



## MZM 100 ST2-1P2PWM-A

- Guard locking monitored
- Connector M12, 8-pole
- Power to lock
- Permanent magnet
- 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

## Data

### Ordering data

Product type description	MZM 100 ST2-1P2PWM-A
Article number (order number)	101209059
EAN (European Article Number)	4030661390154
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

## 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	699 g

## General data - Features

Power to lock	Yes
Solenoid interlock monitored	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

## 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	15 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
Assured switching distance "OFF" $S_{ar}$	1 mm

## 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	-25 ... +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)
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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
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-13	0.25 A
Test pulse interval, typical	1000 ms
Test pulse duration, maximum	1 ms
Classification ZVEI CB24I, Source	C1
Classification ZVEI CB24I, Sink	C1

### Electrical data - Diagnostic outputs

Designation, Diagnostic outputs	OUT
Design of control elements	short-circuit proof, p-type
Voltage drop $U_d$ , maximum	2 V
Voltage, Utilisation category DC-13	24 VDC
Current, Utilisation category DC-13	0.05 A

### 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 Diagnostic output
PIN 6	X2 Safety input 2
PIN 7	Y2 Safety output 2
PIN 8	IN Solenoid control

## 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)

**without**

Guard locking monitored

**B**

Actuator monitored

(2)	
<b>ST</b>	Connector plug M23, 8+1-pole
<b>ST2</b>	Connector plug M12, 8-pole
(3)	
<b>1P2P</b>	1 p-type diagnostic output and 2 p-type safety outputs (only in connection with "Solenoid interlock monitored")
<b>1P2PW</b>	Similar to -1P2P, combined diagnostic signal: guard door closed and solenoid interlock locked (only in connection with "Solenoid interlock monitored")
<b>1P2PW2</b>	Similar to -1P2P, combined diagnostic signal: guard door closed and can be locked (only in connection with "Actuator monitored")
<b>SD2P</b>	serial diagnostic output and 2 p-type safety outputs
(4)	
<b>without</b>	without latching (only in connection with "Solenoid interlock monitored")
<b>R</b>	electrical latching force, typically 30 N
<b>RE</b>	adjustable latching force, typically 30 ... 100 N
(5)	
<b>M</b>	permanent magnet, typically 15 N

## Pictures

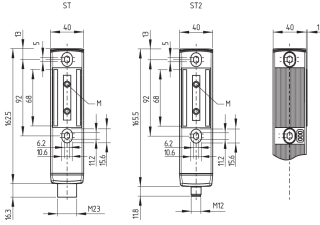
### Product picture (catalogue individual photo)



ID: kmzm1f35  
 | 1.9 MB | .jpg | 352.778 x 1222.375 mm - 1000 x 3465 px - 72 dpi  
 | 167.1 kB | .png | 74.083 x 256.469 mm - 210 x 727 px - 72 dpi  
 | 26.3 kB | .jpg | 35.631 x 123.472 mm - 101 x 350 px - 72 dpi

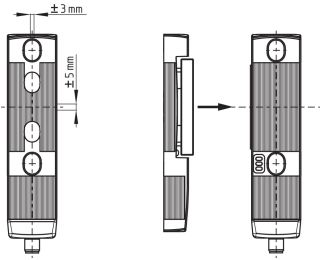
### Dimensional drawing basic component





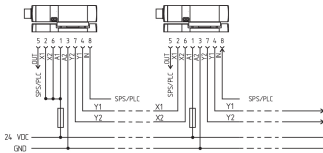
ID: 1mzm1g14  
 | 20.7 kB | .swf |  
 | 5.2 kB | .png | 74.083 x 50.8 mm - 210 x 144 px - 72 dpi  
 | 160.8 kB | .jpg | 352.778 x 242.358 mm - 1000 x 687 px - 72 dpi

### Dimensional drawing miscellaneous



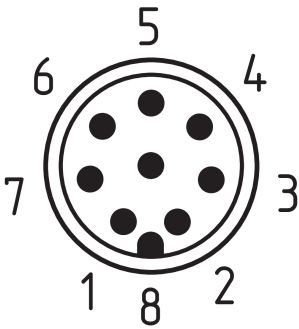
ID: 1mzm1g15  
 | 12.9 kB | .swf |  
 | 141.1 kB | .jpg | 352.778 x 283.986 mm - 1000 x 805 px - 72 dpi

### Wiring example



ID: kmzm1I03  
 | 37.0 kB | .cdr |  
 | 86.9 kB | .jpg | 352.778 x 161.572 mm - 1000 x 458 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

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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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