



# IMX12-16NPOZC0S

IMX

INDUCTIVE PROXIMITY SENSORS

**SICK**  
Sensor Intelligence.



### Ordering information

| Type            | part no. |
|-----------------|----------|
| IMX12-16NPOZC0S | 1119661  |

Included in delivery: BEF-MU-M12 (1)

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

Illustration may differ



### Detailed technical data

#### Features

|                                            |                                                                                            |
|--------------------------------------------|--------------------------------------------------------------------------------------------|
| <b>Housing</b>                             | Metric                                                                                     |
| <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>      | 16 mm                                                                                      |
| <b>Safe sensing range <math>S_a</math></b> | 12.96 mm                                                                                   |
| <b>Installation type</b>                   | Non-flush                                                                                  |
| <b>Switching frequency</b>                 | 25 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>                     | NC                                                                                         |
| <b>Electrical wiring</b>                   | DC 3-wire                                                                                  |
| <b>Enclosure rating</b>                    | IP68 <sup>1)</sup>                                                                         |
| <b>Special features</b>                    | Quadruple sensing range, Resistant against coolant lubricants, Visual adjustment indicator |
| <b>Special applications</b>                | Zones with coolants and lubricants                                                         |
| <b>Items supplied</b>                      | Mounting nut, brass, nickel-plated (2x)                                                    |

<sup>1)</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> |

<sup>1)</sup> At  $I_a$  max.

<sup>2)</sup> Supply voltage  $U_B$  and constant ambient temperature  $T_a$ .

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

|                                             |                                                                                 |
|---------------------------------------------|---------------------------------------------------------------------------------|
| <b>Time delay before availability</b>       | ≤ 150 ms                                                                        |
| <b>Hysteresis</b>                           | 5 % ... 15 %                                                                    |
| <b>Reproducibility</b>                      | ≤ 5 % <sup>2)</sup><br><sup>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                                                                        |
| <b>No load current</b>                      | ≤ 50 mA                                                                         |
| <b>Short-circuit protection</b>             | ✓                                                                               |
| <b>Power-up pulse protection</b>            | ✓                                                                               |
| <b>Shock and vibration resistance</b>       | 30 g, 11 ms / 10 ... 55 Hz, 1 mm                                                |
| <b>Display</b>                              |                                                                                 |
|                                             | LED yellow Output state (on/off)                                                |
|                                             | LED green Stable on/off state                                                   |
| <b>Ambient operating temperature</b>        | -25 °C ... +75 °C                                                               |
| <b>Housing material</b>                     | Nickel-plated brass                                                             |
| <b>Sensing face material</b>                | Plastic, LCP                                                                    |
| <b>Housing length</b>                       | 68.1 mm                                                                         |
| <b>Thread length</b>                        | 46.1 mm                                                                         |
| <b>Tightening torque, max.</b>              | ≤ 12 Nm                                                                         |
| <b>Protection class</b>                     | III                                                                             |
| <b>UL File No.</b>                          | E181493                                                                         |
| <b>Service interface</b>                    | IO-Link as a service interface. The interface can only be used by SICK Service. |

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

<sup>2)</sup> Supply voltage U<sub>B</sub> and constant ambient temperature T<sub>a</sub>.

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

### Safety-related parameters

|                                     |           |
|-------------------------------------|-----------|
| <b>MTTF<sub>D</sub></b>             | 411 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>            | 1                                              |
| <b>Stainless steel (V2A, 304)</b> | 0.8                                            |
| <b>Aluminum (Al)</b>              | 0.6                                            |
| <b>Copper (Cu)</b>                | 0.4                                            |
| <b>Brass (Br)</b>                 | 0.7                                            |

### Installation note

|               |                                       |
|---------------|---------------------------------------|
| <b>Remark</b> | Associated graphic see "Installation" |
| <b>A</b>      | 29 mm                                 |
| <b>B</b>      | 12 mm                                 |

|          |       |
|----------|-------|
| <b>C</b> | 12 mm |
| <b>D</b> | 48 mm |
| <b>E</b> | 20 mm |
| <b>F</b> | 48 mm |

