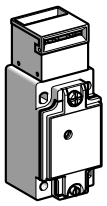
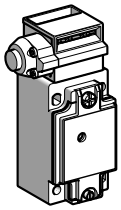
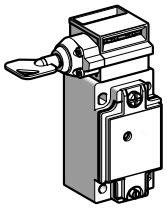
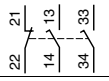
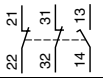
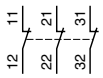
Safety detection solutions

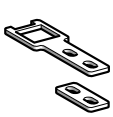
Safety switches
Metal, turret head (1), types XCS A, B, C and E
Cable entries tapped 1/2" NPT

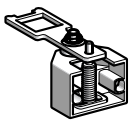
Type of switch	Without locking of key			With locking of key, manual unlocking (2)					
									
LED indication on opening of N/C contacts	Without	1 orange LED ⎓ 24/48 V	1 orange LED ∿ 110/240 V	Without	1 orange LED ⎓ 24/48 V	1 orange LED ∿ 110/240 V	Without	1 orange LED ⎓ 24/48 V	1 orange LED ∿ 110/240 V
References of switches without operating key (⊖ N/C contact with positive opening operation)									
3-pole N/C + N/O + N/O (2 N/O staggered) slow break (3) 	**XCS A503** ⊖	**XCS A513** ⊖	**XCS A523** ⊖	**XCS B503** ⊖	**XCS B513** ⊖	**XCS B523** ⊖	**XCS C503** ⊖	**XCS C513** ⊖	**XCS C523** ⊖
3-pole N/C + N/C + N/O (N/O staggered) slow break (3) 	**XCS A703** ⊖	**XCS A713** ⊖	**XCS A723** ⊖	**XCS B703** ⊖	**XCS B713** ⊖	**XCS B723** ⊖	**XCS C703** ⊖	**XCS C713** ⊖	**XCS C723** ⊖
3-pole N/C + N/C + N/C slow break (3) 	**XCS A803** ⊖	–	–	**XCS B803** ⊖	–	–	**XCS C803** ⊖	–	–
Weight (kg)	0.440	0.440	0.440	0.475	0.475	0.475	0.480	0.480	0.480

Complementary characteristics not shown under general characteristics (page 2/19)

Actuation speed	Maximum: 0.5 m/s, minimum: 0.01 m/s
Resistance to forcible key withdrawal	**XCS B** and **XCS C**: 1500 N; **XCS E:** 2000 N
Mechanical durability	**XCS A and XCS E: > 1 million operating cycles** **XCS B and XCS C: 0.6 million operating cycles**
Maximum operating rate	For maximum durability: 600 operating cycles per hour
Minimum force for extraction of key	≥ 20 N
Cable entry	**XCS A**, **XCS B, XCS C**: 1 cable entry. **XCS E**: 2 cable entries. Entries tapped for 1/2" NPT (USAS B2-1) conduit.
Materials	Body : zamak. Head : zamak. Safety screws : 5-lobe torque. Protective plate : steel

References of operating keys





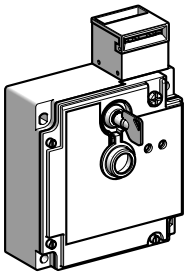
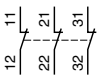
Description	Straight key	Wide key	Pivoting key	Latch for sliding doors
For limit switches XCS A, B, C, E	**XCS Z01**	**XCS Z02**	**XCS Z03**	**XCS Z05**
Weight (kg)	0.020	0.020	0.095	0.600

(1) Adjustable throughout 360° in 90° steps. Blanking plug for operating head slot included with switch.
(2) Unlocking by pushbutton for XCS B●●● and by key operated lock for XCS C●●●.
(3) Schematic diagrams shown represent the contact states whilst the operating key is inserted in the head of the switch.

