



# IQR40-45NPSKC0K

IMR

INDUCTIVE PROXIMITY SENSORS

**SICK**  
Sensor Intelligence.



## Ordering information

| Type            | Part no. |
|-----------------|----------|
| IQR40-45NPSKC0K | 6069282  |

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



## Detailed technical data

### Features

|                                            |                                                 |
|--------------------------------------------|-------------------------------------------------|
| <b>Housing</b>                             | Rectangular                                     |
| <b>Housing</b>                             | Short-body                                      |
| <b>Dimensions (W x H x D)</b>              | 40 mm x 40 mm x 65 mm                           |
| <b>Sensing range <math>S_n</math></b>      | 45 mm                                           |
| <b>Safe sensing range <math>S_a</math></b> | 36.4 mm                                         |
| <b>Installation type</b>                   | Non-flush                                       |
| <b>Switching frequency</b>                 | 250 Hz                                          |
| <b>Connection type</b>                     | Male connector M12, 4-pin                       |
| <b>Switching output</b>                    | PNP                                             |
| <b>Output function</b>                     | NO                                              |
| <b>Electrical wiring</b>                   | DC 3-wire                                       |
| <b>Enclosure rating</b>                    | IP68                                            |
| <b>Special features</b>                    | Reduction factor 1, Weld immune                 |
| <b>Special applications</b>                | Welding range, Difficult application conditions |
| <b>Items supplied</b>                      | Clamp-lock mounting system (1x)                 |

### Mechanics/electronics

|                                                |                                 |
|------------------------------------------------|---------------------------------|
| <b>Supply voltage</b>                          | 10 V DC ... 30 V DC             |
| <b>Ripple</b>                                  | ≤ 10 %                          |
| <b>Voltage drop</b>                            | ≤ 1.8 V <sup>1)</sup>           |
| <b>Hysteresis</b>                              | 3 % ... 15 %                    |
| <b>Reproducibility</b>                         | ≤ 2 % <sup>2) 3)</sup>          |
| <b>Temperature drift (of <math>S_r</math>)</b> | ≤ ± 10 % ≤ ± 15 % <sup>4)</sup> |
| <b>Continuous current <math>I_a</math></b>     | ≤ 200 mA                        |

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

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

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

<sup>4)</sup> -25 °C ... +70 °C.

<sup>5)</sup> Reference voltage: 50 V DC.

|                                       |                                  |
|---------------------------------------|----------------------------------|
| <b>No load current</b>                | ≤ 15 mA                          |
| <b>Off-state current</b>              | ≤ 0.1 mA                         |
| <b>Short-circuit protection</b>       | ✓                                |
| <b>Reverse polarity protection</b>    | ✓                                |
| <b>Magnetic field strength</b>        | ≤ 100 mT                         |
| <b>Shock and vibration resistance</b> | 30 g, 11 ms / 10 ... 55 Hz, 1 mm |
| <b>Ambient operating temperature</b>  | -30 °C ... +85 °C                |
| <b>Housing material</b>               | Plastic, PBT                     |
| <b>Sensing face material</b>          | Plastic, PBT                     |
| <b>Protection class</b>               | II <sup>5)</sup>                 |
| <b>UL File No.</b>                    | E191603                          |

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

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

3) Of Sr.

4) -25 °C ... +70 °C.

5) Reference voltage: 50 V DC.

### Safety-related parameters

|                                     |           |
|-------------------------------------|-----------|
| <b>MTTF<sub>D</sub></b>             | 139 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>Reduction factor</b>           | Reduction factor 1                             |
| <b>Stainless steel (V2A, 304)</b> | 1                                              |
| <b>Aluminum (Al)</b>              | 1                                              |
| <b>Copper (Cu)</b>                | 1                                              |
| <b>Brass (Br)</b>                 | 1                                              |

### Installation note

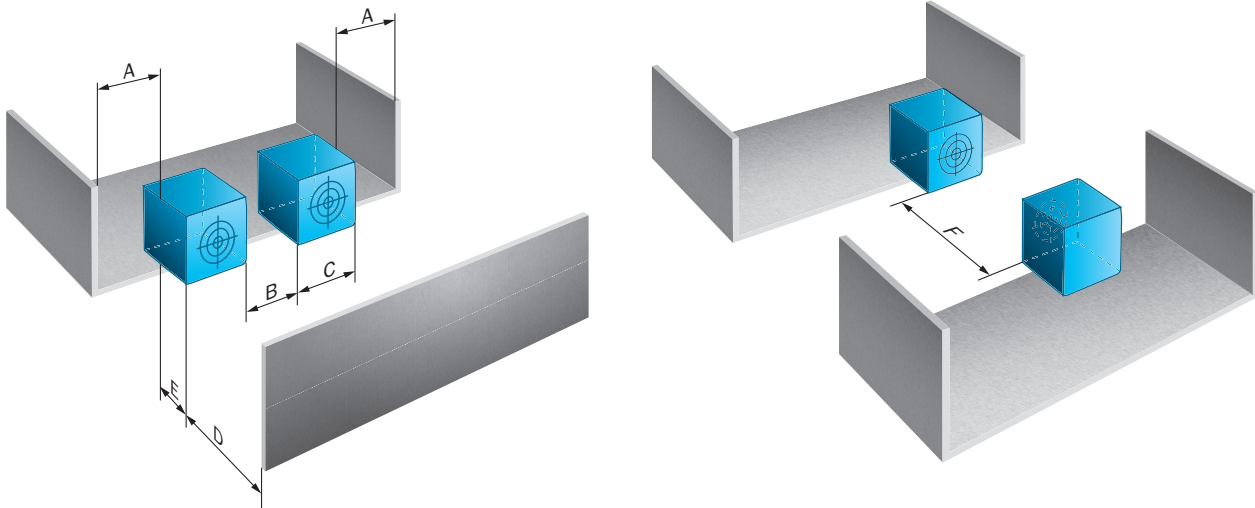
|               |                                       |
|---------------|---------------------------------------|
| <b>Remark</b> | Associated graphic see "Installation" |
| <b>A</b>      | 40 mm                                 |
| <b>B</b>      | 200 mm                                |
| <b>C</b>      | 40 mm                                 |
| <b>D</b>      | 75 mm                                 |
| <b>E</b>      | 30 mm                                 |
| <b>F</b>      | 300 mm                                |
| <b>G</b>      | 150 mm                                |

