

Datasheet - MZM 100 ST2-1P2PW-A

Solenoid interlock / MZM 100



- Guard locking monitored
- Automatic latching
- Solenoid interlocks (for the protection of man) with innovating and unique operating principle
- 40 mm x 179 mm x 40 mm
- Electronic contact-free, coded system
- Thermoplastic enclosure
- Max. length of the sensor chain 200 m
- 3 LEDs to show operating conditions
- Sensor technology permits an offset between actuator and interlock of ± 5 mm vertically and ± 3 mm horizontally
- Intelligent diagnosis
- Self-monitoring series-wiring of 31 sensors
- Patented
- Connector M12, 8-pole
- Power to lock

(Minor differences between the printed image and the original product may exist!)

Ordering details

| | |
|--------------------------|---------------------|
| Product type description | MZM 100 ST2-1P2PW-A |
| Article number | 101199623 |
| EAN Code | 4030661388816 |
| eCl@ss | 27-27-26-03 |

Approval


Approval



Classification

| | |
|------------------|--|
| Standards | EN ISO 13849-1, IEC 61508, IEC 60947-5-3, EN 60947-5-1 |
| PL | e |
| Control category | up 4 |
| PFH | $3.5 \times 10^{-9}/h$ |
| SIL | up 3 |
| Mission time | 20 Years |
| Classification | PDF-M |

Global Properties

| | |
|--|---|
| Permanent light | MZM 100 |
| Standards | IEC 61508, EN ISO 13849-1, EN ISO 13849-1 |
| Compliance with the Directives (Y/N)  | Yes |
| Suitable for safety functions (Y/N) | Yes |
| Protection rating | III |
| Series-wiring | up to 31 components |
| Length of the sensor chain | max. 200 m |
| – without detriment to the category to EN ISO 13849-1 | |
| Active principle | inductive |
| Duty cycle ED | 100 % |
| Coding | Universal coding |
| | low |
| Duty cycle ED | 100 % |
| Materials | |
| – Material of the housings | Plastic, glass-fibre reinforced thermoplastic |
| Housing coating | None |
| Weight | 618 |
| Guard locking monitored (Y/N) | Yes |
| Actuator monitored (Y/N) | No |
| Idle assignable pushbutton and LED (Y/N) | No |
| Reaction time | < 150 |
| Duration of risk | < 150 |
| Time to readiness | < 4000 |
| Recommended actuator | MZM 100-B1.1 |

Mechanical data

| | |
|--|--|
| Design of electrical connection | Connector M12, 8-pole |
| Mechanical life | ≥ 1.000.000 operations |
| notice - Mechanical life | operations for guards ≤ 5 kg; actuating speed ≤ 0,5 m/s |
| restistance to shock | 30 g / 11 ms |
| Resistance to vibration | 10 ... 150 HZ, Amplitude 0,35 mm |
| Emergency unlocking device (Y/N) | No |
| Manual release (Y/N) | No |
| Emergency release (Y/N) | No |
| Latching (Y/N) | No |
| electrically adjustable latching force | - |
| Permanent magnet | - |
| Clamping force F | |
| – typically | 750 N |
| – guaranteed | 500 |

Ambient conditions

| | |
|--|----------|
| Ambient temperature | |
| – Min. environmental temperature | –25 |
| – Max. environmental temperature | +55 |
| Storage and transport temperature | |
| – Min. Storage and transport temperature | –25 |
| – Max. Storage and transport temperature | +85 |
| Relative humidity | 30... 95 |
| – non-condensing | |

| | |
|---|----------------------|
| - non-icing | |
| Protection class | IP67 to IEC/EN 60529 |
| Protection rating | III |
| Air clearances and creepage distances To IEC/EN 60664-1 | |
| - Rated impulse withstand voltage U_{imp} | 0,8 kV |
| - Overvoltage category | III |
| - Degree of pollution | 3 |

