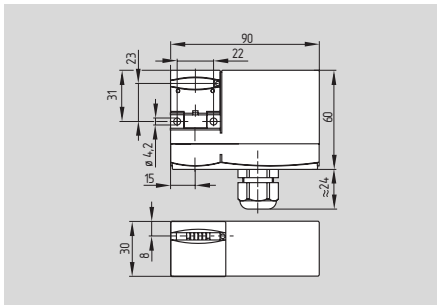


Solenoid interlocks

AZM 170



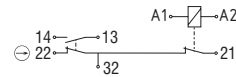
- Thermoplastic enclosure
- Compact design
- Manual release
- Long life
- Double insulated □
- High holding force 1000 N
- 30 N latching force
- Insulation displacement connector
- Power to unlock/power to lock principle
- 1 cable entry M16 x 1.5
- Individual coding available on request

Technical data

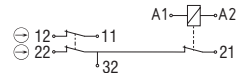
Standards:	IEC/EN 60947-5-1 BG-GS-ET-19
Enclosure:	glass-fibre reinforced thermoplastic, self-extinguishing
Actuator and locking bolt:	stainless steel 1.4301
Protection class:	IP 67 to EN 60529
Contact material:	silver
Contact type:	change-over contact with double break, type Zb or 2 NC contacts, with galvanically separated contact bridges
Switching system:	⊖ IEC 60947-5-1 slow action, NC contacts with positive break
Connection:	cut clamp terminals (IDC method)
Cable section:	0.75 – 1.0 mm ² , flexible
U _{imp} :	4 kV
U _i :	250 V
I _{the} :	10 A
Utilisation category:	AC-15, DC-13
I _e /U _e :	4 A / 230 VAC 4 A / 24 VDC
Max. fuse rating:	6 A gG D-fuse
Positive break travel:	11 mm
Positive break force:	6 N for each NC contact fitted
Magnet:	100% ED
U _s :	24 VAC/DC 110 VAC, 50/60 Hz 230 VAC, 50/60 Hz
Power consumption:	max. 10 W
Ambient temperature:	- 25 °C ... + 60 °C
Mechanical life:	> 1 million operations
F _{max} :	1000 N
Latching force:	30 N for ordering suffix r

Contact variants

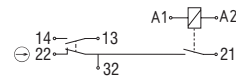
Power to unlock 1 NO / 1 NC



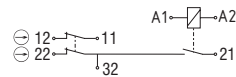
2 NC



Power to lock 1 NO / 1 NC

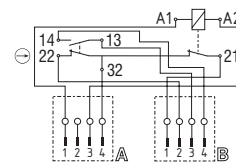


2 NC contacts

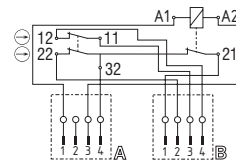


Connector

Power to unlock 1 NO / 1 NC



2 NC



Approvals



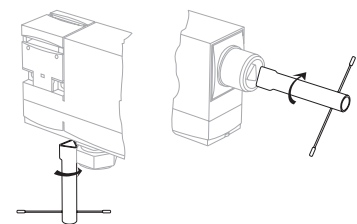
Ordering details

AZM 170①-②z③k④-⑤-⑥- ⑦

No.	Replace	Description
①		Cut clamp
	SK	Screw terminals
②	11	1NO/1NC
	02	2NC
③		Latching force 5 N
	r	Latching force 30 N
④		Power to unlock
	a	Power to lock
⑤		Cable gland
	ST	Connector M 12 x 1
	ST-2431	Connector M 12 x 1, with individual solenoid monitoring

No.	Replace	Description
⑥	24 VAC/DC	Us 24 VAC/DC
	110 VAC	Us 110 VAC
	230 VAC	Us 230 VAC
⑦		Manual release
	2197	Manual release from side
	1637	Gold-plated contacts

Note



Manual release (left)

- For manual release using M5 triangular key, available as accessory
- Included in standard version

Manual release from side (right)

- Additional manual release on side, ordering suffix -2197
- Only available for power to unlock principle

Solenoid interlocks

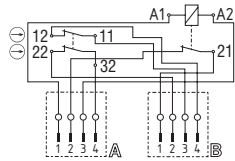
System components

Connector

Power to unlock

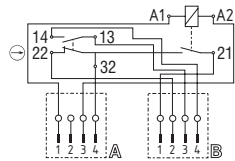
2 NC

with individual solenoid monitoring
(Ordering suffix -ST-2431)

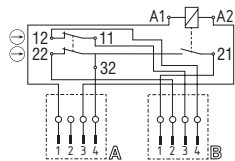


Power to lock

1 NO / 1 NC

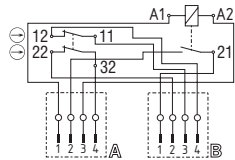


2 NC

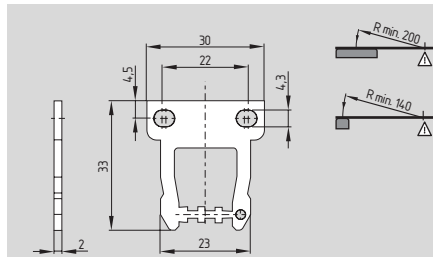


2 NC

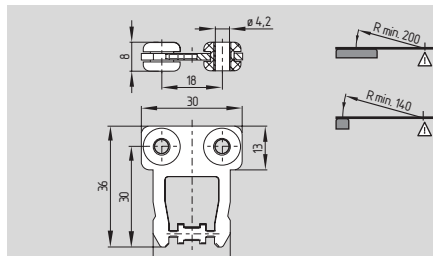
with individual solenoid monitoring
(Ordering suffix -ST-2431)



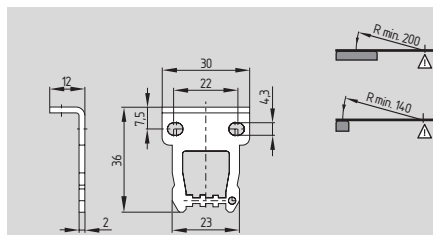
System components



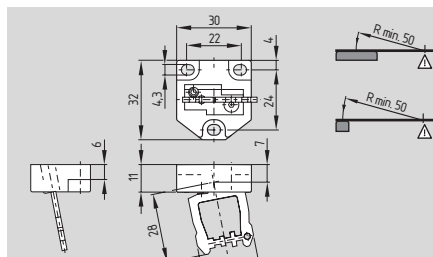
Straight actuator AZ 17/170-B1



AZ 17/170-B1-2245 with rubber mounting

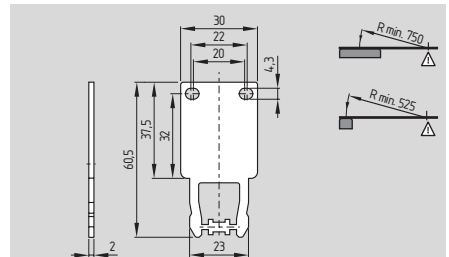


Angled actuator AZ 17/170-B5

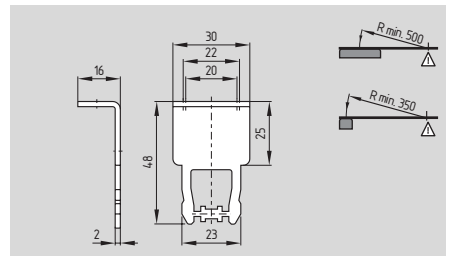


Flexible actuator AZM 170-B6

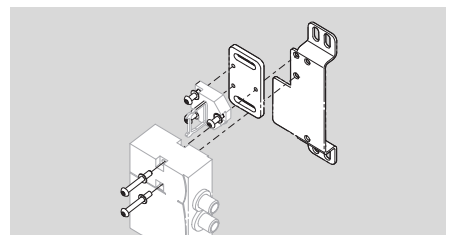
System components



Long straight actuator AZ 17/170-B11



Long angled actuator AZ 17/170-B15



Mounting set MS AZM 170



Connector plug M 12 x 1

Note

The contact 21-23 is actuated when A1-A2 is energised or de-energised. Circuit diagrams show de-energised condition with actuator inserted (0 in switch travel diagram).

Interlocks with power to lock principle 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 and connector plugs must be ordered separately.

