

# Limit switches

OsiSense XC Standard

Compact design, plastic, types XCK P and XCK T

Compact design, metal, type XCK D

1

## ■ XCK P, XCK D

with 1 cable entry

Conforming to CENELEC EN 50047

□ With head for linear movement (plunger). Fixing by the head or by the body

XCK D

XCK P



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□ With head for rotary movement (lever) or multi-directional. Fixing by the body

XCK D

XCK P



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Pages 1/33 and 1/37

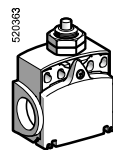
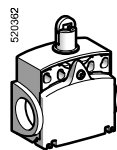
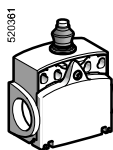
## ■ XCK T

with 2 cable entries

Tripping/resetting points and fixing centres conform to CENELEC EN 50047

□ With head for linear movement (plunger). Fixing by the head or by the body

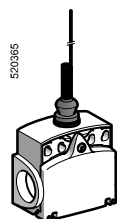
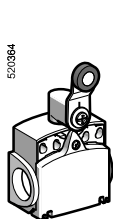
XCK T



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□ With head for rotary movement (lever) or multi-directional. Fixing by the body

XCK T



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## Environment characteristics

Conformity to standards	Products	IEC 60947-5-1, EN 60947-5-1, UL 508, CSA C22-2 n° 14
	Machine assemblies	IEC 60204-1, EN 60204-1
Product certifications		UL, CSA, CCC
Protective treatment	Standard version	"TC"
Ambient air temperature	For operation	-25...+70°C
	For storage	-40...+70°C
Vibration resistance	Conforming to IEC 60068-2-6	25 gn (10...500 Hz) except product with head ZCE 24: 20 gn
Shock resistance	Conforming to IEC 60068-2-27	50 gn (11 ms) except head ZCE 08: 15 gn (11 ms) and ZCE 24: 30 gn (18 ms)
Electric shock protection		Class II conforming to IEC 61140 and NF C 20-030 for XCK P and XCK T
		Class I conforming to IEC 61140 and NF C 20-030 for XCK D
Degree of protection		IP 66 and IP 67 conforming to IEC 60529; IK 04 conforming to EN 50102 for XCK P and XCK T, IK 06 conforming to EN 50102 for XCK D
Repeat accuracy		0.1 mm on the tripping points, with 1 million operating cycles for head with end plunger
Cable entry or connector	Depending on model	Either tapped entry for n° 11 or n° 13 cable gland, tapped ISO M16 x 1.5 or ISO M20 x 1.5, tapped 1/2" NPT or PF 1/2 (G1/2) or M12 connector
Materials		XCK D zamak bodies and heads, XCK P and XCK T plastic bodies, zamak heads

