



# IMC18-12NPPVC0SA00

IMC

INDUCTIVE PROXIMITY SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

| Type               | Part no. |
|--------------------|----------|
| IMC18-12NPPVCO5A00 | 1079295  |

**Included in delivery:** BEF-MU-M18N (1)

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

### Detailed technical data

#### Features

|                                                    |                                                                        |
|----------------------------------------------------|------------------------------------------------------------------------|
| <b>Housing</b>                                     | Cylindrical thread design                                              |
| <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 <sup>1)</sup>                                           |
| <b>Safe sensing range <math>S_a</math></b>         | 9.72 mm                                                                |
| <b>Number of switching points</b>                  | Up to 4 adjustable switching points or windows                         |
| <b>Switching modes</b>                             | Single point, Window mode, Two point mode, Visual adjustment indicator |
| <b>Switching frequency Qint.1 / Qint.2 on Pin2</b> | 250 Hz                                                                 |
| <b>Installation type</b>                           | Non-flush                                                              |
| <b>Connection type</b>                             | Male connector M12, 4-pin <sup>2)</sup>                                |
| <b>Switching output</b>                            | PNP                                                                    |
| <b>Output Q/C</b>                                  | Switching output or IO-Link mode                                       |
| <b>Output MFC</b>                                  | Switching output or input                                              |
| <b>Output function</b>                             | NC / NO                                                                |
| <b>Output characteristic</b>                       | Programmable                                                           |
| <b>Electrical wiring</b>                           | DC 4-wire                                                              |
| <b>Enclosure rating</b>                            | IP68 <sup>3)</sup><br>IP69K <sup>4)</sup>                              |
| <b>Special features</b>                            | Smart Task, Resistant against coolant lubricants, IO-Link              |

<sup>1)</sup> Adjustable.

<sup>2)</sup> With gold plated contact pins.

<sup>3)</sup> According to EN 60529.

<sup>4)</sup> According to ISO 20653:2013-03.

|                               |                                                                      |
|-------------------------------|----------------------------------------------------------------------|
| <b>Special applications</b>   | Zones with coolants and lubricants, Difficult application conditions |
| <b>Special characteristic</b> | Resistant against coolant lubricants                                 |
| <b>Pin 2 configuration</b>    | External input, Teach-in, switching signal                           |
| <b>Items supplied</b>         | 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

|                                             |                                                                                                  |
|---------------------------------------------|--------------------------------------------------------------------------------------------------|
| <b>Supply voltage</b>                       | 10 V DC ... 30 V DC <sup>1)</sup>                                                                |
| <b>Ripple</b>                               | ≤ 10 %                                                                                           |
| <b>Voltage drop</b>                         | ≤ 2 V <sup>2)</sup>                                                                              |
| <b>Hysteresis</b>                           | Programmable <sup>3)</sup>                                                                       |
| <b>Reproducibility</b>                      | ≤ 5 % <sup>4) 5)</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>6)</sup>                                                                           |
| <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>        | -40 °C ... +75 °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>                        | 39 mm                                                                                            |
| <b>Tightening torque, max.</b>              | Typ. 90 Nm <sup>7)</sup>                                                                         |
| <b>UL File No.</b>                          | E181493                                                                                          |
| <b>Teach-in accuracy</b>                    | +/- 3% of Sr                                                                                     |
| <b>Resolution, typical (range)</b>          | 40 µm (0 mm ... 8 mm)<br>75 µm (8 mm ... 10 mm)<br>150 µm (10 mm ... 12 mm)                      |
| <b>Resolution, maximum (area)</b>           | 75 µm (8 mm ... 10 mm)<br>150 µm (10 mm ... 12 mm)<br>300 µm (10 mm ... 12 mm)                   |

- 1) IO-Link mode: 18 VDC ... 30 VDC.  
 2) At I<sub>a</sub> max.  
 3) To comply with EN 60947-5-2, a hysteresis of approx. 10% must be set.  
 4) Supply voltage U<sub>b</sub> and constant ambient temperature T<sub>a</sub>.  
 5) Of S<sub>r</sub>.  
 6) 200 mA total for both switching outputs.  
 7) Valid if toothed side of nut is used.