Ordering details

Straight actuator
with rubber mounting
Angled actuator
Flexible actuator

AZ 17/170-B1
AZ 17/170-B1-2245
AZ 17/170-B5
AZM 170-B6

Ordering details

Long straight actuator
Long angled actuator

AZ 17/170-B11
AZ 17/170-B15

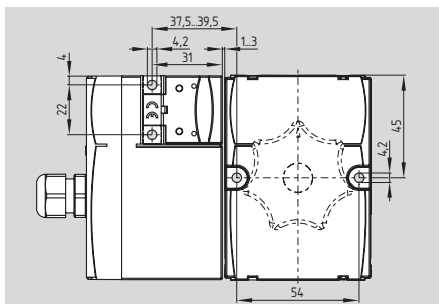
Mounting set
Connector plug M 12 x 1

MS AZM 170

A-Coding: **1093038**
B-Coding: **1148411**
Connector plug M 12 x 1 (with cable)
A-Coding: **1148412**
B-Coding: **1148413**
Tamperproof screws with unidirectional slots (without drawing) M4 x 8 **1147463**
(Quantity 2 pcs)

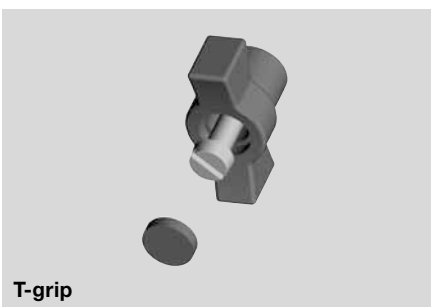
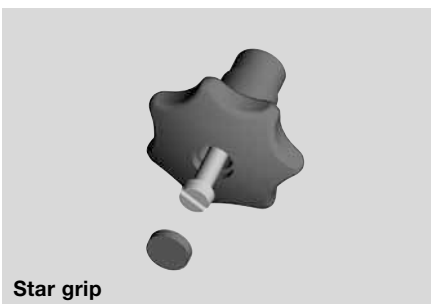
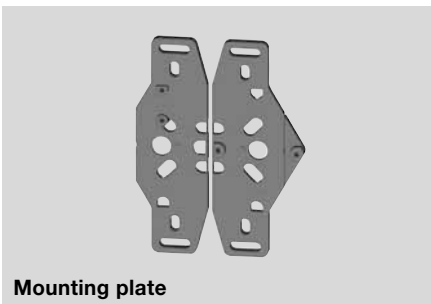
Solenoid interlocks

Actuator AZM 170-B25



- Door-handle actuator for solenoid interlocks AZM 170-...zrk (latching)
- Ergonomic operation
- No supplementary door-handle required
- No protruding actuator
- Simple mounting
- Several door-handles available
- Possibility to mount the own handles using a default square screw (8mm)
- Mounting plate for fitting to standard profiles optionally available

System components



Note

The safety switch or solenoid interlock is not included in delivery and must be ordered separately.

Please note that you need a device with latching (r).

The technical data of the the AZM 170-...zrk solenoid interlock can be found in the main catalogue page 1-18 or in the online catalogue at www.products.schmersal.com.

Approvals



Ordering details

AZM 170-B25-①-②

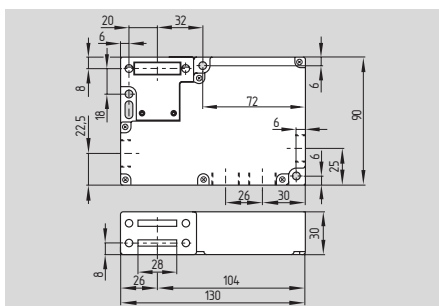
No.	Replace	Description
①	L	Door hinge left
	R	Door hinge right (View directed towards the inside of the hazardous area)
②	G0	Actuator without handle
	G1	Star grip
	G2	T-grip

Ordering details

Mounting plate	MP AZ 17/170-B25
Star grip	G1
T-grip	G2

Solenoid interlocks

AZM 161

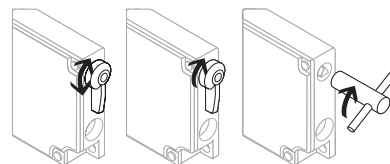


- Thermoplastic enclosure
- 6 contacts
- Manual release, emergency exit or emergency release
- Long life
- Double insulated □
- High holding force 2000 N
- Large wiring compartment
- Power to unlock/power to lock principle
- Screw terminals or cage clamps
- 3 or 4 cable entries M16 x 1.5
- Actuating play 5.5 mm in direction of actuation
- Individual coding available on request
- AS-Interface Safety at Work available, see chapter 5

Technical data

Standards:	IEC/EN 60947-5-1 BG-GS-ET-19
Enclosure:	glass-fibre reinforced thermoplastic, self-extinguishing
Actuator and locking bolt:	stainless steel 1.4301
Protection class:	IP 67 to EN 60529
Contact material:	silver
Contact type:	change-over contact with double break, type Zb, with galvanically separated contact bridges
Switching system:	⊖ IEC 60947-5-1 slow action, NC contacts with positive break
Connection:	screw terminals or cage clamps
Cable section:	max. 1.5 mm ² (incl. conductor ferrules)
Cable entry:	AZM 161-24, -33: 3 x M16 x 1.5 AZM 161-12/12: 4 x M16 x 1.5
U _{imp} :	4 kV
U _i :	250 V
I _{the} :	10 A
Utilisation category:	AC-15, DC-13
I _e /U _e :	4 A / 230 VAC 2.5 A / 24 VDC
Max. fuse rating:	6 A gG D-fuse
Positive break travel:	AZM 161-24, -33: 8.8 mm AZM 161-12/12: 9.5 mm
Positive break force:	10 N for each NC contact fitted
U _s :	24 VAC/DC 110/230 VAC, 50/60Hz
Magnet:	100% ED
Power consumption:	max. 10 W
Ambient temperature:	-25 °C ... +60 °C
Mechanical life:	> 1 million operations
F _{max} :	2000 N
Latching force:	30 N for ordering suffix r

Note



Emergency exit (left)

- For cases of danger
- Actuation from within the hazardous area
- Ordering suffix T

Emergency release (middle)

- For cases of danger
- Mounting only outside the guarded area
- Ordering suffix N

Manual release (right)

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

Approvals



Ordering details

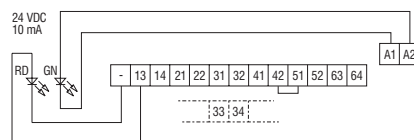
AZM 161 ①-②③k④-⑤-⑥-⑦

No.	Replace	Description
①	SK	Screw terminals
	CC	Cage clamp
	ST	Connector M 12 x 1
②	12/12	2NO/4NC (For connector version, please use order code 11/01)
	24	2NO/4NC
	33	3NO/3NC
③		Latching force 5 N
	r	Latching force 30 N

Ordering details

No.	Replace	Description
④		Power to unlock
	a	Power to lock
⑤		Manual release
	N	Emergency release
⑥		Without LED
	G	With LED (only for -24, -33)
⑦	024	Us 24 VAC/DC
	110/230	Us 110 / 230 VAC

Note



LED version:

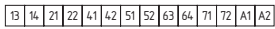
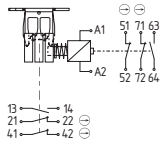
Ordering suffix G,
limited terminating space 0.75 mm²
Protected against incorrect polarity and voltage spikes.

Actuators must be ordered separately.

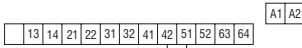
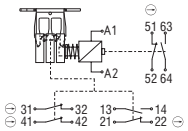
Solenoid interlocks

Contact variants

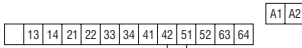
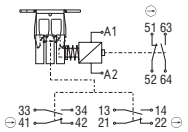
Power to unlock 2 NO / 4 NC (12/12)



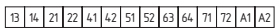
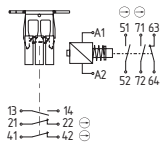
2 NO / 4 NC



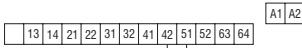
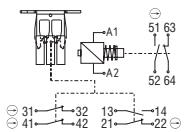
3 NO / 3 NC



Power to lock 2 NO / 4 NC (12/12)

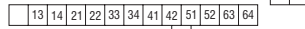
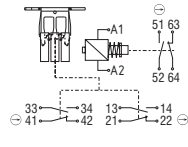


2 NO / 4 NC

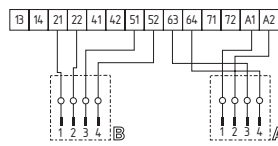
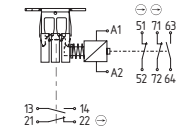


Contact variants

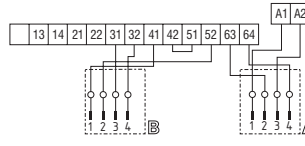
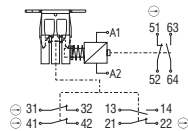
Power to lock 3 NO / 3 NC



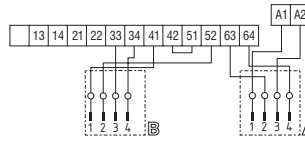
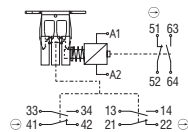
Connector 2 NO / 4 NC (11/01)