# Limit switches

## OsiSense XC Standard

Compact design, plastic, types XCK P and XCK T

Compact design, metal, type XCK D

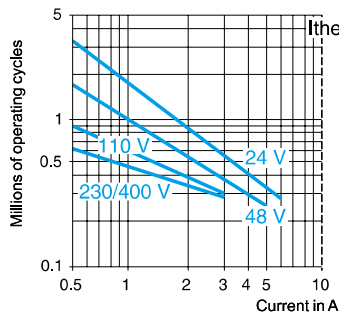


### Contact block characteristics

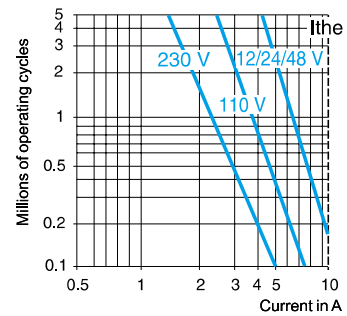
Rated operational characteristics	XE2● P	~ AC-15; A300 (Ue = 240 V, Ie = 3 A); Ithe = 10 A --- DC-13; Q300 (Ue = 250 V, Ie = 0.27 A), conforming to IEC 60947-5-1 Appendix A, EN 60947-5-1
	XE3● P	~ AC-15; B300 (Ue = 240 V, Ie = 1.5 A); Ithe = 6 A --- DC-13; R300 (Ue = 250 V, Ie = 0.1 A), conforming to IEC 60947-5-1 Appendix A, EN 60947-5-1
Rated insulation voltage	XE2● P	Ui = 500 V degree of pollution 3 conforming to IEC 60947-1 Ui = 300 V conforming to UL 508, CSA C22-2 n° 14
	XE3● P	Ui = 400 V degree of pollution 3 conforming to IEC 60947-1 Ui = 300 V conforming to UL 508, CSA C22-2 n° 14
Rated impulse withstand voltage	XE2● P	U imp = 6 kV conforming to IEC 60947-1, IEC 60664
	XE3● P	U imp = 4 kV conforming to IEC 60947-1, IEC 60664
Positive operation (depending on model)		NC contacts with positive opening operation conforming to IEC 60947-5-1 Appendix K, EN 60947-5-1
Resistance across terminals		≤ 25 mΩ conforming to IEC 60255-7 category 3
Short-circuit protection	XE2● P	10 A cartridge fuse type gG (gl)
	XE3● P	6 A cartridge fuse type gG (gl)
Connection (screw clamp terminals)	XE2S P●151 and XE2S P2141	Clamping capacity, min: 1 x 0.34 mm <sup>2</sup> , max: 2 x 1.5 mm <sup>2</sup>
	XE2N P21●1 and XE2N P31●1	Clamping capacity, min: 1 x 0.5 mm <sup>2</sup> , max: 2 x 2.5 mm <sup>2</sup>
	XE3N P and XE3S P	Clamping capacity, min: 1 x 0.34 mm <sup>2</sup> , max: 1 x 1 mm <sup>2</sup> or 2 x 0.75 mm <sup>2</sup>
Minimum actuation speed (for head with end plunger)		<b>XE2S P●151, XE2S P2141 and XE3S P:</b> 0.01 m/minute
		<b>XE2N P21●1, XE2N P31●1 and XE3N P:</b> 6 m/minute
Electrical durability		<ul style="list-style-type: none"> <li>■ Conforming to IEC 60947-5-1 Appendix C</li> <li>■ Utilisation categories AC-15 and DC-13</li> <li>■ Maximum operating rate: 3600 operating cycles/hour</li> <li>■ Load factor: 0.5</li> </ul>

AC supply  
50/60 Hz ~  
mm inductive circuit

#### XE2S P●151, XE2S P2141



#### XE2N P21●1, XE2N P31●1



DC supply ---

#### Power broken in W for 5 million operating cycles.

Voltage	V	24	48	120
mm	W	10	7	4

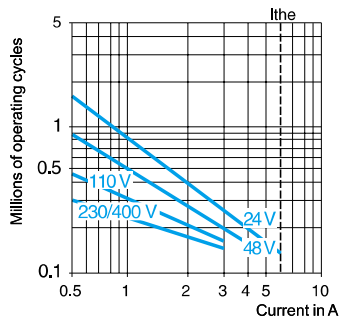
#### Power broken in W for 5 million operating cycles.

Voltage	V	24	48	120
mm	W	13	9	7

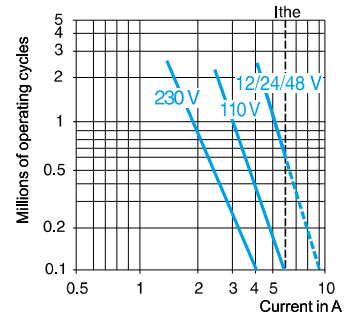
For XE2S P●151 on ~ or ---, NC and NO contacts simultaneously loaded to the values shown with reverse polarity.

