



# IMA12-02BE1ZC0S

IMA

INDUCTIVE PROXIMITY SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



## Ordering information

Type	Part no.
IMA12-02BE1ZC0S	1107314

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>	M12 x 1
<b>Diameter</b>	Ø 12 mm
<b>Sensing range <math>S_n</math></b>	0 mm ... 2 mm
<b>Installation type</b>	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>	± 0.1 mm
<b>Enclosure rating</b>	IP67 <sup>4)</sup>
<b>Special features</b>	Analog output
<b>Items supplied</b>	Mounting nut, brass, nickel-plated (2x)

<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>	≤ 30 ms
<b>Temperature drift (of <math>S_n</math>)</b>	≤ 10 %

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

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

<sup>3)</sup> -3 dB if  $S_n = 1 \text{ mm}$ .

<sup>4)</sup> QA1 loaded, QA2 unloaded.

<sup>5)</sup> QA1 loaded, QA2 loaded: see temperature reduction.

<b>No load current</b>	$\leq 12 \text{ mA}^{2)}$
<b>Max. load resistance on Q<sub>A1</sub></b>	$\geq 2 \text{ k}\Omega$
<b>Max. load resistance on Q<sub>A2</sub></b>	$400 \Omega \text{ Ub} = 15 \text{ V}$
<b>Output voltage Q<sub>A1</sub></b>	s = 0 mm: 0 V -0/+0,6 V (23 °C) s = 1 mm: +4,9 V +/-0,6 V (23 °C) s = 2 mm: +10 V +/-0,6 V (23 °C)
<b>Output current Q<sub>A2</sub></b>	s = 0 mm: 4 mA +/-0,8 mA (23 °C) s = 2 mm: 20 mA +/-0,8 mA (23 °C)
<b>Output voltage</b>	0 V ... 10 V
<b>Output current</b>	4 mA ... 20 mA
<b>Bandwidth</b>	1,000 Hz <sup>3)</sup>
<b>Short-circuit protection</b>	✓
<b>Reverse polarity protection</b>	✓
<b>Ambient operating temperature</b>	-25 °C ... +70 °C <sup>4) 5)</sup>
<b>Housing material</b>	Brass, chromium-plated
<b>Sensing face material</b>	Plastic
<b>Housing length</b>	65 mm
<b>Thread length</b>	48 mm

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

2) Without load.

3) -3 dB if S<sub>n</sub> = 1 mm.

4) QA1 loaded, QA2 unloaded.

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

### Safety-related parameters

<b>MTTF<sub>D</sub></b>	1,149 years
<b>DC<sub>avg</sub></b>	0 %
<b>T<sub>M</sub> (mission time)</b>	20 years

### Installation note

<b>Remark</b>	Associated graphic see "Installation"
<b>B</b>	24 mm
<b>C</b>	12 mm
<b>D</b>	12 mm
<b>F</b>	32 mm

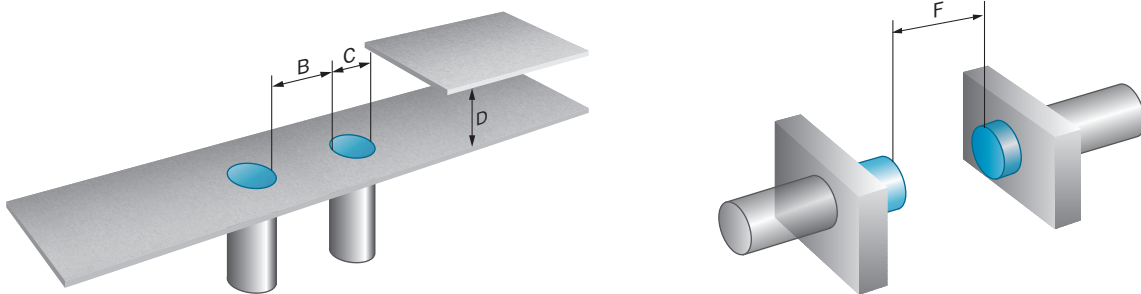
### Classifications

<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

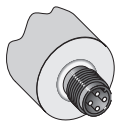
<b>ECLASS 10.0</b>	27270101
<b>ECLASS 11.0</b>	27270101
<b>ECLASS 12.0</b>	27274001
<b>ETIM 5.0</b>	EC002714
<b>ETIM 6.0</b>	EC002714
<b>ETIM 7.0</b>	EC002714
<b>ETIM 8.0</b>	EC002714
<b>UNSPSC 16.0901</b>	39122230

