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# Limit switches

Osiswitch® Universal, Osiconcept®

Design		Miniature <i>Osiconcept</i>	Compact <i>Osiconcept</i>	
				
<b>Enclosure</b>		Metal	Plastic, double insulated	
<b>Features</b>		Fixing by the body or by the head		
<b>Osiconcept modularity</b>		Head, body and connection modularity		Head and body modularity
<b>CENELEC conformity</b>		–	EN 50047	EN 50047 compatible
<b>Body dimensions (w x h x d) in mm</b>		30 x 50 x 16	31 x 65 x 30	58 x 51 x 30
<b>Head</b>		Linear movement (plunger) Rotary movement (lever) Rotary movement, multi-directional Same heads for ranges XCM D, XCK D, XCK P and XCK T		
<b>Contact blocks</b>	2 snap action contacts with positive opening operation	N/C + N/O; N/C + N/C		N/C + N/O
	3 snap action contacts with positive opening operation	N/C + N/C + N/O	N/C + N/C + N/O; N/C + N/O + N/O	
	4 snap action contacts with positive opening operation	N/C + N/C + N/O + N/O –		
	2 slow break contacts with positive opening operation	N/C + N/O break before make	N/C + N/O break before make; N/O + N/C make before break; N/C + N/C simultaneous	
	2 slow break contacts	–	N/O + N/O simultaneous	
	3 slow break contacts with positive opening operation	N/C + N/C + N/O break before make	N/C + N/C + N/O break before make; N/C + N/O + N/O break before make	
<b>Insulation voltage (Ui) / thermal current (Ithe)</b>		Pre-cabled 2 contacts: 400 V/6 A 3 contacts: 400 V/4 A 4 contacts: 400 V/3 A	Screw terminal 2 contacts: 500 V/10 A 3 contacts: 400 V/6 A	Screw terminal 2 contacts: 500 V/10 A
		Connector Integral M12, 4-pin: 250 V/3 A Integral M12, 5-pin: 60 V/4 A Remote 7/8" 16UN: 250 V/6 A	Connector Integral M12, 5-pin: 60 V/4 A	Connector Integral M12, 4-pin: 250 V/3 A
<b>Degree of protection IP/IK</b>		IP 66, IP 67, IP 68, IK 06	IP 66, IP 67, IK 06	IP 66, IP 67, IK 04
<b>Connection</b>	<b>Screw terminals</b>	–	1 entry for ISO M16 or M20, Pg 11, Pg 13 cable gland or 1/2" NPT, PF 1/2	2 entries for ISO M16 or Pg 11 cable gland or 1/2" NPT (using adaptor)
	<b>Pre-cabled</b>	Yes	–	
	<b>Connector</b>	Integral or remote M12 or remote 7/8" 16UN	Integral M12	
<b>Type reference</b>		<b>XCM D</b>	<b>XCK D</b>	<b>XCK P</b>
				<b>XCK T</b>
<b>Page(s)</b>		5/10	5/30 and 5/34	5/36 and 5/40
				5/42

Miniature Optimum	Compact Optimum	Compact Application: with manual reset
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Plastic, double insulated		Metal	Plastic, double insulated	
Fixing by the body or by the head		Fixing by the body		
-				
-		EN 50047	-	
30 x 50 x 16	31 x 65 x 30		58 x 51 x 30	
Linear movement (plunger) Rotary movement (lever) Rotary movement, multi-directional		Linear movement (plunger) Rotary movement (lever) Same heads for ranges XC DR, XC PR and XC TR		
<b>N/C + N/O</b>				
-				
-				
-		<b>N/C + N/O break before make</b>		
-		-		
-				
Screw terminal 2 contacts: 400 V/6 A		Screw terminal 2 contacts: 500 V/10 A		
-				
IP 65, IK 04		IP 66, IP 67, IK 04		
-		1 entry for ISO M20 or Pg 11 cable gland	1 entry for ISO M20 or Pg 13 cable gland or 1/2" NPT	2 entries for ISO M16 or Pg 11 cable gland or 1/2" NPT (using adaptor)
Yes		-		
-				
<b>XCM N</b>	<b>XCK N</b>	<b>XCD R</b>	<b>XCP R</b>	<b>XCT R</b>
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Design

Classic



5

<b>Enclosure</b>	Metal		
<b>Features</b>	-		Fixed or plug-in body, - 40 °C or + 120 °C versions
<b>Variable composition switches</b>	Head + Body + Operator		
<b>CENELEC or DIN conformity</b>	-		EN 50041
<b>Body dimensions (w x h x d) in mm</b>	63 x 64 x 30	52 x 72 x 30	40 x 77 x 44 42.5 x 84 x 36
<b>Head</b>	Linear movement (plunger) Rotary movement (lever) Rotary movement, multi-directional		
<b>Contact blocks</b>	<b>2 snap action contacts with positive opening operation</b>	<b>N/C + N/O; N/C + N/C</b>	<b>N/C + N/O; N/C + N/C</b>
	<b>3 snap action contacts with positive opening operation</b>	<b>N/C + N/C + N/O; N/C + N/O + N/O</b>	
	<b>C/O snap action contacts</b>	-	
	<b>C/O slow break contacts</b>	-	
	<b>2 slow break contacts with positive opening operation</b>	<b>N/C + N/O break before make N/O + N/C make before break N/C + N/C simultaneous</b>	
	<b>2 slow break contacts</b>	<b>N/O + N/O simultaneous</b>	
	<b>3 slow break contacts with positive opening operation</b>	<b>N/C + N/C + N/O break before make; N/C + N/O + N/O break before make</b>	
<b>Insulation voltage (Ui) / thermal current (Ithe)</b>	Screw terminal 2 contacts: 500 V/10 A 3 contacts: 400 V/6 A		Connector Integral M12, 5-pin: 60 V/4 A Integral 7/8" 16UN: 250 V/6 A
<b>Degree of protection IP/IK</b>	IP 66, IK 06		IP 66, IK 07
<b>Connection</b>	<b>Screw terminals (entry for cable gland)</b>	3 entries for ISO M20 or Pg 11 cable gland or 1/2" NPT	1 entry for ISO M20 or Pg 13 cable gland or 1/2" NPT
	<b>Connector</b>	-	Integral M12 or 7/8" 16UN
<b>Type reference</b>	<b>XCK M</b>	<b>XCK L</b>	<b>XCK J</b>
<b>Page(s)</b>	5/62	5/62	5/78

# Limit switches

## Osiswitch® Classic, Application and Miniature snap switches

Classic	Application: for installations requiring electrical redundancy	Application: for lifting and materials handling equipment or very severe applications	Sub-miniature, miniature: applications requiring high precision and a low operating force	Applications: safety (1)
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Plastic, double insulated	Metal	Metal or polyester	Plastic	Metal or plastic	Plastic
–	2 sets of contacts	–	Depending on type		
Head + Body + Operator		Fixed composition	Depending on type, fixed composition or contact and operator	–	
EN 50041	–	–	–	EN 50041 or EN 50047	–
40 x 72.5 x 36	72 x 81 x 36	Depending on type	DIN 41635, depending on type	Depending on type	16 x 51 x 7 25 x 88 x 13 Ø 30, L 38.5
Linear movement (plunger) Rotary movement (lever) Rotary movement, multi-directional	Linear movement (plunger) Rotary movement (lever)	–	Linear movement (plunger)	Linear movement (plunger) Rotary movement (lever) Actuator operated Spindle operated	–
N/C + N/O; N/C + N/C	2 x N/C + N/O contact blocks	Depending on type	–	Depending on type: 2-pole, 3-pole or 4-pole contact blocks	Independent Reed type contacts operated by coded magnet. Must be used with a Preventa safety module. Depending on type: N/C + N/O (N/C staggered) N/O + N/O (1 N/O staggered) N/C + N/C + N/O (1 N/C staggered) N/C + N/O + N/O (1 N/O staggered) N/C + N/O (N/O staggered) N/O + N/O (1 N/O staggered)
N/C + N/C + N/O; N/C + N/O + N/O	–	Depending on type	1 single-pole contact	–	
2 C/O	–	Depending on type	–	–	
–	–	Depending on type	–	–	
N/C + N/O break before make N/O + N/C make before break N/C + N/C simultaneous N/O + N/O simultaneous	2 x N/C + N/O break before make contact blocks	Depending on type	–	–	
N/C + N/C + N/O break before make N/C + N/O + N/O break before make	–	–	–	–	
Screw terminal 2 contacts: 500 V/10 A 3 contacts: 400 V/6 A	Screw terminal 2 contacts: 500 V/10 A	–	Depending on type	–	–
–	–	–	–	–	–
IP 65, IK 03	IP 66, IK 06	Depending on type: IP 66, IK 05, IP 65, IK 05 or IP 54, IK 05	Depending on type	–	Depending on type: IP 66 and IP 67 or IP 67
1 entry for ISO M20 or Pg 13 cable gland	3 entries for ISO M20 or Pg 13 cable gland	Depending on type: 1 or 3 entries for ISO M20 or Pg 13 cable gland	Depending on type: by tags or pre-wired	Depending on type: entry for cable gland or pre-cabled	Depending on type: pre-cabled or with connector on flying lead
–	–	–	–	–	–
<b>XCK S</b>	<b>XCK ML</b>	<b>XCR, XCK MR, XC2 J, XC1 AC</b>	<b>XEP</b>	<b>XCS ●</b>	<b>XCS DMC XCS DMP XCS DMR</b>
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(1) For further information, please refer to our "Safety solutions using Preventa" catalogue.

# Limit switches

Osiswitch®

Osiconcept®: Offering Simplicity through Innovation

## Principle

### Osiconcept principle: innovation through modularity

■ The Miniature design XCM D and Compact design XCK D, XCK P and XCK T product range family benefits from **Osiconcept**: Offering simplicity through innovation.