Dimensions: pages 2/27 and 2/28
Connections: page 2/29

Safety detection solutions

Safety switches
Metal, turret head (1), types XCS A, B, C and E
Cable entries tapped 1/2" NPT

Type of switch	With interlocking, locking by electromagnet							
								
Type of interlocking	**Locking on de-energisation and unlocking on energisation of electromagnet** (2). To order a limit switch with locking on energisation and unlocking on de-energisation of the electromagnet, replace the 2nd number by **5** in the references shown below. Example: **XCS E5313** becomes **XCS E5513**.							
LED indication	Orange LED: “guard open” signalling. Green LED: “guard closed and locked” signalling.							
Supply voltage of electromagnet	∿ or ⎓ 24 V (50/60 Hz on ∿)		∿ or ⎓ 48 V (50/60 Hz on ∿)		∿ or ⎓ 110/120 V (3) (50/60 Hz on ∿)		∿ or ⎓ 220/240 V (3) (50/60 Hz on ∿)	
Type of contact on electromagnet	N/C + N/O	2 N/C	N/C + N/O		N/C + N/O	2 N/C	N/C + N/O	
References of switches without operating key (⊖ N/C contact with positive opening operation)								
3-pole N/C + N/O + N/O (2 N/O staggered) slow break (4) 	**XCS E5313** ⊖	–	**XCS E5323** ⊖		**XCS E5333** ⊖	–	**XCS E5343** ⊖	
3-pole N/C + N/C + N/O (N/O staggered) slow break (4) 	**XCS E7313** ⊖	**XCS E73137** ⊖	**XCS E7323** ⊖		**XCS E7333** ⊖	**XCS E73337** ⊖	**XCS E7343** ⊖	
3-pole N/C + N/C + N/C slow break (4) 	**XCS E8313** ⊖ (5)	–	**XCS E8323** ⊖ (5)		**XCS E8333** ⊖ (5)	–	–	
Weight (kg)	1.140		1.140		1.140		1.140	
Electromagnet characteristics								
Load factor	100 %							
Rated operational voltage	∿ **or** ⎓ **24 V**		∿ **or** ⎓ **48 V**		∿ **or** ⎓ **110/120 V**		∿ **or** ⎓ **220/240 V**	
Voltage limits	- 20 % + 10 % of the rated operational voltage (including ripple on ⎓) conforming to IEC/EN 60947-1							
Service life	20,000 hours							
Consumption	Inrush: 10 VA. Sealed: 10 VA							
LED indicator characteristics								
Rated insulation voltage	50 V conforming to IEC/EN 60947-1				250 V conforming to IEC/EN 60947-1			
Current consumption	7 mA				7 mA			
Rated operational voltage	∿ **or** ⎓ **24/48 V**				∿ **110/240 V**			
Voltage limits	∿ or ⎓ 20...52 V (including ripple on ⎓)				∿ 95/264 V (including ripple on ⎓)			
Service life	100 000 hours				100 000 hours			
Protection against overvoltages	Yes				Yes			

(1) Adjustable throughout 360° in 90° steps. Blanking plug for operating head slot included with switch.
(2) A key operated lock enables the forced opening of the interlocking device, allowing key withdrawal and subsequent opening of the N/C safety contacts.
(3) For use on ⎓ 110/120 V or ⎓ 220/240 V, remove the LED indicator module.
(4) Schematic diagrams shown represent the contact states whilst the operating key is inserted in the head of the switch.

