sensing face material** | Plastic, LCP |
| **Housing length** | 60 mm |
| **Thread length** | 28 mm |
| **Tightening torque, max.** | Typ. 14 Nm [7] |
| **UL File No.** | E181493 |
| **Teach-in accuracy** | +/- 3% of Sr |
| **Resolution, typical (range)** | 10 µm (0 mm … 1 mm)<br>20 µm (1 mm … 3 mm)<br>50 µm (3 mm … 4 mm) |
| **Resolution, maximum (area)** | 20 µm (0 mm … 1 mm)<br>40 µm (1 mm … 3 mm)<br>100 µm (3 mm … 4 mm) |

[1] IO-Link mode: 18 VDC … 30 VDC.

[2] At $I_a$ max.

[3] To comply with EN 60947-5-2, a hysteresis of approx. 10% must be set.

[4] Supply voltage $U_B$ and constant ambient temperature Ta.

[5] Of Sr.

[6] 200 mA total for both switching outputs.

[7] Valid if toothed side of nut is used.

## Safety-related parameters

| | |
|---|---|
| **MTTF$_D$** | 688 years |
| **DC$_{avg}$** | 0 % |
| **T$_M$ (mission time)** | 20 years |

## Communication interface

| | |
|---|---|
| **Communication interface** | IO-Link V1.1 |
| **Communication Interface detail** | COM2 (38,4 kBaud) |
| **Cycle time** | 5 ms |
| **Process data length** | 32 Bit |
| **Process data structure** | Bit 0 = switching signal Q$_{L1}$<br>Bit 1 = switching signal Q$_{L2}$<br>Bit 2 = switching signal Q$_{Int3}$<br>Bit 3 = switching signal Q$_{Int4}$<br>Bit 18 ... 31 = counting value |
| **Factory setting** | Switching Point 1: reference value 1<br>Output: normally open<br>Pin 2 configuration: input |

## Reference values

| | |
|---|---|
| **Note** | Reference value in Digits for switching point in mm stored in the sensor |
| **Reference value 1** | 4 mm |
| **Reference value 2** | 3 mm |
| **Reference value 3** | 2 mm |
| **Reference value 4** | 1 mm |

## Reduction factors

| | |
|---|---|
| **Stainless steel (V2A, 304)** | Approx. 0.7 |
| **Aluminum (Al)** | Approx. 0.4 |
| **Copper (Cu)** | Approx. 0.3 |
| **Brass (Br)** | Approx. 0.4 |

## Installation note

| | |
|---|---|
| **Remark** | Associated graphic see "Installation" |
| **A** | 8 mm |
| **B** | 18 mm |
| **C** | 8 mm |
| **D** | 12 mm |
| **E** | 8 mm |
| **F** | 32 mm |

## Smart Task

| | |
|---|---|
| **Smart Task name** | Counter + debouncing |
| **Logic function** | Window<br>Hysteresis<br>Direct |
| **Timer function** | Deactivated |

[1] SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used.

[2] IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

| | On delay<br>Off delay<br>ON and OFF delay<br>Impulse (one shot) |
|---|---|
| **Inverter** | Adjustable |
| **Maximum counting frequency** | SIO Logic: 1000 Hz [1]<br>IOL: 1000 Hz [2] |
| **Counter reset** | SIO Logic: 500 µs<br>IOL: --- |
| **Debounce time max.** | SIO Logic: 30 s [1]<br>IOL: 30 s [2] |
| **Switching signal** | |
| Switching signal $Q_{L1}$ | Output type (dependant on the adjusted threshold) |
| Switching signal $Q_{L2}$ | Output type (dependant on the adjusted threshold) |
| **Measuring value** | Counting value |

[1] SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used.

[2] IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

## Classifications

| | |
|---|---|
| **ECLASS 5.0** | 27270101 |
| **ECLASS 5.1.4** | 27270101 |
| **ECLASS 6.0** | 27270101 |
| **ECLASS 6.2** | 27270101 |
| **ECLASS 7.0** | 27270101 |
| **ECLASS 8.0** | 27270101 |
| **ECLASS 8.1** | 27270101 |
| **ECLASS 9.0** | 27270101 |
| **ECLASS 10.0** | 27270101 |
| **ECLASS 11.0** | 27270101 |
| **ECLASS 12.0** | 27274001 |
| **ETIM 5.0** | EC002714 |
| **ETIM 6.0** | EC002714 |
| **ETIM 7.0** | EC002714 |
| **ETIM 8.0** | EC002714 |
| **UNSPSC 16.0901** | 39122230 |