AC supply  
50/60 Hz ~  
mm inductive circuit

#### XE3S P●●●●



#### XE3N P●●●●



DC supply ---

#### Power broken in W for 5 million operating cycles.

Voltage	V	24	48	120
mm	W	3	2	1

#### Power broken in W for 5 million operating cycles.

Voltage	V	24	48	120
mm	W	4	3	2

# Limit switches

## OsiSense XC Standard

Compact design, plastic, type XCK P  
Complete switches with 1 cable entry

1

Type of head	Plunger (fixing by the body)					
	Form B (1)	Form C (1)	Form E (1)	Form E (1)	Form E (1)	Form E (1)
Type of operator	Metal end plunger	Metal end plunger with elastomer boot	Steel roller plunger	Thermoplastic roller lever plunger, horizontal actuation in 1 direction	Thermoplastic roller lever plunger, vertical actuation in 1 direction	Thermoplastic roller lever plunger, horiz. or vert. actuation in 1 direction

References of complete switches with 1 ISO M16 x 1.5 cable entry (2)							
	2-pole NC + NO snap action (XE2S P2151)	XCK P2110P16 	XCK P2111P16 	XCK P2102P16 	XCK P2121P16 	XCK P2127P16 	XCK P2128P16 
	2-pole NC + NO break before make, slow break (XE2N P2151)	XCK P2510P16 	XCK P2511P16 	XCK P2502P16 	XCK P2521P16 	XCK P2527P16 	XCK P2528P16 
	2-pole NC + NC snap action (XE2S P2141)	ZCP 29 + ZCP EP16 + ZCE 10 	ZCP 29 + ZCP EP16 + ZCE 10 	ZCP 29 + ZCP EP16 + ZCE 02 	ZCP 29 + ZCP EP16 + ZCE 21 	ZCP 29 + ZCP EP16 + ZCE 27 	ZCP 29 + ZCP EP16 + ZCE 28 
	2-pole NC + NC simultaneous, slow break (XE2N P2141)	ZCP 27 + ZCP EP16 + ZCE 10 	ZCP 27 + ZCP EP16 + ZCE 11 	ZCP 27 + ZCP EP16 + ZCE 02 	ZCP 27 + ZCP EP16 + ZCE 21 	ZCP 27 + ZCP EP16 + ZCE 27 	ZCP 27 + ZCP EP16 + ZCE 28 
	3-pole NC + NC + NO snap action (XE3S P2141)	ZCP 39 + ZCP EP16 + ZCE 10 	ZCP 39 + ZCP EP16 + ZCE 11 	ZCP 39 + ZCP EP16 + ZCE 02 	ZCP 39 + ZCP EP16 + ZCE 21 	ZCP 39 + ZCP EP16 + ZCE 27 	ZCP 39 + ZCP EP16 + ZCE 28 
	3-pole NC + NC + NO break before make, slow break (XE3N P2141)	ZCP 37 + ZCP EP16 + ZCE 10 	ZCP 37 + ZCP EP16 + ZCE 11 	ZCP 37 + ZCP EP16 + ZCE 02 	ZCP 37 + ZCP EP16 + ZCE 21 	ZCP 37 + ZCP EP16 + ZCE 27 	ZCP 37 + ZCP EP16 + ZCE 28 
Weight (kg)		0.090	0.090	0.095	0.105	0.100	0.105

### References of complete switches with 1 entry for n° 11 cable gland

For an entry tapped for a n° 11 cable gland, replace P16 in the reference by G11. Example: XCK P2110P16 becomes XCK P2110G11 or ZCP EP16 becomes ZCP EG11.

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

Characteristics						
Switch actuation	On end	By 30° cam				
Type of actuation						
Maximum actuation speed	0.5 m/s			1 m/s		
Mechanical durability (in millions of operating cycles)	15	10		15		
Minimum force or torque	For tripping 15 N For positive opening 45 N	12 N 36 N		6 N 18 N		
Cable entry (3)	1 entry tapped M16 x 1.5 mm for ISO cable gland, clamping capacity 4 to 8 mm					

(1) Form conforming to EN 50047, see page 1/176.

