Solenoid interlocks

AZM 160 range









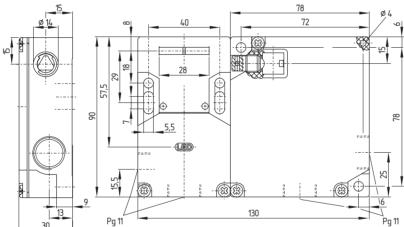
Features

- Thermoplastic enclosure
- Manual / Emergency release
- Long life
- Double insulated
- High holding force 2,000 N
- Adjustable ball latch up to 150 N
- 30 N latching force
- Wiring compartment
- Actuation on de-energisation or energisation
- 4 cable entries
- Mounting holes in base

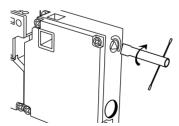
Voltage variants

- 24 VAC/DC
- 110 VAC
- 230 VAC

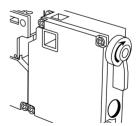
Always state required supply voltage when ordering



Manual release



Emergency release



- For manual release using M5 triangular key, available as accessory
- For maintenance, setting-up, etc.

Info

To safeguard up to Control Category 3 to EN 954-1, the Safety System Package No. 13 can be used. This comprises an AES 1235 guard door monitor, an AZS 2305 fail-safe delay timer, an AZM 160-23ypk, an AZM 160-B1S actuator, a Pg cable gland and safety screws with unidirectional screwdriver slot.

Approvals









СН

USA

CAN

- For cases of danger
- Fitting only within the guarded area

2. Solenoid interlocks

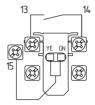
2.1 AZM 160 range

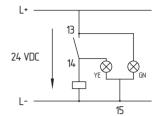


LED version

Protected against incorrect polarity and voltage spikes,

ordering suffix G24



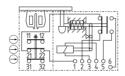


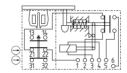
Info

Further variants not shown here are available on enquiry. The applicable ordering suffix is added at the end of the part number of the solenoid interlock.

- Available with 5 N latching force, ordering suffix -2254
- With M 16 x 1.5 cable entry, ordering suffix -M16
- With gold-plated contacts (0.3 µm), ordering suffix -1637

Actuation on de-energisation





1 NO 4 NC 2 NO 3 NC

Contacts/ Switch travel

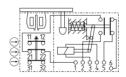


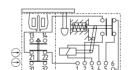
0 5,2 13-14 21-22 31-32

With manual release
With emergency release

AZM 160-14yrpk AZM 160-14yrpkn AZM 160-23yrpk AZM 160-23yrpkn

Actuation on energisation





1 NO 4 NC 2 NO 3 NC

Contacts/ Switch travel



0 5,2 13-14 21-22 31-32

With manual release
With emergency release

AZM 160-14yrpka AZM 160-14yrpkan

AZM 160-23yrpka AZM 160-23yrpkan

Notes

Circuit diagrams show de-energised condition with actuator inserted (0 in switch travel diagram). Interlocks with actuation on energisation may only be used in special cases after a thorough evaluation of the accident risk, since the guarding device can immediately be opened on failure of the electrical power supply or when the main switch is opened.

Actuators must be ordered separately.

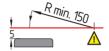
A selection of suitable actuators can be found in 2.3.



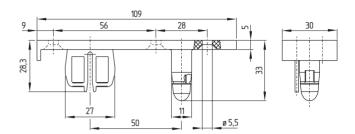
Straight actuator AZM 160-B1S

• On hinged guards, minimum actuating radius 150 mm





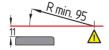
• The axis of the hinge should be 5 mm above the top edge of the solenoid interlock and in the same plane



