AZM300

The one for all

■ Symmetrical mounting for right- and left-hinged doors

■ Only one version for hinged and sliding doors

■ Compact design

■ Can be used as end stop

■ 3 actuating directions

■ High tolerance to door misalignment

■ Holding force 1,000 N

■ Switchable latching force (25 N / 50 N)

■ PL e / SIL 3

■ Series-wiring without reduction of the safety level

■ More than 30,000 different codings

■ Serial diagnostic

■ Low power consumption
mounting situations

- Power to lock or power to unlock
- Actuator or solenoid interlock monitoring
- Hygiene-compliant design: resistant to many cleaning agents
- Protection class IP69K
- Manual release
- Easily mounted to standard extrusion guards
- LED status indication
- 200ms delayed locking to ensure door closure and reduce stress on locking mechanism
Protection against hazardous inertial movements

One of the unique features of the AZM300 is the innovative patented operating principle with rotating shaft and star handle. This operating principle offers the advantage that the safety guard is pulled into its end position upon closing the guard door and it is held shut. The solenoid interlock can be used as an end stop, which eliminates the use of a separate door stop. The integrated latching ensures that the closed condition of the door is maintained after the unlocking of the solenoid interlock and that the door cannot autonomously open itself. The latching force can be easily increased by turning the star handle by 180° from 25 N to 50 N.

For safe identification of the actuator an RFID sensor is used, featuring three different coding levels thus providing protection against defeat.

Fields of application

- Packaging machinery
- Wood-processing machinery
- Printing machines and presses
- Handling and assembly technology
- Special-purpose and customised machine construction
- Food-processing industry
- Pharmaceutical industry
Protecting humans and machines

The safety outputs of the AZM300Z solenoid interlock (solenoid interlock monitoring) are enabled when the safety guard is closed and the solenoid interlock is locked.

For applications where process protection is required, the AZM300B version (actuator monitoring) can be used. The safety outputs of this model are enabled when the safety guard is closed and can be locked. With this device locking is not required for operation, however the ability for a proper locking is still monitored.

Three actuating directions

- Actuation from the rearside
- Actuation from the slim side
- Actuation from front
Protection against defeating through individual coding

If interlocking devices are defeated, the machine is not operated under the conditions foreseen by the manufacturer. The result could be a significantly increased residual risk for the operator, possibly much higher than acceptable.

If the defeating incentive cannot be eliminated completely by modified or additional modes of operation, then the designer has only one element left. This is to make the defeating of interlocking devices more difficult or even impossible.

(Excerpt from prEN ISO 14119).

The basic version of the AZM300 accepts any suitable target. A second version only accepts the actuator that has been taught upon the first activation. And finally, a third variant is available; here, the teaching process can be repeated an arbitrary number of times. In this way, the user can choose the most suitable coding variant for the intended application as well as the desired degree of protection against defeating. This is enabled by integration of the RFID technology into the safety sensor technology.

Teaching actuators without additonal tools

The AZM300-I1 and AZM300-I2 versions with individual coding, no tool whatsoever is required for the actuator teaching procedure.

The teaching process starts automatically as soon as the device is switched on. The user must connect the solenoid interlock to the operating voltage and bring the actuator into the detection range. After approx. 10 seconds, a brief cyclic flash of the AZM300 LED indicates to remove the operating voltage. Next the operating voltage is switched back on and the actuator must be placed in the detection range once again to activate the actuator code.

For ordering suffix -I1, once the actuator coding process has been completed it is irreversible. For ordering suffix -I2, the teaching procedure for a new actuator can be repeated an unlimited number of times. A restart inhibit period of 10 minutes prevents the last-minute change of an actuator, thus increasing the protection against tampering.
Similar to all electronic safety sensors and solenoid interlocks from Schmersal, the AZM300 is also available with serial diagnostic. Solenoid interlocks with serial diagnostic feature have a serial input and output cable instead of the conventional diagnostic output. When solenoid interlocks are wired in series, the serial diagnostic cables are wired in series, in addition to the safety channels. The thus created "common diagnostic line" is wired to a serial Diagnostic Gateway for evaluation. Up to 31 different Schmersal electronic safety devices can be wired in series.

