

# IMA18-20NE1ZC0K

IMA

INDUCTIVE PROXIMITY SENSORS

**SICK**  
Sensor Intelligence.

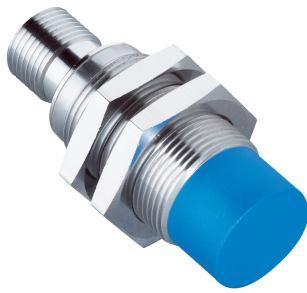


Illustration may differ



## Ordering information

| Type            | Part no. |
|-----------------|----------|
| IMA18-20NE1ZCOK | 6041794  |

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

## 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 ... 20 mm             |
| <b>Installation type</b>                             | Non-flush                  |
| <b>Connection type</b>                               | Male connector M12, 4-pin  |
| <b>Output function</b>                               | Analog                     |
| <b>Repeatability (<math>T_a</math> not constant)</b> | 0.3 mm <sup>1) 2) 3)</sup> |
| <b>Repeatability (<math>T_a</math> constant)</b>     | ± 0.05 mm                  |
| <b>Resolution</b>                                    | ≤ 5 µm                     |
| <b>Enclosure rating</b>                              | IP67 <sup>4)</sup>         |
| <b>Special features</b>                              | Analog output              |

<sup>1)</sup> As per IEC 60947-5-2.

<sup>2)</sup>  $U_b = DC 20 V \dots 30 V$ .

<sup>3)</sup>  $T_A = 23 \text{ °C} \pm 5 \text{ °C}$ .

<sup>4)</sup> According to EN 60529: 2000-09.

### Mechanics/electronics

|                                                |                       |
|------------------------------------------------|-----------------------|
| <b>Supply voltage</b>                          | 15 V DC ... 30 V DC   |
| <b>Ripple</b>                                  | ≤ 20 % <sup>1)</sup>  |
| <b>Time delay before availability</b>          | ≤ 60 ms               |
| <b>Temperature drift (of <math>S_n</math>)</b> | ≤ 10 %                |
| <b>Current consumption, no load</b>            | ≤ 12 mA <sup>2)</sup> |

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

<sup>2)</sup> Without load.

<sup>3)</sup> At voltage output QA1.

<sup>4)</sup> -3 dB if  $S_n = 10 \text{ mm}$ .

<sup>5)</sup> QA1 loaded, QA2 unloaded.

<sup>6)</sup> QA1 loaded, QA2 loaded: see temperature reduction.

|                                      |                                                                                                          |
|--------------------------------------|----------------------------------------------------------------------------------------------------------|
| <b>Load current</b>                  | $\pm 10 \text{ mA}^{3)}$                                                                                 |
| <b>Max. load resistance</b>          | $\leq 400 \Omega \text{ Ub} = 15 \text{ V}$<br>$\leq 1,000 \Omega \text{ Ub} = 30 \text{ V}$             |
| <b>Output voltage Q<sub>A1</sub></b> | s = 0 mm: 0 V/-0 +0,4 V (23 °C)<br>s = 10 mm: +5,2 V/ +0,4 V (23 °C)<br>s = 20 mm: +10 V/ +0,4 V (23 °C) |
| <b>Output current Q<sub>A2</sub></b> | s = 0 mm: 4 mA/ +0,8 mA (23 °C)<br>s = 20 mm: 20 mA +/-0,8 mA (23 °C)                                    |
| <b>Output voltage</b>                | 0 V ... 10 V                                                                                             |
| <b>Bandwidth</b>                     | 250 Hz <sup>4)</sup>                                                                                     |
| <b>Short-circuit protection</b>      | ✓                                                                                                        |
| <b>Reverse polarity protection</b>   | ✓                                                                                                        |
| <b>Ambient operating temperature</b> | -25 °C ... +70 °C <sup>5) 6)</sup>                                                                       |
| <b>Housing material</b>              | Brass, chromium-plated                                                                                   |
| <b>Sensing face material</b>         | Plastic, PTB                                                                                             |
| <b>Housing length</b>                | 48.5 mm                                                                                                  |
| <b>Thread length</b>                 | 22 mm                                                                                                    |
| <b>Items supplied</b>                | Mounting nut, brass, chromium-plated (2x)<br>Washer, brass, chromium-plated, with locking teeth (2x)     |

1) Of V<sub>S</sub>.

