Safety switches with separate actuator Class 2







Application AZ and ST Range safety switches are suitable for sliding, hinged and particularly removable safety guards, which need to be closed to ensure the necessary operational security. They are also suitable for fitting on profile sections and existing equipment.

In combination with AES and AZR range safety control modules (see 10.1 and 10.2), all safety switches with class 2 shown in this chapter achieve Control Category 3 or 4 to EN 954-1.



Design and mode of operation On the safety switches with class 2, the switching element is not physically connected to the actuator but functionally brought together or separated for switching. When the guarding device is opened, the actuator is separated from the base unit. In the process, NC contacts are positively opened and NO contacts closed.

A wide range of accessories is available for these safety switches, including various coded actuators, individually coded actuators, also suitable for small radii, lockout tags and various latching devices such as magnets and ball latches. Enclosure rating of all the safety switches is IP 67.The safety switches can be fitted in any desired mounting position.

Features AZ 15	 1 contact Thermoplastic enclosure 4 actuating planes With ejection force With latching force 30 N or 5 N 	AZ 17	 2 contacts Thermoplastic enclosure, compact design 8 actuating planes Latching force 30 N or 5 N Cut clamp termination Individual coding possible 	AZ 415	 Up to 6 contacts, Up to 3 switch inserts per enclosure Metal enclosure Robust design Adjustable ball latch 0 to 500 N
AZ 16	 Up to 3 contacts Thermoplastic enclosure 4 actuating planes With ejection force Latching force 30 N or 5 N Individual coding possible EEx version available 	AZ 335 AZ 355	 Mounting dimensions to EN 50047 Up to 3 contacts Metal enclosure 8 actuating planes Mounting dimensions to EN 50041 	ST 14	 2 contacts Thermoplastic enclosure 4 actuating planes For applications with restricted space With moulded-in cable EEx version available

On hinged doors

Application

On sliding doors





On removable covers



Note

Technical data for the safety switches listed above are shown in tabular form in 1.29.

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Safety switches with separate actuator / Class 2 1.

ST 14 range 1.27







Features

- Thermoplastic enclosure
- Slim design
- Multiple coding
- Long life
- Double insulated 🗆
- High level of contact reliability with low voltages and currents
- Pre-wired with 1 m cable
- Actuator with rubber mountings
- EEx version see chapter 14.1.1.2

Contacts/	1 NO	BK - BK	2 NC	BN ⊶⁺≁⊸ BU
Switch travel	1 NC	BN - BU		BK ⊶⁺→⊸ BK
Standard version	0 5 ST 14 1Ö/1	9 (BK/BK) 23-24 11-12 (∱8 (BN/BU) S	0 5 5 ST 14 2Ö	

Notes Inserted position of actuator = 0 in switch travel diagrams. Actuators must be ordered separately.

1. Safety switches with separate actuator / Class 2

1.27 ST 14 range



Cable lengths	 2 metres long, Ordering suffix -2m 5 metres long, Ordering suffix -5m 10 metres long, Ordering suffix -10m Other cable lengths possible on enquiry. 			
Ordering details	To order, select the part number of the desired switch from the table "Contacts/Switch travel", e.g. safety switch with two NC contacts, 2 m long cable: ST 14 2Ö-2m			
	Actuators and accessories must be ordered separately, e.g. angled actuator: ST 14-B5			
	The applicable ordering suffix is added at the end of the part number of the safety switch. Further variants not shown here are available on enquiry.			
Info	• Alternative version with side cable entry, ordering suffix -s, e.g. ST14 1Ö/1S-s			
Approvals	UN CAN			



Straight actuator ST 14-B1

- On hinged guards, minimum actuating radius 140 mm
- Damps vibration on guards

Actuators

1.28





• The axis of the hinge should be 30 mm above the top edge of the safety switch and in the same plane



Adjustable actuator ST 14-B3

- Particularly suitable for hinged guards
- For very small actuating radii at 90° to the plane of the actuator
- Minimum actuating radius 50 mm on hinged guards



• The axis of the hinge should be 14 mm above the top edge of the safety switch and in the same plane



Angled actuator ST 14-B5

- Particularly suitable for hinged guards
- Minimum actuating radius 140 mm on hinged guards





• The axis of the hinge should be 15 mm above the top edge of the safety switch and in the same plane