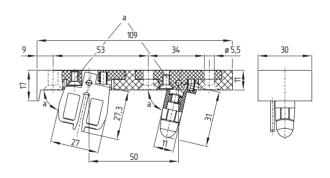
Adjustable actuator AZM 160-B2S

- Adjustable actuator for very small actuating radii.
- On hinged guards, minimum actuating radius 150 mm at 90° to the plane of the actuator
- Similarly, minimum actuating radius 95 mm in line with the plane of the actuator, adjustable using an hexagonal key wrench 2.5 mm A/F (a)
- Holding force 1,000 N





• The axis of the hinge should be 11 mm above the top edge of the solenoid interlock and in the same plane



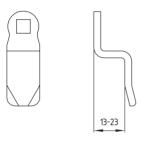


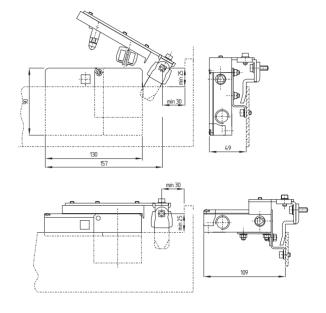




Adjustable actuator AZM 160-B7 with fastening mechanism

- To stabilize the holding of hoods and doors which can easily be distorted
- Suitable for use in switchgear cabinet
- For doors hinged on the right or left-hand side
- This actuator is supplied in kit form



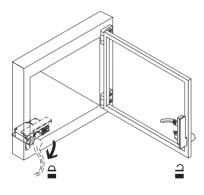


Note The fastening catch is not included in the included in delivery.

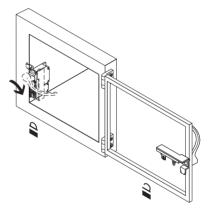
Fitting

• Inside the guarded area





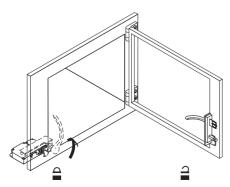
Vertical



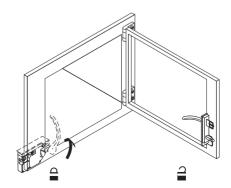
Fitting

• Outside the guarded area





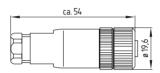
Vertical





Connector plug M 12 x 1 for AZM 160-ST with connector

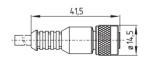




- Straight connector plug
- A-coding: Part number Series 713 B-coding: Part number Series 715

Connector plug M 12 x 1 for AZ 160-ST with connector





- Straight connector plug with pre-wired cable
- Cable 5 m long
- Conductors: 4 x 0.75 mm²
- A-coding: Part number Series 763 B-coding: Part number Series 766

2. Solenoid interlocks

2.4 Accessories



Tamperproof screws



Screw lengths Countersunk-head screws with unidirectional slots

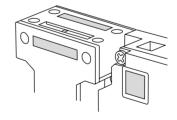
• M 5 x 12, Id. No.: 402 530 3000 • M 5 x 16, Id. No.: 402 530 3001 • M 5 x 20, Id. No.: 402 530 3002

Supplied in sets of 2 screws

- To mount the actuator
- Higher protection against tampering with interlock
- Protect against unauthorised removal of actuator
- Available in various lengths

Slot sealing plug AZ 15/16-1476

- To cover unused actuator slots
- For protection against the ingress of course dirt
- Simple clip-in fitting
- Quantity required: 3 per interlocking device