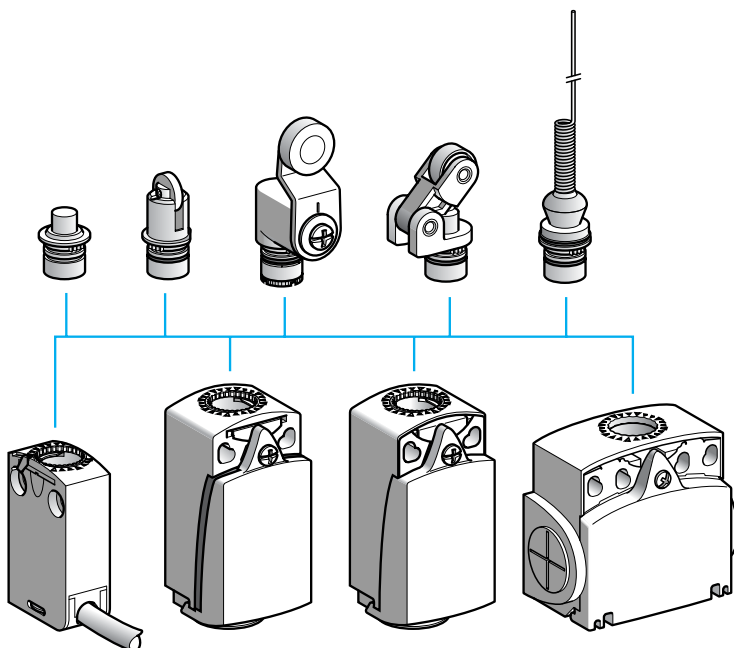
■ A worldwide detection first for improving productivity.

A complete offer for resolving the most commonly encountered detection problems:

- product selection simplified,
- product availability simplified,
- installation and setting-up simplified,
- maintenance simplified.

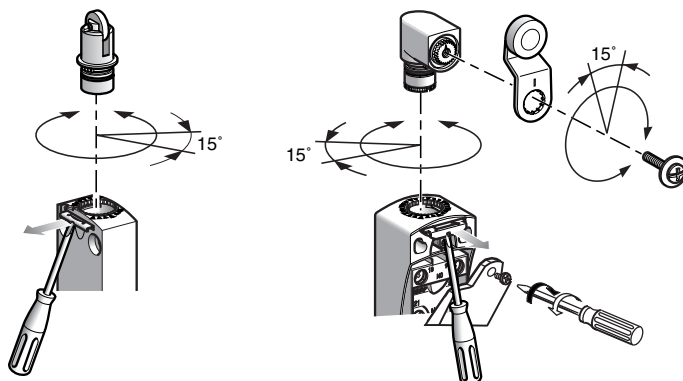
### Heads

■ A single metal operating head type for the Miniature design XCM D and Compact design XCK D, XCK P and XCK T ranges.



■ Interchanging of heads achieved by simple operation of forked metal latch.

■ Adjustable in 3 planes:



*All the heads can be adjusted in 15° steps throughout 360°, in relation to the body.*

*All the levers can be adjusted in 15° steps throughout 360°, in relation to the horizontal axis of the head.*



# Limit switches

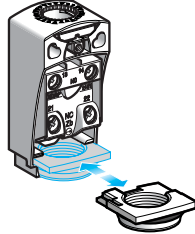
Osiswitch®

Osiconcept®: Offering Simplicity through Innovation

## Principle (continued)

### Cable entries

- The cable entries for Compact design XCK D and XCK P switches enable:
  - simple cabling due to unrestricted access to contacts,



- simple adaptation to the various worldwide markets:
  - 6 models are available:



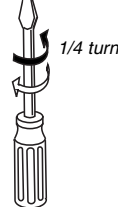
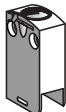
- ISO M16 x 1.5
- Pg 11



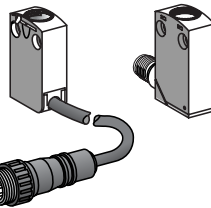
- ISO M20 x 1.5
- Pg 13
- 1/2" NPT
- PF 1/2 (G 1/2)

Each model is available in metal or plastic, respectively suited for Compact design XCK D and XCK P.

### Connection components



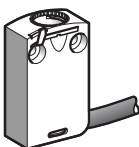
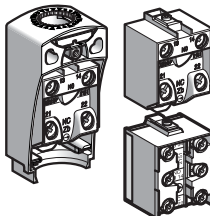
1/4 turn



- The miniature XCM D range allows interchangeability of these pre-cabled connection components:
  - a 1/4 of a turn is all that is required for removing the connection component on XCM D bodies with 2 and 3 contacts,
  - 6 alternative cable lengths are available as standard.

- The miniature XCM D range also includes an integral or remote connector solution.

### Contact block or body with contacts



- 2 and 3 snap action and slow break contact blocks, with positive opening operation, are interchangeable between the Compact design XCK D and XCK P and Classic XCK J, XCK S, XCK M and XCK L ranges.

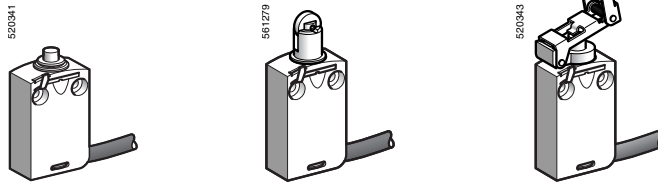
- For the Miniature design XCM D range, the contacts are an integral part of the body:
  - 2 and 3 snap action and slow break contacts, with positive opening operation, and interchangeable connection component,
  - 4 snap action contacts, with positive opening operation, with monolithic body and connection components.

# Limit switches

Osiswitch® Universal, Osiconcept®  
Miniature design, metal, type XCM D

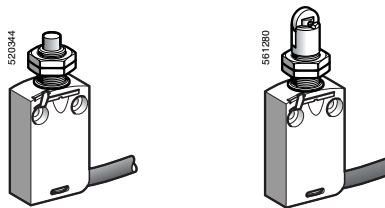
■ XCM D  
pre-cabled

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



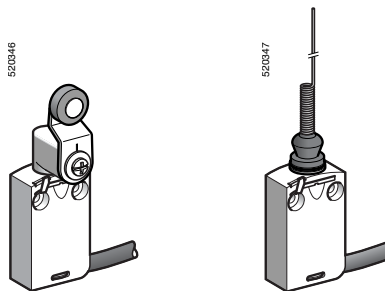
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□ With head for linear movement (plunger). Fixing by the head.



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

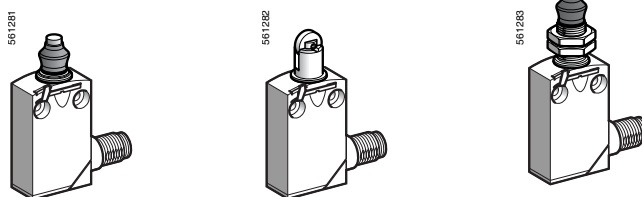


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■ XCM D  
with integral connector

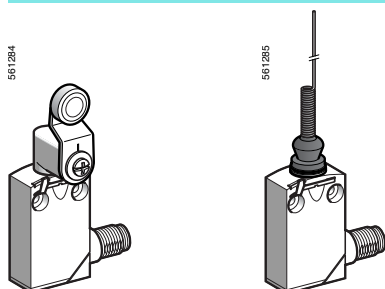
□ With head for linear movement (plunger)  
Fixing by the body

Fixing by the head



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



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## Environment characteristics

Conforming 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 (except products with special cables), CCC	
Protective treatment	Standard version: "TC"	
Ambient air temperature	Operation: - 25...+ 70 °C. Storage: - 40...+ 70 °C	
Vibration resistance	XCM D snap action: 5 gn. XCM D slow break: 25 gn (10...500 Hz) conforming to IEC 60068-2-6	
Shock resistance	25 gn (18 ms) conforming to IEC 60068-2-27	
Electric shock protection	Class I conforming to IEC 61-140 and NF C 20-030	
Degree of protection	<b>IP 66, IP 67 and IP 68 (1) conforming to IEC 60529; IK 06 conforming to EN 50102</b>	
Materials	Bodies: zamak, heads: zamak	
Repeat accuracy	0.05 mm on the tripping points, with 1 million operating cycles for head with end plunger	

(1) Protection against prolonged immersion: the test conditions are subject to agreement between the manufacturer and the user.

## Contact block characteristics

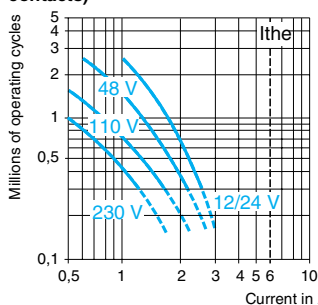
Rated operational characteristics	Switches with 2 contacts	$\sim$ AC-15; B300 (Ue = 240 V, Ie = 1.5 A) $\equiv$ DC-13; R300 (Ue = 250 V, Ie = 0.1 A), conforming to IEC 60947-5-1 Appendix A, EN 60947-5-1
	Switches with 3 and 4 contacts	$\sim$ AC-15; C300 (Ue = 240 V, Ie = 0.75 A) $\equiv$ DC-13; R300 (Ue = 250 V, Ie = 0.1 A), conforming to IEC 60947-5-1 Appendix A, EN 60947-5-1
	Pre-cabled switches	<b>Ithe = 6 A for 2 contacts, 4 A for 3 contacts, 3 A for 4 contacts</b>
	Switches with 4-pin M12 connector	Ui = 250 V, Ie = 3 A maximum, Ithe = 3 A
	Switches with 5-pin M12 connector	Ui = 60 V, Ie = 4 A maximum, Ithe = 4 A
	Switches with 5-pin 7/8" 16UN connector	Ui = 250 V, Ie = 6 A maximum, Ithe = 6 A

