



MM12-70A-N-ZC0

MMN

MAGNETIC SENSORS

SICK
Sensor Intelligence.



Ordering information

| Type | Part no. |
|----------------|----------|
| MM12-70A-N-ZCO | 1102540 |

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

Other models and accessories → www.sick.com/MMN

Illustration may differ



Detailed technical data

Features

| | |
|--|--|
| Housing | Cylindrical thread design |
| Thread size | M12 x 1 |
| Diameter | Ø 12 mm |
| Sensing range S_n | 5 mm ... 70 mm ¹⁾ |
| Safe sensing range S_a | 56.7 mm |
| Magnetic sensitivity | ≤ 0.7 mT |
| Switching frequency | 1,000 Hz |
| Connection type | Male connector M12, 4-pin |
| Switching output | NAMUR |
| Output characteristic | Control current depending on switching state according to NAMUR EN 60947-5-6 |
| Electrical wiring | DC 2-wire |
| Magnetic alignment | Axial |
| Enclosure rating | IP67 ²⁾ |
| Items supplied | Mounting nut, brass, nickel-plated (2x) |

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

²⁾ According to EN 60529.

Mechanics/electronics

| | |
|--|---------------------------|
| Ripple | ≤ 5 % ¹⁾ |
| Time delay before availability | ≤ 2 ms |
| Hysteresis | ≤ 25 % |
| Reproducibility | ≤ 1 % ²⁾ |
| Temperature drift (of S_r) | ± 10 % |
| EMC | According to EN 60947-5-2 |

¹⁾ Of V_S .

²⁾ Von S_r (V_S und T_a constant).

³⁾ For connection to a separately certified intrinsically safe circuit only.

| | |
|---|--|
| Current consumption, sensor is activated | ≥ 2.3 mA |
| Current consumption, sensor is not activated | ≤ 1 mA |
| Cable resistance | ≤ 50 Ω |
| Wire-break protection | ✓ |
| Short-circuit protection | ✓ |
| Reverse polarity protection | ✓ |
| Shock and vibration resistance | 30 g, 11 ms / 10 ... 55 Hz, 1 mm |
| Ambient operating temperature | -25 °C ... +70 °C |
| Housing material | Metal, Nickel-plated brass |
| Housing length | 62.5 mm |
| Thread length | 40 mm |
| Tightening torque, max. | ≤ 7 Nm |
| Type approval certificate | TÜV 19 ATEX 241335 |
| UK type examination certificate | UL22UKEX2385 |
| ATEX marking | EX II 1G Ex ia IIC T6 Ga EX II 1D Ex ia IIIC T ₂₀₀ 85 °C Da Ta: -25 °C ... +70 °C |
| Ex area category | 1G, 1D |
| Input voltage U_i max. | 16 V ³⁾ |
| Input power P_i max. | 100 mW ³⁾ |
| Input current I_i max. | 30 mA ³⁾ |
| Internal capacitance C_i max. | 130 nF ³⁾ |
| Internal inductance L_i max. | 10 μH ³⁾ |
| Nominal voltage | 8.2 V DC |

¹⁾ Of V_S.

²⁾ Von Sr (VS und Ta constant).

³⁾ For connection to a separately certified intrinsically safe circuit only.

Safety-related parameters

| | |
|-------------------------------------|-------------|
| MTTF_D | 2,828 years |
| DC_{avg} | 0 % |
| T_M (mission time) | 20 years |

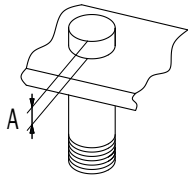
Classifications

| | |
|---------------------|----------|
| eCl@ss 5.0 | 27270104 |
| eCl@ss 5.1.4 | 27270104 |
| eCl@ss 6.0 | 27270104 |
| eCl@ss 6.2 | 27270104 |
| eCl@ss 7.0 | 27270104 |
| eCl@ss 8.0 | 27270104 |
| eCl@ss 8.1 | 27270104 |
| eCl@ss 9.0 | 27270104 |

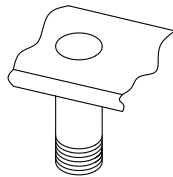
| | |
|-----------------------|----------|
| eCl@ss 10.0 | 27270104 |
| eCl@ss 11.0 | 27270104 |
| eCl@ss 12.0 | 27274301 |
| ETIM 5.0 | EC002544 |
| ETIM 6.0 | EC002544 |
| ETIM 7.0 | EC002544 |
| ETIM 8.0 | EC002544 |
| UNSPSC 16.0901 | 39122230 |