2) Without load.

3) At voltage output QA1.

4) -3 dB if S<sub>n</sub> = 10 mm.

5) QA1 loaded, QA2 unloaded.

6) QA1 loaded, QA2 loaded: see temperature reduction.

### Safety-related parameters

|                                     |          |
|-------------------------------------|----------|
| <b>MTTF<sub>D</sub></b>             | 88 years |
| <b>T<sub>M</sub> (mission time)</b> | 20 years |

### Reduction factors

|                                   |                                                |
|-----------------------------------|------------------------------------------------|
| <b>Note</b>                       | The values are reference values which may vary |
| <b>Stainless steel (V2A, 304)</b> | Approx. 0.69                                   |
| <b>Aluminum (Al)</b>              | Approx. 0.38                                   |
| <b>Copper (Cu)</b>                | Approx. 0.36                                   |
| <b>Brass (Br)</b>                 | Approx. 0.46                                   |

### Installation note

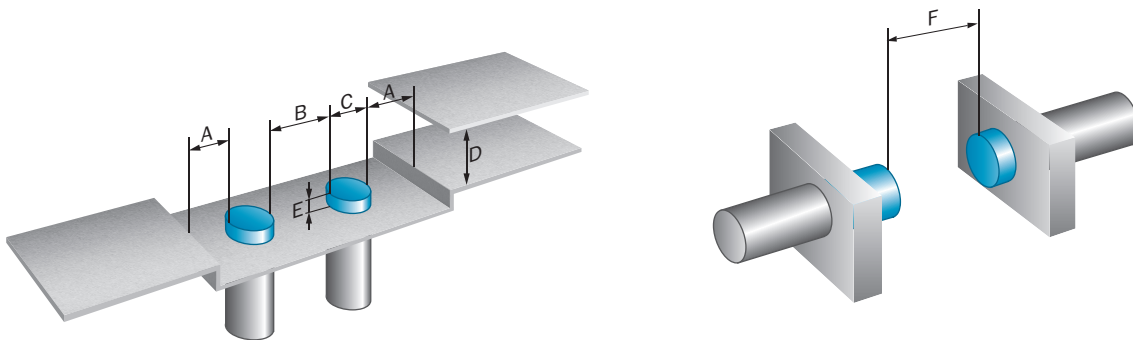
|               |                                       |
|---------------|---------------------------------------|
| <b>Remark</b> | Associated graphic see "Installation" |
| <b>A</b>      | 21 mm                                 |
| <b>B</b>      | 60 mm                                 |
| <b>C</b>      | 18 mm                                 |
| <b>D</b>      | 60 mm                                 |
| <b>E</b>      | 20 mm                                 |
| <b>F</b>      | 200 mm                                |

Classifications

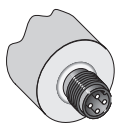
|                       |          |
|-----------------------|----------|
| <b>ECl@ss 5.0</b>     | 27270101 |
| <b>ECl@ss 5.1.4</b>   | 27270101 |
| <b>ECl@ss 6.0</b>     | 27270101 |
| <b>ECl@ss 6.2</b>     | 27270101 |
| <b>ECl@ss 7.0</b>     | 27270101 |
| <b>ECl@ss 8.0</b>     | 27270101 |
| <b>ECl@ss 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>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

