

## Technical data sheet

### Magnetically coded sensor

Part no.: 63001030  
MC388-S2C2-AL

#### Contents

- Technical data
- Dimensioned drawings
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- Circuit diagrams
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For illustration purposes only



## Technical data

### Basic data

|        |       |
|--------|-------|
| Series | MC388 |
|--------|-------|

### Functions

|           |                                                                                                                                                                                                                   |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Functions | Integration in control circuits up to category 4 in accordance with EN ISO 13849-1<br>Safety system in combination with an evaluation unit such as the MSI-SR-LC21 safety relay or the MSI 400 safety controller. |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Characteristic parameters

|                    |                                                                      |
|--------------------|----------------------------------------------------------------------|
| Mission time $T_M$ | 20 years, EN ISO 13849-1                                             |
| Category           | Up to 4, depending on evaluation, 1 sensor connected, EN ISO 13849-1 |
| B10 <sub>a</sub>   | 20,000,000 number of cycles                                          |

### Electrical data

|                                                                    |                                                                            |
|--------------------------------------------------------------------|----------------------------------------------------------------------------|
| Protective circuit                                                 | Current limitation<br>Short circuit protected, Via e.g. MSI-MC311, MSI 400 |
| Contact allocation                                                 | 2NO + 1NO (signaling)                                                      |
| Contact type                                                       | Reed contacts (magnetically sensitive)                                     |
| Requirement on the voltage supply when used acc. to cULus (UL 508) | Class 2 Circuits                                                           |

### Outputs

|                         |                             |
|-------------------------|-----------------------------|
| Max. switching voltage  | 27 V AC/DC                  |
| Switching current, max. | 100 mA                      |
| Built-in fuse           | 100 mA (per safety contact) |

### Time behavior

|               |      |
|---------------|------|
| Response time | 3 ms |
|---------------|------|

### Connection

|                       |            |
|-----------------------|------------|
| Number of connections | 1 Piece(s) |
|-----------------------|------------|

### Connection 1

|                      |                             |
|----------------------|-----------------------------|
| Function             | Contact connection          |
| Type of connection   | Cable with wire-end sleeves |
| Cable length         | 2,000 mm                    |
| Sheathing material   | PVC                         |
| Cable color          | Gray                        |
| Number of conductors | 6 -wire                     |
| Wire cross section   | 0.35 mm <sup>2</sup>        |

### Mechanical data

|                                                                             |                                                              |
|-----------------------------------------------------------------------------|--------------------------------------------------------------|
| Design                                                                      | Cubic                                                        |
| Dimension (W x H x L)                                                       | 25 mm x 13 mm x 88 mm                                        |
| Housing material                                                            | Plastic                                                      |
| Plastic housing                                                             | Glass fiber reinforced (PPS), self-extinguishing             |
| Net weight                                                                  | 208 g                                                        |
| Housing color                                                               | Red                                                          |
| Type of fastening                                                           | Through-hole mounting                                        |
| Installation position                                                       | Arbitrary, provided housing markings are aligned             |
| Switch type                                                                 | Type 4 interlock device, contactless actuation, EN ISO 14119 |
| Approach actuation directions                                               | 3-dimensional                                                |
| Mechanical life time                                                        | 10,000,000 actuation cycles                                  |
| External actuator                                                           | Magnetically coded                                           |
| Cut-out point (OFF), min.                                                   | 19 mm                                                        |
| Assured cut-out distance (Sar), min.                                        | 22 mm                                                        |
| Assured cut-in distance (Sao), max.                                         | 9 mm                                                         |
| Switching tolerance (without ferromagnetic materials in immediate vicinity) | -1 ... 1 mm                                                  |
| Distance to other magnetic sensors, min.                                    | 50 mm                                                        |
| Approach speed, min.                                                        | 0.05 m/s                                                     |

### Operation and display

|                 |            |
|-----------------|------------|
| Type of display | LED        |
| Number of LEDs  | 1 Piece(s) |

### Environmental data

|                                   |               |
|-----------------------------------|---------------|
| Ambient temperature, operation    | -20 ... 70 °C |
| Degree of contamination, external | 3, EN 60947-1 |

### Certifications

|                                                            |                                                 |
|------------------------------------------------------------|-------------------------------------------------|
| Degree of protection                                       | IP 67                                           |
| Approvals                                                  | c UL US<br>TÜV Süd (with suitable safety relay) |
| Test procedure for EMC in accordance with standard         | EN 60947-5-3<br>EN 61000-6-2<br>EN 61000-6-3    |
| Test procedure for oscillation in accordance with standard | EN 60947-5-3                                    |
| Test procedure for shock in accordance with standard       | EN 60947-5-3                                    |

