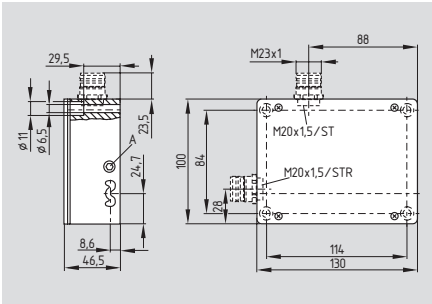


## Solenoid interlocks

### AZM 415-../..



A: setting screw ball latch

- Interlock with protection against incorrect locking
- 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 400 N
- Various manual and emergency releases available
- Power to unlock/power to lock principle
- 2 cable entries M20
- or connector M23 (only for 24 VAC/DC)
- EX version available

#### Approvals



### Ordering details

AZM 415-12PK34 5-6-7

No.	Option	Description
①	11/11	2 NC / 2 NO
	11/02	3 NC / 1 NO
	11/20	1 NC / 3 NO
	02/11	3 NC / 1 NO
	02/20	2 NC / 2 NO
	02/02	4 NC
②	X	Protection class IP54
	Z	Protection class IP67
③	ST	Connector M23 bottom
	STR	Connector M23 right
④		Power to unlock
	A	Power to lock

### 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 / aluminum  
Protection class: IP67

Contact material: silver  
Contact type: change-over contact with  
double break, type Zb or

2 NC contacts, with galvanically separated contact bridges

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

Connection: screw terminals  
or connector M23  
Cable section: min. 0.75 mm<sup>2</sup>  
max. 2.5 mm<sup>2</sup>  
(incl. conductor ferrules)

U<sub>imp</sub>: 4 kV  
U<sub>i</sub>: 250 V  
I<sub>the</sub>: 6 A

Utilization category: AC-15  
I<sub>e</sub>/U<sub>e</sub>: 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  
Power consumption: max. 10 W  
Ambient temperature: -25 °C ... +50 °C

Actuating speed: max. 0.2 m/s  
Switching frequency: max. 2.000 / h  
Mechanical life: > 1 million operations

F<sub>max</sub>: 3500 N  
Holding force: 30 - 400 N (adjustable)

**Classification:**  
Standards: EN ISO 13849-1  
B<sub>10d</sub> NC (NC): 2.000.000  
Mission time: 20 years

MTTF<sub>d</sub> =  $\frac{B_{10d}}{0,1 \times n_{op}}$      $n_{op} = \frac{d_{op} \times h_{op} \times 3600 \text{ s/h}}{t_{cycle}}$

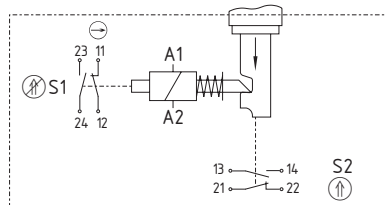
### Ordering details

AZM 415-12PK34 5-6-7

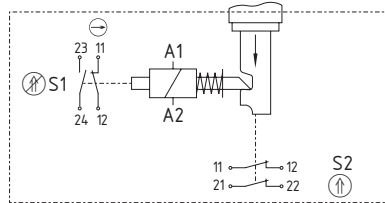
No.	Option	Description
⑤		Without manual release
	E	Manual release using triangular key
	F	Manual release using triangular key (secured with locking screw)
	FE	Manual release using triangular key (cover-side fitting)
	RS	Manual release with key
	T *	Emergency exit using latched pushbutton

### Contact variants

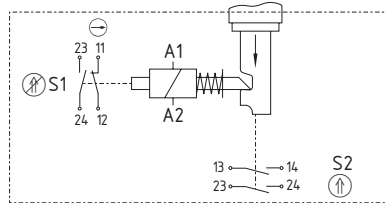
Power to unlock  
11/11 2 NC/2 NO



11/02 3 NC/1 NO



11/20 1 NC/3 NO



### Ordering details

AZM 415-12PK34 5-6-7

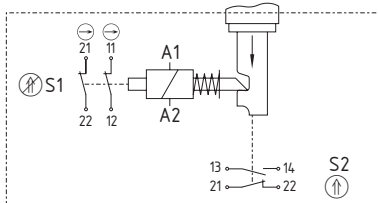
No.	Option	Description
	TE *	Emergency exit + manual release, mounting outside
	TEI *	Emergency exit + manual release, mounting inside
	NS	Emergency release using lock button
⑥	24 VAC/DC	U <sub>s</sub> 24 VAC/DC
	110 VAC	U <sub>s</sub> 110 VAC
	230 VAC	U <sub>s</sub> 230 VAC
⑦	1637	Gold-plated contacts

