

## Technical data sheet Magnetically coded sensor

Part no.: 63001031

MC388-S2C5-AL

### Contents

- Technical data
- Dimensioned drawings
- Electrical connection
- Circuit diagrams
- Operation and display
- Notes



Figure can vary



## 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 |
| $B10_a$            | 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) |

### Timing

|               |      |
|---------------|------|
| 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         | 5,000 mm                    |
| Sheathing material   | PVC                         |
| Cable color          | Gray                        |
| Number of conductors | 6 -wire                     |

### 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 ( $S_{ar}$ ), min.                                 | 22 mm  |
| Assured cut-in distance ( $S_{ao}$ ), 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  |
| Certifications   | c UL US<br>TÜV Süd                           |
| 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                                 |

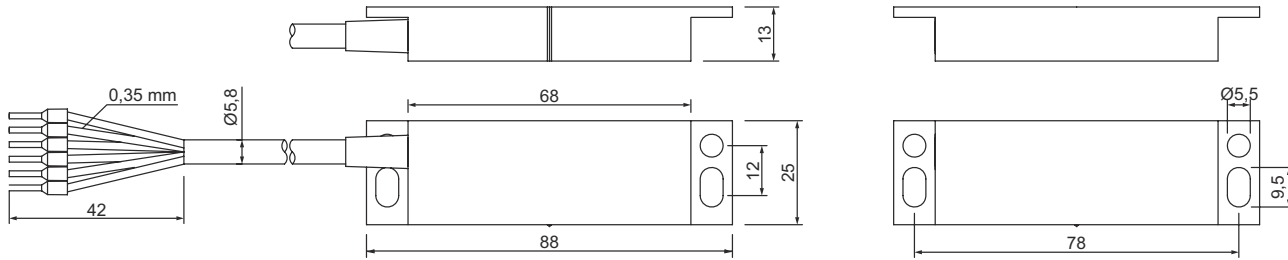
### Classification

|                       |          |
|-----------------------|----------|
| Customs tariff number | 90328900 |
| eCl@ss 5.1.4          | 27272402 |
| eCl@ss 8.0            | 27272402 |
| eCl@ss 9.0            | 27272402 |
| eCl@ss 10.0           | 27272402 |
| eCl@ss 11.0           | 27272402 |
| ETIM 5.0              | EC002544 |
| ETIM 6.0              | EC002544 |
| ETIM 7.0              | EC002544 |

## Dimensioned drawings

All dimensions in millimeters

### Dimensions of sensor and actuator



## Electrical connection

### Connection 1

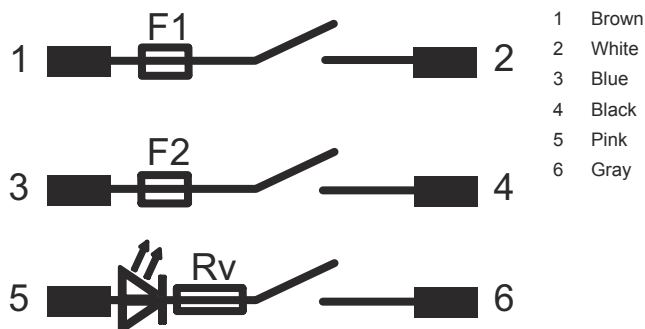
|                      |   |
|----------------------|---|
| Function             | Contact connection  |
| Type of connection   | Cable with wire-end sleeves                               |
| Cable length         | 5,000 mm  |
| Sheathing material   | PVC   |
| Cable color          | Gray  |
| Number of conductors | 6 -wire   |
| 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 |

## Operation and display

| LED | Display                  | Meaning               |
|-----|--------------------------|-----------------------|
| 1   | 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.