

More than just a solenoid interlock

AZ/AZM300

AZM300



AZM300

AZ300

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SCHMERSAL

Safe solutions for your industry



AZ/AZM300

One for all

- Symmetrical mounting for right- and left-hinged doors
- Only one version for hinged and sliding doors
- Can be used as end stop
- 3 actuating directions
- High tolerance to door misalignment
- Holding force $F_{Zh}=1,150\text{ N}$ / $F_{max} = 1,500\text{ N}$
- Switchable latching force (25 N / 50 N)
- Individually coded version with coding level "High" according to ISO 14119
- PL e / SIL 3
- Series-wiring without reduction of the safety level
- 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 IP69
- Manual release, emergency exit
or emergency release
- Easily mounted to standard
extrusion guards





Protection against hazardous inertial movements

The innovative, patented operating principle with rotating shaft and star handle is one of the unique features of the AZ/AZM 300. The advantage is that the safety door, when in a close position can be pulled-to and held with practically no free-play. The solenoid interlock is therefore used as a door stop, which eliminates the need for the use of a separate door stop. The integrated locking ensures that the door remains in the locked position after the interlock is released and does not pop open on its own. The latching force can be increased from 25 N to 50 N simply by turning the star handle 180°.

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

For applications that do not require a solenoid interlock, the structurally identical safety switch AZ300 is available.

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



Printing machines and presses

Identical mounting for left and right hinged doors



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 variant are already enabled when the safety guard is closed. With this device, the solenoid interlock must not be imperatively locked.

Additionally designs with integrated emergency exit -T or with integrated emergency release -N are available.

Three actuating directions



Actuation from the rearside



Actuation from the slim side



Actuation from the front



Automatic teaching after the operating voltage is switched on



10-minute release during the teaching procedure of a replacement actuator

Protection against defeating through individual coding

If interlocking devices are tampered, the machine is no longer operated in accordance with the manufacturer's specifications. As a result, the operator could be exposed to a considerably higher risk.

If tampering cannot be excluded by using modified or additional operating modes, the machine builder can only take one more measure, i.e. making the tampering of the interlocking device more difficult either impossible. (Excerpt from ISO 14119)

The basic version of the AZ/AZM300 accepts any suitable target. A second version -I1 only accepts the actuator that has been taught upon first activation. With the third deliverable version -I2, the teaching process can be repeated any 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 tampering. With the integration of the RFID technology in the safety sensors, the individual encoded versions can reach the coding level high defined by ISO 14119.

Teaching actuators without additional tools

In the AZ/AZM300-I2 and AZ/AZM300-I1 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 the cycling flashes indicate 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, the thus executed allocation of safety switch and actuator 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.



Serial diagnostic

Similar to all electronic safety sensors and solenoid interlocks from Schmersal, the AZ/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 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.



Hygiene-sensitive applications



Packaging machinery



The AZ/AZM300 in detail

Key

- ① High degree of protection against tampering due to 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
- ⑧ Triangular (both sides) for installation of the emergency exit or the emergency release lever.
- ⑨ Lever for emergency exit or emergency release

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-colour LED's
- LED green: Power
- LED yellow: Status
- LED red: Fault



AZM300 with emergency exit or emergency release

Emergency exit (T)

Fitting and actuation **only from within** the hazardous area.

To activate the emergency exit, turn the red lever in the direction of the arrow to the end stop. The safety outputs switch off and the guard system can be opened. The blocked position is cancelled by turning the lever in the opposite direction. In the unlocked position, the guard system is secured against unintentional locking.

Emergency release (N)

Mounting and actuation **only outside** of the safety guard.

To activate the emergency release turn the red lever in the direction of the arrow to the end stop. The safety outputs switch off and the guard system can be opened. The lever is latched and cannot be returned to its original position. To cancel the blocking condition, the central mounting screw must be loosened to such extent that the lever can be turned back into its original position. The screw must then be re-tightened.



Ordering details AZM300

Series	Solenoid interlock monitored	Actuator monitored	Power to unlock	Power to lock	Standard coding	Individual coding -I1	Individual coding, re-teaching enabled -I2	Emergency exit	Emergency release	Diagnostic output	Serial diagnostic	Ordering details	Ordering code
AZM300	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>		AZM300Z-ST-1P2P	103001435
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>		AZM300Z-ST-1P2P-A	103001450
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	AZM300Z-ST-SD2P	103001436
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	AZM300Z-ST-SD2P-A	103001451
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	AZM300Z-ST-1P2P-T	103006865
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	AZM300Z-ST-SD2P-T	103008177
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AZM300Z-ST-1P2P-N	103006869
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>	AZM300Z-I1-ST-1P2P	103001437
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>	AZM300Z-I1-ST-1P2P-T	103010922
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	AZM300Z-I2-ST-1P2P	103001439
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	AZM300Z-I2-ST-1P2P-A	103001454
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	AZM300Z-I2-ST-1P2P-A-T	103010774
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	AZM300Z-I2-ST-1P2P-T	103006863
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	AZM300Z-I2-ST-1P2P-N	103006868
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	AZM300Z-I2-ST-SD2P	103001440
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	AZM300Z-I2-ST-SD2P-A	103001455
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	AZM300Z-I2-ST-SD2P-T	103008178
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	AZM300B-ST-1P2P	103001411
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	AZM300B-ST-1P2P-A	103001423
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	AZM300B-ST-1P2P-A-T	103010564
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	AZM300B-ST-1P2P-T	103006862
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	AZM300B-ST-1P2P-N	103006867
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	AZM300B-ST-SD2P	103001412
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	AZM300B-ST-SD2P-A	103001424
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	AZM300B-ST-SD2P-T	103008176
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>	AZM300B-I1-ST-1P2P-A	103001425
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>		<input type="checkbox"/>	AZM300B-I1-ST-1P2P-T	103010569
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	AZM300B-I2-ST-1P2P	103001415
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	AZM300B-I2-ST-1P2P-A	103001427
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	AZM300B-I2-ST-1P2P-A-T	103010555
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	AZM300B-I2-ST-SD2P	103001416
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	AZM300B-I2-ST-SD2P-A	103001428
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	AZM300B-I2-ST-SD2P-T	103008179	