For the evaluation of the serial diagnostics line either the PROFIBUS-Gateway SD-I-DP-V0-2 or the Universal-Gateway SD-I-U-... are used. This serial diagnostic interface is integrated as a slave in an existing field bus system. In this way, the diagnostic signals can be evaluated by means of a PLC. In addition to the comprehensive diagnostic and status information, the solenoid interlock is locked or unlocked through the diagnostic cable. The device can be wired either directly to the machine through a special Y-adapter or in the control cabinet by means of terminal blocks. Because of the use of serial diagnostics, an input (diagnostic) and an output (locking signal) can be saved for each device in the PLC.
The AZM300 in detail

Legend
① High degree of protection against tampering because of the coded RFID sensor (also available with individual coding)
② Dampener for door stop - saves costs: no additional mounting parts required
③ Star handle - adjustable latching force - 25 N or 50 N
④ Mounting hole for M6 screws
⑤ Connector plug M12, 8-pole
⑥ Manual release
⑦ LED display

Features

Large actuator tolerances
- Actuator tolerance in longitudinal direction ± 3.5 mm, lateral direction ± 2.0 mm

Easy latching force adjustment
- The latching force can be increased from 25 N to 50 N simply by turning the star handle 180°.
- Position I: approx. 25 N, Position II: approx. 50 N

LED display
- Smart diagnostic by means of 3-color LEDs
- LED green: Power
- LED yellow: Status
- LED red: Fault
## Technical data

<table>
<thead>
<tr>
<th>Technical data</th>
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<tbody>
<tr>
<td>Holding force</td>
<td>1,000 N</td>
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<tr>
<td>Latching force</td>
<td>25 N / 50 N</td>
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<tr>
<td>Mechanical life</td>
<td>&gt; 1,000,000 operations</td>
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<tr>
<td>End stop</td>
<td>5 kg guard door, 0.5 m/s</td>
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<tr>
<td></td>
<td>≥ 50,000 operations</td>
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<tr>
<td>Protection class</td>
<td>IP66, IP67, IP69K</td>
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<tr>
<td>Dimensions</td>
<td>100 x 85 x 35 mm</td>
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<td>Supply voltage</td>
<td>24 VDC −15% / +10%</td>
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<tr>
<td>Electrical connection</td>
<td>Connector plug M12, 8-pole</td>
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<tr>
<td>Outputs</td>
<td>2 p-type safety outputs, 1 p-type diagnostic output or serial diagnostic</td>
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<tr>
<td>Diagnostic and status display</td>
<td>3 LEDs</td>
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<tr>
<td>Classification</td>
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### Technical data

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<tr>
<th>Solenoid monitored</th>
<th>Actuator monitored</th>
<th>Power to unlock</th>
<th>Power to lock</th>
<th>Universal coding</th>
<th>Individual coding</th>
<th>Diagnostic output</th>
<th>Serial diagnostic</th>
<th>Ordering details</th>
<th>Ordering code</th>
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Version 1.1 with individual coding upon request. Door detection monitoring featured on all versions.