1.29 Technical data



	AZ 15 / AZ 16 AZ 16zi	AZ 16-ST AZ 16zi-ST	AZ 17 AZ 17zi
Standards:	IEC/EN 60947-5-1; EN 1088; BG-GS	-ET-15	
Enclosure material:	Glass-fibre reinforced thermoplastic,	self-extinguishing	
Actuator:	Stainless steel 1.4301		
Protection class:	IP 67 to IEC/EN 60529		
Contact material:	Silver		
Contact type:	Change-over with double break Zb or	2 NC or 3 NC contacts,	Change-over with double break Zb
	with galvanically separated contact be	ridges	or 2 NC contacts, with galvanically
			separated contact bridges
Switching system:	⊖ IEC 60947-5-1; BG-GS-ET-15; s	slow action, NC contact with positive brea	ak
Termination:	Screw terminals for	Connector M 12 x 1,	Cut clamp (IDC) method
	max. 2.5 mm ² cables	four pole	0.75 to 1.0 mm ² , flexible
	(including conductor ferrules)		
Rated impulse			
withstand voltage U _{imp} :	6 kV		4 kV
Rated insulation			
voltage U _i :	500 V		250 V
Thermal test current I _{th} :	10 A		
Utilisation category:	AC-15; DC-13		AC-15
Rated operating			
current/voltage I _e /U _e :	4 A/230 VAC; 4 A/24 VDC		4 A/230 V
Max. fuse rating:	6 A gL/gG D-fuse		
Positive break travel:	8 mm		11 mm
Positive break force:	10 N for each NC contact fitted		17 N for each NC contact fitted
Ambient temperature:	- 30 °C + 80 °C		
Mechanical life:	> 1 million operations		
Latching force:	Ordering suffix r: 30 N		

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1.29 Technical data



	AZ 17-ST AZ 17zi-ST	AZ 335 AZ 355	AZ 415
Standards:	IEC/EN 60947-5-1/DIN VDE 0660-20	0; EN 1088; BG-GS-ET-15	
Enclosure material:	Glass-fibre reinforced thermo-	Light-alloy diecasting, paint finish	
	plastic, self-extinguishing		
Actuator:	Stainless steel 1.4301		Zinc-plated brass/aluminium
Protection class:	IP 67 to IEC/EN 60529/DIN VDE 047	0-1	
Contact material:	Silver		
Contact type:	Changeover with double break Zb	Changeover with double break Zb or 2	NC or 3 NC contacts,
	or 2 NC contacts, with galvanically	galvanically separated contact bridges	
	separated contact bridges		
Switching system:	⊖ IEC 60947-5-1;	slow action, NC contact with positive bre	ak
Termination:	Connector M 12 x 1,	Screw terminals; for max. 2.5 mm ² cab	les (including conductor ferrules)
	four pole		
Rated impulse			
withstand voltage U _{imp} :	4 kV	2 contacts: 6 kV,	4 kV
		3 contacts: 4 kV	
Rated insulation			
voltage U _i :	250 V	2 contacts: 500 V,	250 V
		3 contacts: 250 V	
Thermal test current I _{th} :	10 A		
Utilisation category:	AC-15		
Rated operating			
current/voltage I _e /U _e :	4 A/230 V	2 contacts: 4 A/230 V,	4 A/230 V
		2.5 A/400 V, 1 A/500 V;	
		3 contacts: 4 A/230 V	
Max. fuse rating:	6 A gL/gG D-fuse		
Positive break travel:	11 mm	10.7 mm	6.2 mm; AZM 415-33: 5.5 mm
Positive break force:	17 N for each NC contact fitted	5 N for each NC contact fitted	Min. 15 N
Ambient temperature:	– 30 °C + 80 °C	– 30 °C + 90 °C	– 25 °C + 80 °C
Mechanical life:	> 1 million operations	10 million operations	> 1 million operations
Latching force:	Ordering suffix r: 30 N		-

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1.29 Technical data



	ST 14
Standards:	IEC/EN 60947-5-1/DIN VDE 0660-200; EN 1088; BG-GS-ET-15
Enclosure material:	Glass-fibre reinforced thermoplastic, self-extinguishing
Actuator:	Stainless steel 1.4301
Protection class:	IP 67 to IEC/EN 60529/DIN VDE 0470-1
Contact material:	Silver
Contact type:	Changeover with double break Zb
	or 2 NC contacts
Switching system:	\ominus IEC 60947-5-1; $\ensuremath{@}$ BG-GS-ET-15; slow action, NC contact with positive break
Termination:	Pre-wired cable H05/VV-F4 x 0.75 mm ²
	1 m, 2 m, 5 m or 10 m long
Rated impulse	
withstand voltage U _{imp} :	4 kV
Rated insulation	
voltage U _i :	250 V
Thermal test current I _{th} :	10 A
Utilisation category:	AC-15
Rated operating	
current/voltage I _e /U _e :	4 A/230 V
Max. fuse rating:	6 A (slow blow)
Positive break travel:	8 mm
Positive break force:	Min. 15 N
Ambient temperature:	– 20 °C + 80 °C
Mechanical life:	> 1 million operations
Latching force:	-

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