

# SCHMERSAL Tech Briefs:

## MZM100 Magnetic Guard Locking



### Overview

The MZM100 is a combination of a magnetic locking interlock and the Schmersal patent Pulse-Echo electronic technology.

Pulse Echo is non-contact microprocessor-based with Integral self-monitoring of redundant PNP semiconductor safety rated outputs. This technology satisfies requirements of PLe to EN ISO 13849-1 and SIL 3 to IEC 61508. The MZM100 is a true safety rated magnetic guard locking device as defined by ISO 14119. This is due to the monitoring of both presence of the actuator and constant monitoring of the magnetic locking force.

Features for the MZM100 include options for conventional PNP diagnostics and serial diagnostics which can transmit detailed device information over various network protocols. Device status can also quickly and easily be identified via the LED's located on either side of the unit, including various errors, misalignment and door open/closed. Mounting through holes on all four sides of the MZM100 allows for numerous mounting capabilities. The shock absorber on the actuator adds increased durability as the device can also be used as an end-stop.

Latching options include a set 30N electronic force or an adjustable 30N to 100N electronic force. An integrated 15N permanent magnet can also be ordered to further increase the latching force.

The MZM can be ordered for guard locking applications to protect operators or for process locking applications (B variant) to protect materials and equipment during cycles.

The MZM100 can be wired in series with other Electronic Safety Devices without detriment to the safety rating:

### Features



Mounting through-hole design allows for versatile mounting with common hardware



3 color LEDs for signaling:  
Green = Power;  
Yellow = Lock Status  
Red = (Flashing) Diagnostic error



Special tool to adjust the magnetic latching force ranging from 30N to 100N



The serial diagnostic outputs can be transmitted over a network through the universal gateway. Protocols include:

PROFIBUS	DeviceNet
CC-Link	PROFINET I/O
EtherNet IP	CANopen
Modbus TCP	



### Unauthorized Opening

ISO 14119 has adapted the monitoring functions of the MZM100 into the safety requirements for magnetic locking devices. Unlike conventional keyed locking devices, a magnet actuator can be forcefully detached from the switch under a locked state without damage to the unit. In order to deter against such manipulation of the device, the MZM100 with guard lock monitoring will go into a set 10 minute reset procedure if it detects an unauthorized/violent separation during a locked state.



### Applications

- Material handling systems
- Packaging machinery
- Chemical processing equipment
- Robot cells
- Folding or brake presses
- Filter presses
- Punching machines
- Printing machines
- Injection molding
- Palletizers
- Textile machines
- Stamping machines
- Metal working equipment
- Wood working

### Available Literature



Electronic Safety Sensors and Solenoid Interlocks Catalog

### Ordering Details

#### MZM100①②-③④⑤-A

- ① Monitoring
 

blank	Guard locking monitored
B	Actuator monitored
- ② Connector Plug
 

ST	M23, (8+1)-pole
ST2	M12, 8-pole
- ③ Outputs
 

1P2P	Conventional output (door closed / guard locking monitored)
1P2PW	Conventional output (door locked / guard locking monitored)
1P2PW2	Conventional output (door locked / actuator monitored)
SD2P	Serial Diagnostic
- ④ Latching
 

blank	Without (guard lock monitored)
R	30N electrical latching
RE	30N - 100N adjustable
- ⑤ Permanent Magnet
 

blank	Without
M	15N

Regularly stocked models:

- MZM100ST-1P2PA
- MZM100ST-1P2PR-A
- MZM100ST2-1P2PW-A
- MZM100ST2-1P2PWW-A
- MZM100ST2-1P2PWREM-A
- MZM100BST2-1P2PW2REM-A
- MZM100BST-1P2PW2RM-A

### Accessories

- |               |                   |
|---------------|-------------------|
| MZM100-B1.1   | Actuator          |
| MS MZM100-W   | Mounting bracket  |
| MZM100 TARGET | Latch Adjust tool |

#### Connector cables

- 101209959** (M23, 5M)
- 101209958** (M23, 10M)
- 103011411 (M12, 2.5M)
- 103011412** (M12, 5M)
- 103011413** (M12, 10M)

#### Compatible Safety Controllers

- |                    |                    |
|--------------------|--------------------|
| <b>SRB-E-201LC</b> | <b>SRB-E-322ST</b> |
| <b>SRB-E-201ST</b> | <b>SRB-E-402ST</b> |
| <b>SRB-E-301ST</b> | <b>SRB-301MC</b>   |
| <b>SRB-E-212ST</b> |                    |

*Bold part numbers are regularly stocked*

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