

# SERIES AZM170

## Solenoid-Latching Machine Guard Safety Interlock Switch



### Features & Benefits

- **Compact design** ... only 1¼" x 3" x 4¼". Ideal where space is limited.
- **Watertight design** ... meets IP67 washdown requirements.
- **Highly tamper-resistant** ... difficult to defeat with simple tools, tape, bent wires, etc. Reduces liability exposure.
- **"Positive-break" NC contacts** ... assure interruption of safety circuit upon actuator key removal.
- **Two key entry locations** ... provide mounting flexibility.
- **Rugged, corrosion-resistant, high-impact glass-fibre reinforced housing** ... tolerates the most hostile environments.
- **High-strength stainless steel actuator key** ... tolerant to mechanical abuse without damage.
- **Three styles of actuator key** ... accommodate a wide variety of movable guards.
- **Easy-to-wire screw terminals** ... facilitates fast installation.
- **"Power-on" or "Power-off" latching option** ... for application versatility.
- **Built-in manual unlatching release (via special triangular key)** ... for easier installation.
- **"Padlockable" key** ... for added security during maintenance.
- **Meets rigid IEC, UL, CSA, BG, VDE standards.**
- **Units available with M12x1 quick-connect.** (Please consult factory).

### Description

The AZM170 Series is designed for machines/work cells where access to a hazardous work area must be controlled until safe conditions exist. Their solenoid-latching feature permits locking a machine guard until dangerous conditions, which may exist immediately after removal of power, have abated. Solenoid-latching may be controlled by a time delay, motion detector, position sensor or other suitable component.

The unit features independent actuator key (guard) position and solenoid-latching pin position contacts. These permit the prevention of machine restart until the guard is closed **and** the solenoid-latching pin is in the locked position.

The AZM170 consists of an electromechanical safety interlock switch joined to a solenoid-latching mechanism. Both the safety switch and solenoid mechanism feature "positive-break" contacts. In addition the actuator key features a built-in latch (unlocked key holding force of 7 pounds), and an auxiliary manual unlocking device ... the latter provided to aid in installation and for use in the event of a power failure (when using the "unlocking by solenoid" model).

Each unit is supplied with a cord grip and a cap to seal the unused key entry port in the solenoid-latching mechanism.

### Typical Applications



The AZM170 is intended for use as a safety interlock switch on movable machine guards which must not be opened until dangerous conditions, which may exist after the removal of power, have abated. Such conditions are flywheel overrun, spindle momentum, unstable rest positions, etc. Typical applications are textile machines, stamping presses, articulating robot arms, mixing machines, metal working equipment, printing presses and packaging machinery.



Two optional key entrances

# AZM170 AVAILABLE MODELS AND ACCESSORIES

## AVAILABLE STANDARD MODELS (Order desired actuator key separately)

Part Number	Available Contacts (with actuator key inserted)
Locking via spring. Unlocking via energizing of solenoid.	
AZM170SK-11zrk-2197-*	1 NO & 1 NC
AZM170SK-02zrk-2197-*	2 NC
AZM170SK-12/00zrk-2197-*	1 NO & 2 NC
AZM170SK-11/11zrk-2197-*	2 NO & 2 NC
AZM170SK-02/01zrk-2197-*	3 NC
AZM170SK-02/10zrk-2197-*	1 NO & 2 NC
Locking via energizing of solenoid. Unlocking via spring. (See Note 1 below)	
AZM170SK-11zrka-*	1 NO & 1 NC
AZM170SK-02zrka-*	2 NC
AZM170SK-12/00zrka-*	1 NO & 2 NC
AZM170SK-11/11zrka-*	2 NO & 2 NC
AZM170SK-02/01zrka-*	3 NC
AZM170SK-02/10zrka-*	1 NO & 2 NC
Individually-coded key models available. (Model AZM170zi). (For extra security in "high-risk" applications.)	

