



## MZM 100 B ST2-SD2PRE-A

- Actuator monitored
- Connector M12, 8-pole
- Power to lock
- serial diagnostic output
- Automatic latching
- Solenoid interlocks 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  $\pm 5$  mm vertically and  $\pm 3$  mm horizontally
- Intelligent diagnosis
- Self-monitoring series-wiring
- Patented

## Data

### Ordering data

Product type description	MZM 100 B ST2-SD2PRE-A
Article number (order number)	101211156
EAN (European Article Number)	4030661389424
eCl@ss number, version 12.0	27-27-26-03
eCl@ss number, version 11.0	27-27-26-03
eCl@ss number, version 9.0	27-27-26-03
ETIM number, version 7.0	EC002593
ETIM number, version 6.0	EC002593

## Approvals - Standards

Certificates	TÜV cULus UKCA
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## General data

Standards	EN ISO 13849-1 EN ISO 14119 EN IEC 60947-5-3 EN IEC 61508
Coding	Universal coding
Coding level according to EN ISO 14119	Low
Working principle	inductive
Housing material	Plastic, glass-fibre reinforced thermoplastic, self-extinguishing
Reaction time, maximum	150 ms
Duration of risk, maximum	150 ms
Gross weight	620 g

## General data - Features

Power to lock	Yes
Actuator monitored	Yes
Serial diagnostics	Yes
Latching	Yes
Short circuit detection	Yes
Cross-circuit detection	Yes
Series-wiring	Yes
Safety functions	Yes
Integral system diagnostics, status	Yes
Number of safety contacts	2

Number of series-wiring of sensors	31
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### Safety classification

Standards	EN ISO 13849-1 EN IEC 61508
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### Safety classification - Interlocking function

Performance Level, up to	e
Category	4
PFH value	$3.54 \times 10^{-9}$ /h
Safety Integrity Level (SIL), suitable for applications in	3
Mission time	20 Year(s)

### Mechanical data

Mechanical life, minimum	1,000,000 Operations
Note (Mechanical life)	Actuating speed $\leq 0.5$ m/s Operations for door weights $\leq 5$ kg
Holding force, typically	750 N
Holding force, guaranteed	500 N
Latching force, minimum	30 N
Latching force, maximum	100 N
Type of the fixing screws	2x M6
Tightening torque of the fixing screws	8 Nm

### Mechanical data - Switching distances according EN IEC 60947-5-3

Assured switching distance "ON" $S_{ao}$	0 mm
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Assured switching distance      1 mm  
"OFF"  $S_{ar}$

### Mechanical data - Connection technique

Length of sensor chain, maximum	200 m
Note (length of the sensor chain)	Cable length and cross-section change the voltage drop depending on the output current
Note (series-wiring)	Unlimited number of devices, observe external line fusing, max. 31 devices in case of serial diagnostic SD
Termination	Connector M12, 8-pole

### Mechanical data - Dimensions

Length of sensor	40 mm
Width of sensor	40 mm
Height of sensor	177.5 mm

### Ambient conditions

Degree of protection	IP65 IP67
Ambient temperature	-25 ... +55 °C
Storage and transport temperature, minimum	-25 °C
Storage and transport temperature, maximum	+70 °C
Relative humidity, minimum	30 %
Relative humidity, maximum	95 %
Note (Relative humidity)	non-condensing non-icing
Resistance to vibrations	10 ... 150 Hz, amplitude 0.35 mm / 5 g
Resistance to shock	30 g / 11 ms

Protection class	III
Permissible installation altitude above sea level, maximum	2,000 m

### Ambient conditions - Insulation values

Rated insulation voltage $U_i$	32 VDC
Rated impulse withstand voltage $U_{imp}$	0.8 kV
Overtoltage category	III
Degree of pollution	3

### Electrical data

Operating voltage	24 VDC -15 % / +10 % (stabilised PELV power supply)
No-load supply current $I_0$ , typical	100 mA
Current consumption with magnet ON, average	350 mA
Current consumption with magnet ON, peak	550 mA / 10 ms
Rated operating voltage	24 VDC
Operating current	1,100 mA
Required rated short-circuit current	100 A
External wire and device fuse rating	2 A gG
Time to readiness, maximum	4,000 ms
Switching frequency, maximum	1 Hz

### Electrical data - Magnet control

Designation, Magnet control	IN
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Switching thresholds	-3 V ... 5 V (Low) 15 V ... 30 V (High)
Current consumption at 24 V	10 mA
Magnet switch-on time	100 %
Test pulse duration, maximum	5 ms
Test pulse interval, minimum	40 ms
Classification ZVEI CB24I, Sink	C0
Classification ZVEI CB24I, Source	C1 C2 C3

