Safety detection solutions

Safety limit switches
Compact design
XCSD, metal
XCSP, plastic

■ XCSD, XCSP
with 1 cable entry
Conforming to standard EN 50047

With head for linear movement (plunger)

XCSD

Metal end plunger

Roller plunger

Page 32

XCSP

Metal end plunger

Roller plunger

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With head for rotary movement (lever)

XCSD

Thermoplastic roller lever

Steel roller lever

Page 32

XCSP

Thermoplastic roller lever

Steel roller lever

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Environmental characteristics

Conformity to standards	Products	EN/IEC 60947-5-1, UL 508, CSA C22-2 no. 14
	Machine assemblies	EN/IEC 60204-1, EN/ISO 14119
Product certifications		UL, CSA, CCC, EAC
Maximum safety level *(1)*		PL=e, category 4 conforming to EN/ISO 13849-1 and SIL CL3 conforming to EN/IEC 62061
Reliability data B_{10D}		50,000,000 (value given for a service life of 20 years, limited by mechanical or contact wear)
Ambient air temperature	For operation	-25…+70 °C
	For storage	-40…+70 °C
Vibration resistance	Conforming to EN/IEC 60068-2-6	25 gn (10…500 Hz)
Shock resistance	Conforming to EN/IEC 60068-2-27	50 gn (11 ms)
Electric shock protection		Class I conforming to EN/IEC 61140 for **XCSD**
		Class II conforming to EN/IEC 61140 for **XCSP**
Degree of protection	Conforming to EN/IEC 60529	**IP 66 and IP 67**
	Conforming to IEC 62262	**IK 06 for XCSD** **IK 04 for XCSP**
Repeat accuracy		0.1 mm on the tripping points, with 1 million operating cycles for head with end plunger
Cable entry	Depending on model	Tapped entry for Pg 13.5 cable gland, tapped ISO M20 x 1.5 or tapped 1/2" NPT
Materials		**XCSD**: Zamak bodies and heads, **XCSP**: plastic bodies, Zamak heads Plastic protective cover, fixed with 5-lobe torque safety screws

Contact block characteristics

Rated operational characteristics	∼ AC-15; B300 (Ue = 240 V, Ie = 1.5 A) ⎓ DC-13; R300 (Ue = 250 V, Ie = 0.1 A), conforming to EN/IEC 60947-5-1 Appendix A
Conventional thermal current in enclosure	3 snap action contact and 3 slow break contact versions: Ithe = 6 A
Rated insulation voltage	Ui = 400 V degree of pollution 3 conforming to IEN/IEC 60947-1 Ui = 300 V conforming to UL 508, CSA C22-2 no. 14
Rated impulse withstand voltage	U imp = 4 kV conforming to EN/IEC 60947-1, EN/IEC 60664
Positive operation (depending on model)	NC contacts with positive opening operation conforming to IEN/IEC 60947-5-1 Appendix K
Resistance across terminals	≤ 25 mΩ conforming to EN/IEC 60255-7 category 3
Short-circuit protection	6 A cartridge fuse type gG (gl)
Connection (screw clamp terminals)	Clamping capacity, min: 1 x 0.34 mm^2, max: 1 x 1 mm^2 or 2 x 0.75 mm^2
Minimum actuation speed (for head with end plunger) — Snap action	0.01 m/minute
Minimum actuation speed (for head with end plunger) — Slow break	6 m/minute

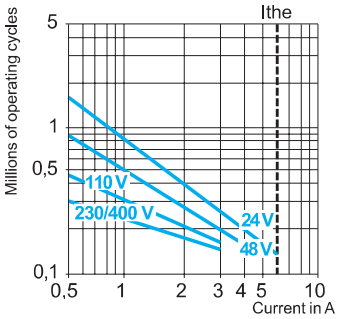
(1) Using an appropriate and correctly connected safety control unit.

Electrical durability

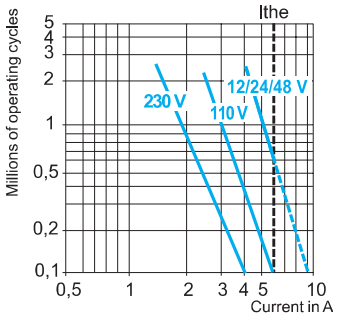
- Conforming to EN/IEC 60947-5-1 Appendix C
- Utilization categories AC-15 and DC-13
- Maximum operating rate: 3,600 operating cycles/hour
- Load factor: 0.5

AC supply
50/60 Hz ∼
⎓ inductive circuit

Snap action contacts



Slow break contacts



DC supply ⎓
Power broken in W for 5 million operating cycles.