## Installation note

Non-flush installation
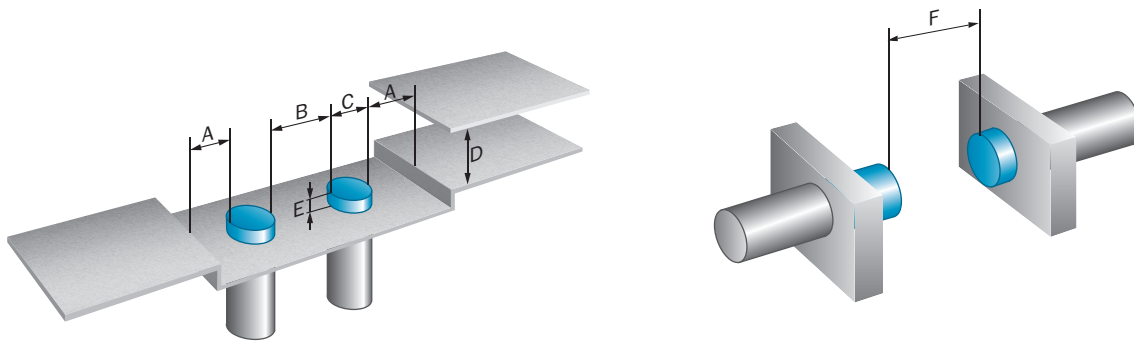


## Connection diagram

Cd-526



| | | |
|---|---|---|
| BN | 1 | + (L+) |
| BK | 4 | $Q_{L1}/C$ |
| WH | 2 | MF |
| BU | 3 | – (M) |
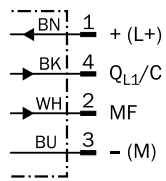
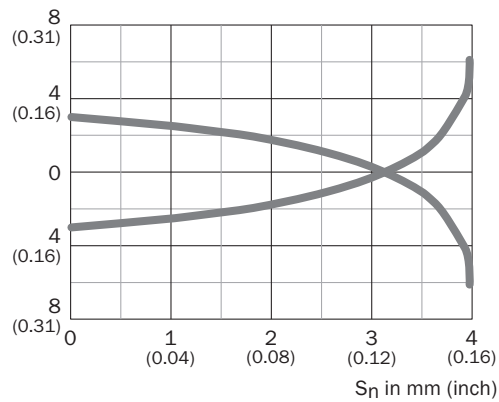$Q_{L1}/C$  =  Switching output,
IO-Link communication
MF  =  Multifunction

## Response diagram

Response diagram

Distance in mm (inch)



$S_n$ in mm (inch)

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

IMC08 Standard, connector M12, non-flush
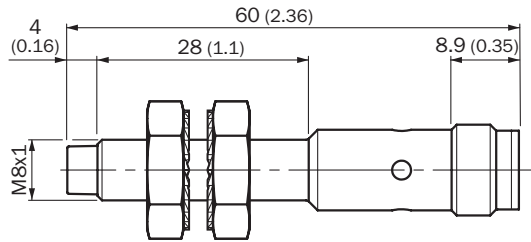


## Recommended accessories

Other models and accessories ➜ www.sick.com/IMC

| | Brief description | Type | Part no. |
|---|---|---|---|
| **Connection modules** | | | |
| | IO-Link V1.1 Class A port, USB2.0 port, optional external power supply 24V / 1A | IOLA2US-01101 (SiLink2 Master) | 1061790 |
| | EtherCAT IO-Link Master, IO-Link V1.1, Port Class A, power supply via 7/8" cable 24 V / 8 A, fieldbus connection via M12 cable | IOLG2EC-03208R01 (IO-Link Master) | 6053254 |
| | EtherNet/IP IO-Link Master, IO-Link V1.1, Port Class A, power supply via 7/8" cable 24 V / 8 A, fieldbus connection via M12-cable | IOLG2EI-03208R01 (IO-Link Master) | 6053255 |
| | PROFINET IO-Link Master, IO-Link V1.1, Port Class A, power supply via 7/8" cable 24 V / 8 A, fieldbus connection via M12 cable | IOLG2PN-03208R01 (IO-Link Master) | 6053253 |
| **Universal bar clamp systems** | | | |
| | Plate N11N for universal clamp bracket, Stainless steel 1.4571 (sheet), Stainless steel 1.4408 (clamp), Universal clamp (5322627), mounting hardware | BEF-KHS-N11N | 2071081 |
| **Mounting brackets and plates** | | | |
| | Mounting plate for M8 sensors, steel, zinc coated, without mounting hardware | BEF-WG-M08 | 5321722 |
| | Mounting bracket for M8 sensors, steel, zinc coated, without mounting hardware | BEF-WN-M08 | 5321721 |