### Classifications

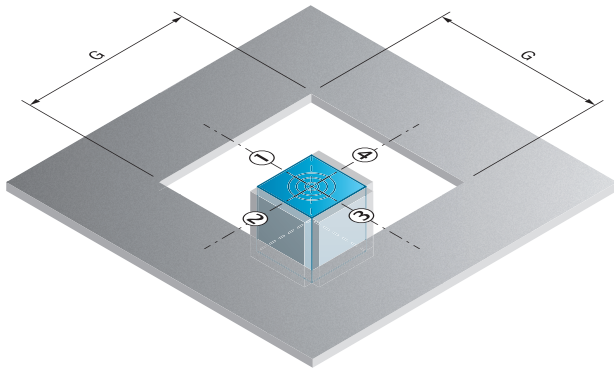
|                     |          |
|---------------------|----------|
| <b>eCl@ss 5.0</b>   | 27270101 |
| <b>eCl@ss 5.1.4</b> | 27270101 |
| <b>eCl@ss 6.0</b>   | 27270101 |
| <b>eCl@ss 6.2</b>   | 27270101 |

|                       |          |
|-----------------------|----------|
| <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



## Installation in pinhole aperture

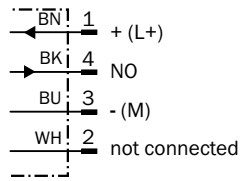


Sensor with rotated turning angle (the specified values refer to 1 mm thick sheet steel).

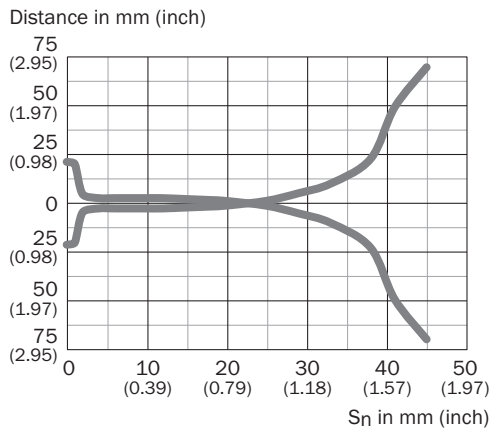
- ① Resting on metal  $S_r = 45 \text{ mm}$
- ② Resting on metal and a side panel  $S_r = 22 \text{ mm}$
- ③ Resting on metal and two side panels  $S_r = 13 \text{ mm}$
- ④ Resting on metal and three side panels  $S_r = 10 \text{ mm}$

## Connection diagram

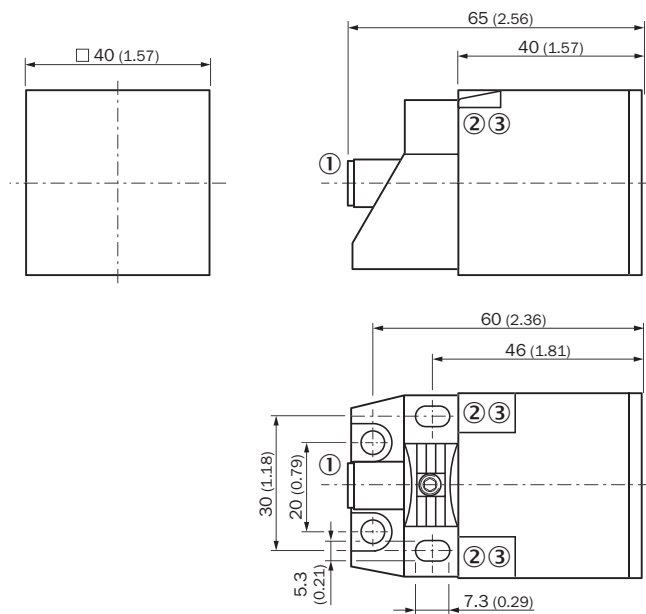
Cd-011



## Response diagram



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



- ① M12 x 1
- ② LED output state, yellow
- ③ Operational status LED, green

Recommended accessories

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

|                                                                                   | Brief description                                                                                                                                   | Type               | Part no. |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|
| Plug connectors and cables                                                        |                                                                                                                                                     |                    |          |
|  | Head A: female connector, M12, 4-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 2 m | YF2A14-020UW1XLEAX | 2104883  |
|                                                                                   | Head A: female connector, M12, 4-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 5 m | YF2A14-050UB3XLEAX | 2095608  |
|                                                                                   |                                                                                                                                                     | YF2A14-050UW1XLEAX | 2104884  |
|  | Head A: female connector, M12, 4-pin, angled, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 2 m   | YG2A14-020UW1XLEAX | 2104886  |
|                                                                                   | Head A: female connector, M12, 4-pin, angled, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 5 m   | YG2A14-050UW1XLEAX | 2104887  |

## 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)