(2) Switches with gold contacts or eyelet type connections: please consult our Customer Care Centre.

# Limit switches

## OsiSense XC Standard

Compact design, plastic, type XCK P  
Complete switches with 1 cable entry



Type of head	Plunger (fixing by the head)		Rotary (fixing by the body)				Multi-directional	
	Form A (1)							
Type of operator	M18 with metal end plunger	M18 with steel roller plunger	Thermoplastic roller lever	Variable length thermoplastic roller lever	Thermoplastic roller lever, Ø 50 mm	Variable length thermoplastic roller lever, Ø 50 mm	"Cat's whisker" (2)	
References of complete switches with 1 ISO M16 x 1.5 cable entry (3)								
	2-pole NC + NO snap action (XE2S P2151)	XCK P21H0P16 	XCK P21H2P16 	XCK P2118P16 	XCK P2145P16 	XCK P2139P16 	XCK P2149P16 	XCK P2106P16 
	2-pole NC + NO break before make, slow break (XE2N P2151)	XCK P25H0P16 	XCK P25H2P16 	XCK P2518P16 	XCK P2545P16 	XCK P2539P16 	XCK P2549P16 	XCK P2506P16 
	2-pole NC + NC snap action (XE2S P2141)	ZCP 29 + ZCP EP16 + ZCE H0 	ZCP 29 + ZCP EP16 + ZCE H2 	ZCP 29 + ZCP EP16 + ZCE 01 + ZCY 18 	ZCP 29 + ZCP EP16 + ZCE 01 + ZCY 45 	ZCP 29 + ZCP EP16 + ZCE 01 + ZCY 39 	ZCP 29 + ZCP EP16 + ZCE 01 + ZCY 49 	ZCP 29 + ZCP EP16 + ZCE 06 
	2-pole NC + NC simultaneous, slow break (XE2N P2141)	ZCP 27 + ZCP EP16 + ZCE H0 	ZCP 27 + ZCP EP16 + ZCE H2 	ZCP 27 + ZCP EP16 + ZCE 01 + ZCY 18 	ZCP 27 + ZCP EP16 + ZCE 01 + ZCY 45 	ZCP 27 + ZCP EP16 + ZCE 01 + ZCY 39 	ZCP 27 + ZCP EP16 + ZCE 01 + ZCY 49 	ZCP 27 + ZCP EP16 + ZCE 06 
	3-pole NC + NC + NO snap action (XE3S P2141)	ZCP 39 + ZCP EP16 + ZCE H0 	ZCP 39 + ZCP EP16 + ZCE H2 	ZCP 39 + ZCP EP16 + ZCE 01 + ZCY 18 	ZCP 39 + ZCP EP16 + ZCE 01 + ZCY 45 	ZCP 39 + ZCP EP16 + ZCE 01 + ZCY 39 	ZCP 39 + ZCP EP16 + ZCE 01 + ZCY 49 	ZCP 39 + ZCP EP16 + ZCE 06 
	3-pole NC + NC + NO break before make, slow break (XE3N P2141)	ZCP 37 + ZCP EP16 + ZCE H0 	ZCP 37 + ZCP EP16 + ZCE H2 	ZCP 37 + ZCP EP16 + ZCE 01 + ZCY 18 	ZCP 37 + ZCP EP16 + ZCE 01 + ZCY 45 	ZCP 37 + ZCP EP16 + ZCE 01 + ZCY 39 	ZCP 37 + ZCP EP16 + ZCE 01 + ZCY 49 	ZCP 37 + ZCP EP16 + ZCE 06 
Weight (kg)	0.130	0.130	0.135	0.145	0.145	0.155	0.085	

### References of complete switches with 1 entry for n° 11 cable gland

For an entry tapped for a n° 11 cable gland, replace P16 in the reference by G11. Example: XCK P21H0P16 becomes XCK P21H0G11 or ZCP EP16 becomes ZCP EG11.

