



# MM12-60APO-ZUK

MME

MAGNETIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

Type	Part no.
MM12-60APO-ZUK	1040065

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

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

### Detailed technical data

#### Features

<b>Housing</b>	Metric
<b>Housing</b>	Short-body
<b>Thread size</b>	M12 x 1
<b>Diameter</b>	Ø 12 mm
<b>Sensing range <math>S_n</math></b>	0 mm ... 60 mm <sup>1)</sup>
<b>Safe sensing range <math>S_a</math></b>	48.6 mm
<b>Magnetic sensitivity</b>	1 mT
<b>Switching frequency</b>	1,000 Hz
<b>Connection type</b>	Cable, 3-wire, 2 m
<b>Switching output</b>	PNP
<b>Output function</b>	NC
<b>Electrical wiring</b>	DC 3-wire
<b>Magnetic alignment</b>	Axial
<b>Enclosure rating</b>	IP67 <sup>2)</sup>
<b>Items supplied</b>	Mounting nut, brass, nickel-plated (2x)

<sup>1)</sup> Sensing range based on installation in non-magnetic material using Magnet MAG-3010-B (M4.0).

<sup>2)</sup> According to EN 60529.

#### Mechanics/electronics

<b>Supply voltage</b>	10 V DC ... 30 V DC
<b>Ripple</b>	≤ 10 % <sup>1)</sup>
<b>Voltage drop</b>	≤ 2 V <sup>2)</sup>
<b>Current consumption</b>	10 mA <sup>3)</sup>

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

<sup>2)</sup> At  $I_a$  max.

<sup>3)</sup> Without load.

<sup>4)</sup> Von Sr (VS und Ta constant).

<sup>5)</sup> Pulsed.

<b>Time delay before availability</b>	≤ 20 ms
<b>Hysteresis</b>	1 % ... 10 %
<b>Reproducibility</b>	≤ 1 % <sup>4)</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>Cable material</b>	PUR
<b>Reverse polarity protection</b>	Yes
<b>Short-circuit protection</b>	Yes <sup>5)</sup>
<b>Power-up pulse protection</b>	✓
<b>Shock and vibration resistance</b>	30 g, 11 ms / 10 ... 55 Hz, 1 mm
<b>Ambient operating temperature</b>	-25 °C ... +75 °C
<b>Housing material</b>	Metal, Nickel-plated brass
<b>Housing length</b>	48 mm
<b>Thread length</b>	28 mm
<b>Tightening torque, max.</b>	15 Nm

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

<sup>2)</sup> At I<sub>a</sub> max.

<sup>3)</sup> Without load.

<sup>4)</sup> Von S<sub>r</sub> (V<sub>S</sub> und T<sub>a</sub> constant).

<sup>5)</sup> Pulsed.

### Safety-related parameters

<b>MTTF<sub>D</sub></b>	1,980 years
<b>DC<sub>avg</sub></b>	0%
<b>T<sub>M</sub> (mission time)</b>	20 years

### Classifications

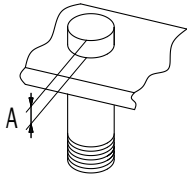
<b>ECLASS 5.0</b>	27270104
<b>ECLASS 5.1.4</b>	27270104
<b>ECLASS 6.0</b>	27270104
<b>ECLASS 6.2</b>	27270104
<b>ECLASS 7.0</b>	27270104
<b>ECLASS 8.0</b>	27270104
<b>ECLASS 8.1</b>	27270104
<b>ECLASS 9.0</b>	27270104
<b>ECLASS 10.0</b>	27270104
<b>ECLASS 11.0</b>	27270104
<b>ECLASS 12.0</b>	27274301
<b>ETIM 5.0</b>	EC002544
<b>ETIM 6.0</b>	EC002544
<b>ETIM 7.0</b>	EC002544
<b>ETIM 8.0</b>	EC002544

UNSPSC 16.0901

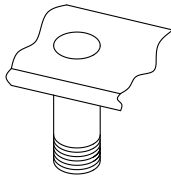
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### Installation note

installation in magnetizable material



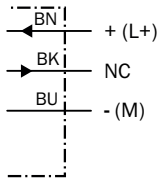
installation in non-magnetizable material



Ø	A (mm)	M (Nm)
M12	10	< 15

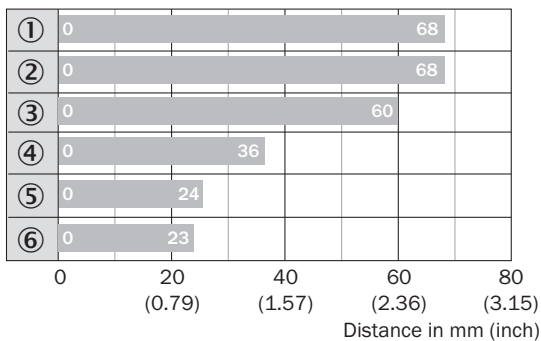
### Connection diagram

Cd-003



### Sensing range diagram

Sensing range



■ Max. sensing range  $S_n$ , flush or non-flush installation, non-magnetizable material

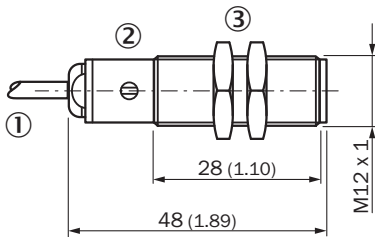
Magnet type

Part no.

①	MAG-3315-B (M 5.1)	7902086
②	MAG-3015-B (M 5.0)	7901786
③	MAG-3010-B (M 4.0)	7901785
④	MAG-2006-B (M 3.0)	7901784
⑤	MAG-0625-A (M 2.0)	7901783
⑥	MAG-1003-S (M 1.0)	7901782

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




MM12, cable, short-body housing



- ① Connection
- ② Display LED
- ③ Fastening nuts (2x); width across 17, metal

**Recommended accessories**

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

	Brief description	Type	Part no.
<b>Mounting brackets and plates</b>			
	Mounting plate for M12 sensors, steel, zinc coated, without mounting hardware	BEF-WG-M12	5321869
	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

## 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:

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