Dimensions: pages 2/27 and 2/28
Connections: pages 2/29 to 2/31

Safety detection solutions

Key operated safety switches
Metal, types XCS A, XCS B, XCS C and XCS E
Plastic, double insulated, types XCS MP, XCS PA, XCS TA and XCS TE

Environment

Limit switch type		**XCS A, XCS B, XCS C, XCS E (metal case)**	**XCS MP, XCS PA, XCS TA, XCS TE (plastic case)**
Conforming to standards	Products	IEC/EN 60947-5-1, UL 508, CSA C22-2 n° 14	
	Machine assemblies	IEC/EN 60204-1, EN 1088, EN 292	
Product certifications		UL, CSA	UL, CSA (c UL us for **XCS MP**)
Protective treatment		Standard version: "TC"	
Ambient air temperature		Operation: - 25…+ 70 °C (- 25…+ 40°C for **XCS E** and - 25…+ 60°C for **XCS TE**) Storage: - 40…+ 70 °C (- 25…+ 80 °C for **XCS MP**)	
Vibration resistance		5 gn (10…500 Hz) conforming to IEC/EN 60068-2-6 (6 gn (10…55 Hz) for **XCS MP**)	
Shock resistance		10 gn (duration 11 ms) conforming to IEC/EN 60068-2-27 (50 gn (duration 11 ms) for **XCS MP**)	
Electric shock protection		Class I conforming to IEC/EN 60536.	Class 2 conforming to IEC/EN 60536
Degree of protection		**IP 67 conforming to IEC/EN 60529 and IEC/EN 60947-5-1** (1)	
Cable entry		1 entry (**XCS A, XCS B** and **XCS C**) or 2 entries (**XCS E**) tapped for Pg 13.5 (n° 13) cable gland, tapped M20 or tapped 1/2" NPT	1 entry (**XCS PA** and **XCS TE**) or 2 entries (**XCS TA**) tapped for Pg 11 (n° 11) cable gland, tapped M16 or tapped 1/2" NPT (with adaptor) for **XCS TA** and **XCS TE**
Connecting cable		–	Pre-cabled, either 4 x 0.5 mm² or 6 x 0.5 mm² (**XCS MP**)
Materials		XCS A/B/C/E Zamak enclosure	XCS MP/PA/TA/TE/PL/TL/PR/TR Polyamide PA66 fibreglass impregnated enclosure
		Operating keys (all types): steel XC60, surface treated	

Contact block characteristics

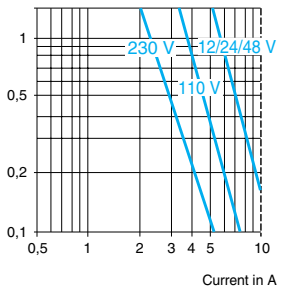
Rated operational characteristics	**XCS A, XCS B, XCS C, XCS PA, XCS TA: ∿ AC-15, A300: Ue = 240 V, Ie = 3 A or Ue = 120 V, Ie = 6 A** **XCS E, XCS TE: ∿ AC-15, B300: Ue = 240 V, Ie = 1.5 A or Ue = 120 V, Ie = 3 A** **XCS MP: ∿ AC-15, C300: Ue = 240 V, Ie = 0,75 A or Ue = 120 V, Ie = 1,5 A** **All models: ⎓ DC-13; Q300: Ue = 250 V, Ie = 0.27 A or Ue = 125 V, Ie = 0.55 A** **conforming to IEC/EN 60947-5-1**
Rated thermal current in enclosure	**XCS A, XCS B, XCS C, XCS PA, XCS TA:** Ithe = 10 A **XCS E, XCS TE:** Ithe = 6 A **XCS MP:** Ithe = 2,5 A
Rated insulation voltage	Ui = 500 V conforming to IEC/EN 60947-5-1 Ui = 300 V conforming to UL 508, CSA C22-2 n°14
Rated impulse withstand voltage	**XCS A, XCS B, XCS C, XCS PA, XCS TA:** Uimp = 6 kV conforming to IEC/EN 60947-5-1 **XCS E, XCS TE, XCS MP**: Uimp = 4 kV conforming to IEC/EN 60947-5-4
Positive operation	N/C contact with positive opening operation conforming to IEC/EN 60947-5-1, Section 3
Resistance across terminals	≤ 30 mΩ conforming to IEC/EN 60957-5-4
Short-circuit protection	10 A cartridge fuse type gG (gl)
Cabling	Screw clamp terminals. Clamping capacity, min.: 1 x 0.5 mm², max.: 2 x 1.5 mm² with or without cable end Pre-cabled: 4 x 0.5 mm² or 6 x 0.5 mm² (**XCS MP**)