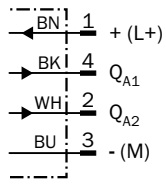


Connection type



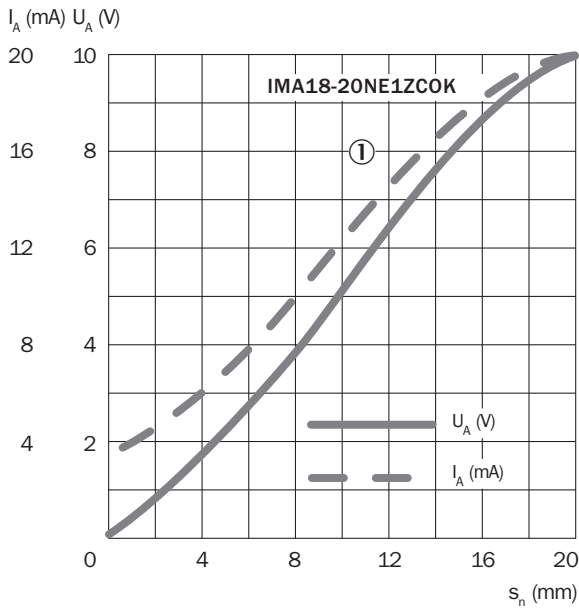
### Connection diagram

Cd-022



### Response diagram

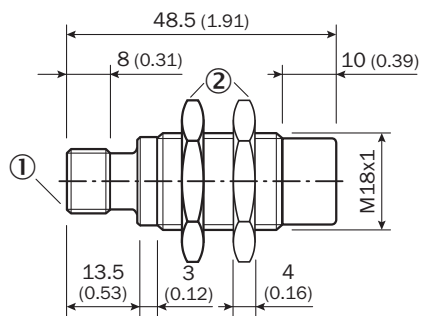
IMA18



① St37 (FE)

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

IMA18, connector, non-flush



① Connection

② Fastening nuts (2x); width across 24, metal

## Recommended accessories

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

|                                                                                     | Brief description                                                                                                                                     | Type               | Part no. |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|
| <b>Universal bar clamp systems</b>                                                  |                                                                                                                                                       |                    |          |
|    | Plate N06 for universal clamp bracket, M18, Zinc plated steel (sheet), Zinc die cast (clamping bracket), Universal clamp (5322626), mounting hardware | BEF-KHS-N06        | 2051612  |
| <b>Mounting brackets and plates</b>                                                 |                                                                                                                                                       |                    |          |
|    | Mounting bracket for M18 sensors, steel, zinc coated, without mounting hardware                                                                       | BEF-WN-M18         | 5308446  |
| <b>Plug connectors and cables</b>                                                   |                                                                                                                                                       |                    |          |
|    | 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   | YF2A14-020UB3XLEAX | 2095607  |
|    | Head A: female connector, M12, 4-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PVC, unshielded, 2 m                 | YF2A14-020VB3XLEAX | 2096234  |
|    | 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  |
|   | Head A: female connector, M12, 4-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PVC, unshielded, 5 m                 | YF2A14-050VB3XLEAX | 2096235  |
|  | 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     | YG2A14-020UB3XLEAX | 2095766  |
|  | Head A: female connector, M12, 4-pin, angled, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PVC, unshielded, 2 m                   | YG2A14-020VB3XLEAX | 2095895  |
|  | 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     | YG2A14-050UB3XLEAX | 2095767  |
|  | Head A: female connector, M12, 4-pin, angled, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PVC, unshielded, 5 m                   | YG2A14-050VB3XLEAX | 2095897  |
| <b>Terminal and alignment brackets</b>                                              |                                                                                                                                                       |                    |          |
|  | Mounting bracket with ball-and-socket, plastic, mounting hardware included                                                                            | BEF-WN-M18-ST02    | 5312973  |
|  | Clamping block for round sensors M18, without fixed stop, plastic (PA12), glass-fiber reinforced, mounting hardware included                          | BEF-KH-M18         | 2051481  |
|                                                                                     | Clamping block for round sensors M18, with fixed stop, plastic (PA12), glass-fiber reinforced, mounting hardware included                             | BEF-KHF-M18        | 2051482  |

## 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)