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

Characteristics				
Switch actuation	On end	By 30° cam		By any moving part
Type of actuation				
Maximum actuation speed	0.5 m/s	1.5 m/s		1 m/s (any direct.)
Mechanical durability	10 million operating cycles			
Minimum force or torque	For tripping	15 N	10 N	0.1 N.m
	For positive opening	45 N	36 N	0.25 N.m
Cable entry	1 entry tapped M16 x 1.5 mm for ISO cable gland, clamping capacity 4 to 8 mm			

(1) Form conforming to EN 50047, see page 1/176. (3) Switches with gold contacts or eyelet type connections: please consult our Customer Care Centre.  
 (2) Value taken with actuation by moving part at 100 mm from the fixing.

## Limit switches

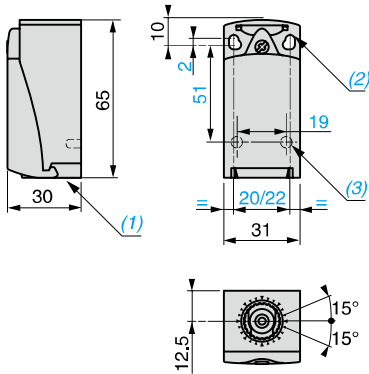
OsiSense XC Standard

Compact design, plastic, type XCK P

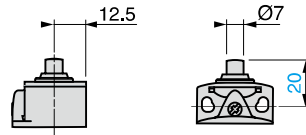
Complete switches with 1 cable entry

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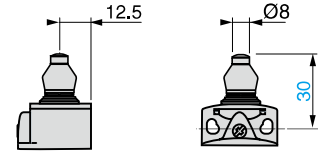
ZCP 2● + ZCP EP16/ZCP 3● + ZCP EP16



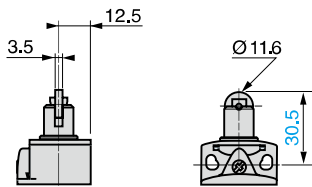
ZCE 10



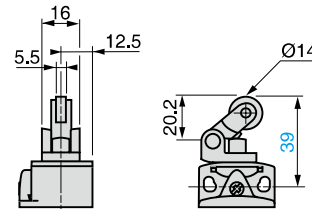
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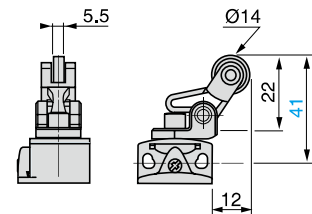
ZCE 02



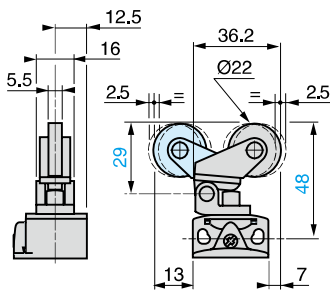
ZCE 21



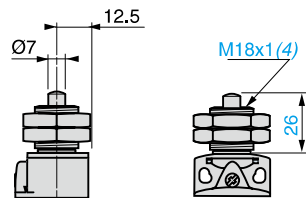
ZCE 27



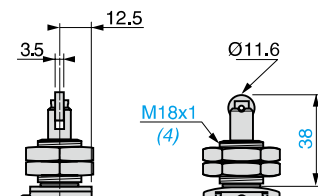
ZCE 28



ZCE H0



ZCE H2



- (1) Tapped entry for ISO M16 x 1.5 or Pg 11 cable gland.
- (2) 2 elongated holes  $\varnothing 4.3 \times 6.3$  mm on 22 mm centres, 2 holes  $\varnothing 4.3$  on 20 mm centres.
- (3) 2 x  $\varnothing 3$  holes for support studs, depth 4 mm.
- (4) Fixing nut thickness 3.5 mm.

