



Magnetic proximity sensors  
Cylindrical threaded housing, MM12

MM12-90ANS-ZU0



**Model Name** > **MM12-90ANS-ZU0**  
**Part No.** > **1051013**



**At a glance**

- Detection of magnets
- Operating distances up to 90 mm or more based on the magnet strength
- High switching frequency
- Short-circuit, reverse polarity and power-up pulse suppression protection
- Robust nickel-plated brass housing with fine thread M12 x 1 mm
- IP 67 enclosure rating
- Cylindrical design
- PNP or NPN output

**Your benefits**

- Non-contact operation eliminates interference from dirt, dust and vibrations, increasing sensor life and reducing maintenance costs
- Space-saving installation due to small design
- Large operating distances with reliable switching increase throughput
- Non-contact, universal detection through several substances, including plastic containers and pipes protective PTFE walls and non-magnetic metal walls



**Features**

|                           |                                  |
|---------------------------|----------------------------------|
| Thread size:              | M12 x 1                          |
| Design:                   | Cylindrical                      |
| Sensing range Sn:         | 90 mm <sup>1)</sup>              |
| Assured sensing range Sa: | 72.9 mm                          |
| Magnetic sensitivity:     | 0.6 mT                           |
| Switching frequency:      | 5,000 Hz                         |
| Output type:              | NPN                              |
| Output function:          | NO                               |
| Electrical wiring:        | DC 3-wire                        |
| Enclosure rating:         | IP 67 <sup>2)</sup>              |
| Magnetic alignment:       | Axial                            |
| Connection type:          | Cable, 3-wire, 2 m <sup>3)</sup> |
| Housing:                  | Advanced                         |

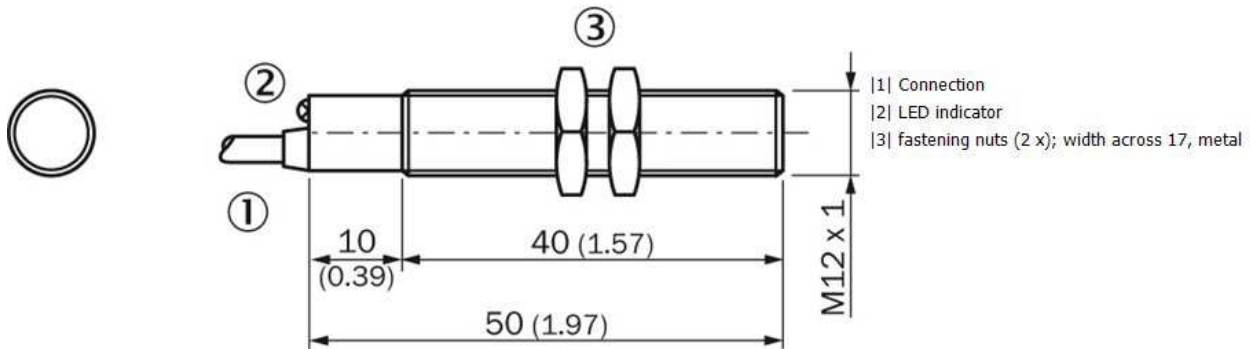
<sup>1)</sup> Sensing range based on installation in non-magnetic material using Magnet MAG-3010-B (M4.0) <sup>2)</sup> According to EN 60529 <sup>3)</sup> Do not bend below 0 °C

**Mechanics/electronics**

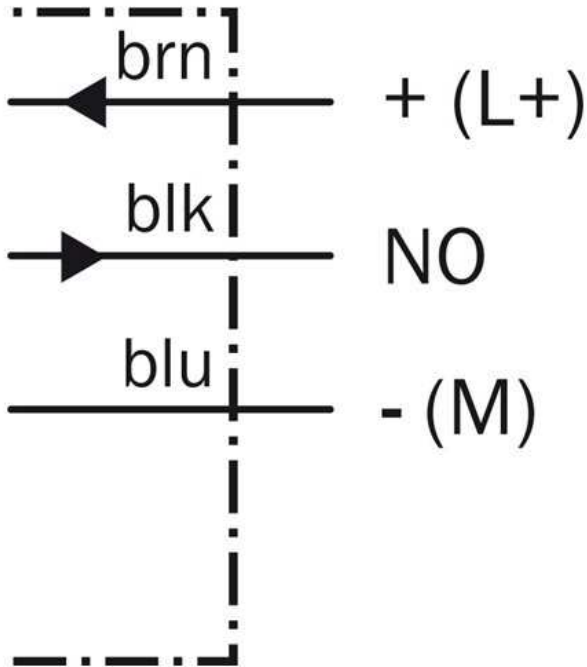
|  |                                   |
|--|-----------------------------------|
| Housing length:                          | 50 mm                             |
| Supply voltage:                          | 10 V DC ... 30 V DC               |
| Ripple:                                  | $\leq 10\%$ <sup>1)</sup>         |
| Power consumption:                       | $\leq 10\text{ mA}$ <sup>2)</sup> |
| Voltage drop:                            | $\leq 1.5\text{ V}$ <sup>3)</sup> |
| Output current $I_a$ :                   | $\leq 300\text{ mA}$              |
| Hysteresis:                              | 1 % ... 10 %                      |
| Repeatability:                           | $\leq 1\%$ <sup>4)</sup>          |
| Temperature drift (of Sr):               | $\pm 10\%$                        |
| EMC:                                     | According to EN 60947-5-2         |
| Tightening torque, max.:                 | 7 Nm                              |
| Reverse polarity protection:             | ✓                                 |
| Short-circuit protection <sup>5)</sup> : | ✓                                 |
| Housing material:                        | Metal, Nickel-plated brass        |
| Power-up pulse protection:               | ✓                                 |
| Time delay before availability:          | $\leq 2\text{ ms}$                |
| Ambient operating temperature:           | -25 °C ... 75 °C                  |
| Shock and vibration resistance:          | 30 g, 11 ms/10 ... 55 Hz, 1 mm    |
| Cable material:                          | PUR/PVC                           |
| Wire-break protection:                   | 0                                 |
| Items supplied:                          | Fastening nuts (2 x)              |

1) Of  $V_S$  2) Without load 3) At  $I_a \text{ max}$  4) Von Sr (VS und Ta constant) 5) Pulsed

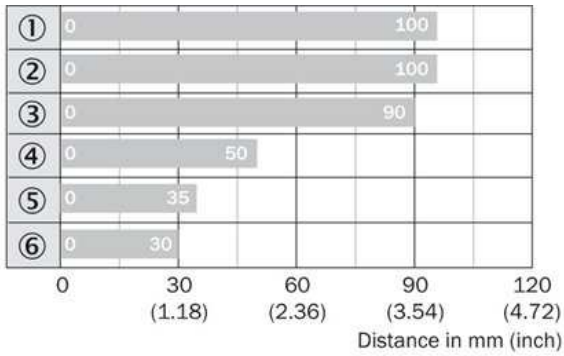
### Dimensional drawing



Connection diagram



Operating distance



■ 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  |

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