2. Solenoid interlocks

2.35 Technical data







AZM 160i					
EC/EN 60947-5-1/DIN VDE0660-200; EN 1098; BG-GS-ET-19		AZM 160	AZM 160-ST	AZM 161	AZM 170
Standards:		A∠M 160i	AZM 1601-S1		
Actuation and latching both: Stainless stead 1.4301	Ctandarda	IFC/FN 60047 F 1/DIN	LVDE0660, 200, EN 100	0. DC CC ET 10	AZW 170 SK
Actuator and latching both: Stainless steel 1.4301 Protection class: IP 65 IP 67					
Protection class:	Enclosure material:	Giass-nore reinforced thermopiastic, self-extinguishing			
Protection class:	Actuator and latching holts	Stainless steel 1 4301			
to IEC/FN 60529/DIN VDE 0470-1 Contact material: Silver Contact type: Chargeover with double break Zb or 2 NC or 3 NC or 4 NC contacts. with galvanically separated contact bridges Switching system: □IEC 60947-5-1; □ BG-GS-IET-19; slow action. NC contacts with positive break Switching system: □IEC 60947-5-1; □ BG-GS-IET-19; slow action. NC contacts with positive break Termination: Screw terminals for Connector M 12 x 1, Screw terminals or Cut clamp terminals max. 2.6 mm² cables four pole cage clamps (IDC method) (including conductor max. 1.5 mm² 0,75 1.0 mm² flexible ferrules) (incl. conductor Ordering suffix SK: Screw ferrules) terminals 1.5 mm² flexible ferrules) (incl. conductor Ordering suffix SK: Screw withs and voltage Ump: 4 kV Rated insulation voltage Ump: 4 kV Rated insulation voltage Ump: AC-15 AC-15; DC-13 AC-15 Rated operating current voltage I ₂ /U ₂ : 2A/230 V 2.5 A/24 VDC; 4 A/230 V Max. fuse rating: 6 A (slow blow) Positive break fravel: 8 mm				ID 67	
Contact material: Silver Contact type: Changeover with double break 2b or 2 NG or 3 NG or 3 NG or 4 NG contacts, with galvanically separated contact bridges Switching system: © IEC 60947-5-1; Ø BG-GS-ET-19; slow action, NC contacts with positive break Termination: Screw terminals for max. 2.5 mm² cables four pole cage clamps (IDC method) Image:	ו וטנסטנוטוז טומסס.		VDE 0470-1	11 07	
Contact type:	Contact material:		VDE 0470 1		
Or 2 NC or 3 NC or 4 NC contacts, with galvanically separated contact bridges					
Switching system:	oontaot typo.				
Switching system: ⊕ IEC 60947-5-1;		·			
Termination: Screw terminals for max. 2.5 mm² cables four pole cage clamps (IDC method) Cut clamp terminals or max. 1.5 mm² (IDC method) Cut clamp terminals or max. 1.5 mm² (IDC method) Cut clamp terminals or max. 1.5 mm² (IDC method) Cut clamp terminals or max. 1.5 mm² (IDC method) Cut clamp terminals or max. 1.5 mm² (IDC method) Cut clamp terminals or max. 1.5 mm² (IDC method) Cut clamp terminals or max. 1.5 mm² (IDC method) Cut clamp terminals or max. 1.5 mm² (IDC method) Cut clamp terminals or max. 1.5 mm² (IDC method) Cut clamp terminals or max. 1.5 mm² (IDC method) Cut clamp terminals or max. 1.5 mm² (IDC method) Cut clamp terminals or max. 1.5 mm² (IDC method) Cut clamp terminals or max. 1.5 mm² (IDC method) Cut clamp terminals or max. 1.5 mm² (IDC method) Cut clamp terminals or max. 1.5 mm² (IDC method) Cut clamp terminals or max. 1.5 mm² (IDC method) Cut clamp terminals or terminals or max. 1.5 mm² (IDC method) Cut clamp terminals of the streng (IDC method) Cut clamp terminals or te		man garvarnoan, copar	atou oomaat smagaa		