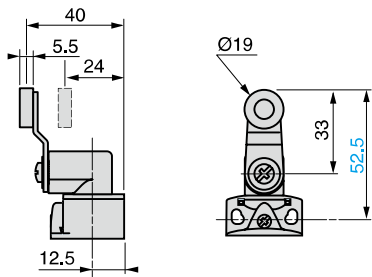
# Limit switches

OsiSense XC Standard

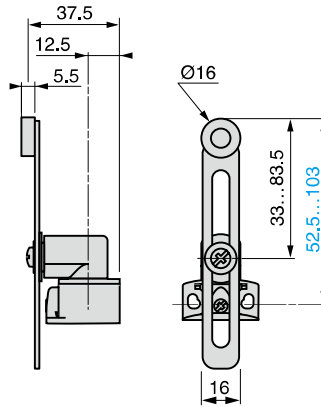
Compact design, plastic, type XCK P

Complete switches with 1 cable entry

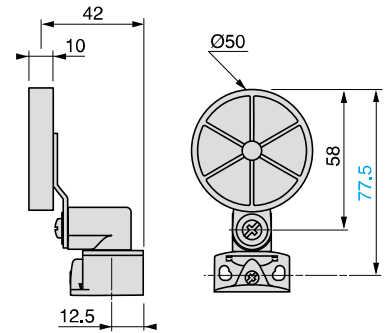
ZCE 01 + ZCY 18



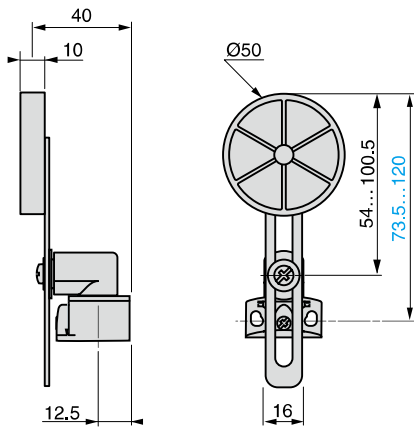
ZCE 01 + ZCY 45



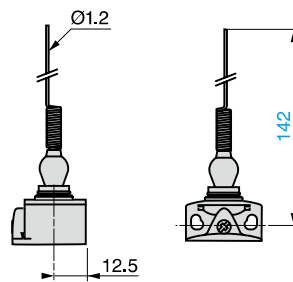
ZCE 01 + ZCY 39



ZCE 01 + ZCY 49



ZCE 06



1

1

Type of head	Plunger (fixing by the body)					
	Form B (1)		Form C (1)		Form E (1)	
Type of operator	Metal end plunger	Metal end plunger with elastomer boot (2)	Steel roller plunger	Thermoplastic roller lever plunger, horizontal actuation in 1 direction	Thermoplastic roller lever plunger, vertical actuation in 1 direction	Thermoplastic roller lever plunger, horiz. or vert. actuation in 1 direction

References						
2-pole NC + NO snap action (XE2S P2151)	 XCK P2110M12	 XCK P2111M12	 XCK P2102M12	 XCK P2121M12	 XCK P2127M12	 XCK P2128M12
2-pole NC + NC snap action (XE2S P2141)	 ZCP 29M12 + ZCE 10	 ZCP 29M12 + ZCE 11	 ZCP 29M12 + ZCE 02	 ZCP 29M12 + ZCE 21	 ZCP 29M12 + ZCE 27	 ZCP 29M12 + ZCE 28
Weight (kg)	0.100	0.100	0.100	0.110	0.110	0.110
Contact operation	closed open		(A) (B) = cam displacement (P) = positive opening point	NC contact with positive opening operation		

(1) Form conforming to EN 50047, see page 1/176. (2) Nitrile for indoor use.