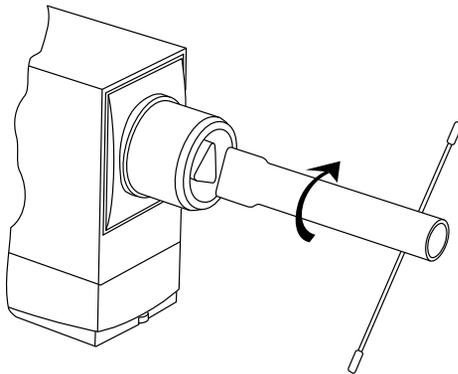
\*Please specify solenoid operating voltage via the addition of one of the following suffix codes:

Voltage	Add Suffix
24VAC/DC	-24VAC/DC
115VAC	-115VAC
230VAC	-230VAC

**Note:** AZM170SK-xx/yy versions are available as 24VAC/DC only.

**Example:** AZM170sk-11zrk-24VAC/DC designates a switch with a 24VAC/DC solenoid which unlocks upon energizing of solenoid.

**Note 1: Use of this model permits the guard to be opened in the event of a power failure. Generally accepted safety standards/practices suggest this model only be used after conducting a thorough risk evaluation in the context of the application.**



Solenoid-latch bypass/override key  
(for locking via spring models only)

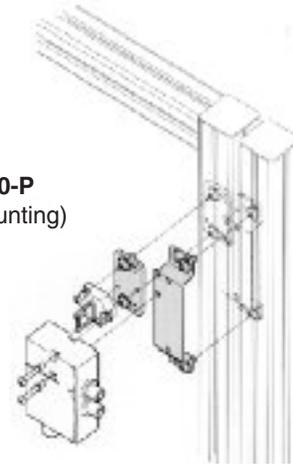
## ACTUATOR KEYS & ACCESSORIES

Part Number	Description
AZ17/170-B1	Standard key (7.87" minimum closing radius)
AZ17/170-B5	Right-angle key (7.87" minimum closing radius)
AZM170-B6	Flexible, close-radius key (1.97" minimum closing radius)
AZ17/170-B11	Elongated standard straight key (7.87" minimum closing radius)
AZ17/170-B15	Elongated right-angle key (7.87" minimum closing radius)
AZ17/170-B1-2245	Standard straight key with vibration-resistant mounting (7.87" minimum closing radius)
AZM-KEY	Solenoid latch bypass/override key (for locking via spring models only)
MS AZM 170-P	Adjustable mounting kit for parallel mounting
MS AZM 170-R/P	Adjustable mounting kit for parallel or perpendicular mounting
AZS2305	Fail-to-Safe Timer (Please see page 74)
FWS1205B	Fail-to-Safe Standstill Monitor (Page 76)

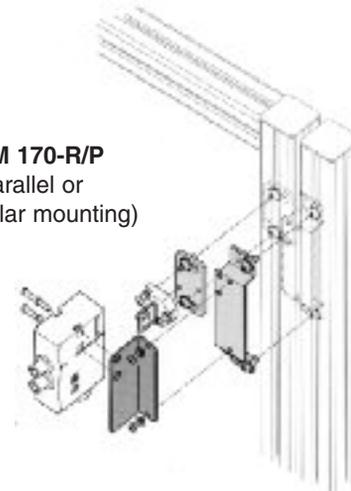
MS mounting kits require the use of -B6 keys

### MS AZM 170 ADJUSTABLE MOUNTING KIT (Eases installation and facilitates adjustments due to guard misalignment)

**MS AZM 170-P**  
(for parallel mounting)



**MS AZM 170-R/P**  
(for parallel or perpendicular mounting)



# AZM170 TECHNICAL DATA

## MECHANICAL SPECIFICATIONS

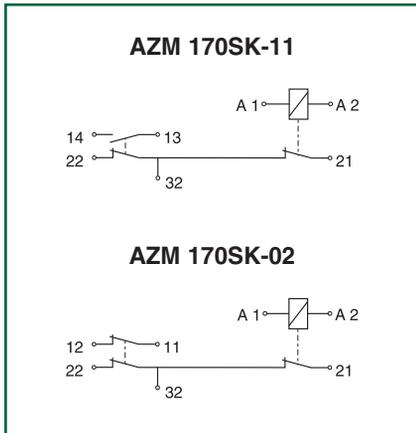
<b>Housing</b>	Glass-fibre reinforced, self-extinguishing thermoplastic
<b>Actuator Key</b>	Stainless steel
<b>Degree of Protection</b>	IP67
<b>Unlocked Key Holding Force</b>	30N (7 pounds)
<b>Travel for Positive-Break</b>	11 mm (0.440 inches)
<b>Closing Force</b>	Approx. 12N (2.7 pounds)
<b>Locking Force</b>	Approx. 1000N (225 pounds)
<b>Operating Temperature</b>	-22°F to +175°F
<b>Solenoid Operating Temperature</b>	-7°F to +140°F
<b>Mechanical Life</b>	> 10 <sup>6</sup> operations
<b>Conformity to Standards</b>	IEC 947-5-1 EN 60947-5-1 DIN VDE 0660-200 BG-GS-ET, EN 1088 UL & CSA
<b>Minimum Closing Radius</b>	1.97" (with B6 actuating key) 7.87" (with B1, B5, B11 and B15 actuating key)