max. 2.5 mm² cables four pole cage clamps (IDC method)	Switching system:	→ IEC 60947-5-1; ® BG-GS-ET-19; slow action, NC contacts with positive break			
(including conductor max. 1.5 mm² 0.75 1.0 mm² flexible	Termination:	Screw terminals for	Connector M 12 x 1,	Screw terminals or	Cut clamp terminals
Familian		max. 2.5 mm ² cables	four pole	cage clamps	(IDC method)
Rated impulse		(including conductor		max. 1.5 mm ²	0.75 1.0 mm ² flexible
Rated impulse 4 kV Rated insulation voltage U _{imp} : 4 kV Thermal test current rating I _{th} : 10 A Utilisation category: AC-15 AC-15; DC-13 AC-15 Rated operating 2.5 A/24 VDC; 4 A/230 V 4 A/230 VAC Max. fuse rating: 6 A (slow blow) 8.8 mm 11 mm Positive break travel: 8 mm 8.8 mm 11 mm Positive break force: 10 N for each NC contact fitted (depending on the setting of the ball latch) 17 N for each NC contact fitted Solenoid duty rating: Continuous operation 24 VAC/D 24 VAC/D Rated control voltage U _S : 24 VAC/DC 24 VAC/D or 110 VAC/DC, 50 Hz or 230 VAC/DC, 50/60 Hz Consumption: Max. 10 W Ambient temperature: -25 °C + 60 °C Holding force F _{max} : 2,000 N 1,000 N Holding force of integral ball latch: 0 150 N (adjustable) None Latching force:		ferrules)		(incl. conductor	Ordering suffix SK: Screw
withstand voltage Ump: 4 kV Rated insulation voltage Uj: 250 V Thermal test current rating Igh: 10 A Utilisation category: AC-15 AC-15; DC-13 AC-15 Rated operating 2.5 A/24 VDC; 4 A/230 V 4 A/230 VAC Max. fuse rating: 6 A (slow blow) 4 A/230 VAC 4 A/230 VAC Max. fuse rating: 6 A (slow blow) 8.8 mm 11 mm Positive break travel: 8 mm 8.8 mm 11 mm Positive break force: 10 N for each NC contact fitted 17 N for each NC (depending on the setting of the ball latch) contact fitted Solenoid duty rating: Continuous operation 24 VAC/D Rated control voltage Us: 24 VAC/DC 24 VAC/D or 110 VAC/DC, 50 Hz or 110 VAC/DC, 50/60 Hz Consumption: Max. 10 W Ambient temperature: -25 °C + 60 °C Mechanical life: 2,000 N 1,000 N Holding force F _{max} : 2,000 N 1,000 N Holding force of integral ball latch: 0 150 N (adjustable) None				ferrules)	terminals 1.5 mm ² flexible
Rated insulation voltage U; 250 V Thermal test current rating I _{th} : 10 A Utilisation category: AC-15 AC-15; DC-13 AC-15 Rated operating Current/voltage I _e /U _e : 2 A/230 V 2.5 A/24 VDC; 4 A/230 V Max. fuse rating: 6 A (slow blow) 4 A/230 VAC The management of the contact fitted 11 mm Positive break travel: 8 mm 8.8 mm 11 mm Positive break force: 10 N for each NC contact fitted 17 N for each NC contact fitted Glepending on the setting of the ball latch) contact fitted Solenoid duty rating: Continuous operation 24 VAC/D Rated control voltage U _S : 24 VAC/DC 24 VAC/D or 110 VAC/DC, 50 Hz or 230 VAC/DC, 50/60 Hz consumption: Max. 10 W Ambient temperature: - 25 °C + 60 °C Mechanical life: > 1 million operations Holding force F _{max} : 2,000 N 1,000 N Holding force of integral ball latch: 0 150 N (adjustable) None	Rated impulse				