Electrical data

| | |
|--|---|
| Number of auxiliary contacts | 0 |
| Number of safety contacts | 2 |
| Cross circuit/short circuit recognition possible (Y/N) | Yes |
| Power to unlock | No |
| Power to lock | Yes |
| Supply voltage U_B (stabilised PELV) | |
| - Min. supply voltage | 20.4 V DC |
| - Max. supply voltage | 26.4 V DC |
| Switch frequency | 1 |
| Rated insulation voltage U_i | 32 V DC |
| Operating current I_e | 1 A |
| Utilisation category | DC-13 |
| No-load current I_0 | max. 0,5 A |
| Required rated short-circuit current | 100 A |
| Device insulation | ≤ 2 A (if used in accordance with UL 508) |
| - to UL 508; depending on the number of devices and loads (Y1, Y2 and OUT) | |
| notice | Cable length and cable section alter the voltage drop depending on the output current |

Electrical data - Safety inputs

| | |
|-------------------------------|--|
| Safety inputs | X1 and X2 |
| Rated operating voltage U_e | -3 V ... 5 V (Low) 15 V ... 30 V (High) |
| Operating current I_e | > 2 mA / 24 V |

Electrical data - Safety outputs

| | |
|-------------------------|--|
| Safety outputs | Y1 and Y2 |
| Fuse rating | short-circuit proof, p-type |
| Rated operating voltage | 0 V ... 4 V under Supply voltage U_B |
| Residual current I_r | $\leq 0,5$ mA |
| Operating current I_e | 0,25 A |
| Utilisation category | DC-12, DC-13 |

Electrical data - Diagnostic output

| | |
|---|--|
| Serial diagnostics (Y/N) | No |
| Fuse rating | p-type, short-circuit proof |
| Rated operating voltage | -3 V ... 5 V (Low) 15 V ... 30 V (High) |
| Operating current I_e | 0,05 A |
| Utilisation category | DC-12, DC-13 |
| Wiring capacitance for serial diagnostics | - |
| diagnostic signals | guard door closed and interlocking device locked |

Operating principle of the diagnostic output

notice

The short-circuit proof diagnostic output OUT can be used for central visualisation or control tasks, e.g. in a PLC.

The diagnostic output is not a safety-relevant output!

Electrical data - Solenoid control IN

Rated operating voltage U_e

-3 V ... 5 V (Low)
15 V ... 30 V (High)

Operating current I_e

typically 10 mA / 24 V, dynamically 20 mA

LED switching conditions display

LED switching conditions display (Y/N)

Yes

LED switching conditions display

- Supply voltage U_b

green LED

- switching condition

yellow LED

- Error functional defect

red LED

ATEX

Explosion protection categories for gases

None

Explosion protected category for dusts

None

Dimensions

Dimensions of the sensor

- Width of sensor

40

- Height of sensor

179

- Length of sensor

40

Pin assignment

| | |
|---|-------------------------|
| 1 | A1 Supply voltage U_b |
| 2 | X1 Safety input 1 |
| 3 | A2 GND |
| 4 | Y1 Safety output 1 |
| 5 | OUT Diagnostic output |
| 6 | X2 Safety input 2 |
| 7 | Y2 Safety output 2 |
| 8 | IN Solenoid control |
| 9 | without function |

notice

As long as the actuating unit remains inserted in the solenoid interlock, the unlocked safety guard can be relocked. The safety outputs then will be enabled again; opening the safety guard therefore is not required.

Included in delivery

Actuators must be ordered separately.

Ordering code

| | |
|-----------------------|--|
| | Guard locking monitored MZM 100 (1)-(2)(3)(4)-A |
| (1) ST ST2 | connector M23, (8 + 1-pole) connector M12, 8-pole |
| (2) 1P2PW SD2P | 1 Diagnostic output and 2 Safety outputs, p-type, combined diagnostic signal: guard door closed and interlocking device locked serial diagnostic output and 2 Safety outputs, p-type |
| (3) without RE | without Latching force electrically adjustable latching force 30 ... 100 N |
| (4) M | Permanent magnet approx. 30 N |
| | Actuator monitored MZM 100 B (1)-(2)RE(3)-A |
| (1) ST ST2 | connector M23, (8 + 1-pole) connector M12, 8-pole |
| (2) 1P2PW2 SD2P | 1 diagnostic output and 2 safety outputs, all p-type and combined diagnostic signal: safety guard closed and solenoid interlock locked. serial diagnostic output and 2 Safety outputs, p-type |
| (3) M | Permanent magnet approx. 30 N |
| | Indication legend |
| B | Actuator monitored |
| RE | electrically adjustable latching force 30 ... 100 N |
| A | Power to lock |