Rated insulation voltage	Ui = 400 V degree of pollution 3 conforming to IEC 60947-5-1 Ui = 300 V conforming to UL 508, CSA C22-2 n° 14
Rated impulse withstand voltage	U imp = 4 kV conforming to IEC 60947-1, IEC 60664
Positive operation (depending on model)	N/C contacts with positive opening operation conforming to IEC 60947-5-1 Appendix K, EN 60947-5-1
Resistance across terminals	$\leq 25$ m $\Omega$ conforming to IEC 60255-7 category 3
Electric shock protection	6 A cartridge fuse type gG (gl)
Minimum actuation speed	Snap action contact: 0.01 m/minute Slow break contact: 6 m/minute

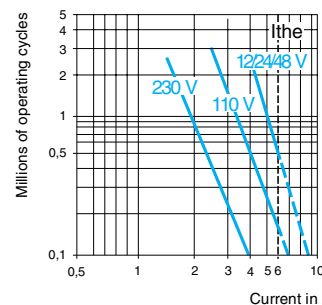
Electrical durability	<ul style="list-style-type: none"> <li>Conforming to IEC 60947-5-1 Appendix C</li> <li>Utilisation categories AC-15 and DC-13</li> <li>Maximum operating rate: 3600 operating cycles/hour</li> <li>Load factor: 0.5</li> </ul>
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a.c. supply  $\sim$  50/60 Hz  
 $\sim$  inductive circuit

**XCM D snap action (N/C + N/O, N/C + N/C, N/C + N/C + N/O, N/C + N/C + N/O + N/O contacts)**



**XCM D slow break (N/C + N/O, N/C + N/C + N/O contacts)**



d.c. supply  $\equiv$

Power broken in W for 5 million operating cycles				
Voltage	V	24	48	120
$\sim$	W	3	2	1

Power broken in W for 5 million operating cycles				
Voltage	V	24	48	120
$\sim$	W	4	3	3

# Limit switches

Osiswitch® Universal, Osiconcept®  
Miniature design, metal, type XCM D  
Pre-cabled

Type of head	Plunger (fixing by the body)				Plunger (fixing by the head)		
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Type of operator	Metal end plunger	Metal end plunger with elastomer boot	Steel roller plunger	Retractable steel roller lever plunger	M12 with metal end plunger	M16 with metal end plunger with elastomer boot	M12 with steel roller plunger
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## References

<b>2-pole N/C + N/O snap action</b> 	<b>XCM D2110L1</b> 	<b>XCM D2111L1</b> 	<b>XCM D2102L1</b> 	<b>XCM D2124L1</b> 	<b>XCM D21F0L1</b> 	<b>XCM D21G1L1</b> 	<b>XCM D21F2L1</b> 
<b>2-pole N/C + N/O break before make, slow break</b> 	<b>XCM D2510L1</b> 	<b>XCM D2511L1</b> 	<b>XCM D2502L1</b> 	<b>XCM D2524L1</b> 	<b>XCM D25F0L1</b> 	<b>XCM D25G1L1</b> 	<b>XCM D25F2L1</b> 
<b>2-pole N/C + N/C snap action</b> 	<b>ZCM D29L1 + ZCE 10</b> 	<b>ZCM D29L1 + ZCE 11</b> 	<b>ZCM D29L1 + ZCE 02</b> 	<b>ZCM D29L1 + ZCE 24</b> 	<b>ZCM D29L1 + ZCE F0</b> 	<b>ZCM D29L1 + ZCE G1</b> 	<b>ZCM D29L1 + ZCE F2</b> 
<b>3-pole N/C + N/C + N/O snap action</b> 	<b>ZCM D39L1 + ZCE 10</b> 	<b>ZCM D39L1 + ZCE 11</b> 	<b>ZCM D39L1 + ZCE 02</b> 	<b>ZCM D39L1 + ZCE 24</b> 	<b>ZCM D39L1 + ZCE F0</b> 	<b>ZCM D39L1 + ZCE G1</b> 	<b>ZCM D39L1 + ZCE F2</b> 
<b>3-pole N/C + N/C + N/O break before make, slow break</b> 	<b>ZCM D37L1 + ZCE 10</b> 	<b>ZCM D37L1 + ZCE 11</b> 	<b>ZCM D37L1 + ZCE 02</b> 	<b>ZCM D37L1 + ZCE 24</b> 	<b>ZCM D37L1 + ZCE F0</b> 	<b>ZCM D37L1 + ZCE G1</b> 	<b>ZCM D37L1 + ZCE F2</b> 
<b>Weight (kg)</b>	0.180	0.180	0.185	0.200	0.195	0.220	0.205
<b>4-pole N/C + N/C + N/O + N/O snap action</b> 	<b>ZCM D41L1 + ZCE 10</b> 	<b>ZCM D41L1 + ZCE 11</b> 	<b>ZCM D41L1 + ZCE 02</b> 	<b>ZCM D41L1 + ZCE 24</b> 	<b>ZCM D41L1 + ZCE F0</b> 	<b>ZCM D41L1 + ZCE G1</b> 	<b>ZCM D41L1 + ZCE F2</b> 
<b>Weight (kg)</b>	0.160	0.160	0.165	0.180	0.175	0.200	0.185
<b>Contact operation</b> 	(A) = cam displacement (P) = positive opening point		⊕ N/C contact with positive opening operation				

## Characteristics

Switch actuation	On end	By 30° cam		On end	By 30° cam
Type of actuation					
Maximum actuation speed	0.5 m/s				0.1m/s
Mechanical durability	10 million operating cycles				
Minimum force or torque	For tripping	8.5 N	7 N	2.5 N	8.5 N
	For positive opening	42.5 N	35 N	12.5 N	42.5 N
Cabling	PvR cable; 5 x 0.75 mm <sup>2</sup> , length 1 metre for 2-pole contact versions, 7 x 0.5 mm <sup>2</sup> , length 1 metre for 3-pole contact versions, 9 x 0.34 mm <sup>2</sup> , length 1 metre for 4-pole contact versions. For other cable lengths, see page 5/22.				

# Limit switches

Osiswitch® Universal, Osiconcept®  
Miniature design, metal, type XCM D  
Pre-cabled

Type of head	Rotary (fixing by the body)				Multi-directional
Type of operator	Thermoplastic roller lever	Steel roller lever	Roller lever with ball bearing mounted roller	Variable length thermoplastic roller lever	"Cat's whisker" (1)

References					
<b>2-pole N/C + N/O snap action</b> 	<b>XCM D2115L1</b> 	<b>XCM D2116L1</b> 	<b>XCM D2117L1</b> 	<b>XCM D2145L1</b> 	<b>XCM D2106L1</b> 
<b>2-pole N/C + N/O break before make, slow break</b> 	<b>XCM D2515L1</b> 	<b>XCM D2516L1</b> 	<b>XCM D2517L1</b> 	<b>XCM D2545L1</b> 	<b>XCM D2506L1</b> 
<b>2-pole N/C + N/C snap action</b> 	<b>ZCM D29L1 + ZCE 01 + ZCY 15</b> 	<b>ZCM D29L1 + ZCE 01 + ZCY 16</b> 	<b>ZCM D29L1 + ZCE 01 + ZCY 17</b> 	<b>ZCM D29L1 + ZCE 01 + ZCY 45</b> 	<b>ZCM D29L1 + ZCE 06</b> 
<b>3-pole N/C + N/C + N/O snap action</b> 	<b>ZCM D39L1 + ZCE 01 + ZCY 15</b> 	<b>ZCM D39L1 + ZCE 01 + ZCY 16</b> 	<b>ZCM D39L1 + ZCE 01 + ZCY 17</b> 	<b>ZCM D39L1 + ZCE 01 + ZCY 45</b> 	<b>ZCM D39L1 + ZCE 06</b> 
<b>3-pole N/C + N/C + N/O break before make, slow break</b> 	<b>ZCM D37L1 + ZCE 01 + ZCY 15</b> 	<b>ZCM D37L1 + ZCE 01 + ZCY 16</b> 	<b>ZCM D37L1 + ZCE 01 + ZCY 17</b> 	<b>ZCM D37L1 + ZCE 01 + ZCY 45</b> 	<b>ZCM D37L1 + ZCE 06</b> 
Weight (kg)	0.220	0.225	0.220	0.230	0.180
<b>4-pole N/C + N/C + N/O + N/O snap action</b> 	<b>ZCM D41L1 + ZCE 01 + ZCY 15</b> 	<b>ZCM D41L1 + ZCE 01 + ZCY 16</b> 	<b>ZCM D41L1 + ZCE 01 + ZCY 17</b> 	<b>ZCM D41L1 + ZCE 01 + ZCY 45</b> 	<b>ZCM D41L1 + ZCE 06</b> 
Weight (kg)	0.200	0.205	0.200	0.210	0.160
Contact operation					

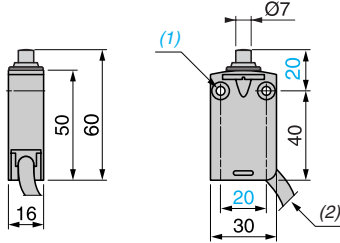
(1) Value taken with actuation by moving part at 100 mm from the fixings.

Characteristics							
Switch actuation	By 30° cam				By any moving part		
Type of actuation							
Maximum actuation speed	1.5 m/s				1 m/s		
Mechanical durability	10 million operating cycles				5		
Minimum force or torque	For tripping	0.1 N.m					
	For positive opening	0.5 N.m					
Cabling	PvR cable; 5 x 0.75 mm <sup>2</sup> , length 1 metre for 2-pole contact versions, 7 x 0.5 mm <sup>2</sup> , length 1 metre for 3-pole contact versions, 9 x 0.34 mm <sup>2</sup> , length 1 metre for 4-pole contact versions. For other cable lengths, see page 5/22.						