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Utilisation category: AC-15 AC-15; DC-13 AC-15 Rated operating current/voltage I _e /U _e : 2.5 A/24 VDC; 4 A/230 V Current/voltage I _e /U _e : 2 A/230 V 2.5 A/24 VDC; 4 A/230 V Max. fuse rating: 6 A (slow blow) 8.8 mm 11 mm Positive break travel: 8 mm 8.8 mm 11 mm Positive break force: 10 N for each NC contact fitted contact fitted Solenoid duty rating: Continuous operation 24 VAC/D Rated control voltage U _S : 24 VAC/DC 24 VAC/D or 110 VAC/DC, 50 Hz or 110 VAC/DC, 50/60 Hz or 230 VAC/DC, 50 Hz or 230 VAC/DC, 50/60 Hz Consumption: Max. 10 W Ambient temperature: -25 °C + 60 °C Mechanical life: > 1 million operations Holding force F _{max} : 2,000 N 1,000 N Holding force of integral ball latch: 0 150 N (adjustable) None Latching force: 30 N for Ordering Suffix r	Rated insulation voltage Ui:	250 V			
Rated operating current/voltage I _g /U _e : 2 A/230 V 2.5 A/24 VDC; 4 A/230 V Max. fuse rating: 6 A (slow blow) Positive break travel: 8 mm 8.8 mm 11 mm Positive break force: 10 N for each NC contact fitted 17 N for each NC Contact fitted 17 N for each NC Contact fitted Solenoid duty rating: Continuous operation Rated control voltage U _S : 24 VAC/DC 24 VAC/D or 110 VAC/DC, 50 Hz or 110 VAC/DC, 50/60 Hz Or 230 VAC/DC, 50 Hz or 230 VAC/DC, 50/60 Hz Consumption: Max. 10 W Ambient temperature: -25 °C + 60 °C Mechanical life: > 1 million operations Holding force F _{max} : 2,000 N 1,000 N Holding force of integral ball latch: 0 150 N (adjustable) None Latching force: 30 N for Ordering Suffix r	Thermal test current rating I_{th} :	10 A			
current/voltage I _e /U _e : 2 A/230 V 2.5 A/24 VDC; 4 A/230 VAC Max. fuse rating: 6 A (slow blow) Positive break travel: 8 mm 11 mm Positive break force: 10 N for each NC contact fitted 17 N for each NC Continuous operation Rated control voltage U _S : 24 VAC/DC 24 VAC/D or 110 VAC/DC, 50 Hz or 110 VAC/DC, 50/60 Hz or 230 VAC/DC, 50/60 Hz consumption: Max. 10 W Ambient temperature: - 25 °C + 60 °C Mechanical life: > 1 million operations 1,000 N Holding force of integral ball latch: 0 150 N (adjustable) None Latching force: 30 N for Ordering Suffix r	Utilisation category:	AC-15		AC-15; DC-13	AC-15
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Max. fuse rating: 6 A (slow blow) Positive break travel: 8 mm 8.8 mm 11 mm Positive break force: 10 N for each NC contact fitted (depending on the setting of the ball latch) Contact fitted Solenoid duty rating: Continuous operation Rated control voltage Us: 24 VAC/DC or 110 VAC/DC, 50 Hz or 230 VAC/DC, 50 Hz or 230 VAC/DC, 50 Hz or 230 VAC/DC, 50 Hz Consumption: Max. 10 W Ambient temperature: - 25 °C + 60 °C Mechanical life: > 1 million operations Holding force F _{max} : 2,000 N Holding force of integral ball latch: 0 150 N (adjustable) None Latching force: 30 N for Ordering Suffix r	current/voltage I _e /U _e :	2 A/230 V		2.5 A/24 VDC;	4 A/230 V
Positive break travel: 8 mm 8.8 mm 11 mm Positive break force: 10 N for each NC contact fitted (depending on the setting of the ball latch) contact fitted Solenoid duty rating: Continuous operation Rated control voltage Us: 24 VAC/DC 24 VAC/DC 24 VAC/DC or 110 VAC/DC, 50 Hz or 110 VAC/DC, 50 Hz or 230 VAC/DC, 50/60 Hz or 230 VAC/DC, 50 Hz or 230 VAC/DC, 50/60 Hz Consumption: Max. 10 W Ambient temperature: -25 °C + 60 °C Mechanical life: > 1 million operations Holding force F _{max.} : 2,000 N 1,000 N Holding force of integral ball latch: 0 150 N (adjustable) None Latching force: 30 N for Ordering Suffix r				4 A/230 VAC	