Electrical durability

Conforming to IEC/EN 60947-5-1 Appendix C.
Utilisation categories AC-15 and DC-13.
Maximum operating rate: 3600 operating cycles per hour.
Load factor: 0.5

Only applicable to **XCS MP**
Conforming to IEC/EN 60947-5-1 Appendix C
Utilisation categories AC-15 and DC-13.
Maximum operating rate : 900 operating cycles per hour.

a.c. supply
∿ 50/60 Hz
ᔓᔓᔓ inductive circuit



d.c. supply ⎓

Power broken in W for 1 million operating cycles

Voltage	**V**	**24**	**48**	**120**
ᔓᔓᔓ	**W**	13	9	7

Number of operating cycles: 100,000

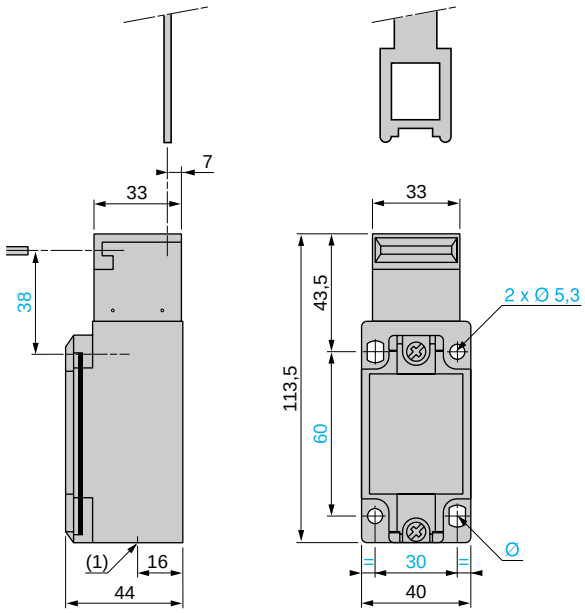
	AC15	DC13	
V	125	30	125
A	1.5	2.3	0.55

(1) Live parts of the switches are protected against the penetration of dust and water. However, when installing take all necessary precautions to prevent the penetration of solid bodies, or liquids with a high dust content, into the key aperture. Not recommended for use in saline atmospheres.

Safety detection solutions

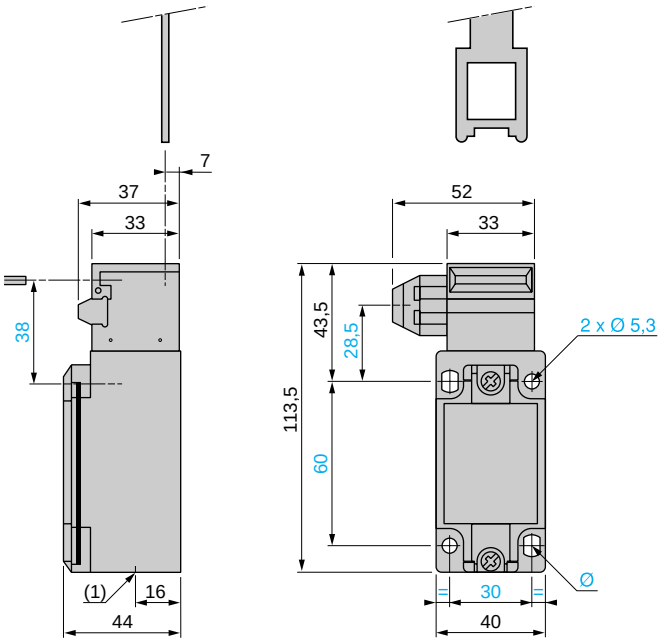
Safety switches
Metal, turret head, types XCS A, B, C and E