### Electrical data - Safety digital inputs

Designation, Safety inputs	X1 and X2
Switching thresholds	-3 V ... 5 V (Low) 15 V ... 30 V (High)
Current consumption at 24 V	5 mA
Test pulse duration, maximum	1 ms
Test pulse interval, minimum	100 ms
Classification ZVEI CB24I, Sink	C1
Classification ZVEI CB24I, Source	C1 C2 C3

### Electrical data - Safety digital outputs

Designation, Safety outputs	Y1 and Y2
Rated operating current (safety outputs)	250 mA
Design of control elements	short-circuit proof, p-type
Voltage drop $U_d$ , maximum	1 V
Leakage current $I_r$ , maximum	0.5 mA
Voltage, Utilisation category DC-13	24 VDC

Current, Utilisation category DC- 0.25 A  
13

Test pulse interval, typical 1000 ms

Test pulse duration, maximum 1 ms

Classification ZVEI CB24I, C1  
Source

Classification ZVEI CB24I, Sink C1

## Electrical data - Diagnostic outputs

Design of control elements short-circuit proof, p-type

## Electrical data - Serial diagnostic SD

Designation, Serial diagnostic OUT  
SD

Operation current 150 mA

Design of control elements short-circuit proof, p-type

Wiring capacitance 50 nF

## Status indication

Note (LED switching conditions display) Operating condition: LED green  
Error / functional defect: LED red  
Supply voltage UB: LED green

## Pin assignment

PIN 1 A1 Supply voltage UB

PIN 2 X1 Safety input 1

PIN 3 A2 GND

PIN 4 Y1 Safety output 1

PIN 5 OUT serial diagnostic output

PIN 6 X2 Safety input 2

PIN 7	Y2 Safety output 2
PIN 8	IN serial diagnostic input

## Scope of delivery

Scope of delivery                      Actuator must be ordered separately.

## Accessory

Recommendation (actuator)        MZM 100-B1.1

## Note

Note (General)                      As long as the actuating unit is applied to the solenoid interlock, the unlocked safety guard can be relocked. In this case, the safety outputs are re-enabled, so that the safety guard must not be opened.

## Ordering code

Product type description:  
MZM 100(1)(2)(3)(4)(5)-A

(1)

<b>without</b>	Solenoid interlock monitored
<b>B</b>	Actuator monitored

(2)

<b>ST2</b>	Connector plug M12, 8-pole
<b>ST</b>	Connector plug M23, 8+1-pole

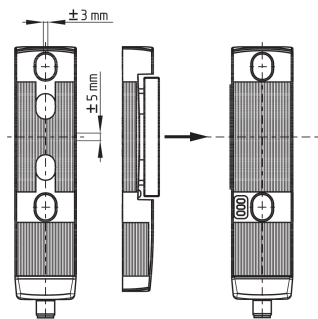
(3)

<b>1P2P</b>	1 p-type diagnostic output and 2 p-type safety outputs (only in connection with "Solenoid interlock monitored")
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## Dimensional drawing miscellaneous

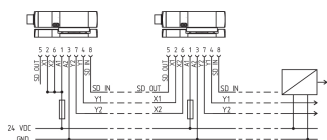


ID: 1mzm1g15

| 12.9 kB | .swf |

| 290.8 kB | .jpg | 352.425 x 362.656 mm - 999 x 1028 px - 72 dpi

## Wiring example

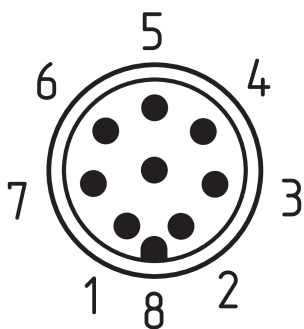


ID: kmzm1i04

| 38.1 kB | .cdr |

| 83.1 kB | .jpg | 352.778 x 144.639 mm - 1000 x 410 px - 72 dpi

## Contact arrangement



ID: km23-k8b

| 5.3 kB | .png | 73.731 x 79.728 mm - 209 x 226 px - 72 dpi

| 139.8 kB | .jpg | 352.778 x 380.647 mm - 1000 x 1079 px - 72 dpi

Schmersal, Inc., 15 Skyline Drive, Hawthorne, NY 10532

The details and data referred to have been carefully checked. Images may diverge from original. Further technical data can be found in the manual. Technical amendments and errors possible.

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