## ELECTRICAL SPECIFICATIONS

<b>Contacts</b>	Fine silver
<b>Contact Configuration</b>	Double-pole, double-break with electrically separated contact bridges
<b>Contact Rating</b>	4A/230VAC
<b>Switching Action</b>	Slow-action, positive-break NC contacts
<b>Short Circuit Protection</b>	6A (time-delay)
<b>Rated Isolation Voltage</b>	250V
<b>Type Terminals*</b>	Screw terminals
<b>Solenoid Supply Voltages</b>	24VDC/AC 110VAC 40-60 Hz 230VAC 40-60 Hz Max. 10 Watts

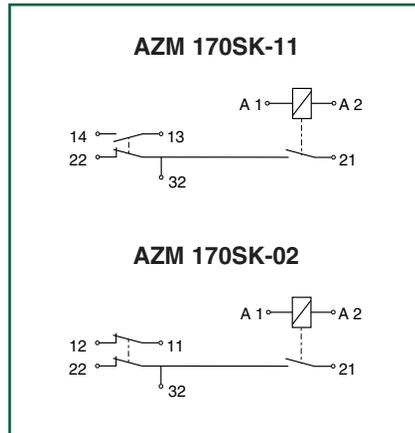
\*Optional insulation displacement connection (IDC) or M12x1 quick-connect terminations available. Please consult factory.

