



# MM12-60APS-ZCK

MME

MAGNETIC SENSORS

**SICK**  
Sensor Intelligence.



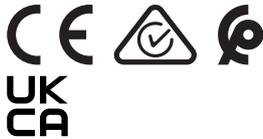
### Ordering information

| Type           | part no. |
|----------------|----------|
| MM12-60APS-ZCK | 1040070  |

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

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

Illustration may differ



### 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>                     | Male connector M12, 4-pin               |
| <b>Switching output</b>                    | PNP                                     |
| <b>Switching output detail</b>             | PNP                                     |
| <b>Output function</b>                     | NO                                      |
| <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>              |
| <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>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>                     | Nickel-plated brass              |
| <b>Housing length</b>                       | 46 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 Sr (VS und Ta 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    |

## 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>                         | ✓ |

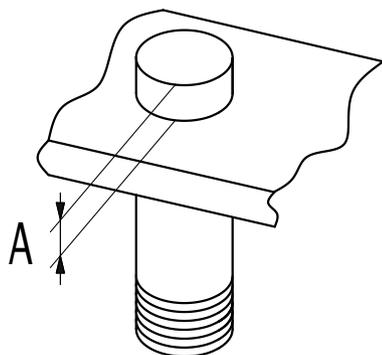
## Classifications

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

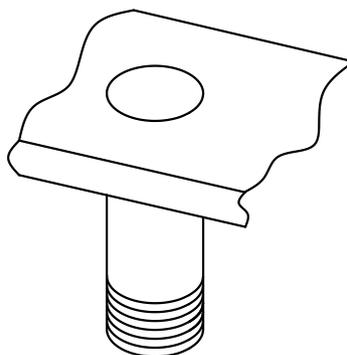
|                       |          |
|-----------------------|----------|
| <b>ECLASS 8.0</b>     | 27270104 |
| <b>ECLASS 8.1</b>     | 27270104 |
| <b>ECLASS 9.0</b>     | 27270104 |
| <b>ECLASS 10.0</b>    | 27270104 |
| <b>ECLASS 11.0</b>    | 27270104 |
| <b>ECLASS 12.0</b>    | 27274301 |
| <b>ETIM 5.0</b>       | EC002544 |
| <b>ETIM 6.0</b>       | EC002544 |
| <b>ETIM 7.0</b>       | EC002544 |
| <b>ETIM 8.0</b>       | EC002544 |
| <b>UNSPSC 16.0901</b> | 39122230 |

### Installation note

installation in magnetizable material

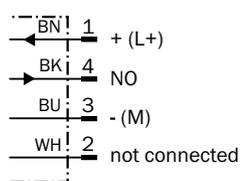


installation in non-magnetizable material

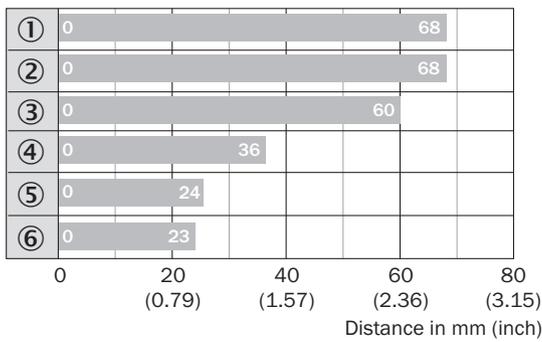


| $\emptyset$ | A<br>(mm) | M<br>(Nm) |
|-------------|-----------|-----------|
| M12         | 10        | < 15      |

### Connection diagram Cd-011



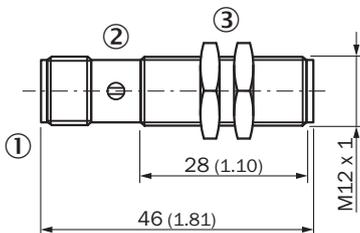
### Sensing range



■ Max. sensing range S<sub>n</sub>, 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 MM12, connector, short-body housing



Dimensions in mm (inch)

- 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. |
|---|---|-------------|----------|
| Mounting systems  |   |             |          |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Clamping block for round sensors M12, without fixed stop</li> <li><b>Material:</b> Plastic</li> <li><b>Details:</b> Plastic (PA12), glass-fiber reinforced</li> <li><b>Items supplied:</b> Mounting hardware included</li> </ul> | BEF-KH-M12  | 2051479  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Clamping block for round sensors M12, with fixed stop</li> <li><b>Material:</b> Plastic</li> <li><b>Details:</b> Plastic (PA12), glass-fiber reinforced</li> <li><b>Items supplied:</b> Mounting hardware included</li> </ul>    | BEF-KHF-M12 | 2051480  |
|  | <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> Male connector, M12, 4-pin, angled, A-coded</li> <li>• <b>Description:</b> Unshielded</li> <li>• <b>Connection systems:</b> Screw-type terminals</li> <li>• <b>Permitted cross-section:</b> ≤ 0.75 mm<sup>2</sup></li> </ul>   | STE-1204-W         | 6022084  |
|    | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 4-pin, straight, A-coded</li> <li>• <b>Description:</b> Unshielded</li> <li>• <b>Connection systems:</b> Screw-type terminals</li> <li>• <b>Permitted cross-section:</b> ≤ 0.75 mm<sup>2</sup></li> </ul>   | DOS-1204-G         | 6007302  |
|    | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 4-pin, straight, A-coded</li> <li>• <b>Description:</b> Unshielded</li> <li>• <b>Connection systems:</b> Screw-type terminals</li> <li>• <b>Permitted cross-section:</b> ≤ 0.75 mm<sup>2</sup></li> </ul>   | STE-1204-G         | 6009932  |
|    | <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> Drag chain operation, 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> 5 m, 4-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</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> Drag chain operation, 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> 5 m, 4-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>   | YG2A14-050UB3XLEAX | 2095767  |
|  | <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> Uncontaminated zones, 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> Uncontaminated zones, 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> Uncontaminated zones, Zones with chemicals</li> </ul>  | YG2A14-020VB3XLEAX | 2095895  |
|  | <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, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>  | YG2A14-050VB3XLEAX | 2095897  |
|  | <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> </ul>  | YF2A14-C60UB3XLEAX | 2145654  |

|   | Brief description   | Type               | part no. |
|---|---|--------------------|----------|
|    | <ul style="list-style-type: none"> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</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> 1 m, 4-wire, PUR, halogen-free</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Drag chain operation, 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> Drag chain operation, 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> Drag chain operation, 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> Drag chain operation, 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> Uncontaminated zones, Zones with chemicals</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> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>   | YG2A14-010VB3XLEAX | 2145710  |
|  | <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, PVC</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</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> Uncontaminated zones, Zones with chemicals</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:

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