\* only for power to unlock principle

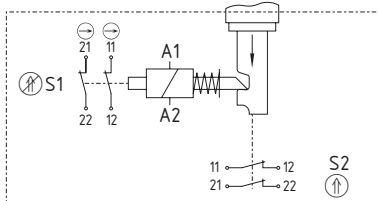
## Solenoid interlocks

### Contact variants

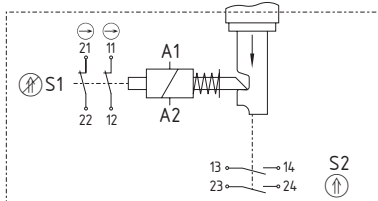
**Power to unlock**  
02/11 3 NC/1 NO



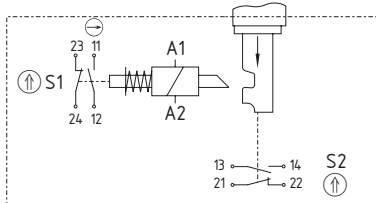
**02/02 4 NC**



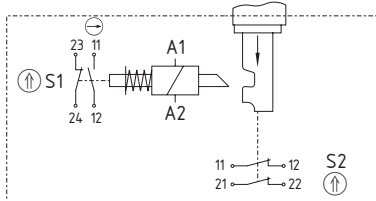
**02/20 2 NC/2 NO**



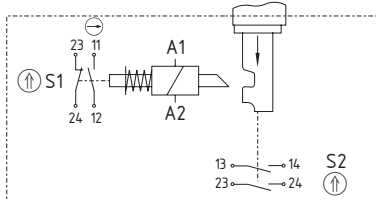
**Power to lock**  
11/11 2 NC/2 NO



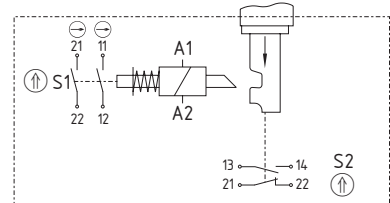
**11/02 3 NC/1 NO**



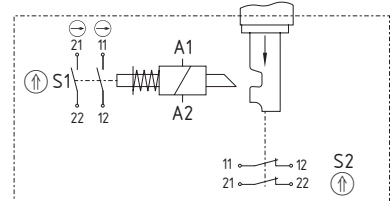
**11/20 1 NC/3 NO**



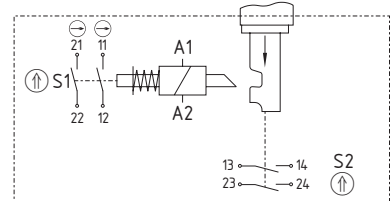
**Power to lock**  
02/11 3 NC/1 NO



**02/02 4 NC**



**02/20 2 NC/2 NO**



### Note

Contacts diagrams show de-energized condition with actuator inserted.

The magnetic contacts S1 are actuated when the solenoid A1-A2 is energized or de-energized.

At least one magnetic contact with positive break  $\ominus$  must be integrated in the safety circuit.

Actuators must be ordered separately (refer to page 1-50).

### 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.

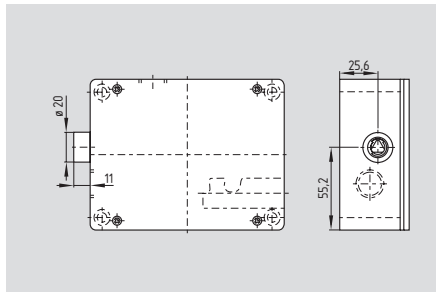
### Note

PIN number of the connectors ST and STR

PIN	Contacts					
	11/11	11/02	11/20	02/11	02/02	02/20
1	A1	A1	A1	A1	A1	A1
2	A2	A2	A2	A2	A2	A2
3	11	11	11	11	11	11
4	12	12	12	12	12	12
5	23	23	23	21	21	21
6	24	24	24	22	22	22
7	13	11	13	13	11	13
8	14	12	14	14	12	14
9	21	21	23	21	21	23
10	22	22	24	22	22	24
11	—	—	—	—	—	—
12	GND	GND	GND	GND	GND	GND