### Safety-related parameters

|                                     |           |
|-------------------------------------|-----------|
| <b>MTTF<sub>D</sub></b>             | 688 years |
| <b>DC<sub>avg</sub></b>             | 0 %       |
| <b>T<sub>M</sub> (mission time)</b> | 20 years  |

### 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>            | 32 Bit                                                                                                                                                                                                             |
| <b>Process data structure</b>         | Bit 0 = switching signal Q <sub>L1</sub><br>Bit 1 = switching signal Q <sub>L2</sub><br>Bit 2 = switching signal Q <sub>Int3</sub><br>Bit 3 = switching signal Q <sub>Int4</sub><br>Bit 16 ... 31 = distance value |
| <b>Factory setting</b>                | Switching Point 1: reference value 1<br>Output: normally open<br>Pin 2 configuration: input                                                                                                                        |

### Reference values

|                          |                                                                          |
|--------------------------|--------------------------------------------------------------------------|
| <b>Note</b>              | Reference value in Digits for switching point in mm stored in the sensor |
| <b>Reference value 1</b> | 12 mm                                                                    |
| <b>Reference value 2</b> | 10 mm                                                                    |
| <b>Reference value 3</b> | 8 mm                                                                     |
| <b>Reference value 4</b> | 5 mm                                                                     |

### Reduction factors

|                                   |             |
|-----------------------------------|-------------|
| <b>Stainless steel (V2A, 304)</b> | Approx. 0.7 |
| <b>Aluminum (Al)</b>              | Approx. 0.4 |
| <b>Copper (Cu)</b>                | Approx. 0.4 |
| <b>Brass (Br)</b>                 | Approx. 0.4 |

### Installation note

|               |                                       |
|---------------|---------------------------------------|
| <b>Remark</b> | Associated graphic see "Installation" |
| <b>A</b>      | 18 mm                                 |
| <b>B</b>      | 45 mm                                 |
| <b>C</b>      | 18 mm                                 |
| <b>D</b>      | 36 mm                                 |
| <b>E</b>      | 12 mm                                 |
| <b>F</b>      | 96 mm                                 |

### Smart Task

|                        |             |
|------------------------|-------------|
| <b>Smart Task name</b> | Base logics |
| <b>Logic function</b>  | AND<br>OR   |

<sup>1)</sup> SIO Direct: sensor operation in standard I/O mode without IO-Link communication and without using internal sensor logic or time parameters (set to "direct"/"deactivated").

<sup>2)</sup> SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used.

<sup>3)</sup> IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

|                                  |                                                                                                  |
|----------------------------------|--------------------------------------------------------------------------------------------------|
|                                  | XOR<br>Hysteresis                                                                                |
| <b>Timer function</b>            | On delay<br>Off delay<br>ON and OFF delay<br>Impulse (one shot)                                  |
| <b>Inverter</b>                  | Adjustable                                                                                       |
| <b>Switching frequency</b>       | SIO Direct: 250 Hz <sup>1)</sup><br>SIO Logic: 250 Hz <sup>2)</sup><br>IOL: 250 Hz <sup>3)</sup> |
| <b>Switching signal</b>          |                                                                                                  |
| Switching signal Q <sub>L1</sub> | Switching output                                                                                 |
| Switching signal Q <sub>L2</sub> | Switching output                                                                                 |

<sup>1)</sup> SIO Direct: sensor operation in standard I/O mode without IO-Link communication and without using internal sensor logic or time parameters (set to "direct"/"deactivated").

<sup>2)</sup> SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used.

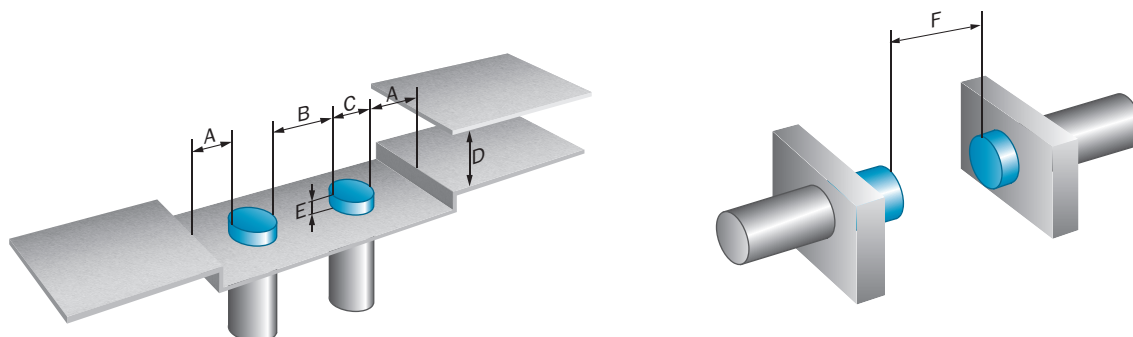
<sup>3)</sup> IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