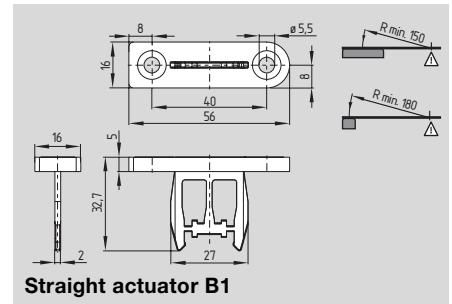
1 NO / 3 NC



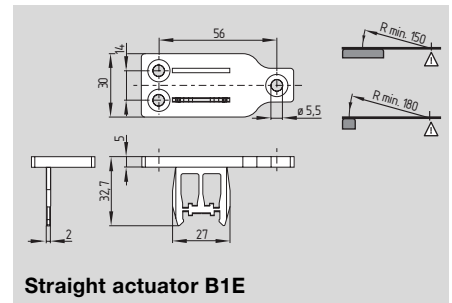
2 NO / 2 NC



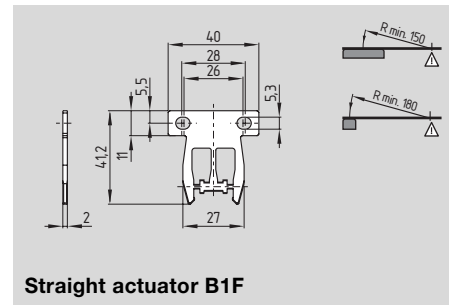
System components



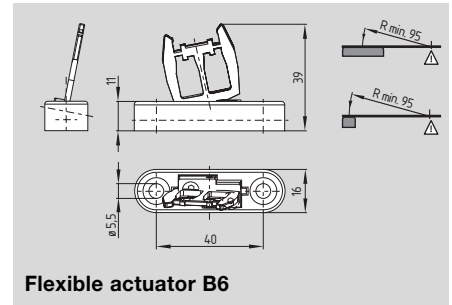
Straight actuator B1



Straight actuator B1E



Straight actuator B1F



Flexible actuator B6

Note

The contacts 51-52 and 63-64 are actuated when the solenoid A1-A2 is energised or de-energised.
Contact 51-52 must be integrated in the safety circuit.
Contact variants show de-energised condition with actuator inserted (0 in switch travel diagram).

Note

Interlocks with power to lock principle 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.

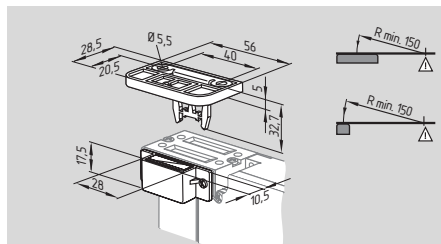
Ordering details

Straight actuator
Straight actuator
Straight actuator
Flexible actuator

AZM 161-B1
AZM 161-B1E
AZM 161-B1F
AZM 161-B6

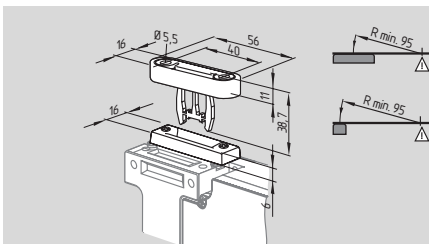
Solenoid interlocks

System components



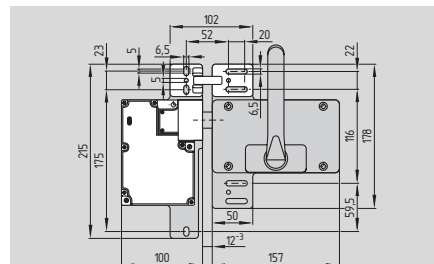
Actuator with magnetic latch B1-1747

System components

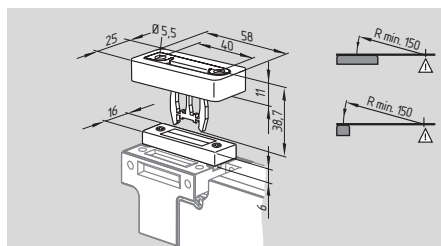


Actuator with centering guide B6-2177

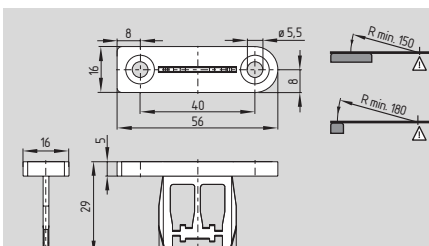
System components



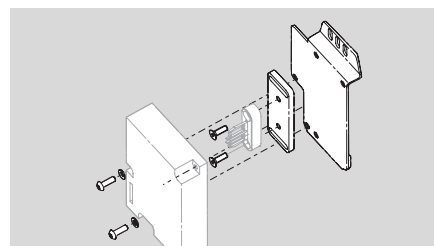
Actuator B30



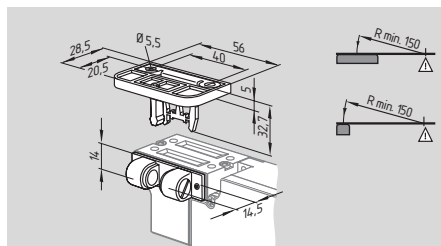
Actuator with slot lip-seal B1-2024



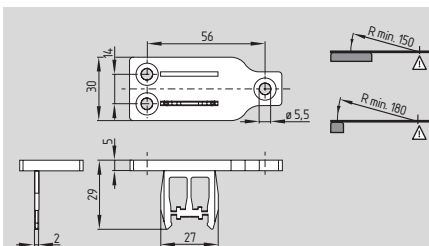
Shortened straight actuator B1S



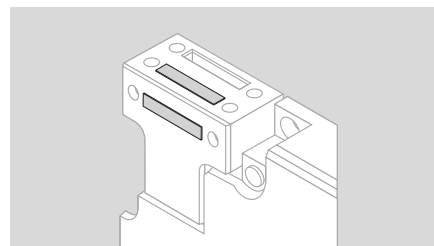
Mounting set MS AZM 161



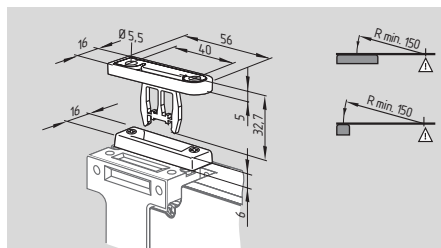
Actuator with ball latch B1-2053



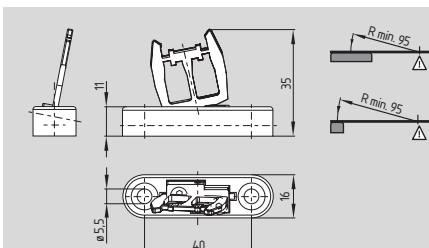
Shortened straight actuator B1ES



Slot sealing plug AZM 161



Actuator with centering guide B1-2177



Shortened angled actuator B6S

Ordering details

Straight actuator
with magnetic latch **AZM 161-B1-1747**
with slot lip-seal **AZM 161-B1-2024**
with ball latch **AZM 161-B1-2053**
with centering guide **AZM 161-B1-2177**

Ordering details

Flexible actuator
with centering guide **AZM 161-B6-2177**
Shortened straight actuator **AZM 161-B1S**
Shortened straight actuator **AZM 161-B1ES**
Shortened angled actuator **AZM 161-B6S**

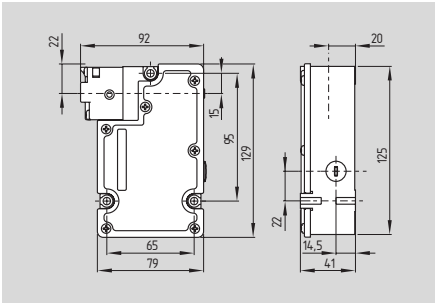
Ordering details

Actuator with or without
emergency handle **AZM 161-B30**
A detailed product description
can be found in the „Safety door
handle system STS“ brochure.