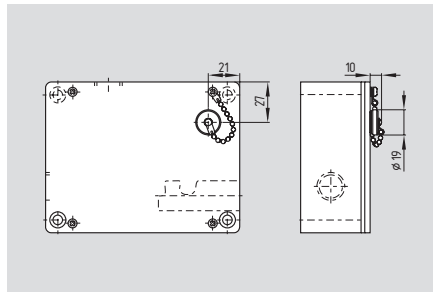
## Solenoid interlocks

### AZM 415-...ZPK E



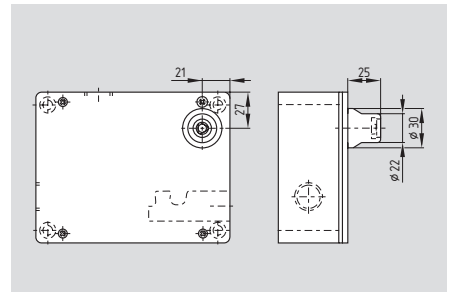
- **Manual release**
- Manual release by means of M5 triangular key
- M5 triangular key, available as accessory
- For maintenance, installation, etc.
- Only used on units with power to unlock principle

### AZM 415-...ZPK F



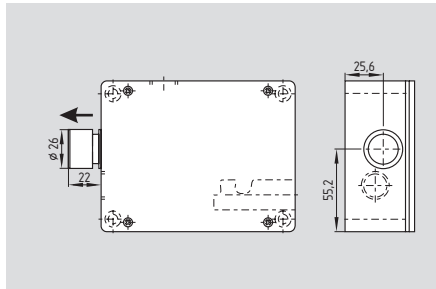
- **Manual release**
- Release by means of M5 triangular key
- After removing the sealing screw, manual release can be carried out using a M5 triangular key
- M5 triangular key, available as accessory
- A chain secures the sealing plug against loss
- Only used on units with power to unlock principle

### AZM 415-...ZPK FE



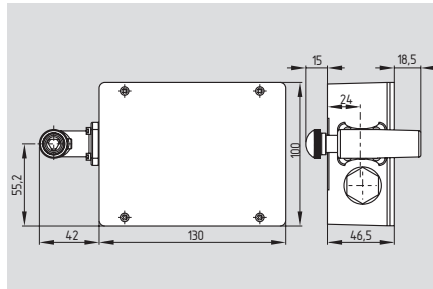
- **Manual release (cover-side fitting)**
- Release by means of M5 triangular key
- M5 triangular key, available as accessory
- Only used on units with power to unlock principle

### AZM 415-...ZPK T



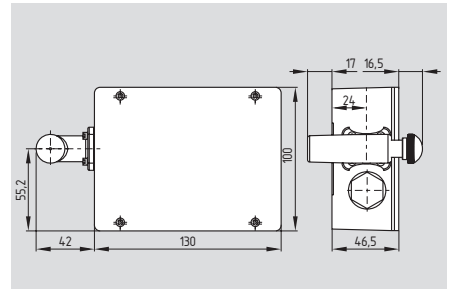
- **Emergency exit**
- Emergency exit is used where an „inadvertently locked-in“ person must leave a dangerous, already interlocked area
- Escape release by pressing the red push button
- Reset is carried out by pressing the latching pin
- In unlocked position the guard device is protected against unintended closing

### AZM 415-...ZPK TE



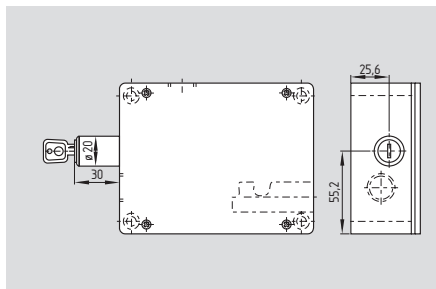
- **Manual release**
- Release and resetting using M5 triangular key
- Emergency exit by pressing the red push button
- Resetting by pulling on the red latched button
- In unlocked position the guard device is protected against unintended closing
- Interlock mounting **outside**