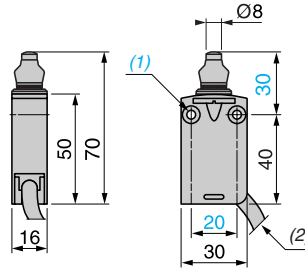
# Limit switches

Osiswitch® Universal, Osiconcept®  
Miniature design, metal, type XCM D  
Pre-cabled

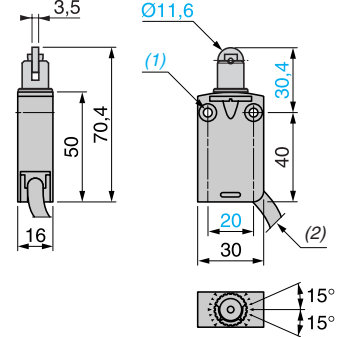
XCM D2●10L1



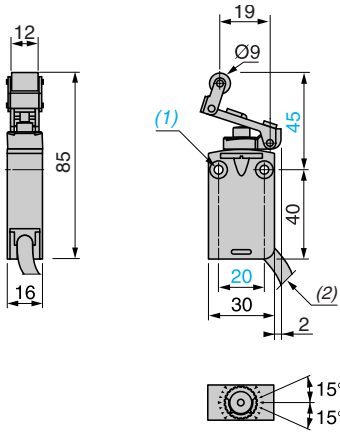
XCM D2●11L1



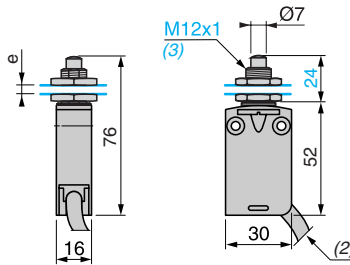
XCM D2●02L1



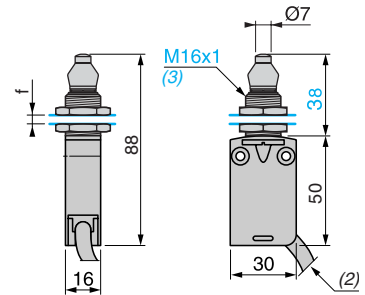
XCM D2●24L1



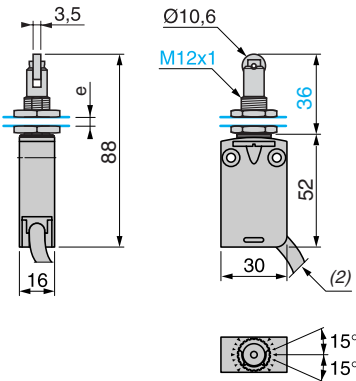
XCM D2●F0L1



XCM D2●G1L1



XCM D2●F2L1



(1) 2 fixing holes Ø 4.2 mm, counterbored Ø 8 mm by 4 mm deep.

(2) Overall diameter of cable 7.5 mm.

(3) Fixing nut thickness 3.5 mm.

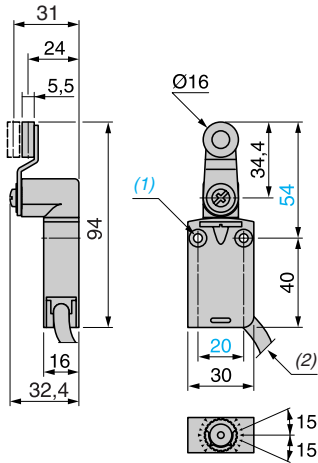
e: 8 mm max, panel cut-out Ø 12.5 mm.

f: 8 mm max, panel cut-out Ø 16.5 mm.

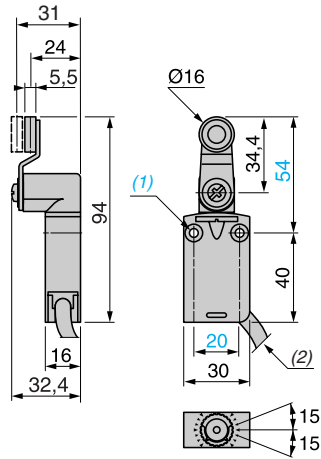
# Limit switches

Osiswitch® Universal, Osiconcept®  
 Miniature design, metal, type XCM D  
 Pre-cabled

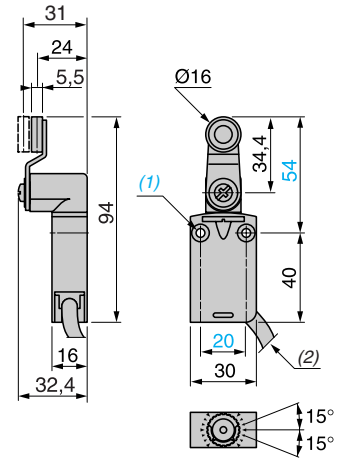
XCM D2●15L1



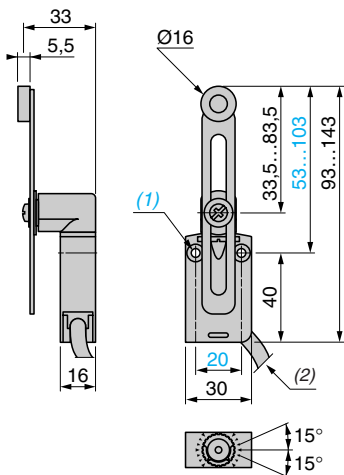
XCM D2●16L1



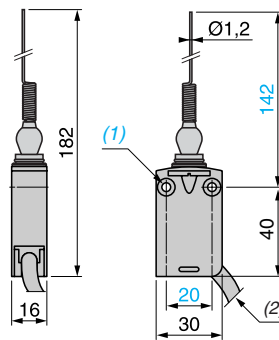
XCM D2●17L1



XCM D2●45L1



XCM D2●06L1



(1) 2 fixing holes  $\varnothing$  4.2 mm, counterbored  $\varnothing$  8 mm by 4 mm deep.  
 (2) Overall diameter of cable 7.5 mm.  
 e: 8 mm max, panel cut-out  $\varnothing$  12.5 mm.  
 f: 8 mm max, panel cut-out  $\varnothing$  16.5 mm.

# Limit switches

Osiswitch® Universal, Osiconcept®  
Miniature design, metal, type XCM D  
Integral or remote connector

Type of head	Plunger (fixing by the body)				Plunger (fixing by the head)		

Type of operator	Metal end plunger	Metal end plunger with elastomer boot	Steel roller plunger	Retractable steel roller lever plunger	M12 with metal end plunger	M16 with metal end plunger with elastomer boot	M12 with steel roller plunger
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## References

	XCM D2110M12 1,8 4,2(P) 0,8 5mm	XCM D2111M12 1,8 4,2(P) 0,8 5mm	XCM D2102M12 3,1(A) 7(P) 1,4 mm	XCM D2124M12 11,2(A) 25(P) 4,9 mm	XCM D21F0M12 1,8 4,2(P) 0,8 5mm	XCM D21G1M12 1,8 4,2(P) 0,8 5mm	XCM D21F2M12 3,1(A) 7(P) 1,4 mm
	XCM D2110C12 1,8 4,2(P) 0,8 5mm	XCM D2111C12 1,8 4,2(P) 0,8 5mm	XCM D2102C12 3,1(A) 7(P) 1,4 mm	XCM D2124C12 11,2(A) 25(P) 4,9 mm	XCM D21F0C12 1,8 4,2(P) 0,8 5mm	XCM D21G1C12 1,8 4,2(P) 0,8 5mm	XCM D21F2C12 3,1(A) 7(P) 1,4 mm
	ZCM D29C12 + ZCE 10 1,8 4,2(P) 0,8 5mm	ZCM D29C12 + ZCE 11 1,8 4,2(P) 0,8 5mm	ZCM D29C12 + ZCE 02 3,1(A) 7(P) 1,4 mm	ZCM D29C12 + ZCE 24 11,2(A) 25(P) 4,9 mm	ZCM D29C12 + ZCE F0 1,8 4,2(P) 0,8 5mm	ZCM D29C12 + ZCE G1 1,8 4,2(P) 0,8 5mm	ZCM D29C12 + ZCE F2 3,1(A) 7(P) 1,4 mm
Weight (kg)	0.085	0.085	0.090	0.105	0.100	0.125	0.110
	ZCM D21L08R12 + ZCE 10 1,8 4,2(P) 0,8 5mm	ZCM D21L08R12 + ZCE 11 1,8 4,2(P) 0,8 5mm	ZCM D21L08R12 + ZCE 02 3,1(A) 7(P) 1,4 mm	ZCM D21L08R12 + ZCE 24 11,2(A) 25(P) 4,9 mm	ZCM D21L08R12 + ZCE F0 1,8 4,2(P) 0,8 5mm	ZCM D21L08R12 + ZCE G1 1,8 4,2(P) 0,8 5mm	ZCM D21L08R12 + ZCE F2 3,1(A) 7(P) 1,4 mm
	ZCM D21L08U78 + ZCE 10 1,8 4,2(P) 0,8 5mm	ZCM D21L08U78 + ZCE 11 1,8 4,2(P) 0,8 5mm	ZCM D21L08U78 + ZCE 02 3,1(A) 7(P) 1,4 mm	ZCM D21L08U78 + ZCE 24 11,2(A) 25(P) 4,9 mm	ZCM D21L08U78 + ZCE F0 1,8 4,2(P) 0,8 5mm	ZCM D21L08U78 + ZCE G1 1,8 4,2(P) 0,8 5mm	ZCM D21L08U78 + ZCE F2 3,1(A) 7(P) 1,4 mm
Weight (kg)	0.150	0.150	0.155	0.170	0.165	0.190	0.175
Contact operation				(A) = cam displacement (P) = positive opening point			

## Characteristics

Switch actuation	On end	By 30° cam		On end	By 30° cam
Type of actuation					
Maximum actuation speed	0.5 m/s				0.1 m/s
Mechanical durability	10 million operating cycles				
Minimum force or torque	For tripping: 8.5 N For positive opening: 42.5 N	7 N	2.5 N	8.5 N	7 N
Positive operation	Although their design is identical to the pre-cabled switches, the switches incorporating an M12 4-pin connector cannot be marked with the  because they are single-pole C/O.				