Mounting set **MS AZM 161**
Slot sealing plug AZM 161 **1145379**
Tamperproof screws with
unidirectional slots (without drawing)
M5 x 12 **1135338**
M5 x 16 **1135339**
M5 x 20 **1135340**
(Quantity 2 pcs)

Solenoid interlocks

TZM/TZF



- Thermoplastic enclosure
- Manual release, emergency exit or emergency release
- Long life
- Double insulated
- Holding force 1500 N
- Wiring compartment
- Power to unlock/power to lock principle
- 1 cable entry M20 x 1.5
- Actuating play 11 mm in direction of actuation
- With LED on request

Technical data

Standards: IEC/EN 60947-5-1
BG-GS-ET-19

Enclosure: glass-fibre reinforced thermoplastic, self-extinguishing

Actuator and locking bolt: zinc-plated steel / zinc diecast

Protection class: IP 67 to EN 60529

Contact material: silver

Contact type: change-over contact with double break, type Zb or 2 NC contacts, with galvanically separated contact bridges

Switching system: IEC 60947-5-1 slow action, NC contact with positive break

Connection: self-opening screw terminals

Cable section: max. 2.5 mm² (incl. conductor ferrules)

Cable entry: 1 x M20 x 1.5

U_{imp}: 2.5 kV

U_i: 250 V

I_{the}: 10 A

Utilisation category: AC-15, DC-13

I_e/U_e: 8 A / 230 VAC
5 A / 24 VDC

Max. fuse rating: 10 A gG D-fuse

Positive break travel: 2 x 3.5 mm

Positive break force: 20 N

Magnet: 100% ED

U_s: 24 VDC

110 VAC, 50/60 Hz

230 VAC, 50/60 Hz

max. 8.5 W

Power consumption: max. 8.5 W

Ambient temperature: 0 °C ... + 50 °C

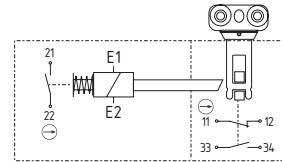
Mechanical life: 2 million operations

F_{max}: 1500 N

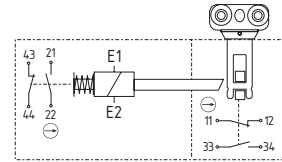
Latching force: 20 N

Contact variants

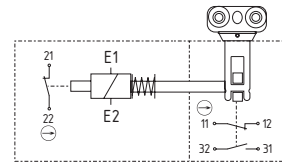
Magnet-operated 1 NO / 2 NC



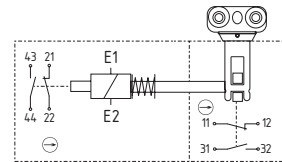
2 NO / 2 NC



Spring-operated 1 NO / 2 NC



2 NO / 2 NC



Approvals

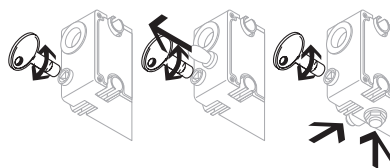


Ordering details

TZ ① ② ③ ④

No.	Replace	Description
①	F	Spring-operated
	M	Magnet-operated
②	W	2 NC contacts in series
	CW	2NC/1NO
③		Other contacts variants on request
	S	Manual release
	N	Emergency release
	NF	Emergency exit and manual release
④	24VDC	24 VDC
	110VAC	110 VAC
	230VAC	230 VAC

Note



Manual release (left)

- For manual unlocking using triangular key TZ-69 (included in delivery for S and N versions)
- For maintenance, setting-up, etc.

Emergency release (middle)

- For cases of danger
- Mounting only outside the guarded area

Emergency exit (right)

- For cases of danger
- Actuation from within the hazardous area

Note

Contact 21-22 must be integrated in the safety circuit. Contact symbols shown for the closed condition of the guard device.

Interlocks with power to lock principle 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.

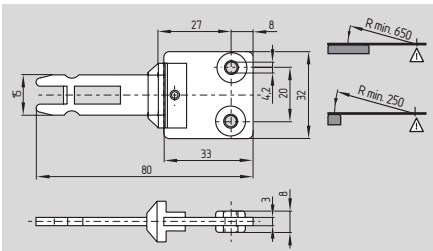
For the version with LED, the monitoring contacts are not potential-free

The actuator TZ/CO is included in delivery.

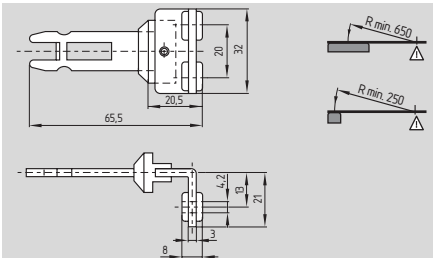
Other contacts variants on request

Solenoid interlocks

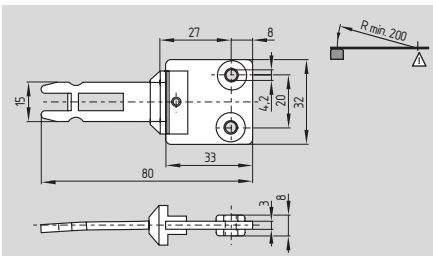
System components



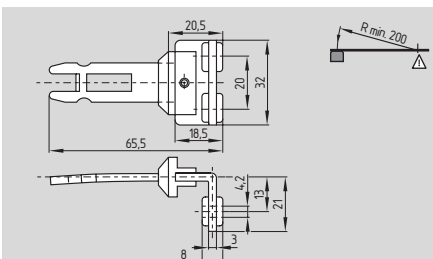
Straight actuator TZ/CO



Angled actuator TZ/CW

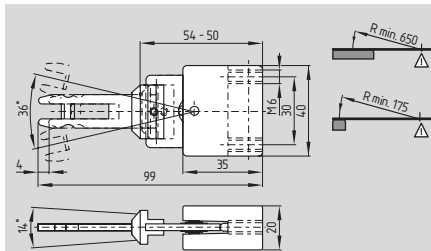


Straight radius actuator TZ/COR

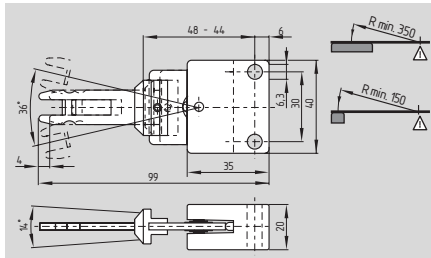


Angled radius actuator TZ/CWR

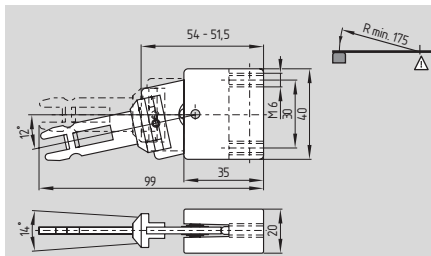
System components



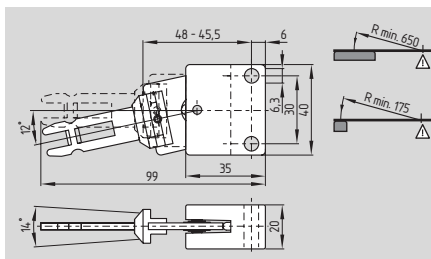
Flexible actuator TZ/COF/HIS.1



Flexible actuator TZ/COF/HIS.2

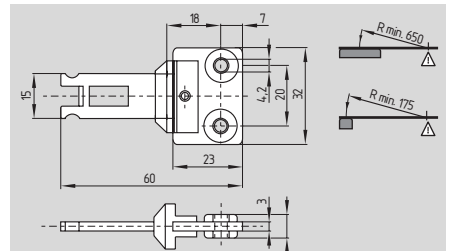


Flexible actuator TZ/CORF/HIS.1

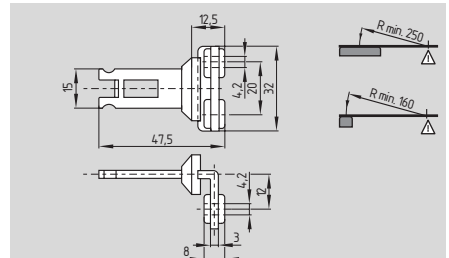


Flexible actuator TZ/CORF/HIS.2

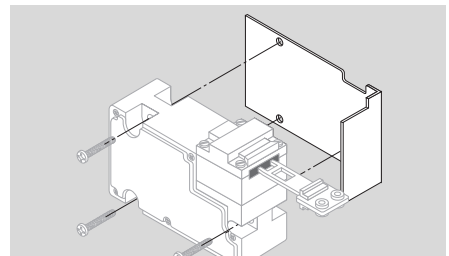
System components



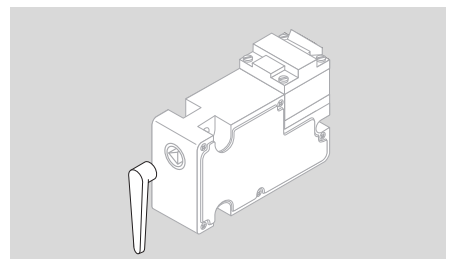
Shortened straight actuator TZ/CK



Shortened angled actuator TZ/CWK



Mounting plate TZ-44



Angled triangular key TZ-75

Ordering details

Straight actuator **TZ/CO**
 Angled actuator **TZ/CW**
 Straight radius actuator **TZ/COR**
 Angled radius actuator **TZ/CWR**