## SWITCHING DIAGRAMS & CONTACT SCHEMATICS (Power-to-unlock)



**Note:**  
Above diagrams are with actuator key inserted and solenoid de-energized.

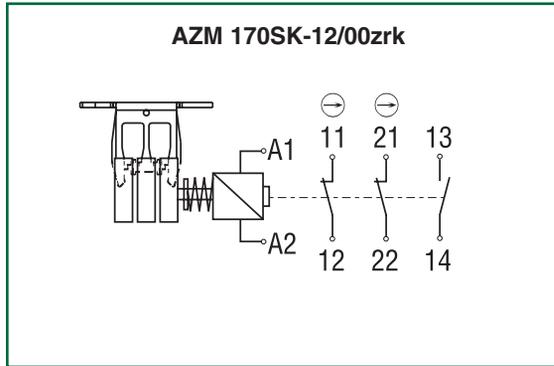
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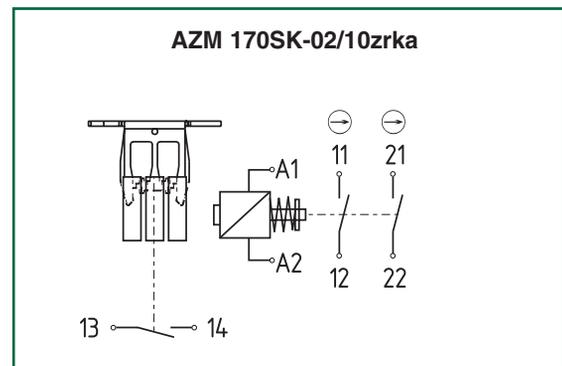
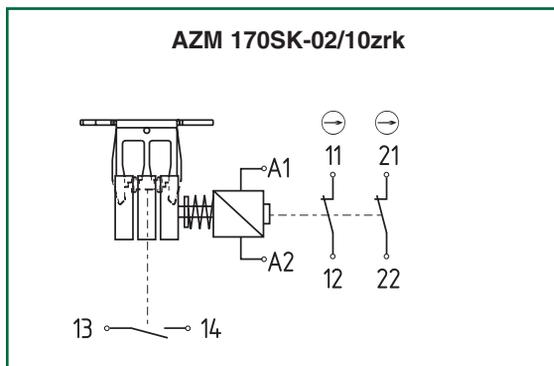
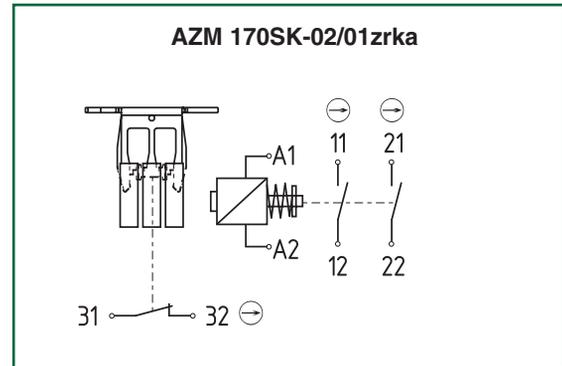
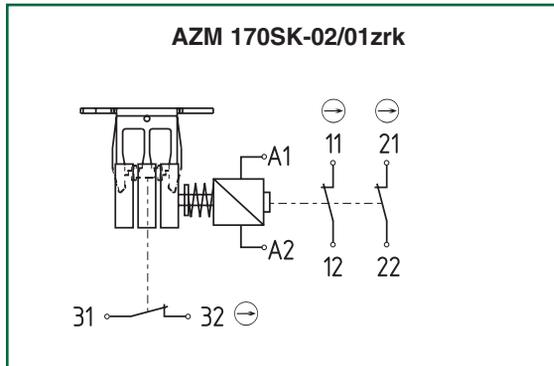
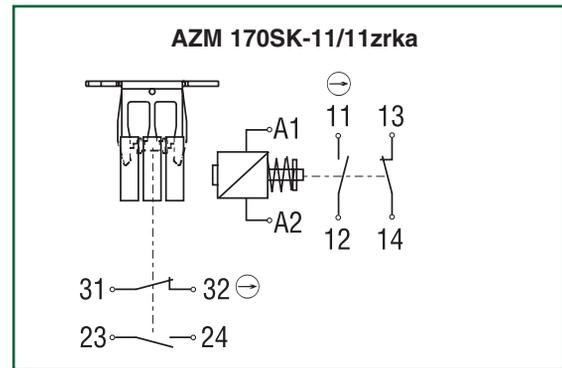
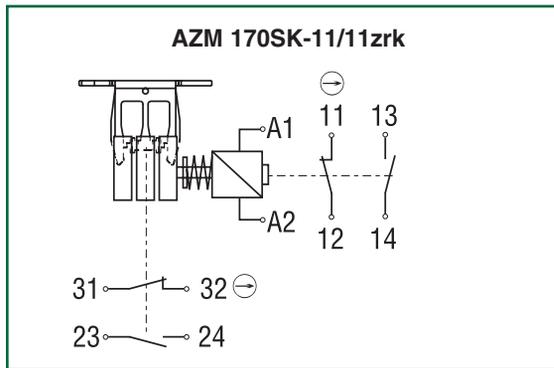
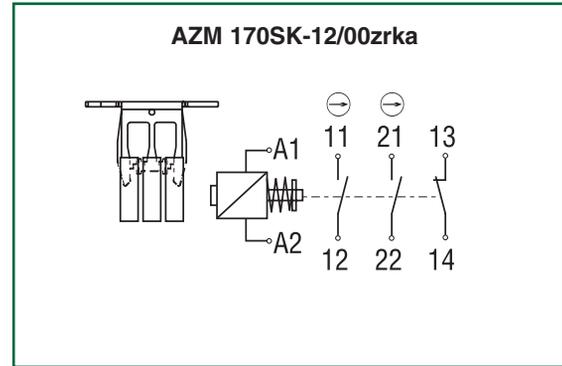
**Note:**  
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# AZM170 TECHNICAL DATA

## SWITCHING DIAGRAMS & CONTACT SCHEMATICS (Power-to-unlock)



## SWITCHING DIAGRAMS & CONTACT SCHEMATICS (Power-to-lock)



**Note:** Above diagrams are with actuator key inserted and solenoid de-energized.