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# Limit switches

Osiswitch® Universal, Osiconcept®  
Miniature design, metal, type XCM D  
Integral or remote connector

Type of head	Rotary (fixing by the body)				Multi-directional
Type of operator	Thermoplastic roller lever	Steel roller lever	Roller lever with ball bearing mounted roller	Variable length thermoplastic roller lever	"Cat's whisker" (1)

References					
 Single-pole C/O snap action With integral M12 4-pin connector	XCM D2115M12	XCM D2116M12	XCM D2117M12	XCM D2145M12	XCM D2106M12
 2-pole N/C + N/O snap action With integral M12 5-pin connector	XCM D2115C12	XCM D2116C12	XCM D2117C12	XCM D2145C12	XCM D2106C12
 2-pole N/C + N/C snap action With integral M12 5-pin connector	ZCM D29C12 + ZCE 01 + ZCY 15 ⊕	ZCM D29C12 + ZCE 01 + ZCY 16 ⊕	ZCM D29C12 + ZCE 01 + ZCY 17 ⊕	ZCM D29C12 + ZCE 01 + ZCY 45 ⊕	ZCM D29C12 + ZCE 06
<b>Weight (kg)</b>	0.125	0.130	0.125	0.135	0.085
 2-pole N/C + N/O snap action With M12 5-pin connector on 0.8 m flying lead	ZCM D21L08R12 + ZCE 01 + ZCY 15 ⊕	ZCM D21L08R12 + ZCE 01 + ZCY 16 ⊕	ZCM D21L08R12 + ZCE 01 + ZCY 17 ⊕	ZCM D21L08R12 + ZCE 01 + ZCY 45 ⊕	ZCM D21L08R12 + ZCE 06
 2-pole N/C + N/O snap action With 7/8" 16UN 5-pin connector on 0.8 m flying lead	ZCM D21L08U78 + ZCE 01 + ZCY 15 ⊕	ZCM D21L08U78 + ZCE 01 + ZCY 16 ⊕	ZCM D21L08U78 + ZCE 01 + ZCY 17 ⊕	ZCM D21L08U78 + ZCE 01 + ZCY 45 ⊕	ZCM D21L08U78 + ZCE 06
<b>Weight (kg)</b>	0.200	0.205	0.200	0.210	0.160
<b>Contact operation</b>					

(1) Value taken with actuation by moving part at 100 mm from the fixing.

Characteristics	
Switch actuation	By 30° cam
Type of actuation	By any moving part
Maximum actuation speed	1.5 m/s
Mechanical durability	10 million operating cycles
Minimum force or torque	For tripping 0.1 N.m For positive opening 0.5 N.m
Positive operation	Although their design is identical to the pre-cabled switches, the switches incorporating an M12 4-pin connector cannot be marked with the ⊕ symbol because they are single-pole C/O.

# Limit switches

Osiswitch® Universal, Osiconcept®  
Miniature design, metal, type XCM D  
Connector cabling accessories

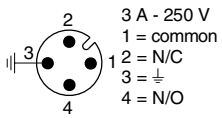
## References of suitable pre-wired female connectors

Type of connector		M12 straight, 4-pin 4 A, 250 V	M12 straight, 5-pin 4 A, 24 V	M12 elbowed, 5-pin 4 A, 24 V	7/8" 16 UN straight, 5-pin, 6 A, 250 V
With cable	L = 2 m	XZ CP1169L2	XZ CP1164L2	XZ CP1264L2	XZ CP1771L2
	L = 5 m	XZ CP1169L5	XZ CP1164L5	XZ CP1264L5	XZ CP1771L5
	L = 10 m	XZ CP1169L10	XZ CP1164L10	XZ CP1264L10	XZ CP1771L10
Weight (kg)		0.105	0.115	0.115	0.190

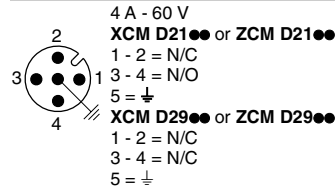
## Connections

### XCM D with connector

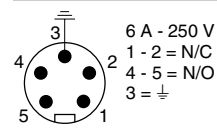
#### 4-pin, M12



#### 5-pin, M12

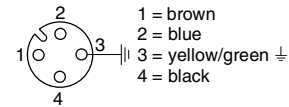


#### 5-pin, 7/8" 16 UN

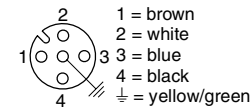


### Pre-wired female connectors XZ CP

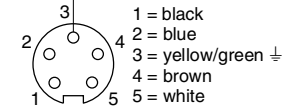
#### 4-pin, M12



#### 5-pin, M12

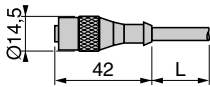


#### 5-pin, 7/8" 16 UN

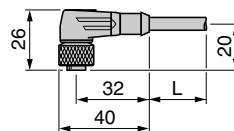


## Dimensions

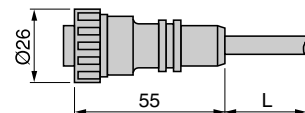
### XZ CP116L



### XZ CP1264L



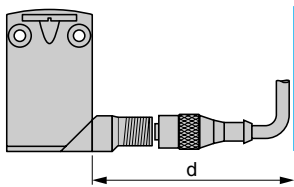
### XZ CP1771L



L: cable length 2, 5 or 10 m.

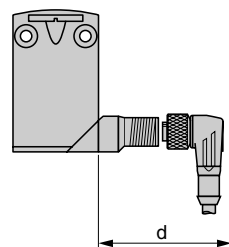
### Distances required for plug-in connectors

#### M12 straight connector



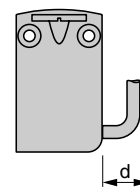
d: min. 65 mm, recommended 69 mm.

#### M12 elbowed connector



d: min. 42 mm, recommended 45 mm.

#### Connector on flying lead

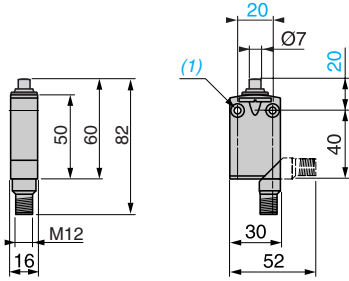


d: min. 20 mm.

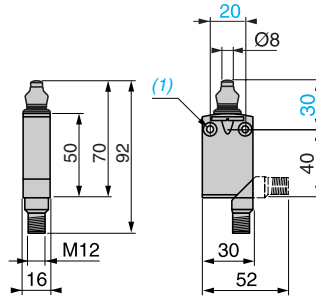
# Limit switches

Osiswitch® Universal, Osiconcept®  
 Miniature design, metal, type XCM D  
 Integral or remote connector

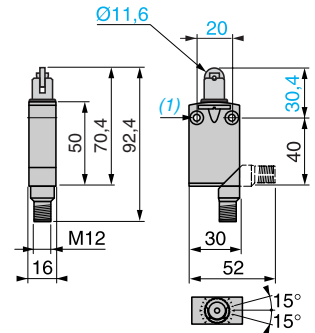
XCM D2●10M12



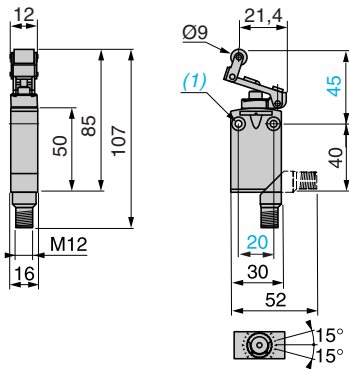
XCM D2●11M12



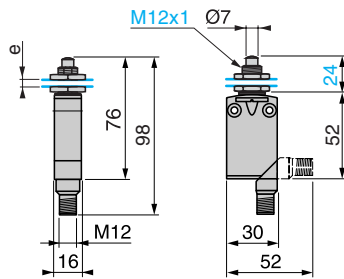
XCM D2●02M12



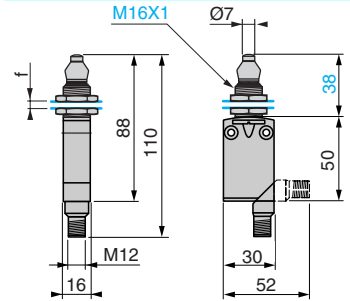
XCM D2●24M12



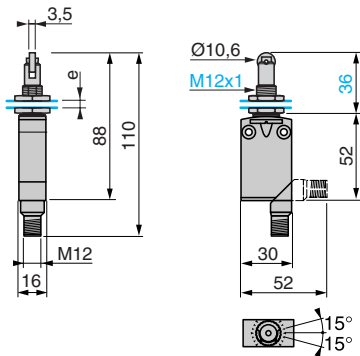
XCM D2●F0M12



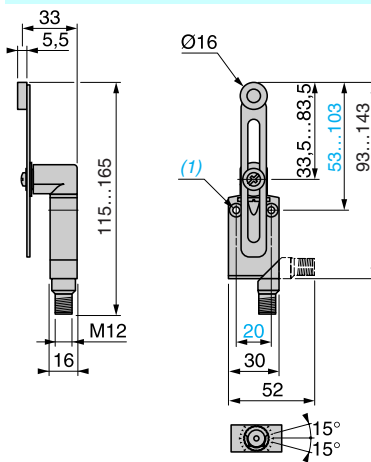
XCM D2●G1M12



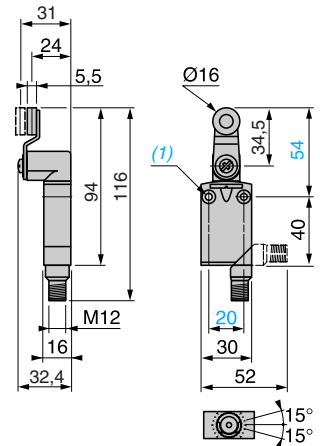
XCM D2●F2M12



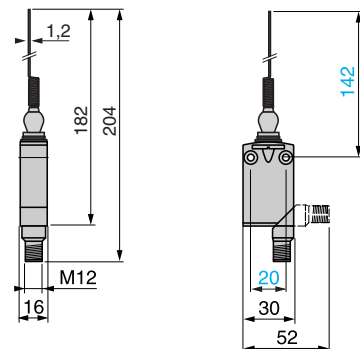
XCM D2●45M12



XCM D2●15M12 /●16M12 /●17M12



XCM D2●06M12

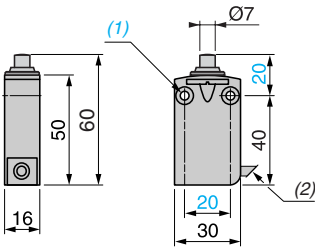


(1) 2 fixing holes Ø 4.2 mm, counterbored Ø 8 mm by 4 mm deep.  
 e: 8 mm max., panel cut-out Ø 12.5 mm, fixing nut thickness 3.5 mm.  
 f: 8 mm max., panel cut-out Ø 16.5 mm, fixing nut thickness 3.5 mm.