Ordering details

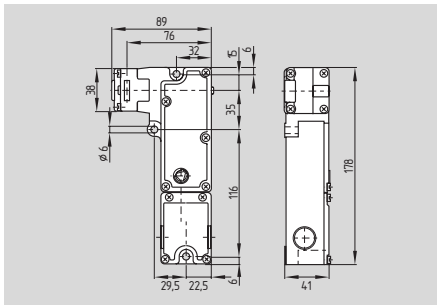
Flexible actuator **TZ/COF/HIS.1**
 Flexible actuator **TZ/COF/HIS.2**
 Flexible actuator **TZ/CORF/HIS.1**
 Flexible actuator **TZ/CORF/HIS.2**

Ordering details

Shortened straight actuator **TZ/CK**
 Shortened angled actuator **TZ/CWK**
 Mounting plate **TZ-44**
 Triangular key **TZ-75**
 (TZ-69 triangular key is included in delivery for S and N executions)

Solenoid interlocks

AZM 190



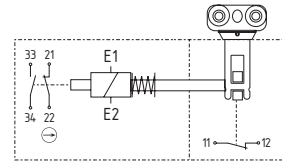
- Thermoplastic enclosure
- Manual or Emergency release
- Long life
- Power to unlock/power to lock principle
- Slim design, particularly suitable for fitting on hinged doors, aluminium profiles and fencing
- Actuating head can be repositioned by 4 x 90°
- Sealing mechanism to prevent the ingress of dirt
- 2 cable entries M20 x 1.5
- Wiring compartment
- Holding force 1750 N

Technical data

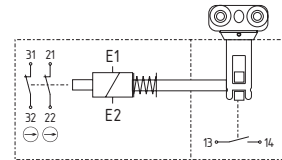
Standards:	IEC/EN 60947-5-1 BG-GS-ET-19
Enclosure:	glass-fibre reinforced thermoplastic
Actuator and locking bolt:	zinc-plated steel / zinc diecast
Protection class:	IP 67 to EN 60529
Contact material:	silver
Contact type:	change-over contact, double break, galvanically separated contact bridges
Switching system:	⊖ IEC 60947-5-1 slow action, NC contact with positive break
Connection:	screw terminals
Cable section:	max. 1.5 mm ² (incl. conductor ferrules)
Cable entry:	2 x M20 x 1.5
U _{imp} :	2.5 kV
U _i :	250 V
I _{the} :	10 A
Utilisation category:	AC-15, DC-13
I _e /U _e :	8 A / 230 VAC 5 A / 24 VDC
Max. fuse rating:	10 A gG D-fuse
Positive break travel:	2 x 3.5 mm
Positive break force:	20 N
Magnet:	100% ED
U _s :	24 VDC 110 VAC, 50/60 Hz 230 VAC, 50/60 Hz
Power consumption:	max. 8.5 W
Ambient temperature:	0 °C ... + 50 °C
Mechanical life:	2 million operations
F _{max} :	1750 N
Latching force:	20 N

Contact variants

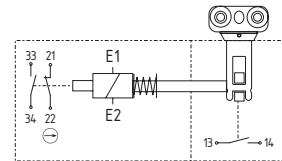
Power to unlock
1 NC
1 NO / 1 NC



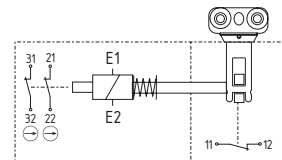
1 NO
2 NC



1 NO
1 NO / 1 NC



1 NC
2 NC



Approvals

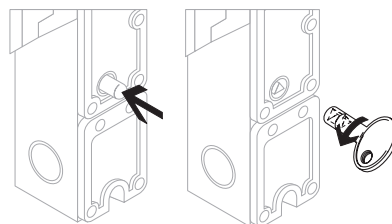


Ordering details

AZM 190-①rk②-③

No.	Replace	Description
①	11/01	Magnet: Actuator: 1NC
	11/10	1NO/1NC 1NO
	02/10	2NC 1NO
	02/01	2NC 1NC
②	a	Power to unlock
		Power to lock
③	24VDC	Us 24 VDC
	24VAC	Us 24 VAC
	48VAC	Us 48 VAC
	110VAC	Us 110 VAC
	230VAC	Us 230 VAC

Note



Emergency release (left)

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

Manual release (right)

- For manual release using triangular key M3 (included in delivery)
- For maintenance, setting-up, etc.

Note

Other product variants:

- for safety fences in aluminium profil systems
- actuator with reduced mounting depth
- preferably for inside mounting
- with emergency exit and manual release
- 4 monitoring contacts
- for left-hand and right-hand hinged guard doors

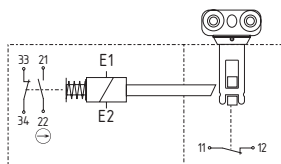
List T/03 ELAN, Wettenberg

Solenoid interlocks

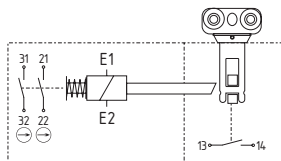
Contact variants

Power to lock

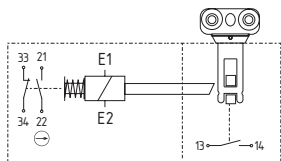
1 NC
1 NO / 1 NC



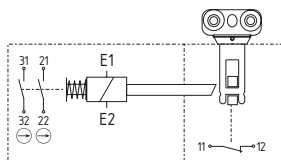
1 NO
2 NC



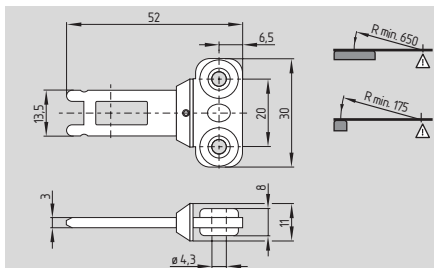
1 NO
1 NO / 1 NC



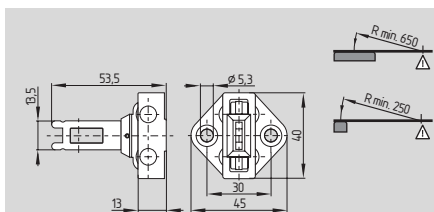
1 NC
2 NC



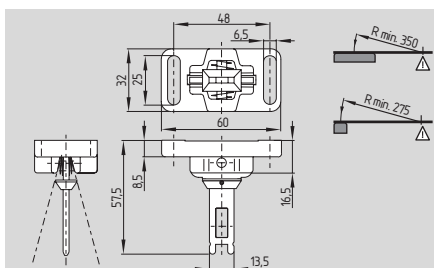
System components



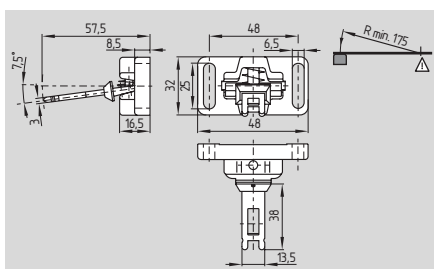
Straight actuator AZM 190-B1



Actuator to front mounting AZM 190-B5

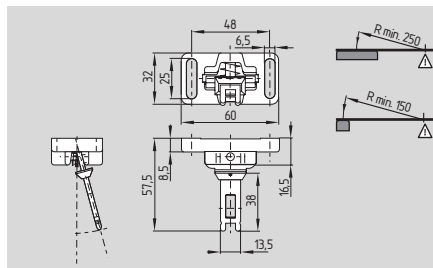


Flexible actuator AZM 190-B3/2x15

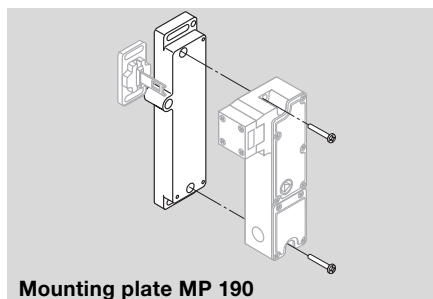


Flexible actuator AZM 190-B3/7,5

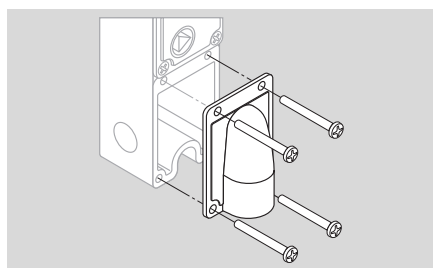
System components



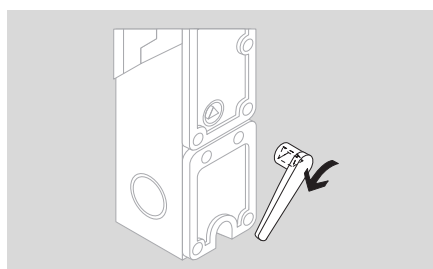
Flexible actuator AZM 190-B3/15



Mounting plate MP 190



Axial cable entry ZPG 190



Triangular key M3-a

Note

Contact symbols shown for the closed condition of the guard device. Interlocks with power to lock principle 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 and connector plugs must be ordered separately.