Documents

Operating instructions and Declaration of conformity (it) 322 kB, 29.11.2012

Code: mrl_mzm100_it

Operating instructions and Declaration of conformity (cn) 675 kB, 23.11.2018

Code: mrl_mzm100-100b_cn

Operating instructions and Declaration of conformity (es) 441 kB, 27.08.2018

Code: mrl_mzm100-100b_es

Operating instructions and Declaration of conformity (en) 443 kB, 16.08.2018

Code: mrl_mzm100-100b_en

Operating instructions and Declaration of conformity (fr) 441 kB, 15.10.2018

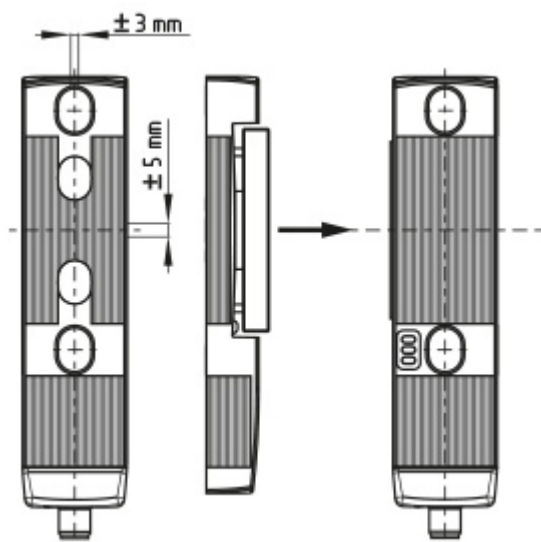
Code: mrl_mzm100-100b_fr

Operating instructions and Declaration of conformity (pt) 462 kB, 13.09.2018

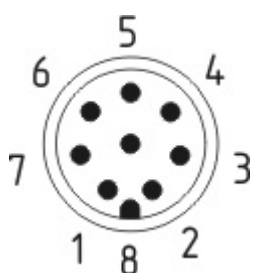
Code: mrl_mzm100-100b_pt

Operating instructions and Declaration of conformity (pl) 466 kB, 12.09.2018

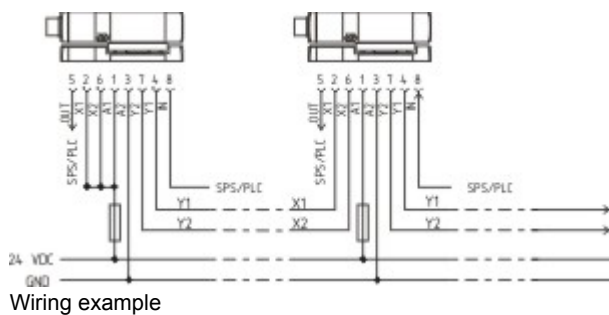
Dimensional drawing (basic component)



Dimensional drawing (miscellaneous)



Contact arrangement



Wiring example

System components

Actuator



101204290 - MZM 100-B1.1

- actuator free from play
- neutralisation of undesired noises

Accessories



101210642 - MZM 100 TARGET

- for the variable setting of the latching force
- gradually adjustable by steps of approx. 10 N within a range from approx. 30 N to 100 N



101185510 - MS MZM 100-W

Connector



A-K8M12

- Pre-wired cable
- 8-pole

K.A. Schmersal GmbH & Co. KG, Möddinghofe 30, D-42279 Wuppertal

The data and values have been checked thoroughly. Technical modifications and errors excepted.

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