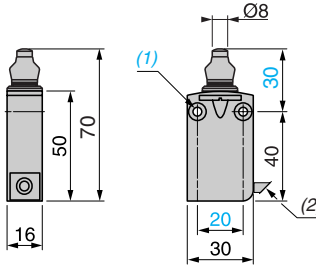
# Limit switches

Osiswitch® Universal, Osiconcept®  
Miniature design, metal, type XCM D  
Integral or remote connector

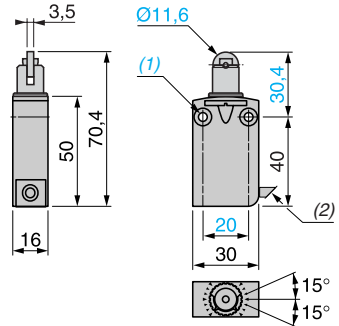
ZCM D21L08●●● + ZCE 10



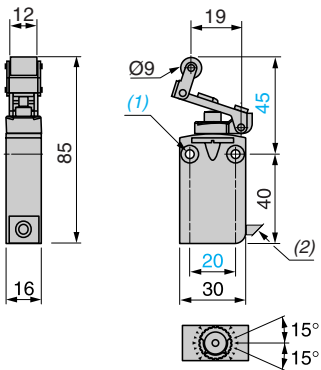
ZCM D21L08●●● + ZCE 11



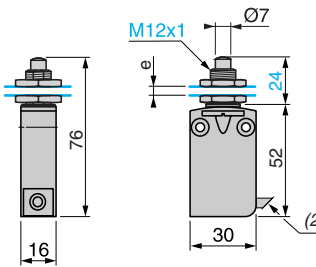
ZCM D21L08●●● + ZCE 02



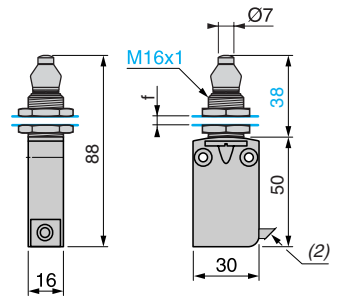
ZCM D21L08●●● + ZCE 24



ZCM D21L08●●● + ZCE F0



ZCM D21L08●●● + ZCE G1



5

(1) 2 fixing holes Ø 4.2 mm, counterbored Ø 8 mm by 4 mm deep.  
(2) Overall diameter 7.5 mm.  
e: 8 mm max., panel cut-out Ø 12.5 mm, fixing nut thickness 3.5 mm.  
f: 8 mm max., panel cut-out Ø 16.5 mm, fixing nut thickness 3.5 mm.

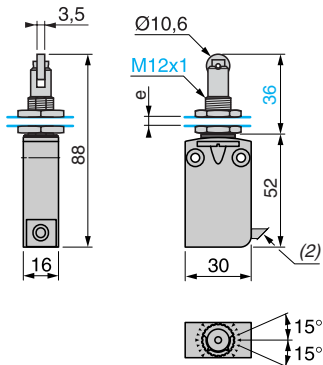
## Limit switches

Osiswitch® Universal, Osiconcept®

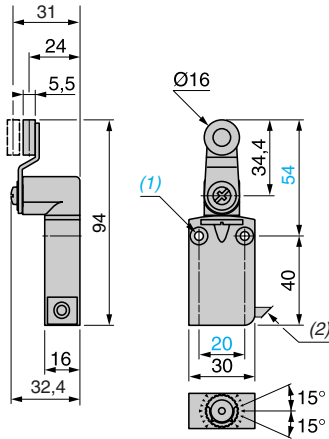
Miniature design, metal, type XCM D

Integral or remote connector

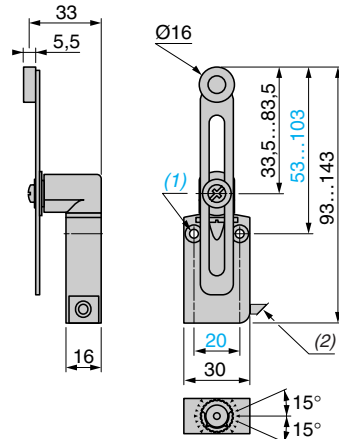
ZCM D21L08●●● + ZCE F2



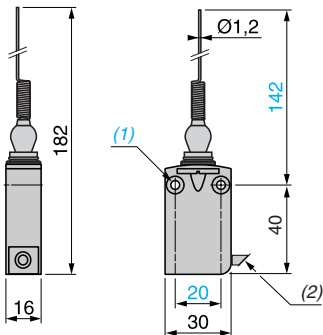
ZCM D21L08●●● + ZCE 01  
+ ZCY 15/16/17



ZCM D21L08●●● + ZCE 01 + ZCY 45



ZCM D21L08●●● + ZCE 06



(1) 2 fixing holes Ø 4.2 mm, counterbored Ø 8 mm by 4 mm deep.

(2) Overall diameter 7.5 mm.

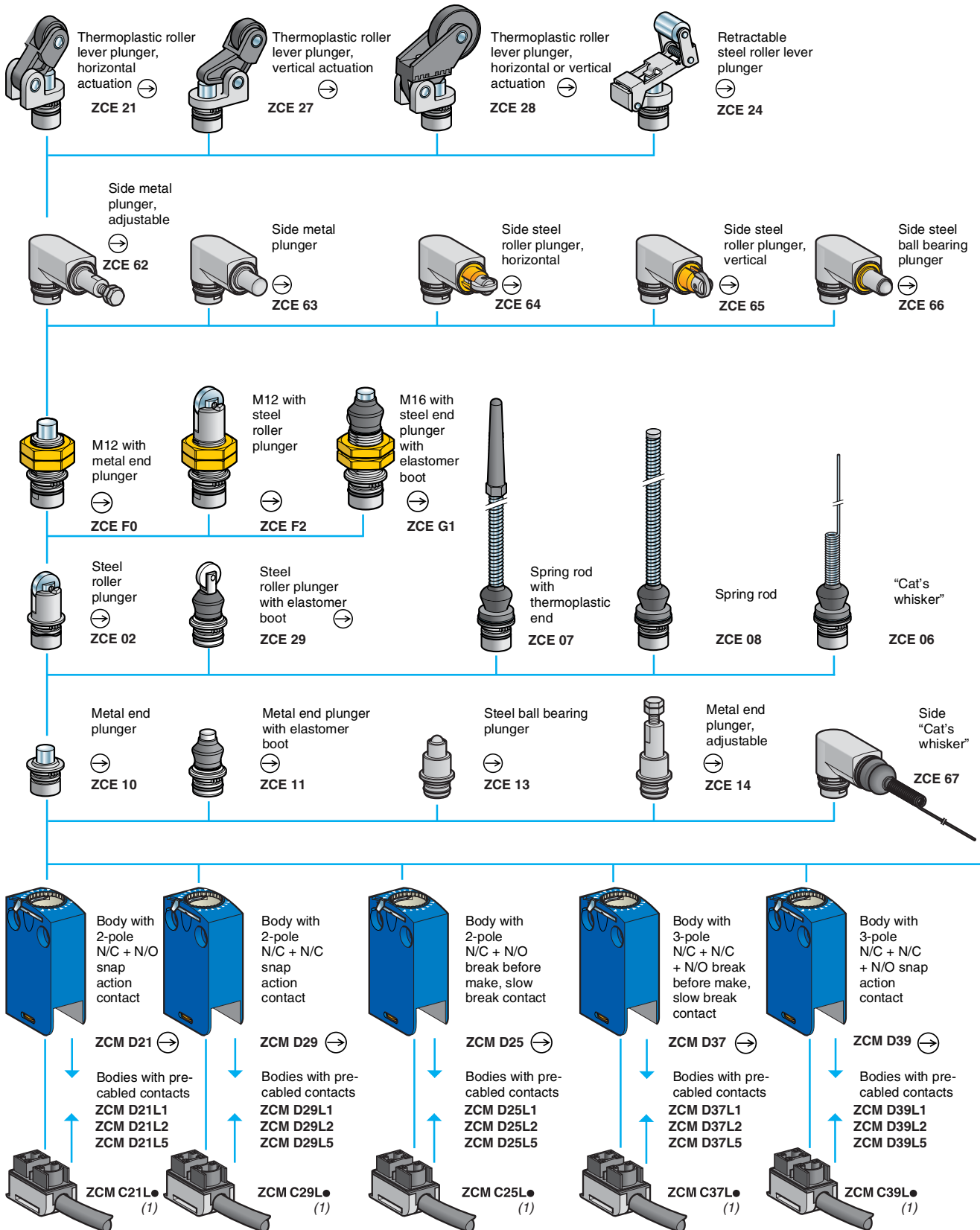
e: 8 mm max., panel cut-out Ø 12.5 mm, fixing nut thickness 3.5 mm.

f: 8 mm max., panel cut-out Ø 16.5 mm, fixing nut thickness 3.5 mm.