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### Ordering details

- **Solenoid monitored: AZM300Z-ST-1P2P** 103001435
- **Actuator monitored: AZM300Z-ST-1P2P-A** 103001450
- **Power to unlock: AZM300Z-I2-ST-1P2P** 103001439
- **Power to lock: AZM300Z-I2-ST-1P2P-A** 103001454
- **Universal coding: AZM300Z-ST-SD2P** 103001436
- **Individual coding: AZM300Z-ST-SD2P-A** 103001451
- **Diagnostic output: AZM300Z-I2-ST-SD2P** 103001440
- **Serial diagnostic: AZM300Z-I2-ST-SD2P-A** 103001455
- **Solenoid monitored: AZM300B-ST-1P2P** 103001411
- **Actuator monitored: AZM300B-ST-1P2P-A** 103001423
- **Power to unlock: AZM300B-I2-ST-1P2P** 103001415
- **Power to lock: AZM300B-I2-ST-1P2P-A** 103001427
- **Universal coding: AZM300B-ST-SD2P** 103001412
- **Individual coding: AZM300B-ST-SD2P-A** 103001424
- **Diagnostic output: AZM300B-I2-ST-SD2P** 103001416
- **Serial diagnostic: AZM300B-I2-ST-SD2P-A** 103001428
### Electronic safety sensors

#### Sensor AZM300
- Thermoplastic enclosure
- 2 short-circuit proof, p-type safety outputs (24 VDC per 250 mA)
- Increased protection against tampering by optional individual coding of safety sensor and actuator
- Adjustable latching from 25N to 50N
- Safety and diagnostic signals can be wired in series
- Integral cross-wire, wire breakage and external voltage monitoring of the safety cables up to the control cabinet
- LED status indication
- Robust design using cleaning agent-resistant materials achieving protection class IP69K

#### Actuator AZM300
- Thermoplastic
- Solenoid actuator key
- Dampener for end stop
- RFID tag

#### Technical Data
- Standards: IEC 60947-5-3, IEC 60947-5-1, IEC 61508, EN ISO 13849-1
- Enclosure: glass-fibre reinforced thermoplastic
- Mode of operation: RFID
- Actuator: AZ/AZM300-B1
- Series-wiring: unlimited number of components, up to 200 M; max. 31 components for serial diagnosis
- Connection: Integrated connector M12 - Integrated connector: M12, 8-pole, A-coded
- Switching distances to IEC 60947-5-3:
  - Rates switching distance $S_n$: 2 mm
  - Assured switch-on point $S_{on}$: 1 mm
  - Assured switch-off point $S_{off}$: 20 mm
- Minimum distance between two sensors: 100 mm
- Ambient conditions:
  - Ambient temperature $T_u$: 0 °C ... +60 °C
- Storage and transport temperature: -10 °C ... +90 °C
- Protection class: IP66 / IP67 to EN 60529; IP69K to DIN 40050-9
- Mechanical Data:
  - Resistance to vibration: 10…150 Hz, amplitude 0.35 mm
  - Resistance to shock: 30 g / 11 ms
- Electrical data:
  - Switching frequency $f$: 0.5 Hz
  - Response time: 120 ms
  - Duration of risk: < 200 ms
  - Standby delay: ≤ 5 s
  - Rated Supply voltage $U_s$: 24 VDC -15% / +10% (PELV)
  - Power consumption with solenoid enabled: 0.25 A
  - Power consumption without load: 0.1 A
  - Required rated short-circuit current: 100 A

#### Ordering Details

**AZM300**

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
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**Actuator**

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<tbody>
<tr>
<td>① Z</td>
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<td>② B</td>
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<tr>
<td>③ I1</td>
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<td>④ I2</td>
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**Connector Cables**


**Mounting**

- MP-AZ/AZM300-1 Spacer plate
- MS-AZ/AZM300-B1 Mounting kit for actuator
Electronic Safety Sensor & Solenoid Interlock Product Family

Schmersal offers a wide selection of Electronic safety devices which are designed to help solve application challenges for industry while enhancing operator safety.

- Non-contact sensor principle
- 3 color LEDs indicate status, error codes
- Integrated dual monitoring microprocessor provides continuous internal function tests
- Highest level of safety: PLe per ISO 13849-1, SIL3 per IEC 62061
- Wired in series without detriment to safety level
- Serial Diagnostic option for connection to PLCs
- RFID allows for individual coding of actuators

The available features from the Schmersal electronic family provide our customers multiple options when selecting the appropriate product for any application.