## 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 |

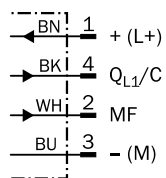
**Installation note**

Non-flush installation



**Connection diagram**

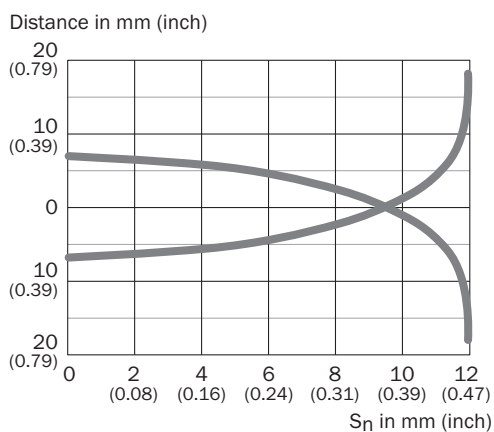
Cd-526



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

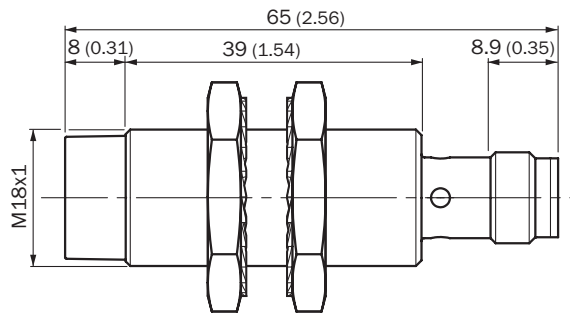
**Response diagram**

Response diagram











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

IMC18 Standard, connector M12, non-flush




**Recommended accessories**

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

|                                                                                     | Brief description                                                                                                                                                | Type                              | Part no. |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|----------|
| <b>Connection modules</b>                                                           |                                                                                                                                                                  |                                   |          |
|   | 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  |
| <b>Universal bar clamp systems</b>                                                  |                                                                                                                                                                  |                                   |          |
|  | Plate N06N for universal clamp bracket, M18, Stainless steel 1.4571 (sheet), Stainless steel 1.4408 (clamp), Universal clamp (5322627), mounting hardware        | BEF-KHS-N06N                      | 2051622  |
|  | Plate N11N for universal clamp bracket, Stainless steel 1.4571 (sheet), Stainless steel 1.4408 (clamp), Universal clamp BEF-KHS-KH3 (5322626), mounting hardware | BEF-KHS-N11N                      | 2071081  |
| <b>Mounting brackets and plates</b>                                                 |                                                                                                                                                                  |                                   |          |
|  | Mounting plate for M18 sensors, stainless steel, without mounting hardware                                                                                       | BEF-WG-M18N                       | 5320948  |
|  | Mounting bracket for M18 sensors, stainless steel, without mounting hardware                                                                                     | BEF-WN-M18N                       | 5320947  |

|                                                                                     | Brief description                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Type            | Part no. |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------|
| Plug connectors and cables                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                 |          |
|    | <p>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 &amp; hydrogen peroxide (H2O2)</p>                              | DOL-1204-G02MRN | 6058291  |
|                                                                                     | <p>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 &amp; hydrogen peroxide (H2O2)</p>                              | DOL-1204-G05MRN | 6058476  |
|    | <p>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 &amp; hydrogen peroxide (H2O2), only suitable for PNP sensors</p> | DOL-1204-L02MRN | 6058482  |
|                                                                                     | <p>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 &amp; hydrogen peroxide (H2O2), only suitable for PNP sensors</p> | DOL-1204-L05MRN | 6058483  |
|  | <p>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 &amp; hydrogen peroxide (H2O2)</p>                                | DOL-1204-W02MRN | 6058474  |
|                                                                                     | <p>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 &amp; hydrogen peroxide (H2O2)</p>                                | DOL-1204-W05MRN | 6058477  |
|  | <p>Head A: female connector, M12, 4-pin, angled<br/>Head B: male connector, M12, 4-pin, straight<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 &amp; hydrogen peroxide (H2O2)</p>        | DSL-1204-B02MRN | 6058502  |
|                                                                                     | <p>Head A: female connector, M12, 4-pin, angled<br/>Head B: male connector, M12, 4-pin, straight<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 &amp; hydrogen peroxide (H2O2)</p>        | DSL-1204-B05MRN | 6058503  |



|                                                                                   | Brief description                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Type            | Part no. |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------|
|  | Head A: female connector, M12, 4-pin, straight<br>Head B: male connector, M12, 4-pin, straight<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) | DSL-1204-G02MRN | 6058499  |
|                                                                                   | Head A: female connector, M12, 4-pin, straight<br>Head B: male connector, M12, 4-pin, straight<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) | DSL-1204-G05MRN | 6058500  |

### Recommended services

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

|                                                                                                                                                                                                                                                                                                                                                           | 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)