**Installation note**

Flush installation

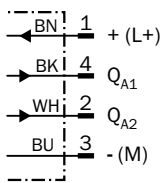


**Connection type**



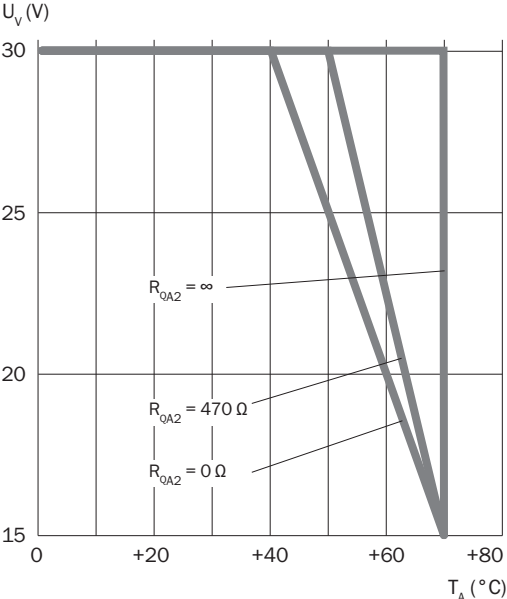
**Connection diagram**

Cd-022



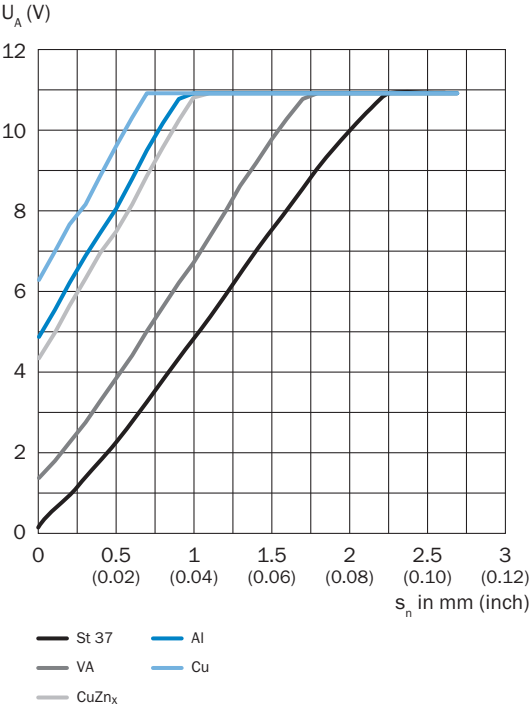
Temperature derating

Temperature derating

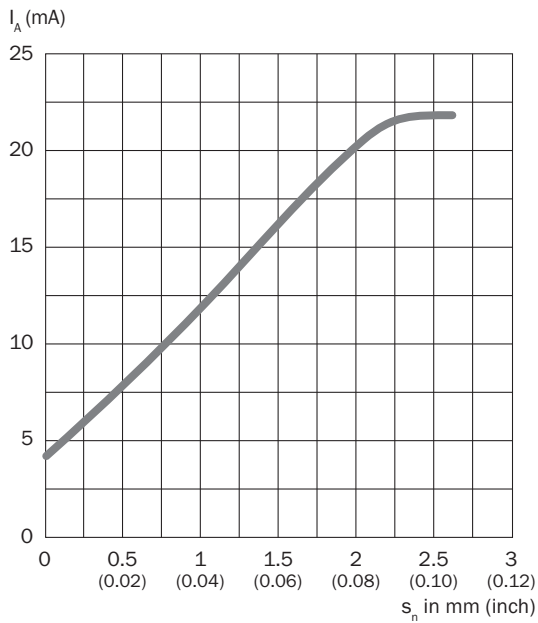


Response diagram

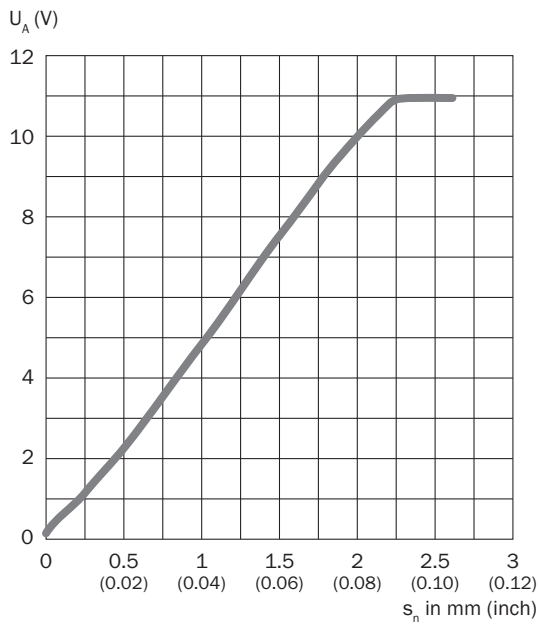
Reduction factors



Output current

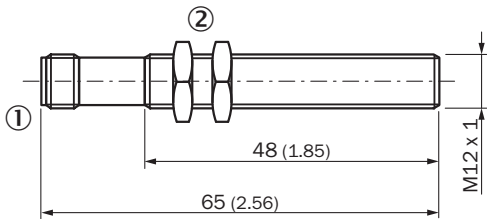


Output voltage



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







IMA12, male connector, flush








- ① Connection
- ② Fastening nuts (2x); width across 17, 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 N05 for universal clamp bracket, M12, Zinc plated steel (sheet), Zinc die cast (clamping bracket), Universal clamp (5322626), mounting hardware	BEF-KHS-N05	2051611
<b>Mounting brackets and plates</b>			
	Mounting bracket for M12 sensors, steel, zinc coated, without mounting hardware	BEF-WN-M12	5308447
<b>Terminal and alignment brackets</b>			
	Clamping block for round sensors M12, without fixed stop, plastic (PA12), glass-fiber reinforced, mounting hardware included	BEF-KH-M12	2051479
	Clamping block for round sensors M12, with fixed stop, plastic (PA12), glass-fiber reinforced, mounting hardware included	BEF-KHF-M12	2051480
<b>Others</b>			
	<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</li> </ul>	YF2A14-020VB3XLEAX	2096234
	<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> 5 m, 4-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Application:</b> Zones with chemicals</li> </ul>	YF2A14-050VB3XLEAX	2096235
	<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</li> </ul>	YG2A14-020VB3XLEAX	2095895

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	<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> Zones with oils and lubricants, Drag chain operation, Robot</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> 5 m, 4-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Application:</b> Zones with oils and lubricants, Drag chain operation, Robot</li> </ul>	YF2A14-050UB3XLEAX	2095608
	<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> Zones with oils and lubricants, Drag chain operation, Robot</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> 5 m, 4-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Application:</b> Zones with oils and lubricants, Drag chain operation, Robot</li> </ul>	YG2A14-050UB3XLEAX	2095767



## SICK AT A GLANCE

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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.”

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