# Limit switches

Osiswitch® Universal, Osiconcept®  
Miniature design, metal, type XCM D  
Variable composition

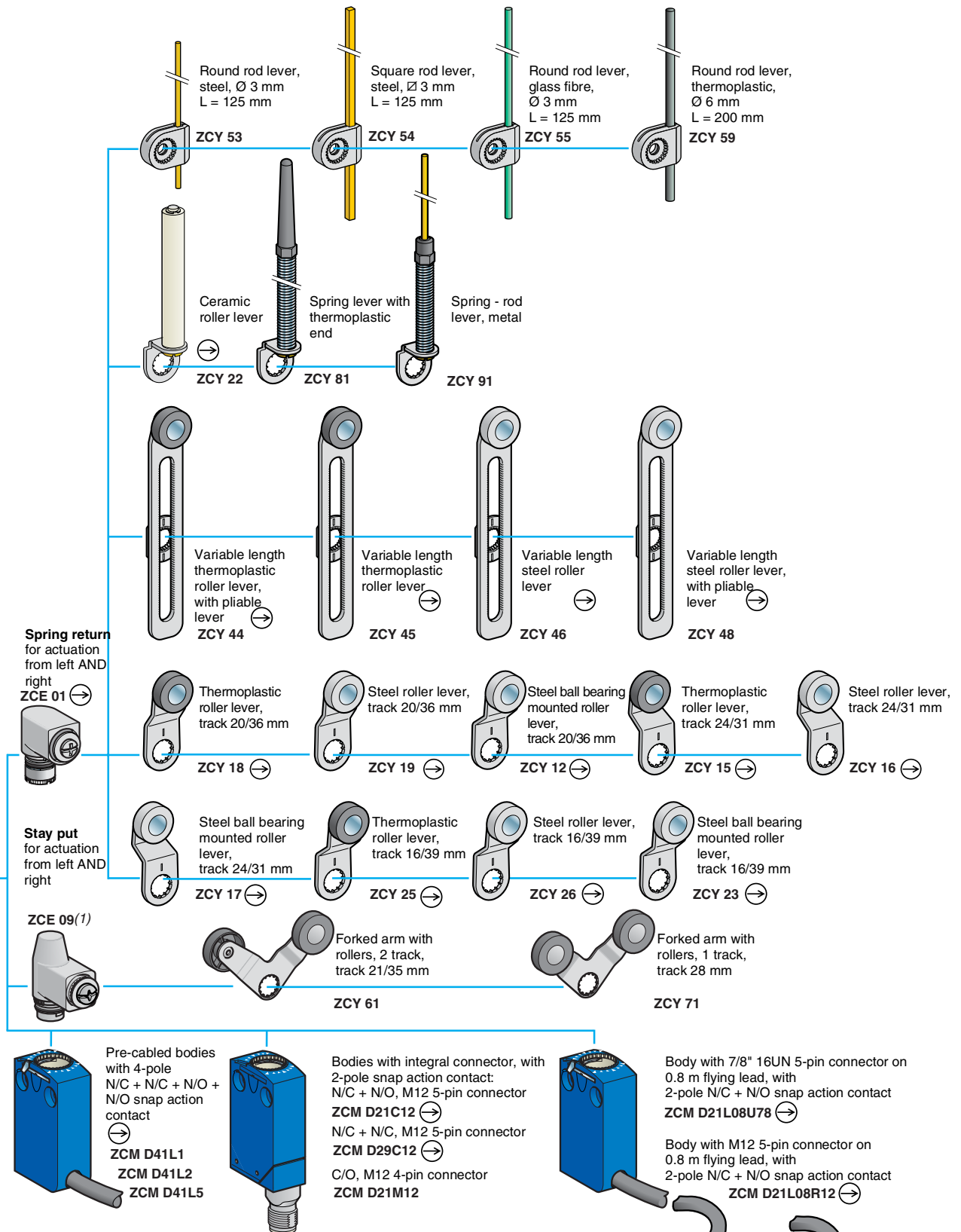
5



(1) Pre-cabled connection components: replace the "●" in the reference by the required cable length in metres, either: 1, 2, 3, 5, 7 or 10.  
Example: ZCM C21● becomes ZCM C21L7 for a 7 metre long cable.  
Note: only cable lengths of 1, 2 and 5 metres are available for pre-cabled connection components ZCM C37● and ZCM C39●.

# Limit switches

Osiswitch® Universal, Osiconcept®  
 Miniature design, metal, type XCM D  
 Variable composition



5

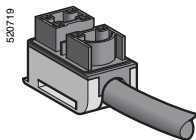
(1) Cannot be used on bodies ZCM D21, ZCM D29, ZCM D39, ZCM D41, ZCM D21C12, ZCM D21M12, ZCM D29C12, ZCM D21L08...

# Limit switches

Osiswitch® Universal, Osiconcept®

Miniature design, metal, type XCM D

Separate components



ZCM C21E●

### Pre-cabled connection components (CEI cable) (1)

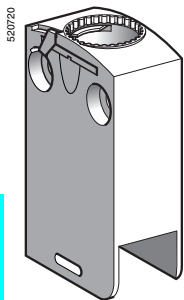
Type of contact	Scheme	Length of CEI cable in metres	Reference	Weight kg
<b>2-pole</b>				
N/C + N/O snap action		1	ZCM C21E1	0.100
		2	ZCM C21E2	0.190
		3	ZCM C21E3	0.280
		5	ZCM C21E5	0.440
		7	ZCM C21E7	0.700
		10	ZCM C21E10	0.970

### Bodies with gold contacts

Type of contact	Positive operation (2)	Scheme	Length of cable in metres	Reference	Weight kg
<b>2-pole</b>					
N/C + N/O snap action			—	ZCM D61	0.055
			—	ZCM D69	0.055
			—	ZCM D65	0.055
<b>3-pole</b>					
N/C + N/C + N/O snap action			—	ZCM D79	0.055
			—	ZCM D77	0.055
<b>4-pole</b>					
N/C + N/C + N/O + N/O snap action			1	ZCM D81L1	0.160
			2	ZCM D81L2	0.255
			5	ZCM D81L5	0.525

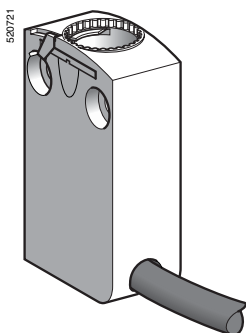
(1) Cable not UL, CSA certified.

(2) bodies with contacts assuring positive opening operation.



ZCM D6●  
ZCM D7●

5

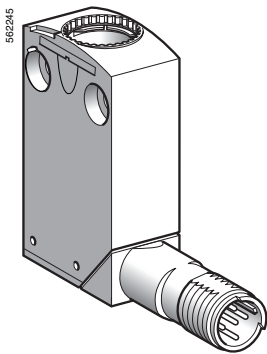


ZCM D81L●

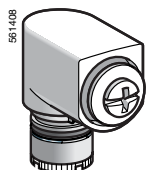


# Limit switches

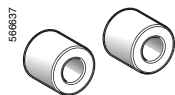
Osiswitch® Universal, Osiconcept®  
Miniature design, metal, type XCM D  
Separate components



ZCM D61●●●



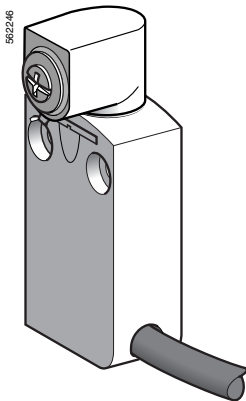
ZCE 05



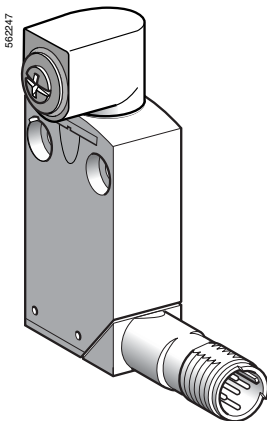
XCM Z06



XCM Z07



XCM D2●01L1



XCM D2101●12

## Bodies with gold contacts, integral connector

Type of contact	Positive operation (1)	Scheme	Connector	Reference	Weight kg
<b>2-pole</b>					
N/C + N/O snap action	—		M12 5-pin	ZCM D61C12	0.065
N/C + N/C snap action	—		M12 5-pin	ZCM D69C12	0.065
<b>Single-pole</b>					
C/O snap action	—		M12 4-pin	ZCM D61M12	0.065

## Accessories

Description	Positive operation (1)	Suitable levers for use with head	Reference	Weight kg
Rotary head, without lever, spring return, for actuation from left AND right or from left OR right (2)	⊖	ZCY 12, ZCY 15, ZCY 16, ZCY 17, ZCY 18, ZCY 19, ZCY 22, ZCY 23, ZCY 25, ZCY 26, ZCY 39, ZCY 53, ZCY 54, ZCY 55, ZCY 81	ZCE 05	0.045
Spacer for mounting multi-track XCM D	—	—	XCM Z06	0.005
Spacer for angular positioning of heads with adjustable levers, for values other than - 90°, 0° and 90°	—	—	XCM Z07	0.005

## Bodies with contacts, with rotary head (without operating lever), pre-cabled

Type of contact	Positive operation (1)	Scheme	Length of cable in metres	Reference	Weight kg
<b>2-pole</b>					
N/C + N/O snap action	⊕		1	XCM D2101L1	0.180
N/C + N/O break before make, slow break	⊕		1	XCM D2501L1	0.180

## Bodies with contacts, with rotary head (without operating lever), integral connector

Type of contact	Positive operation (1)	Scheme	Connector	Reference	Weight kg
<b>2-pole</b>					
N/C + N/O snap action	⊕		M12 5-pin	XCM D2101C12	0.110
<b>Single-pole</b>					
C/O snap action	—		M12 4-pin	XCM D2101M12	0.110

(1) ⊖ bodies with contacts or head assuring positive opening operation.