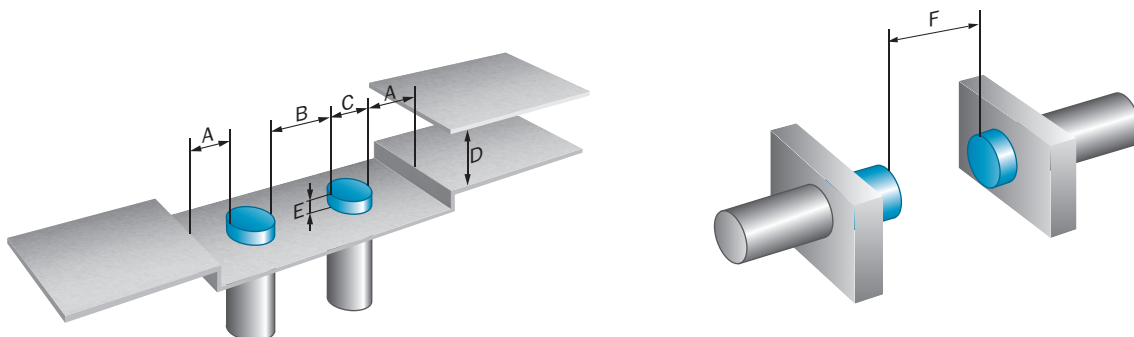
#### Certificates

|                                           |   |
|-------------------------------------------|---|
| <b>EU declaration of conformity</b>       | ✓ |
| <b>UK declaration of conformity</b>       | ✓ |
| <b>ACMA declaration of conformity</b>     | ✓ |
| <b>Moroccan declaration of conformity</b> | ✓ |
| <b>China-RoHS</b>                         | ✓ |
| <b>cULus certificate</b>                  | ✓ |

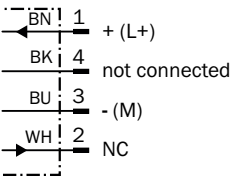
#### Classifications

|                       |          |
|-----------------------|----------|
| <b>ECLASS 5.0</b>     | 27270101 |
| <b>ECLASS 5.1.4</b>   | 27270101 |
| <b>ECLASS 6.0</b>     | 27270101 |
| <b>ECLASS 6.2</b>     | 27270101 |
| <b>ECLASS 7.0</b>     | 27270101 |
| <b>ECLASS 8.0</b>     | 27270101 |
| <b>ECLASS 8.1</b>     | 27270101 |
| <b>ECLASS 9.0</b>     | 27270101 |
| <b>ECLASS 10.0</b>    | 27270101 |
| <b>ECLASS 11.0</b>    | 27270101 |
| <b>ECLASS 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 |

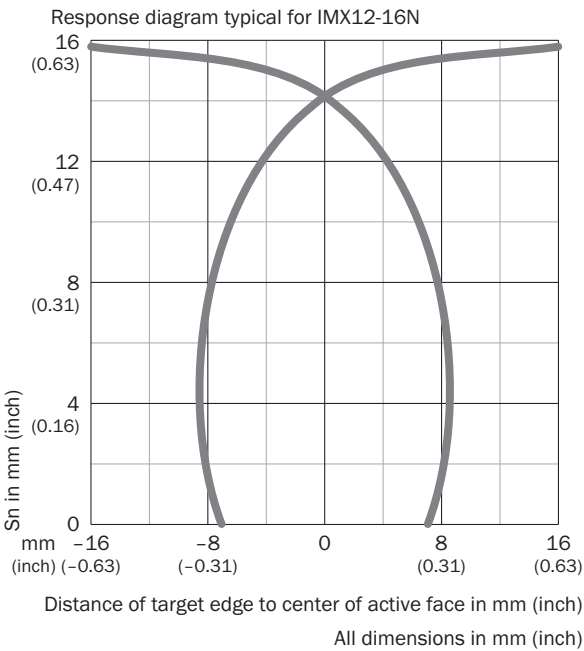
#### Installation note Non-flush installation