XCS A●●●



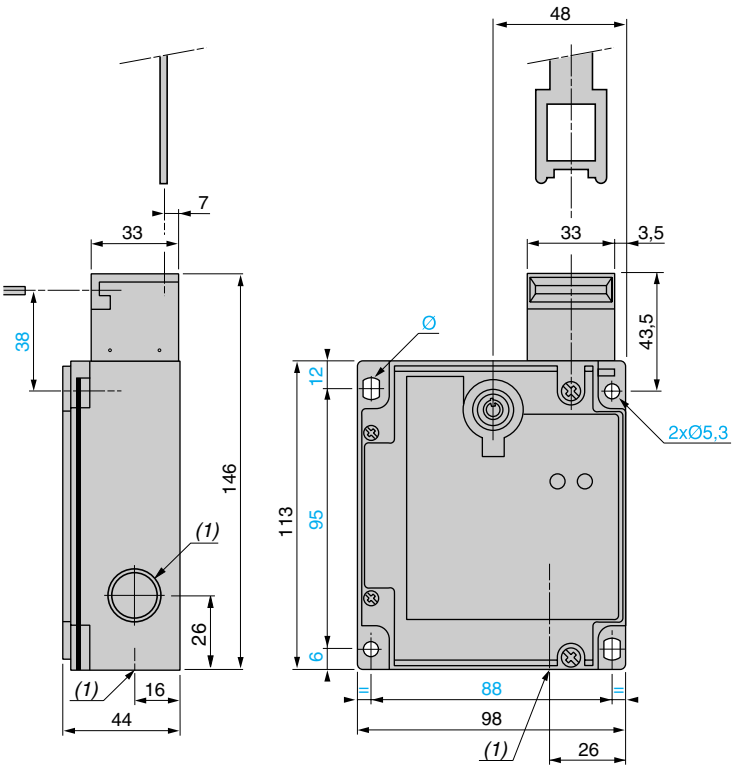
(1) 1 tapped entry for cable gland
Ø : 2 elongated holes Ø 5.3 x 7.3

XCS B●●●, XCS C●●●



(1) 1 tapped entry for cable gland
Ø : 2 elongated holes Ø 5.3 x 7.3

XCS E●●●●

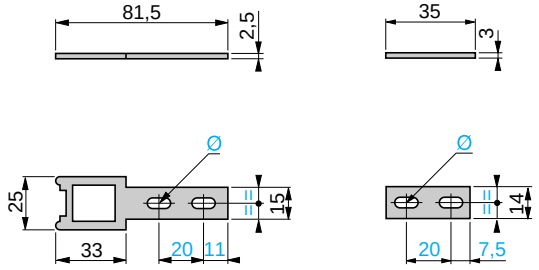


(1) 2 tapped entries for cable gland
Ø : 2 elongated holes Ø 5.3 x 7.3

References: pages 32922/2 to 32925/
3 Connections:
pages 32923/5 to 32923/7

XCS Z01

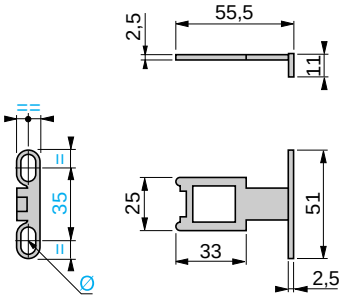
Adaptor shank (1)



(1) Adaptor (supplied with operating key XCS Z01) for replacing, without drilling additional fixing hole, an XCK J safety limit switch with operating key ZCK Y07 by an XCS A, B, C or E safety limit switch with operating key XCS Z01