ATEX versions and versions with integrated AS-Interface are under preparation.

Accessories		
Actuator	AZ/AZM300-B1	101218025
Mounting plate	MP-AZ/AZM300-1	103003172
Mounting set for actuator	MS-AZ/AZM300-B1	103002891
Connector M12, 8-pole, IP67, 2.5 m	A-K8P-M12-S-G-2.5M-BK-1-X-A-2	101209963
Connector M12, 8-pole, IP67, 5 m	A-K8P-M12-S-G-5M-BK-1-X-A-2	101209964
Connector M12, 8-pole, IP69K, 5 m	A-K8P-M12-S-G-5M-BK-1-X-A-4-69	101210560
Connector M12, 8-pole, IP69K, 10 m	A-K8P-M12-S-G-10M-BK-1-X-A-4-69	103001389

Ordering details AZ300

Series	Solenoid interlock monitored	Actuator monitored	Power to unlock	Power to lock	Standard coding	Individual coding -I1	Individual coding, re-teaching enabled -I2	Diagnostic output	Serial diagnostic	Ordering details	Ordering code
AZ300							■	■		AZ300-I2-ST-1P2P	103001466
							■		■	AZ300-I2-ST-SD2P	103001467
					■				■	AZ300-ST-1P2P	103001462
					■				■	AZ300-ST-SD2P	103001463
						■			■	AZ300-I1-ST-1P2P	103001464
						■			■	AZ300-I1-ST-SD2P	103001465

ATEX versions and versions with integrated AS-Interface are under preparation.

Technical data

Technical data	AZM300	AZ300
Holding force F_{Zh} :	1.150 N	–
Latching force:	25 N / 50 N	
Mechanical life:	> 1.000.000 operations	
Protection class:	IP66, IP67, IP69	
Dimensions:	100 x 85 x 35 mm	
Supply voltage:	24 VDC -15% / +10%	
Electrical connection:	Connector plug M12, 8-pole	
Outputs:	2 p-type safety outputs, 1 p-type diagnostic output or serial diagnostic output	
Diagnostic and status display:	3 LED's	
Classification:		
- of the interlocking function:	PL e / Cat. 4 / SIL 3	PL e / Cat. 4 / SIL 3
- of the guard locking function:	PL d / Cat. 2 / SIL 2	–
Approvals:	  	



The Schmersal Group

The privately-owned Schmersal Group has been developing and manufacturing products to enhance the safety at work for decades. The company was founded in 1945 and is represented by seven manufacturing sites on three continents and with its own companies and sales partners in more than 60 nations. In the demanding field of machine safety, the Schmersal Group is one of the international market and competence leaders. Based on a comprehensive product range, the company's approximately 2000 employees develop and design complete solutions for the safety of man and machine.

Customers of the Schmersal Group include „global players“ from mechanical engineering and plant manufacturing and machine users. They benefit from the comprehensive know-how of the company when it comes to the standard-compliant integration of safety technology in the production processes. Furthermore, Schmersal has special sector expertise in the application fields that demand high quality and special characteristics from safety switching systems. These include food production, the packaging industry, machine tool construction, lift engineering, heavy industry and the automotive industry.

Against the backdrop of increasing numbers of standards and directives, tec.nicum offers a comprehensive range of safety services as part of the Schmersal Group services division: Certified functional safety engineers advise customers on selecting suitable safety equipment, CE compliance assessments and risk assessment, on a world-wide basis.

Product ranges



Safe switching and monitoring

- Guard door monitoring (Safety switches)
- Command devices with safety function
- Tactile safety devices
- Optoelectronic safety devices

Safe signal processing

- Safety relay components
- Safety controllers
- Safety bus systems

Automation

- Position detection
- Command and signalling devices

Industries



- Elevators and Escalators
- Packaging
- Food
- Automotive
- Machine tools
- Heavy industry

Services



- Application support
- CE conformity assessment
- Risk assessment
- Upgrading / Retrofit
- Technical planning and implementation
- Training courses

Competences



- Machine safety
- Automation
- Explosion protection
- Hygienic design

Precautions have been taken to assure accuracy of the information in this catalogue. Typographic or pictorial errors that are brought to our attention will be corrected in subsequent issues.

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