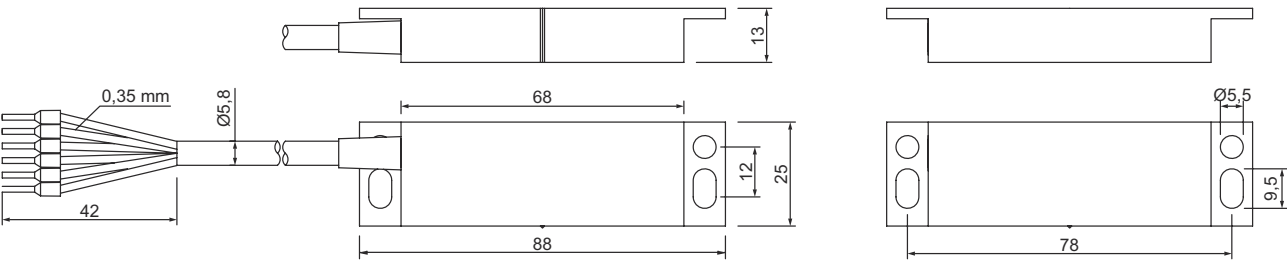
Technical data

|                       |          |
|-----------------------|----------|
| Customs tariff number | 90328900 |
| ECLASS 5.1.4          | 27272402 |
| ECLASS 8.0            | 27272402 |
| ECLASS 9.0            | 27272402 |
| ECLASS 10.0           | 27272402 |
| ECLASS 11.0           | 27272402 |
| ECLASS 12.0           | 27274401 |
| ECLASS 13.0           | 27274401 |
| ECLASS 14.0           | 27274401 |
| ECLASS 15.0           | 27274401 |
| ECLASS 16.0           | 27274401 |
| ETIM 5.0              | EC002544 |
| ETIM 6.0              | EC002544 |
| ETIM 7.0              | EC002544 |
| ETIM 8.0              | EC002544 |
| ETIM 9.0              | EC002544 |
| ETIM 10.0             | EC002544 |

Dimensioned drawings

All dimensions in millimeters

Dimensions of sensor and actuator



Electrical connection

Connection 1

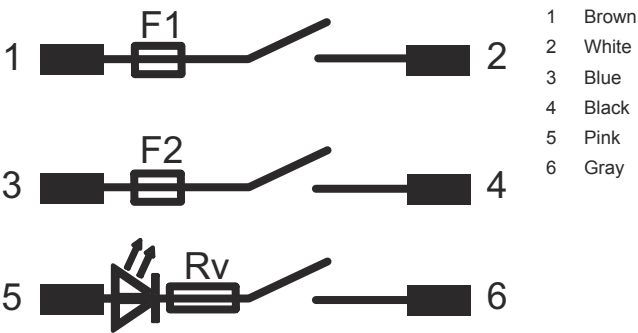
|                      |                                                           |
|----------------------|-----------------------------------------------------------|
| Function             | Contact connection                                        |
| Type of connection   | Cable with wire-end sleeves                               |
| Cable length         | 2,000 mm                                                  |
| Sheathing material   | PVC                                                       |
| Cable color          | Gray                                                      |
| Number of conductors | 6 -wire                                                   |
| Wire cross section   | 0.35 mm²                                                  |
| Assignment           | Representation of contacts without activation by actuator |

Conductor color

Conductor assignment

|       |       |
|-------|-------|
| Brown | NO(1) |
| White | NO(1) |
| Blue  | NO(2) |
| Black | NO(2) |
| Pink  | NO(3) |
| Gray  | NO(3) |

Circuit diagrams



Operation and display

| LED | Display                  | Meaning               |
|-----|--------------------------|-----------------------|
| 1   | Off                      | Safety outputs off    |
|     | Yellow, continuous light | Safety outputs active |

Notes

**Observe intended use!**

- The product may only be put into operation by competent persons.
- Only use the product in accordance with its intended use.

**ATTENTION!**

- The sensor has no internal error detection and cannot assume a safe state in the case of failure.
- To use the sensor in accordance with DIN EN 60947-5-3, a suitable evaluation unit must be connected.
- In combination with a suitable evaluation unit, the sensor can be integrated in the control technology of safety systems up to Cat. 4 / PL e in accordance with EN ISO 13849-1 and SIL CL3 in accordance with IEC 62061.