Installation note

installation in magnetizable material



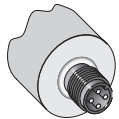
installation in non-magnetizable material



| Ø | A (mm) | M (Nm) |
|-----|-----------|-----------|
| M12 | 15 | < 7 |

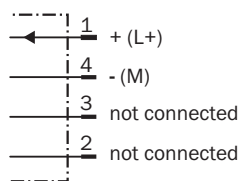


Connection type



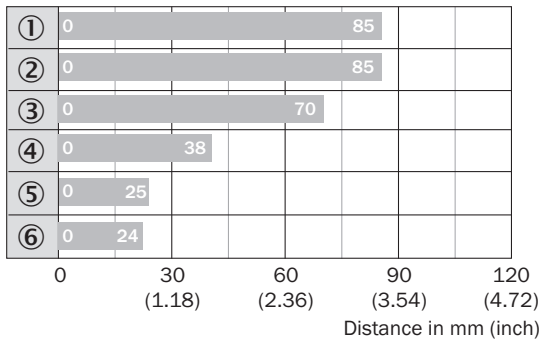
Connection diagram

Cd-015



Sensing range diagram

Sensing range

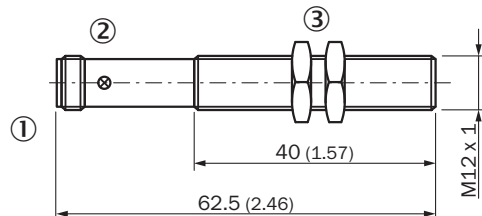


■ Max. sensing range S_n, flush or non-flush installation, non-magnetizable material

| 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 Namur, connector






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

Recommended accessories

Other models and accessories → www.sick.com/MMN

| | Brief description | Type | Part no. |
|---|--|----------|----------|
| Power supply modules | | | |
|  | NAMUR isolating amplifier, Cable fault detection, Switching outputs: 2 NO relay (1 per channel), Supply voltage: 24 V ... 230 V, Voltage type: AC/DC | EN2-2EX1 | 6041096 |

| | Brief description | Type | Part no. |
|---|---|--------------------|----------|
|  | NAMUR isolating amplifier, Cable fault detection, Switching outputs: 2 NO relay (1 per channel), Supply voltage: 19,2 V ... 30 V, Voltage type: DC | EN2-2EX3 | 6041095 |
| Universal bar clamp systems | | | |
|  | 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 |
| | Plate N05N for universal clamp bracket, M12, Stainless steel 1.4571 (sheet), Stainless steel 1.4408 (clamp), Universal clamp (5322627), mounting hardware | BEF-KHS-N05N | 2051621 |
|  | Mounting bar, straight, 200 mm, stainless steel, Stainless steel (1.4571) | BEF-MS12G-NA | 4058914 |
| Mounting brackets and plates | | | |
|  | 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 |
| Plug connectors and cables | | | |
|  | Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 2 m | YF2A14-020UB3XLEAX | 2095607 |
|  | Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 2 m | YF2A14-020VB3XLEAX | 2096234 |
|  | Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 5 m | YF2A14-050UB3XLEAX | 2095608 |
|  | Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m | YF2A14-050VB3XLEAX | 2096235 |
|  | Head A: female connector, M12, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 2 m | YG2A14-020UB3XLEAX | 2095766 |
|  | Head A: female connector, M12, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 2 m | YG2A14-020VB3XLEAX | 2095895 |
|  | Head A: female connector, M12, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 5 m | YG2A14-050UB3XLEAX | 2095767 |
|  | Head A: female connector, M12, 4-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m | YG2A14-050VB3XLEAX | 2095897 |
|  | Head A: female connector, M12, 4-pin, straight Cable: unshielded | DOS-1204-G | 6007302 |
|  | Head A: female connector, M12, 4-pin, angled Cable: unshielded | DOS-1204-W | 6007303 |

| | Brief description | Type | Part no. |
|---|--|-------------|----------|
|  | Head A: male connector, M12, 4-pin, straight Cable: unshielded | STE-1204-G | 6009932 |
|  | Head A: male connector, M12, 4-pin, angled Cable: unshielded | STE-1204-W | 6022084 |
| Terminal and alignment brackets | | | |
|  | 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:

Contacts and other locations –www.sick.com