### AZM 415-...ZPK TEI



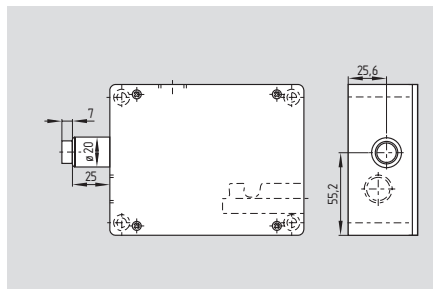
- **Manual release**
- Release and resetting using M5 triangular key
- Emergency exit by pressing the red push button
- Resetting by pulling on the red latched button
- In unlocked position the guard device is protected against unintended closing
- Interlock mounting **inside**

### AZM 415-...XPK RS



- **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

### AZM 415-...XPK NS



- **Emergency release**
- The emergency release is used where an intervention in an already locked hazardous area is required
- 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

### Note

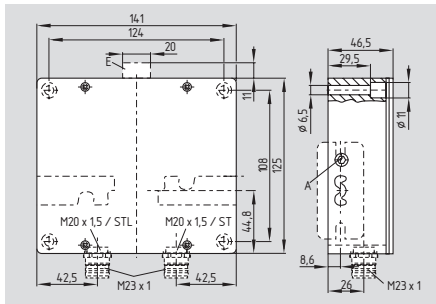
The IP protection class depends on the type of release and is indicated by an X or Z in the ordering suffix.

#### Example:

Protection class IP54 AZM 415-11/11XPKNS  
Protection class IP67 AZM 415-11/11ZPKF

## Solenoid interlocks

### AZM 415 for double doors



A: setting screw ball latch  
E: manual release using triangular key

- Interlock with protection against incorrect locking for double doors
- Metal enclosure
- 3 switches in one enclosure
- Robust design
- Long life
- High holding force 2500 N per door
- Ball latch for each door, individually adjustable up to 400 N
- Manual release available
- Power to unlock/power to lock principle
- 2 cable entries M20 or connector M23 (only for 24 VAC/DC)
- Spring-loaded actuators

#### Approvals



### Ordering details

#### AZM 415-33ZPDK①②③④

No.	Option	Description
①	A	Power to unlock
②	ST	Power to lock
	STR	Connector M23 bottom
③		Connector M23 right
	E	Without manual release
		Manual release using triangular key (only with power to unlock)
④	1637	Gold-plated contacts

### 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 / aluminum  
Protection class: IP67  
Contact material: silver  
Contact type: change-over contact with double break, type Zb, with galvanically separated contact bridges

Switching principle:  $\ominus$  IEC 60947-5-1  
slow action,  
NC contact with positive break

Connection: screw terminals or connector M23

Cable section: min. 0.75 mm<sup>2</sup>  
max. 2.5 mm<sup>2</sup>  
(incl. conductor ferrules)

Cable entry: 2x M20

U<sub>imp</sub>: 4 kV

U<sub>i</sub>: 250 V

I<sub>the</sub>: 6 A

Utilization category: AC-15

I<sub>e</sub>/U<sub>e</sub>: 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<sub>s</sub>: 24 VAC/DC

110 VAC, 50/60 Hz

230 VAC, 50/60 Hz

max. 10 W

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

Actuating speed: max. 0.2 m/s

Switching frequency: max. 2.000 / h

Mechanical life: > 1 million operations

F<sub>max</sub>: 2500 N (for each guard)

Holding force: 30 - 400 N (adjustable)

#### Classification:

Standards: EN ISO 13849-1

B<sub>10d</sub> NC (NC): 2.000.000

Mission time: 20 years

$$MTTF_d = \frac{B_{10d}}{0,1 \times n_{op}} \quad n_{op} = \frac{d_{op} \times h_{op} \times 3600 \text{ s/h}}{t_{cycle}}$$

### Note

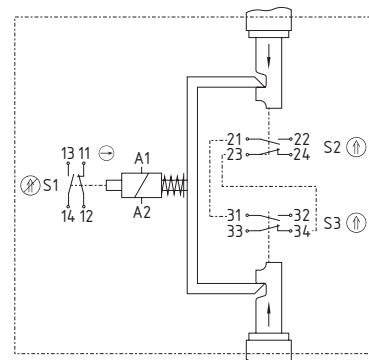
Actuators must be ordered separately (refer to page 1-50 ).