Voltage	V	24	48	120
⎓	W	3	2	1

Voltage	V	24	48	120
⎓	W	4	3	2

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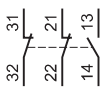
Safety limit switches

XCSD compact design, metal

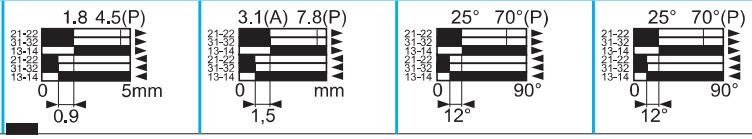
Complete switches, 1 cable entry

Type of head	Plunger		Rotary	
				
Type of operator	Metal end plunger	Steel roller plunger	Thermoplastic roller lever	Steel roller lever
References of complete switches with 3-pole 2 NC + 1 NO snap action contact (⊖ NC contact with positive opening operation)				
With ISO M20 x 1.5 cable entry				
	XCSD3910P20 ⊖	**XCSD3902P20** ⊖	**XCSD3918P20** ⊖	**XCSD3919P20** ⊖
With Pg 13.5 cable entry				
	XCSD3910G13 ⊖	**XCSD3902G13** ⊖	**XCSD3918G13** ⊖	**XCSD3919G13** ⊖
With 1/2" NPT cable entry				
	XCSD3910N12 ⊖	**XCSD3902N12** ⊖	**XCSD3918N12** ⊖	**XCSD3919N12** ⊖
Weight (kg)	0.215	0.220	0.255	0.255

Contact function diagrams



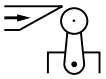
3-pole 2 NC + 1 NO snap action



Contact operation

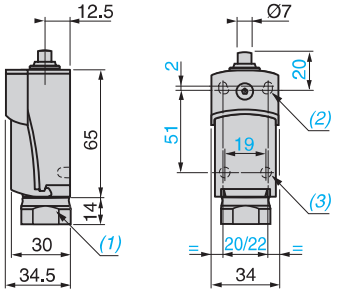
closed
open
(A) = cam displacement
(P) = positive opening point
⊖ NC contact with positive opening operation

Characteristics

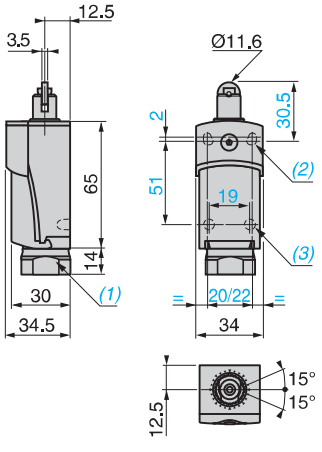
Switch actuation		On end	By 30° cam	
Type of actuation				
Maximum actuation speed		0.5 m/s		1.5 m/s
Mechanical durability (in millions of operating cycles)		15	10	
Minimum force or torque	For tripping	15 N	12 N	0.1 N.m/*0.88 lb-in*
	For positive opening	45 N	36 N	0.25 N.m/*2.21 lb-in*
Cable entry		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm 1 entry tapped for Pg13.5 cable gland, clamping capacity 9 to 12 mm 1 entry tapped for 1/2" NPT conduit		

Dimensions

XCSD3●10●●●



XCSD3●02●●●



(1) Tapped entry for ISO M20 x 1.5 or Pg 13.5 cable gland or tapped 1/2" NPT.
(2) 2 elongated holes Ø 4.3 x 6.3 mm on 22 mm centers, 2 holes Ø 4.3 on 20 mm centers.
(3) 2 x Ø 3 holes for support studs, depth 4 mm.

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Complete switches, 1 cable entry

Type of head	Plunger		Rotary	
				
Type of operator	Metal end plunger	Steel roller plunger	Thermoplastic roller lever	Steel roller lever
References of complete switches with 3-pole 2 NC + 1 NO break before make, slow break contact (⊖ NC contact with positive opening operation)				
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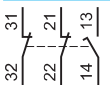
	XCSD3710P20 ⊖	**XCSD3702P20** ⊖	**XCSD3718P20** ⊖	**XCSD3719P20** ⊖
With Pg 13.5 cable entry				
	XCSD3710G13 ⊖	**XCSD3702G13** ⊖	**XCSD3718G13** ⊖	**XCSD3719G13** ⊖
With 1/2" NPT cable entry				
	XCSD3710N12 ⊖	**XCSD3702N12** ⊖	**XCSD3718N12** ⊖	**XCSD3719N12** ⊖
Weight (kg)	0.215	0.220	0.255	0.255

Contact function diagrams



3-pole 2 NC + 1 NO
break before make, slow break

1.8 3.2(P) 21-22 31-32 13-14 0 3 5mm	3.1(A) 5.6(P) 21-22 31-32 13-14 0 5.2 mm	25° 70°(P) 21-22 31-32 13-14 0 42° 90°	25° 70°(P) 21-22 31-32 13-14 0 42° 90°

Contact operation

closed — *(A) = cam displacement*

open — *(P) = positive opening point*

⊖ *NC contact with positive opening operation*

Characteristics

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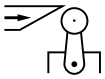
Type of actuation				
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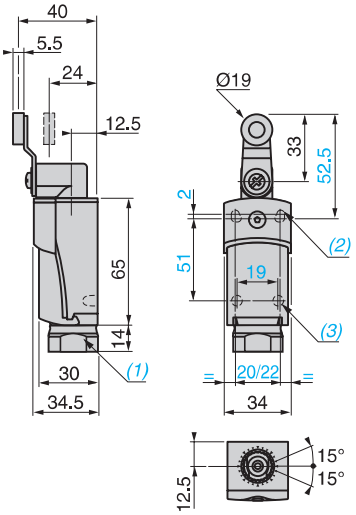
Dimensions

XCSD3●18●●●, XCSD3●19●●●



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