Characteristics						
Switch actuation	On end		By 30° cam			
Type of actuation						
Maximum actuation speed	0.5 m/s		1 m/s			
Mechanical durability (in millions of operating cycles)	15		10		15	
Minimum force or torque	For tripping	15 N	12 N	6 N		
	For positive opening	45 N	36 N	18 N		
Connection	M12 connector, Ui = 250 V, Ie = 3 A maximum, Ith = 3 A					

Connections						
M12 connector						
	XE2S P2151	XE2S P2141				
	1-2: NC	1-2: NC				
	3-4: NO	3-4: NC				
See connection on page 9/44						

Dimensions						
ZCP 2●M12	ZCE 10	ZCE 11	ZCE 02	ZCE 21	ZCE 27	ZCE 28
	ZCE 27	ZCE 28	ZCE H0			

(1) 2 elongated holes  $\varnothing 4.3 \times 6.3$  mm on 22 mm centres, 2 holes  $\varnothing 4.3$  on 20 mm centres.  
 (2) 2 x  $\varnothing 3$  holes for support studs, depth 4 mm.  
 (3) Fixing nut thickness 3.5 mm.

Type of head	Plunger (fixing by the head)		Rotary (fixing by the body)				Multi-directional
			Form A (1)				
Type of operator	M18 with metal end plunger	M18 with steel roller plunger	Thermoplastic roller lever	Variable length thermoplastic roller lever	Thermoplastic roller lever, Ø 50 mm	Variable length thermoplastic roller lever, Ø 50 mm	"Cat's whisker" (2)

References								
2-pole NC + NO snap action (XE2S P2151)		<b>XCK P21H0M12</b> 1.8 4.6(P) 0.9 5mm	<b>XCK P21H2M12</b> 3.1(A)7.8(P) 0 1.5 mm	<b>XCK P2118M12</b> 25° 70°(P) 0 12° 90°	<b>XCK P2145M12</b> 25° 70°(P) 0 12° 90°	<b>XCK P2139M12</b> 25° 70°(P) 0 12° 90°	<b>XCK P2149M12</b> 25° 70°(P) 0 12° 90°	<b>XCK P2106M12</b> 20° 0 15°
2-pole NC + NC snap action (XE2S P2141)		<b>ZCP 29M12 + ZCE H0</b> 1.8 4.6(P) 0.9 5mm	<b>ZCP 29M12 + ZCE H2</b> 3.1(A)7.8(P) 0 1.5 mm	<b>ZCP 29M12 + ZCE 01 + ZCY 18</b> 25° 70°(P) 0 12° 90°	<b>ZCP 29M12 + ZCE 01 + ZCY 45</b> 25° 70°(P) 0 12° 90°	<b>ZCP 29M12 + ZCE 01 + ZCY 39</b> 25° 70°(P) 0 12° 90°	<b>ZCP 29M12 + ZCE 01 + ZCY 49</b> 25° 70°(P) 0 12° 90°	<b>ZCP 29M12 + ZCE 06</b> 20° 0 15°
Weight (kg)		0.140	0.140	0.140	0.150	0.155	0.160	0.090
Contact operation			(A) = cam displacement (P) = positive opening point		⊖ NC contact with positive opening operation			

(1) Form conforming to EN 50047, see page 1/176.  
(2) Value taken with actuation by moving part at 100 mm from the fixing.

Characteristics					
Switch actuation	On end	By 30° cam			By any moving part
Type of actuation					
Maximum actuation speed	0.5 m/s	1.5 m/s			1 m/s (any direct.)
Mechanical durability (in millions of operating cycles)	10				5
Minimum force or torque	For tripping	15 N	10 N	0.1 N.m	0.13 N.m
	For positive opening	45 N	36 N	0.25 N.m	-
Connection	M12 connector, Ui = 250 V, Ie = 3 A maximum, lth = 3 A				

Dimensions				
<b>ZCE 01 + ZCY 18</b>	<b>ZCE 01 + ZCY 45</b>	<b>ZCE 01 + ZCY 59</b>	<b>ZCE 01 + ZCY 49</b>	<b>ZCE 06</b>
<b>ZCE H2</b>				
	(3) Fixing nut thickness 3.5 mm.			