| | Brief description | Type | Part no. |
|---|---|---|---|
|  | • **Connection type head A:** Female connector, M12, 4-pin, straight<br>• **Connection type head B:** Flying leads<br>• **Signal type:** Sensor/actuator cable<br>• **Cable:** 2 m, 4-wire, PP<br>• **Description:** Sensor/actuator cable, unshielded<br>• **Connection systems:** Flying leads<br>• **Note:** 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)<br>• **Application:** Hygienic and washdown zones, Drag chain operation | DOL-1204-G02MRN | 6058291 |
|  | • **Connection type head A:** Female connector, M12, 4-pin, straight<br>• **Connection type head B:** Flying leads<br>• **Signal type:** Sensor/actuator cable<br>• **Cable:** 5 m, 4-wire, PP<br>• **Description:** Sensor/actuator cable, unshielded<br>• **Connection systems:** Flying leads<br>• **Note:** 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)<br>• **Application:** Hygienic and washdown zones, Drag chain operation | DOL-1204-G05MRN | 6058476 |
|  | • **Connection type head A:** Female connector, M12, 4-pin, angled<br>• **Connection type head B:** Flying leads<br>• **Signal type:** Sensor/actuator cable<br>• **Cable:** 2 m, 4-wire, PP<br>• **Description:** Sensor/actuator cable, unshielded<br>• **Connection systems:** Flying leads<br>• **Note:** 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)<br>• **Application:** Hygienic and washdown zones, Drag chain operation | DOL-1204-W02MRN | 6058474 |
|  | • **Connection type head A:** Female connector, M12, 4-pin, angled<br>• **Connection type head B:** Flying leads<br>• **Signal type:** Sensor/actuator cable<br>• **Cable:** 5 m, 4-wire, PP<br>• **Description:** Sensor/actuator cable, unshielded<br>• **Connection systems:** Flying leads<br>• **Note:** 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)<br>• **Application:** Hygienic and washdown zones, Drag chain operation | DOL-1204-W05MRN | 6058477 |
|  | • **Connection type head A:** Female connector, M12, 4-pin, angled<br>• **Connection type head B:** Flying leads<br>• **Signal type:** Sensor/actuator cable<br>• **Cable:** 2 m, 4-wire, PP<br>• **Description:** Sensor/actuator cable, unshielded, LED function display<br>• **Connection systems:** Flying leads<br>• **Note:** 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<br>• **Application:** Hygienic and washdown zones, Drag chain operation | DOL-1204-L02MRN | 6058482 |

| | Brief description | Type | Part no. |
|---|---|---|---|
| | • **Connection type head A:** Female connector, M12, 4-pin, angled<br>• **Connection type head B:** Flying leads<br>• **Signal type:** Sensor/actuator cable<br>• **Cable:** 5 m, 4-wire, PP<br>• **Description:** Sensor/actuator cable, unshielded, LED function display<br>• **Connection systems:** Flying leads<br>• **Note:** 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<br>• **Application:** Hygienic and washdown zones, Drag chain operation | DOL-1204-L05MRN | 6058483 |
| | • **Connection type head A:** Female connector, M12, 4-pin, straight<br>• **Connection type head B:** Male connector, M12, 4-pin, straight<br>• **Signal type:** Sensor/actuator cable<br>• **Cable:** 2 m, 4-wire, PP<br>• **Description:** Sensor/actuator cable, unshielded<br>• **Note:** 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)<br>• **Application:** Hygienic and washdown zones, Drag chain operation | DSL-1204-G02MRN | 6058499 |
| | • **Connection type head A:** Female connector, M12, 4-pin, straight<br>• **Connection type head B:** Male connector, M12, 4-pin, straight<br>• **Signal type:** Sensor/actuator cable<br>• **Cable:** 5 m, 4-wire, PP<br>• **Description:** Sensor/actuator cable, unshielded<br>• **Note:** 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)<br>• **Application:** Hygienic and washdown zones, Drag chain operation | DSL-1204-G05MRN | 6058500 |
| | • **Connection type head A:** Female connector, M12, 4-pin, angled<br>• **Connection type head B:** Male connector, M12, 4-pin, straight<br>• **Signal type:** Sensor/actuator cable<br>• **Cable:** 2 m, 4-wire, PP<br>• **Description:** Sensor/actuator cable, unshielded<br>• **Note:** 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)<br>• **Application:** Hygienic and washdown zones, Drag chain operation | DSL-1204-B02MRN | 6058502 |
| | • **Connection type head A:** Female connector, M12, 4-pin, angled<br>• **Connection type head B:** Male connector, M12, 4-pin, straight<br>• **Signal type:** Sensor/actuator cable<br>• **Cable:** 5 m, 4-wire, PP<br>• **Description:** Sensor/actuator cable, unshielded<br>• **Note:** 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)<br>• **Application:** Hygienic and washdown zones, Drag chain operation | DSL-1204-B05MRN | 6058503 |

## Recommended services

Additional services ➜ www.sick.com/IMC

| | Type | Part no. |
|---|---|---|
| Function Block Factory | | |
| • **Description:** The Function Block Factory supports common programmable logic controllers (PLCs) from various manufacturers, such as Siemens, Beckhoff, Rockwell Automation and B&R. More information on the FBF can be found <a href=https://fbf.cloud.sick.com target="_blank"> here</a>.<br>• **Note:** You can configure your function block at <a href=https://fbf.cloud.sick.com target="_blank"> Function Block Factory.</a> As a login please use your SICK ID. | 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**

SICK AG | Waldkirch | Germany | www.sick.com

**SICK**
Sensor Intelligence.