Ordering details

Straight actuator
to front mounting
Flexible actuator
Flexible actuator

AZM 190-B1
AZM 190-B5
AZM 190-B3/2x15
AZM 190-B3/7,5

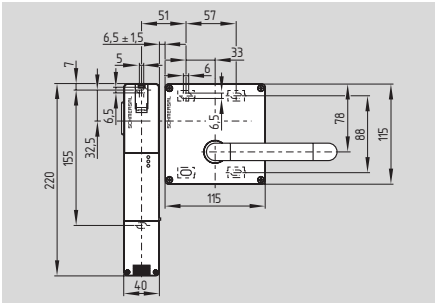
Flexible actuator
Mounting plate
Axial cable entry
Triangular key M3-a
(M3 triangular key is
included in delivery)

AZM 190-B3/15
MP 190
ZPG 190
1144779

Ordering details

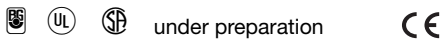
Solenoid interlocks

AZM 200



- Thermoplastic enclosure
- Sensor technology permits an offset of ± 5 mm between actuator and interlock
- Control category 4 to EN 954-1 with door detection sensor (without additional second switch)
- Suitable for SIL 3 applications to IEC 61508
- Intelligent diagnosis
- Modern and ergonomic design
- Simple mounting
- Accurate adjustment through slotted holes
- 3 LEDs to show operating conditions (see table in appendix)
- One-hand emergency release, even in de-energised condition
- Easy and intuitive operation
- No risk of injury from a protruding actuator
- No supplementary door-handle required
- Does not protrude into the door opening
- Emergency exit from both sides

Approvals

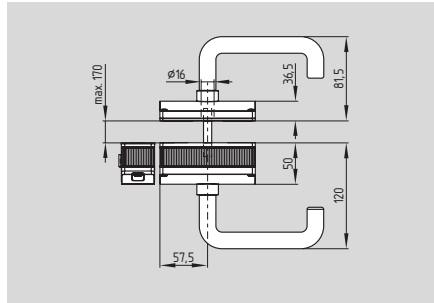


Ordering details

AZM 200^{①-②-1P2P}^③ Solenoid interlock

No.	Replace	Description
①	SK	Screw terminals
	CC	Cage clamps
	ST	Connector (M23)
②		Without door detection sensors
	T	With door detection sensors
③		Power to unlock
	a	Power to lock

AZ/AZM 200-B30-...



- Different handles available
- Mounting with and without emergency exit possible

The solenoid interlock and the handle unit are to be ordered separately!

Ordering details

AZ/AZM 200-B30-^①^②**A**^③^④ Actuator

No.	Replace	Description
①	L	Door hinge on left-hand side
	R	Door hinge on right-hand side (view point towards the hazardous area)
②		Without door detection sensors
	T	With door detection sensors
③	G1	Door handle
	G2	Rotary button
④		Without emergency exit
	P1	With emergency exit

Technical data

Standards: IEC/EN 60947-5-1, EN 954-1, IEC/EN 61508
 Enclosure: glass-fibre reinforced thermoplastic, self-extinguishing
 Mechanical life: > 1 million operations
 Holding force F_{max} : 2000 N
 Latching force: 30 N
 Protection class: IP 67 to EN 60529
 Insulation protection class: II, III
 Overvoltage category: III
 Degree of pollution: 3
 Connection: screw terminals or cage clamps
 Cable section: min. 0.25 mm² max. 1.5 mm² (incl. conductor ferrules)
 Cable entry: 1 x M20 x 1.5
Series wiring: max. 16 devices
 Cable length: max. 200 m
 (Cable length and cable section alter the voltage drop depending on the output current)

Ambient conditions:

Ambient temperature: -25 °C ... +60 °C
 Storage and transport temp.: -25 °C ... +85 °C
 Resistance to vibration: 10 ... 55 Hz, amplitude 1 mm

Resistance to shock: 30 g / 11 ms
 Switching frequency f: 1 Hz
 Response time: < 30 ms
 Duration of risk: < 30 ms
 Time to readiness: < 2 s

Electrical data:

U_e: 24 VDC -15%/+10%
 I_e: 1 A
 I_g: max. 0.5 mA
 U_{imp}: 800 V
 U_i: 32 VDC
 Fuse rating: internally short-circuit proof
 Device insulation: to UL 508 ≤ 4 A; depending on the number of devices and loads (Y1, Y2 and OUT)
 Leakage current I_r: ≤ 0.5 mA

Safety inputs X1 and X2:

Voltage range -3V ... 5V: low
 Voltage range 15V ... 30V: high > 2 mA at 24 V

Safety outputs Y1 and Y2:

short-circuit proof, p-type
 U_{e1}: max. 4 V under U_e
 I_{e1}: max. 0.25 A
 Utilisation category: DC-13

Diagnostic output OUT: short-circuit proof, p-type

U_{e2}: max. 4 V under U_e
 I_{e2}: max. 0.05 A
 Utilisation category: DC-13

Magnet actuation IN:

Voltage range -3V ... 5V: low
 Voltage range 15V ... 30V: high > 5 mA at 24 V
 Magnet: 100% ED

Classification:

to EN 954-1: up to control category 4 (with appropriate circuit)
 to IEC 61508: PFH value = under preparation, suitable for SIL 3

Solenoid interlocks

System components



Door handle



Rotary button

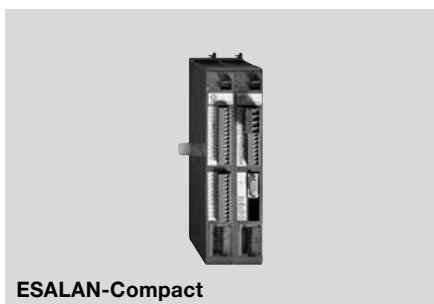
System components



AES



SRB



ESALAN-Compact

Wiring

24V	24V	X1	X2	IN
AZM 200				
GND	GND	Y1	Y2	OUT

Indication	Description
Rated operating voltage	24V
Rated operating voltage	24V
Safety input 1	X1
Safety input 2	X2
Magnet actuation	IN
Ground	GND
Ground	GND
Safety output 1	Y1
Safety output 2	Y2
Diagnostic output	OUT

Ordering details

Door handle
Rotary button

Note

- G1** The following modules allow for a trouble-free functioning in combination with the AZM 200:
- G2**
- AES 1135
 - AES 1235
 - AZR 321 AR
 - ESALAN Compact
 - SRB 324 ST
 - SRB 301 LC/B
 - SRB-NA-R-C.21
 - SRB-NA-R-C.22

Further information about these devices can be found in these catalogue, chapter 5.

The modules and the structure of the entire safety circuit are determining the obtainable control categories.

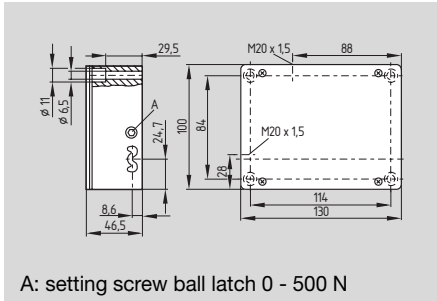
Note

Possible safety control modules:

The safety outputs of the AZM 200 are p-type transistor outputs. Taking the self-test feature of these outputs into account, the safety control modules must tolerate a brief switching-off of the outputs. The cross-wire detection must be deactivated.