### Contact variants

#### Power to unlock

3 NO

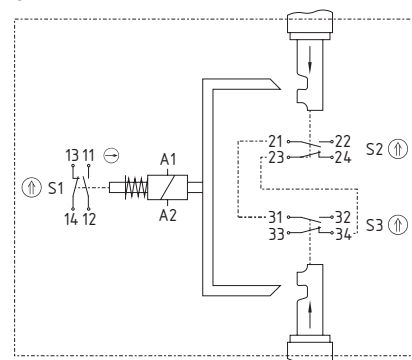
3 NC



#### Power to lock

3 NO

3 NC



### Note

Contact symbols shown for the closed condition of the guard device.

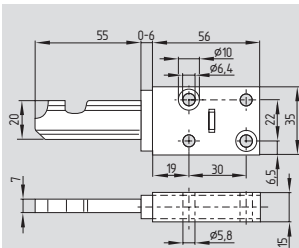
The contacts 11-12 and 13-14 are actuated when the solenoid A1-A2 is energized or de-energized.

At least one magnetic contact with positive break  $\ominus$  must be integrated in the safety circuit.

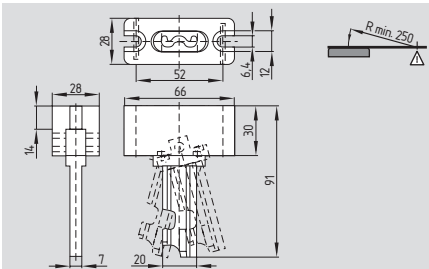
Interlocks with power to lock principle may only be used in special cases after a thorough evaluation of the accident risk, since the guarding device can immediately be opened on failure of the electrical power supply or when the main switch is opened.

## Solenoid interlocks

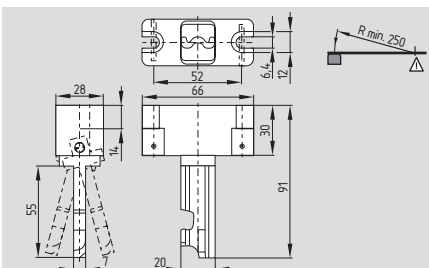
### System components



**Straight actuator B1**

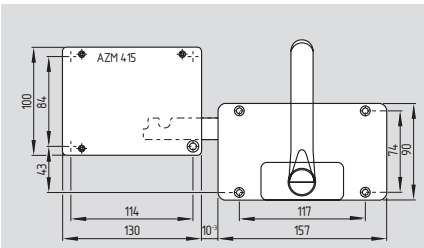


**Flexible actuator B2**

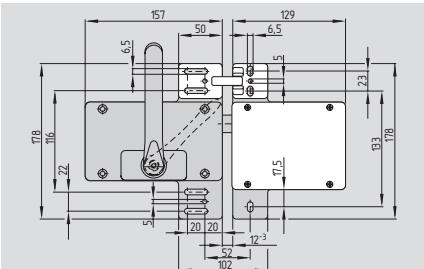


**Flexible actuator B3**

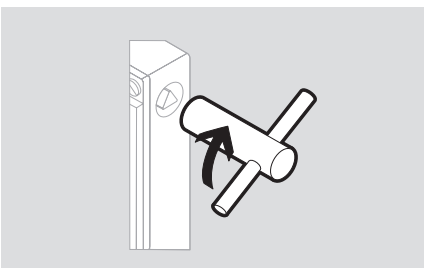
### System components



**AZM 415-B30**



**AZM 415-STS30**



**Triangular key M5**

### Ordering details

Straight actuator  
Flexible actuator  
Flexible actuator

**AZ/AZM 415-B1**  
**AZ/AZM 415-B2**  
**AZ/AZM 415-B3**

### Ordering details

Actuator with handle **AZM 415-B30**  
without or with emergency handle  
(A detailed product description  
can be found on page 1-69)

#### **Safety door-handle system STS**

Actuator with handle **AZM 415-STS30**  
without or with emergency handle  
inclusive mounting plate  
(A detailed product description  
can be found on page 1-51)

Triangular key M5

**AZM KEY**