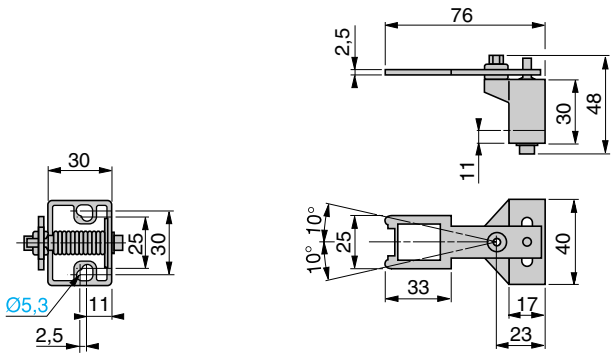
Ø : 2 elongated holes Ø 5.3 x 10

XCS Z02

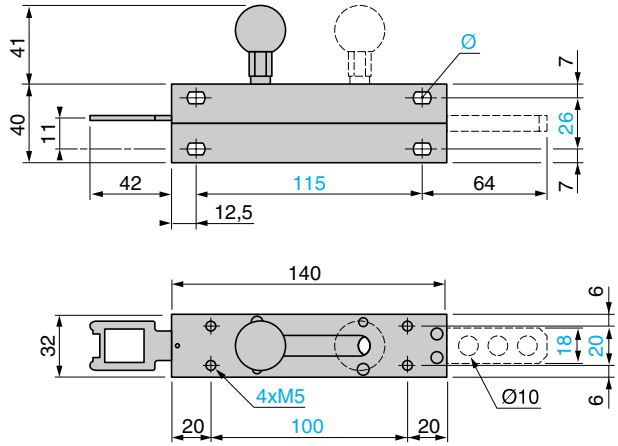


Ø : 2 elongated holes Ø 5.3 x 10

XCS Z03



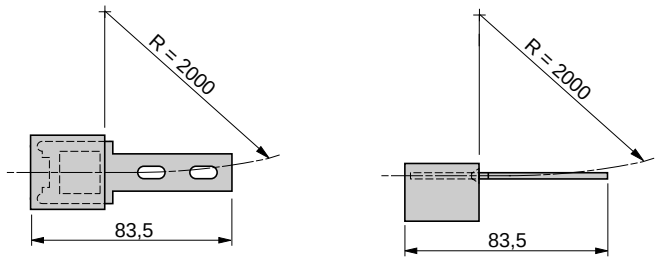
XCS Z05



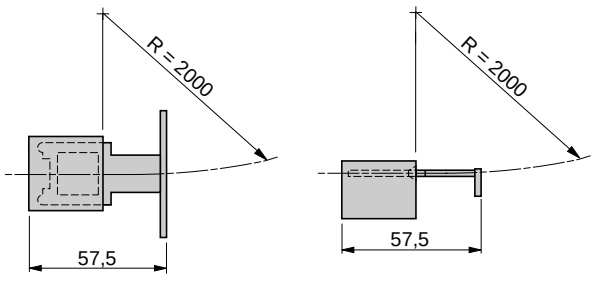
Ø : 4 elongated holes Ø 5.3 x 7.3

Operating radius required for key

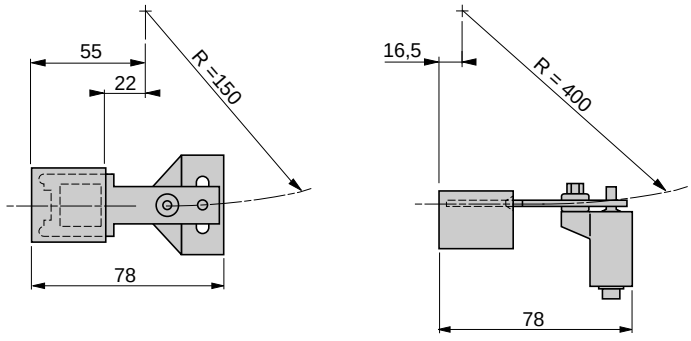
XCS Z01



XCS Z02



XCS Z03



R = minimum radius

References: pages 32922/2 to 32925/
3 Connections:
pages 32923/5 to 32923/7