Solenoid interlocks

AZM 415



- Metal enclosure
- Two switches in one enclosure
- Problem-free opening of stressed doors by means of bell-crank system
- Robust design
- Long life
- High holding force 3500 N
- Adjustable ball latch to 500 N
- Various manual and emergency releases available
- Power to unlock/power to lock principle
- 2 cable entries M20 x 1.5
- EEx version available

Technical data

Standards: IEC/EN 60947-5-1
BG-GS-ET-19

Enclosure: light-alloy die-cast, enamel finish

Actuator and locking bolt: zinc-plated metal / aluminium

Protection class: IP 54
ordering suffix F: IP 67 to EN 60529

Contact material: silver

Contact type: change-over contact with double break, type Zb or 2 NC contacts, with galvanically separated contact bridges

Switching system: IEC 60947-5-1 slow action, NC contacts with positive break

Connection: screw terminals

Cable section: max. 2.5 mm² (incl. conductor ferrules)

Cable entry: 2 x M20 x 1.5

U_{imp} : 4 kV

U_i : 250 V

I_{the} : 6 A

Utilisation category: AC-15

I_e/U_e : 4 A / 230 VAC

Max. fuse rating: 6 A gG D-fuse

Positive break travel: 5 mm

Positive break force: min. 15 N (depending on the setting of the ball latch)

Magnet: 100% ED

U_s : 12 VDC
24 VAC/DC
110 VAC, 50/60 Hz
230 VAC, 50/60 Hz

Power consumption: max. 10 W

Ambient temperature: -25 °C ... +50 °C

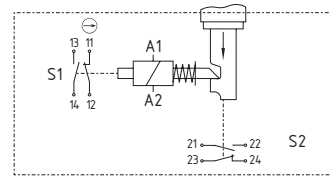
Mechanical life: > 1 million operations

F_{max} : 3500 N

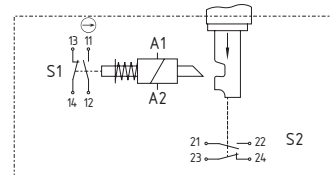
Latching force: 0 - 500 N (adjustable)

Contact variants

Power to unlock
2 NO
2 NC



Power to lock
2 NO
2 NC



Approvals



Ordering details

AZM 415 -22①pk②③-④-⑤

No.	Replace	Description
①	x	Protection class IP 54
	z	Protection class IP 67
②	a	Power to unlock
		Power to lock
③	E	Without manual release
		Manual release:
	F	Using triangular key
		Using triangular key (secured with locking screw)
	RS	With key
	T	Emergency exit using latched pushbutton
	NS	Emergency release using lock button

Ordering details

No.	Replace	Description
④	12 VDC	Us 12 VDC
	24 VAC/DC	Us 24 VAC/DC
	110 VAC	Us 110 VAC
	230 VAC	Us 230 VAC
⑤	1637	Gold-plated contacts

Note

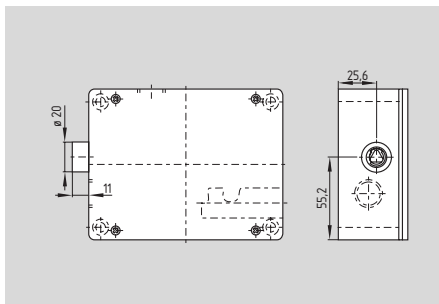
Contact symbols shown for the closed condition of the guard device. The contacts 11-12 and 13-14 are actuated when the solenoid A1-A2 is energised or de-energised. Contact 11-12 must be integrated in the safety circuit.

Interlocks with power to lock principle 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 and connector plugs must be ordered separately.

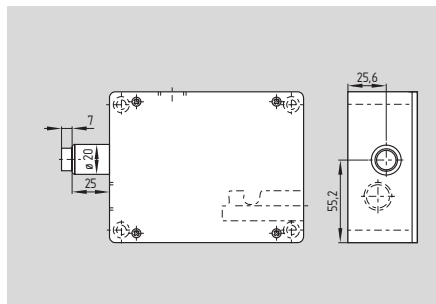
Solenoid interlocks

AZM 415-22xpkE



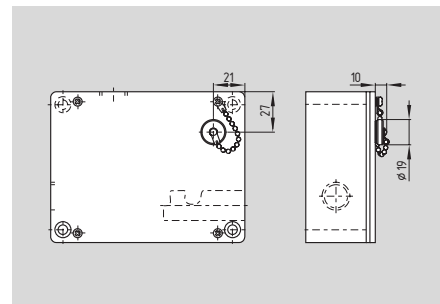
- Manual release
- Manual release by means of M5 triangular key
- M5 triangular key, available as accessory
- For maintenance, installation, etc.
- Only used on units with power to unlock principle

AZM 415-22xpkNS



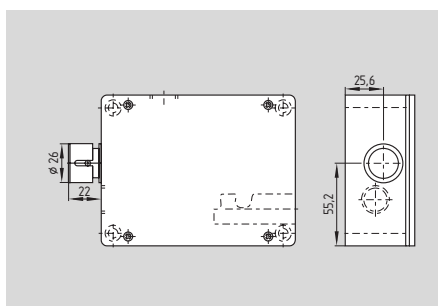
- Emergency release
- Emergency release is used where an „inadvertently locked-in“ person must leave a dangerous, already interlocked area
- Release by pressing in the lock button
- Resetting can only be carried out by authorized personnel using key
- In unlocked position the guard device is protected against unintended closing

AZM 415-22zpkF



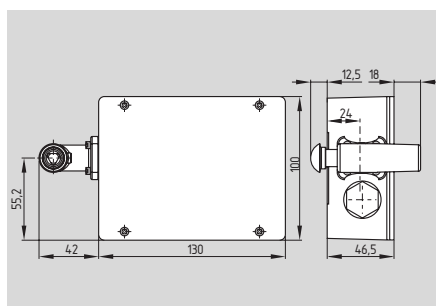
- Manual release
- Release by means of M5 triangular key
After removing the sealing screw, manual release can be carried out using a M5 triangular key
- M5 triangular key, available as accessory
- A chain secures the sealing plug against loss
- Only used on units with power to unlock principle

AZM 415-22xpkT



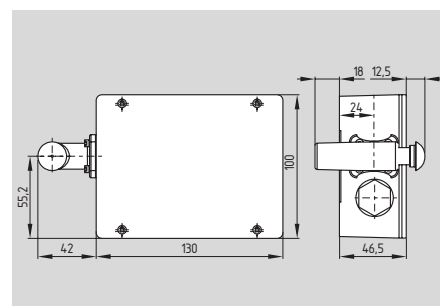
- Emergency exit
- The emergency release is used where an intervention in an already locked hazardous area is required
- Escape release by pressing the red push button
- Reset is carried out by pressing the latching pin
- In unlocked position the guard device is protected against unintended closing

AZM 415-22zpkTE



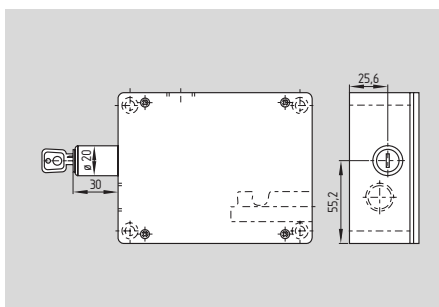
- Manual release
- Release and resetting using M5 triangular key
- Emergency exit by pressing the red push button
- Resetting by pulling on the red latched button
- In unlocked position the guard device is protected against unintended closing
- Interlock mounting **outside**

AZM 415-22zpkTEI



- Manual release
- Release and resetting using M5 triangular key
- Emergency exit by pressing the red push button
- Resetting by pulling on the red latched button
- In unlocked position the guard device is protected against unintended closing
- Interlock mounting **inside**

AZM 415-22xpkRS



- Manual release
- Release by means of cylinder lock
- Resetting can only be carried out by authorized personnel using key
- Only used on units with power to unlock principle
- In unlocked position the guard device is protected against unintended closing

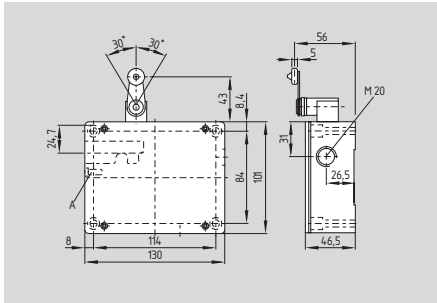
Note

The IP protection class depends on the type of release and is indicated by an x or z in the ordering suffix.

Example:
 Protection class IP 54 AZM 415-22xpkNS
 Protection class IP 67 AZM 415-22zpkF

Solenoid interlocks

AZM 415-...14H



A: setting screw ball latch 0 - 500 N

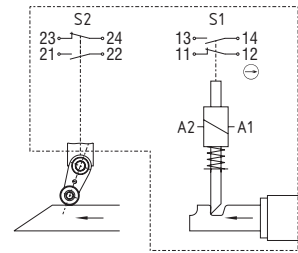
- Metal enclosure
- Two switches with separate actuators
- Suitable for Control Category 4
- Problem-free opening of stressed doors by means of bell-crank system
- Robust design
- Long life
- High holding force 3500 N
- Adjustable ball latch to 500 N
- Power to unlock/power to lock principle
- 2 cable entries M20 x 1.5
- The condition of the guard device can be scanned
- Spring-loaded actuators

Technical data

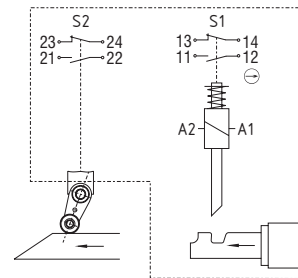
Standards:	IEC/EN 60947-5-1 BG-GS-ET-19
Enclosure:	light-alloy die-cast, enamel finish
Actuator and locking bolt:	zinc-plated metal / aluminium
Protection class:	IP 67 to EN 60529
Contact material:	silver
Contact type:	change-over contact with double break, type Zb or 2 NC contacts, with galvanically separated contact bridges
Switching system:	⊖ IEC 60947-5-1 slow action, NC contacts with positive break screw terminals max. 2.5 mm ² (incl. conductor ferrules)
Connection:	2 x M20 x 1.5
Cable section:	4 kV
U _{imp} :	250 V
U _i :	6 A
I _{the} :	AC-15
Utilisation category:	4 A / 230 VAC
I _g /U _g :	6 A gG D-fuse
Max. fuse rating:	5 mm
Positive break travel:	min. 15 N (depending on the setting of the ball latch)
Positive break force:	100% ED
Magnet:	12 VDC
U _s :	24 VAC/DC
	110 VAC, 50/60 Hz
	230 VAC, 50/60 Hz
Power consumption:	max. 10 W
Ambient temperature:	- 25 °C ... + 50 °C
Mechanical life:	> 1 million operations
F _{max} :	3500 N
Latching force:	0 - 500 N (adjustable)

Contact variants

Power to unlock
2 NO
2 NC



Power to lock
2 NO
2 NC



Approvals



Ordering details

AZM 415-22zpk^① 14H-^②

No.	Replace	Description
①		Power to unlock
	a	Power to lock
②	1637	Gold-plated contacts

Note

Actuators and connector plugs must be ordered separately.

