

## Datasheet - MZM 100 B ST2-1P2PW2RE-A

Solenoid interlock / MZM 100



Preferred typ



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

- Actuator 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  $\pm 5$  mm vertically and  $\pm 3$  mm horizontally
- Intelligent diagnosis
- Self-monitoring series-wiring of 31 sensors
- Patented
- Connector M12, 8-pole
- Power to lock

### Ordering details

Product type description	MZM 100 B ST2-1P2PW2RE-A
Article number	101211070
EAN code	4030661389080

### 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

Product name	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	II
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	100 %
Materials	
- Material of the housings	Plastic, glass-fibre reinforced thermoplastic
Housing coating	None
Weight	500 g
Guard locking monitored (Y/N)	No
Actuator monitored (Y/N)	Yes
Idle assignable pushbutton and LED (Y/N)	No
Reaction time	< 150 ms
Duration of risk	< 150 ms
Time to readiness	< 4000 ms
Recommended actuator	MZM 100-B1.1

## Mechanical data

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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
resistance 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)	Yes
electrically adjustable latching force	30 N ... 100 N
Permanent magnet	-
Clamping force $F_{max}$	
- typically	750 N
- guaranteed	500 N

## Ambient conditions

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Ambient temperature	
- Min. environmental temperature	-25 °C
- Max. environmental temperature	+55 °C
Storage and transport temperature	
- Min. Storage and transport temperature	-25 °C
- Max. Storage and transport temperature	+85 °C
Relative humidity	30% ... 95%
- non-condensing	
- non-icing	
Protection class	IP67 to IEC/EN 60529
Air clearances and creepage distances To IEC/EN 60664-1	
- Rated impulse withstand voltage $U_{imp}$	0,8 kV
- Overvoltage category	III

## Electrical data

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Number of auxiliary contacts	0 piece
Number of safety contacts	2 piece
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 VDC
- Max. supply voltage	26.4 VDC
Switch frequency	1 Hz
Rated insulation voltage $U_i$	32 VDC
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	$\leq 2$ A (if used in accordance with UL 508)
notice	Cable length and cable section alter the voltage drop depending on the output current

## Electrical data - Safety inputs

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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

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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

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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	The short-circuit proof diagnostic output OUT can be used for central visualisation or control tasks, e.g. in a PLC.
notice	The diagnostic output is not a safety-relevant output!

## Electrical data - Solenoid control IN

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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

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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

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Explosion protection categories for gases	None
Explosion protected category for dusts	None

## Dimensions

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Dimensions of the sensor	
- Width of sensor	40 mm
- Height of sensor	179 mm
- Length of sensor	40 mm

## Pin assignment

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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

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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

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Actuators must be ordered separately.

## Ordering code

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MZM 100

**Guard locking monitored**

**MZM 100 (1)-(2)(3)(4)-A**

(1)

ST

connector M23, (8 + 1-pole)

ST2

connector M12, 8-pole

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

## Documents

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**Operating instructions and Declaration of conformity (jp)** 627 kB, 29.11.2012

Code: mrl\_mzm100b\_jp

**Operating instructions and Declaration of conformity (fr)** 324 kB, 03.05.2013

Code: mrl\_mzm100b\_fr

**Operating instructions and Declaration of conformity (pl)** 321 kB, 05.12.2013

Code: mrl\_mzm100b\_pl

**Operating instructions and Declaration of conformity (it)** 319 kB, 29.11.2012

Code: mrl\_mzm100b\_it

**Operating instructions and Declaration of conformity (pt)** 372 kB, 05.09.2012

Code: mrl\_mzm100b\_pt

**Operating instructions and Declaration of conformity (en)** 316 kB, 20.11.2012

Code: mrl\_mzm100b\_en

**Operating instructions and Declaration of conformity (es)** 363 kB, 23.08.2012

Code: mrl\_mzm100b\_es

**Operating instructions and Declaration of conformity (de)** 321 kB, 20.11.2012

Code: mrl\_mzm100b\_de

**Operating instructions and Declaration of conformity (nl)** 315 kB, 03.05.2013

Code: mrl\_mzm100b\_nl

**Operating instructions and Declaration of conformity** (da) 360 kB, 23.08.2012

Code: mrl\_mzm100b\_da

**Wiring example** (de) 41 kB, 29.09.2009

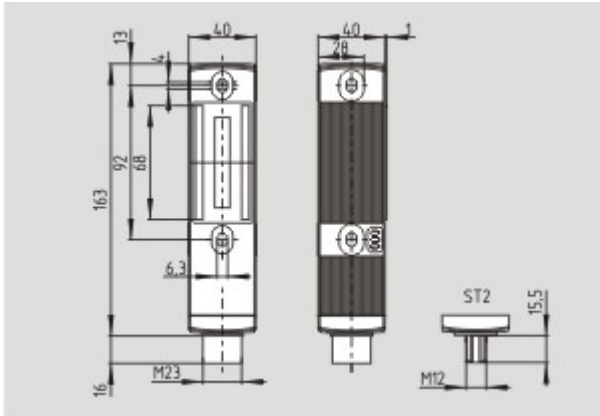
Code: kmzm1p01

**Wiring example** (99) 19 kB, 22.01.2009

Code: kmzm1i03

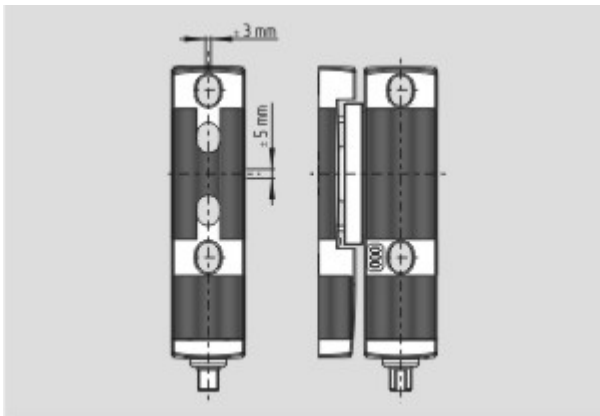
## Images

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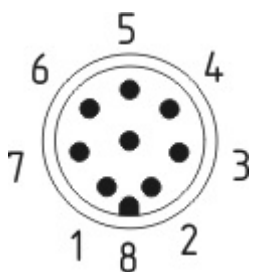
Dimensional drawing (basic component)

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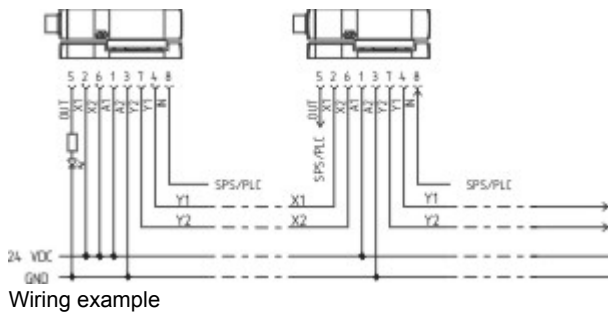
Dimensional drawing (miscellaneous)

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Contact arrangement

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## System components

### Actuator



#### 101204290 - MZM 100-B1.1

- actuator free from play
- i.e. 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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