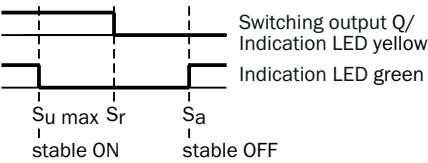
Connection diagram Cd-008



Response diagram

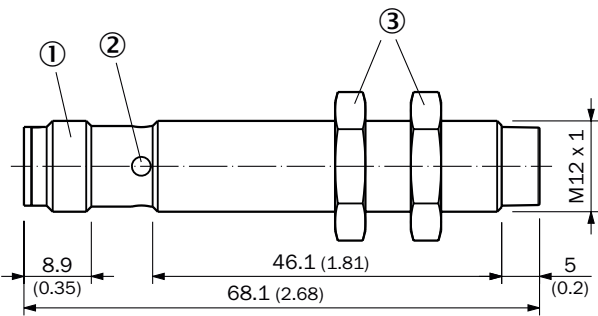


Functional principle Installation aid



| LED indicator green | LED indicator yellow | Status                                                  |
|---------------------|----------------------|---------------------------------------------------------|
| ON                  | ON                   | Output is activated (ON), sensor in stable ON state     |
| OFF                 | ON                   | Output is activated (ON), no object detected            |
| OFF                 | OFF                  | Output is deactivated (OFF), object detected            |
| ON                  | OFF                  | Output is deactivated (OFF), sensor in stable OFF state |

Dimensional drawing IMX12, standard variant, plug, non-flush



Dimensions in mm (inch)

- ① Connection
- ② Display LED
- ③ fastening nuts (2x); width across 17, brass nickel-plated

Recommended accessories

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

|                                                                                    | Brief description                                                                                                                                                                                                                               | Type       | part no. |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------|
| Mounting systems                                                                   |                                                                                                                                                                                                                                                 |            |          |
|  | <ul style="list-style-type: none"><li>• <b>Description:</b> Mounting bracket for M12 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></ul> | BEF-WN-M12 | 5308447  |
|                                                                                    | <ul style="list-style-type: none"><li>• <b>Description:</b> Mounting plate for M12 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></ul>   | BEF-WG-M12 | 5321869  |

|                                                                                     | Brief description                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Type               | part no. |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|
| connectors and cables                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |          |
|    | <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> 2 m, 4-wire, PUR, halogen-free</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>   | YF2A14-020UB3XLEAX | 2095607  |
|    | <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> 2 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>                                                        | YF2A14-020VB3XLEAX | 2096234  |
|    | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 4-pin, angled, 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> 2 m, 4-wire, PUR, halogen-free</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>     | YG2A14-020UB3XLEAX | 2095766  |
|    | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 4-pin, angled, 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> 2 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>                                                          | YG2A14-020VB3XLEAX | 2095895  |
|    | <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> 0.6 m, 4-wire, PUR, halogen-free</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul> | YF2A14-C60UB3XLEAX | 2145654  |
|  | <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> 1 m, 4-wire, PUR, halogen-free</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>   | YF2A14-010UB3XLEAX | 2145655  |
|  | <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> 3 m, 4-wire, PUR, halogen-free</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>   | YF2A14-030UB3XLEAX | 2145656  |
|  | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 4-pin, angled, 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> 0.6 m, 4-wire, PUR, halogen-free</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>   | YG2A14-C60UB3XLEAX | 2145657  |
|  | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 4-pin, angled, 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> 1 m, 4-wire, PUR, halogen-free</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>     | YG2A14-010UB3XLEAX | 2145658  |
|  | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 4-pin, angled, 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> 0.6 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>                                                        | YG2A14-C60VB3XLEAX | 2145709  |
|  | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 4-pin, angled, 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> 1 m, 4-wire, PVC</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> </ul>                                                                                                                                  | YG2A14-010VB3XLEAX | 2145710  |

|                                                                                                                                                                        | Brief description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Type               | part no. |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|
| <br> | <ul style="list-style-type: none"><li>• <b>Application:</b> Zones with chemicals, Uncontaminated zones</li><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> 0.6 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-C60VB3XLEAX | 2145707  |
|                                                                                                                                                                        | <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> 1 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>                                                                            | YF2A14-010VB3XLEAX | 2145708  |

## 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)