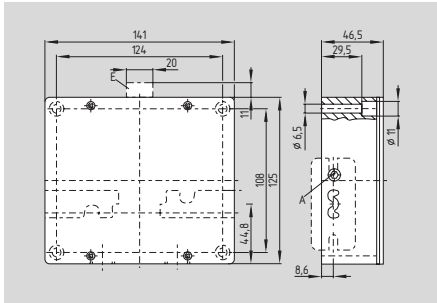
Note

Contact symbols shown for the closed condition of the guard device. The contacts 11-12 and 13-14 are actuated when the solenoid A1-A2 is energised or de-energised.

Interlocks with power to lock principle 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.

Solenoid interlocks

AZM 415 for double doors



A: setting screw ball latch 0 - 500 N
E: Manual release using triangular key

- For double doors
- Metal enclosure
- Up to 3 switch inserts per enclosure
- Robust design
- Long life
- High holding force 2500 N per door
- Ball latch for each door, individually adjustable up to 500 N
- Manual release available
- Power to unlock/power to lock principle
- 2 cable entries M20 x 1.5
- Spring-loaded actuators

Technical data

Standards: IEC/EN 60947-5-1, BG-GS-ET-19
Enclosure: light-alloy die-cast, enamel finish

Actuator and locking bolt: zinc-plated metal / aluminium

Protection class: IP 67 to EN 60529

Contact material: silver

Contact type: change-over contact with double break, type Zb, with galvanically separated contact bridges

Switching system: \ominus IEC 60947-5-1 slow action, NC contacts with positive break

Connection: screw terminals

Cable section: max. 2.5 mm²

(incl. conductor ferrules)

Cable entry: 2 x M20 x 1.5

U_{imp} : 4 kV

U_i : 250 V

I_{the} : 6 A

Utilisation category: AC-15

I_e/U_e : 4 A / 230 VAC

Max. fuse rating: 6 A gG D-fuse

Positive break travel: 4.5 mm

Positive break force: min. 15 N

(depending on the setting of the ball latch)

Magnet: 100% ED

U_s : 24 VAC/DC

110 VAC, 50/60 Hz

230 VAC, 50/60 Hz

max. 10 W

Ambient temperature: - 25 °C ... + 50 °C

Mechanical life: > 1 million operations

F_{max} : 2500 N (for each guard)

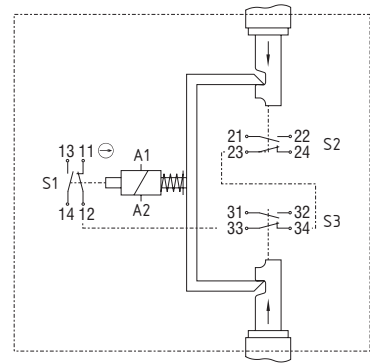
Latching force: 0 - 500 N (adjustable)

Contact variants

Power to unlock

3 NO

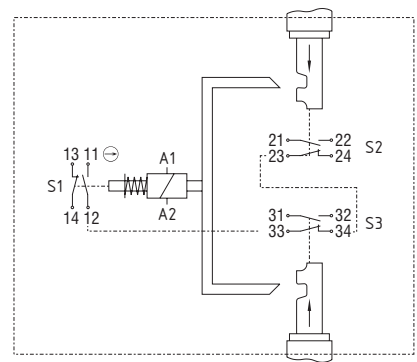
3 NC



Power to lock

3 NO

3 NC



Approvals



Ordering details

AZM 415-33zpdk^① ②

No.	Replace	Description
①		Power to unlock
	a	Power to lock
②		Without manual release
	E	Manual release using triangular key (only with power to unlock)
③	1637	Gold-plated contacts

Note

Actuators and connector plugs must be ordered separately.

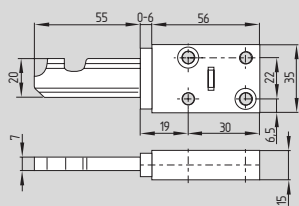
Note

Contact symbols shown for the closed condition of the guard device. The contacts 11-12 and 13-14 are actuated when the solenoid A1-A2 is energised or de-energised.

Interlocks with power to lock principle 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.

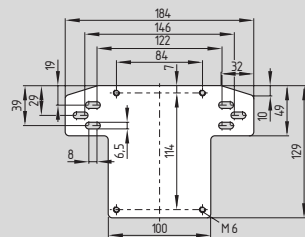
Solenoid interlocks

System components

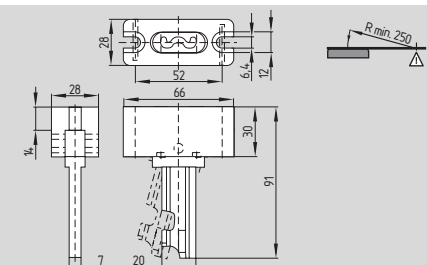


Straight actuator AZM 415-B1

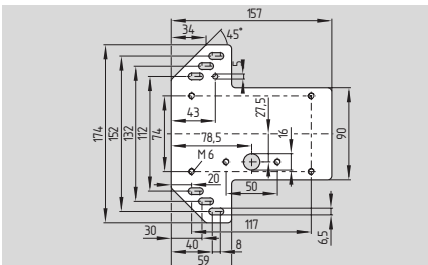
System components



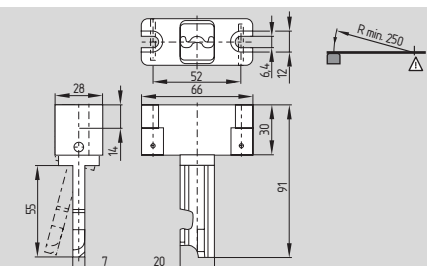
Mounting plate MP AZM 415-22



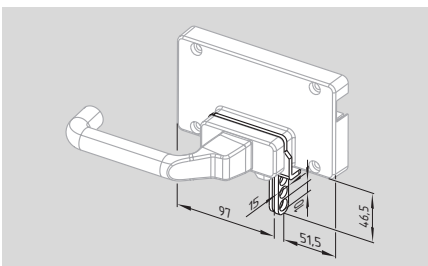
Flexible actuator AZM 415-B2



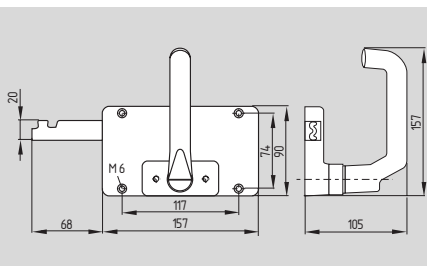
Mounting plate MP AZ/AZM 415-B30



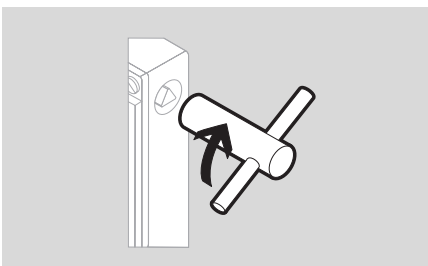
Flexible actuator AZM 415-B3



Lockout tag SZ 415-1/-2



Actuator AZM 415-B30



Triangular key M5

Ordering details

Straight actuator **AZ/AZM 415-B1**
 Flexible actuator **AZ/AZM 415-B2**
 Flexible actuator **AZ/AZM 415-B3**

Actuator with or without emergency handle **AZ/AZM 415-B30**

A detailed product description can be found in the „Safety door andle system STS“ brochure.

Ordering details

Mounting plate **MP AZM 415-22**
 Mounting plate **MP AZ/AZM 415-B30**
 Lockout tag **SZ 415-1/-2**
 Triangular key M5 **1100887**