Positive break force: 10 N for each NC contact fitted (depending on the setting of the ball latch) contact fitted Solenoid duty rating: Continuous operation Rated control voltage Us: 24 VAC/DC 24 VAC/DC or 110 VAC/DC, 50 Hz or 230 VAC/DC, 50 Hz or 230 VAC/DC, 50 Hz Consumption: Max. 10 W Ambient temperature: -25 °C + 60 °C Mechanical life: > 1 million operations Holding force F _{max} : 2,000 N 1,000 N Holding force of integral ball latch: 0 150 N (adjustable) None Latching force: 30 N for Ordering Suffix r	Max. fuse rating:	6 A (slow blow)			
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Solenoid duty rating: Rated control voltage Us: 24 VAC/DC or 110 VAC/DC, 50 Hz or 230 VAC/DC, 50 Hz or 230 VAC/DC, 50 Hz or 230 VAC/DC, 50 Hz Consumption: Max. 10 W Ambient temperature: - 25 °C + 60 °C Mechanical life: > 1 million operations Holding force F _{max} : 2,000 N Holding force of integral ball latch: 0 150 N (adjustable) None Latching force: 30 N for Ordering Suffix r	Positive break force:	10 N for each NC cont	act fitted		17 N for each NC
Rated control voltage Us: 24 VAC/DC or 110 VAC/DC, 50 Hz or 230 VAC/DC, 50/60 Hz Consumption: Max. 10 W Ambient temperature: - 25 °C + 60 °C Mechanical life: > 1 million operations Holding force F _{max} : 2,000 N 1,000 N Holding force of integral ball latch: 0 150 N (adjustable) None Latching force: 30 N for Ordering Suffix r		(depending on the sett	ing of the ball latch)		contact fitted
or 110 VAC/DC, 50 Hz or 230 VAC/DC, 50 Hz or 230 VAC/DC, 50 Hz Consumption: Max. 10 W Ambient temperature: - 25 °C + 60 °C Mechanical life: > 1 million operations Holding force F _{max} .: 2,000 N Holding force of integral ball latch: 0 150 N (adjustable) None Latching force: 30 N for Ordering Suffix r	Solenoid duty rating:	Continuous operation			
or 230 VAC/DC, 50 Hz Consumption: Max. 10 W Ambient temperature: - 25 °C + 60 °C Mechanical life: > 1 million operations Holding force F _{max} : Holding force of integral ball latch: 0 150 N (adjustable) None Latching force: 30 N for Ordering Suffix r	Rated control voltage U _S :	24 VAC/DC			24 VAC/D
Consumption: Max. 10 W Ambient temperature: -25 °C + 60 °C Mechanical life: > 1 million operations Holding force F _{max} .: 2,000 N 1,000 N Holding force of integral ball latch: 0 150 N (adjustable) None Latching force: 30 N for Ordering Suffix r		or 110 VAC/DC, 50 Hz			or 110 VAC/DC, 50/60 Hz
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Mechanical life: > 1 million operations Holding force F _{max} : 2,000 N 1,000 N Holding force of integral ball latch: 0 150 N (adjustable) None Latching force: 30 N for Ordering Suffix r	Consumption:				
Holding force F _{max.} : 2,000 N 1,000 N Holding force of integral ball latch: 0 150 N (adjustable) None Latching force: 30 N for Ordering Suffix r		– 25 °C + 60 °C			
Holding force of integral ball latch: 0 150 N (adjustable) None Latching force: 30 N for Ordering Suffix r	Mechanical life:	> 1 million operations			
Holding force of integral ball latch: 0 150 N (adjustable) None Latching force: 30 N for Ordering Suffix r	Holding force F _{max} :	2.000 N			1.000 N
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