(2) For programming see page 5/178.

# Limit switches

Osiswitch® Optimum  
Miniature design, plastic, type XCM N

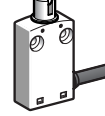
■ XCM N  
pre-cabled

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

520866



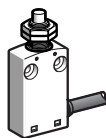
530750



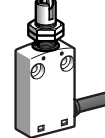
Page 5/26

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

530751



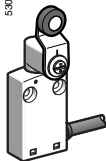
530752



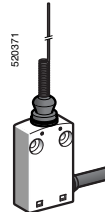
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□ With head for rotary movement (lever) or multi-directional.

530753



530371



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Environment characteristics		
Conforming 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	Operation	- 25...+ 70 °C
	Storage	- 40...+ 70 °C
Vibration resistance	Conforming to IEC 60068-2-6	5 gn (10...500 Hz)
Shock resistance	Conforming to IEC 60068-2-27	25 gn (18 ms)
Electric shock protection		Class II conforming to IEC 61140 and NF C 20030
Degree of protection		IP 65 conforming to IEC 60529; IK 04 conforming to EN 50102
Materials	Bodies	Plastic
	Heads	Zamak
Contact block characteristics		
Rated operational characteristics		~ 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		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		U imp = 4 kV conforming to IEC 60947-1, IEC 60664
Short-circuit protection		6 A cartridge fuse type gG (gl)

# Limit switches

## Osiswitch® Optimum

Miniature design, plastic, type XCM N  
Pre-cabled

Type of head	Plunger (fixing by the body)				Plunger (fixing by the head)		
Type of operator	Metal end plunger	Steel roller plunger for lateral cam approach	Steel roller plunger for traverse cam approach	Thermoplastic roller lever plunger, 1 direction of actuation	M12 with metal end plunger	M12 with steel roller plunger for lateral cam approach	M12 with steel roller plunger for traverse cam approach

References	XCM N2110L1	XCM N2102L1	XCM N2103L1	XCM N2121L1	XCM N21F0L1	XCM N21F2L1	XCM N21F3L1
<p>2-pole N/C + N/O snap action</p>	<p>1,8 4,2(P) 0,8 5mm</p>	<p>3,1(A) 7(P) 0 1,4 mm</p>	<p>3,1(A) 7(P) 0 1,4 mm</p>	<p>65(A) 14(F) 2,8 mm</p>	<p>1,8 4,2(P) 0,8 5mm</p>	<p>3,1(A) 7(P) 0 1,4 mm</p>	<p>3,1(A) 7(P) 0 1,4 mm</p>
Weight (kg)	0.080	0.080	0.080	0.090	0.065	0.095	0.095
Contact operation			(A) = cam displacement (P) = positive opening point				

Characteristics	On end		By 30° cam		On end		By 30° cam	
Switch actuation	On end		By 30° cam		On end		By 30° cam	
Type of actuation								
Maximum actuation speed	0.5 m/s		0.1 m/s		0.5 m/s		0.1 m/s	
Mechanical durability	5 millions operating cycles							
Minimum force or torque	For tripping	8.5 N	7 N	2.5 N	8.5 N	7 N	2.5 N	8.5 N
	For positive opening	42.5 N	35 N	12.5 N	42.5 N	35 N	12.5 N	42.5 N
Cabling	PvR cable, 4 x 0.75 mm <sup>2</sup> , length 1 metre							

### Dimensions

XCM N2110L1	XCM N2102L1, XCM N2103L1	XCM N21F2L1, XCM N21F3L1
<p>Ø7, 50, 60, 16, 20, 30, 40, 20, 2</p>	<p>3,5, 50, 70,4, 16, Ø11,6, 30,4, 40, 20, 30, 2</p>	<p>3,5, Ø10,6, 88, 16, M12x1, 36, 30, 52, 2</p>

XCM N2121L1	XCM N21F0L1
<p>16, 5,5, 20,2, Ø14, 39, 50, 16, 20, 30, 40, 2</p>	<p>M12x1, Ø7, 76, 16, 24, 30, 52, 2</p>

(1) 2 fixing holes Ø 4.2 mm, counterbored Ø 8 mm by 4 mm deep.  
 (2) Overall diameter 7.5 mm.  
 e: 8 mm max, panel cut-out Ø 12.5 mm,  
 fixing nut thickness 3.5 mm.

5

# Limit switches

Osiswitch® Optimum  
Miniature design, plastic, type XCM N  
Pre-cabled

Type of head	Rotary (fixing by the body)			Multi-directional	
Type of operator	Thermoplastic roller lever	Variable length thermoplastic roller lever	Round thermoplastic rod lever Ø 6 mm (1)	Spring lever with thermoplastic end (1)	"Cat's whisker" (1)

References	XCM N2115L1	XCM N2145L1	XCM N2159L1	XCM N2107L1	XCM N2106L1
<p>2-pole N/C + N/O snap action</p>					
Weight (kg)	0.100	0.105	0.080	0.085	0.080
Contact operation					

(1) Value taken with actuation by moving part at 100 mm from the fixings.

Characteristics	By 30° cam		By any moving part	
Switch actuation				
Type of actuation				
Maximum actuation speed	1.5 m/s		1 m/s	1 m/s (any direction)
Mechanical durability	5 millions operating cycles			
Minimum force or torque	For tripping	0.1 N.m		
	For positive opening	0.5 N.m	-	-
Cabling	PvR cable, 4 x 0.75 mm <sup>2</sup> , length 1 metre			

## Dimensions

XCM N2115L1	XCM N2159L1	XCM N2107L1
XCM N2145L1	XCM N2106L1	

(1) 2 fixing holes Ø 4.2 mm, counterbored Ø 8 mm by 4 mm deep.  
(2) Overall diameter 7.5 mm.

# Limit switches

Osiswitch® Universal, Osiconcept®  
Compact design, plastic, types XCK P and XCK T  
Compact design, metal, type XCK D

## ■ 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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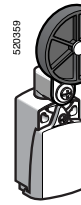
Pages 5/36 and 5/40



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



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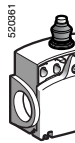
Pages 5/37 and 5/41



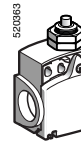
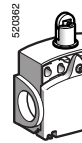
## ■ XCK T

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**



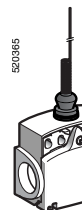
Page 5/42



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



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## Environment characteristics

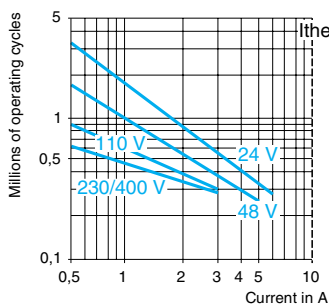
Conforming to standards	Products	IEC 60947-5-1, EN 60947-5-1, UL 508, CSA C22-2 n° 14
	Machine assemblies	IEC 60204-1, EN 60204-1
Product certifications		UL, CSA, CCC
Protective treatment	Standard version	"TC"
Ambient air temperature	Operation	- 25...+ 70 °C
	Storage	- 40...+ 70 °C
Vibration resistance	Conforming to IEC 60068-2-6	25 gn (10...500 Hz) except switch with head ZCE 24: 20 gn
Shock resistance	Conforming to IEC 60068-2-27	50 gn (11 ms) except heads 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 <b>XCK P</b> and <b>XCK T</b>
		Class I conforming to IEC 61140 and NF C 20-030 for <b>XCK D</b>
Degree of protection		<b>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</b>
Repeat accuracy		0.1 mm on the tripping points, with 1 million operating cycles for head with end plunger
Cable entry or integral 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, tapped PF 1/2 (G1/2) or integral M12 connector
Materials		<b>XCK D</b> : zamak bodies and heads, <b>XCK P</b> and <b>XCK T</b> : plastic bodies, zamak heads

### Contact block characteristics

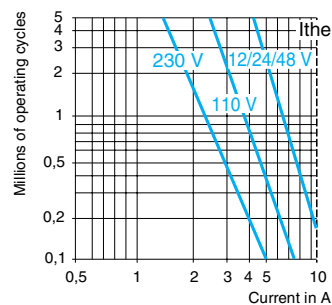
Rated operational characteristics	XE2● P	$\sim$ AC-15; A300 ( $U_e = 240$ V, $I_e = 3$ A); $I_{the} = 10$ A $\equiv$ DC-13; Q300 ( $U_e = 250$ V, $I_e = 0.27$ A), conforming to IEC 60947-5-1 Appendix A, EN 60947-5-1
	XE3● P	$\sim$ AC-15; B300 ( $U_e = 240$ V, $I_e = 1.5$ A); $I_{the} = 6$ A $\equiv$ DC-13; R300 ( $U_e = 250$ V, $I_e = 0.1$ A), conforming to IEC 60947-5-1 Appendix A, EN 60947-5-1
Rated insulation voltage	XE2● P	$U_i = 500$ V degree of pollution 3 conforming to IEC 60947-1 $U_i = 300$ V conforming to UL 508, CSA C22-2 n° 14
	XE3● P	$U_i = 400$ V degree of pollution 3 conforming to IEC 60947-1 $U_i = 300$ 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)		N/C contacts with positive opening operation conforming to IEC 60 947-5-1 Appendix K, EN 60947-5-1
Resistance across terminals		$\leq 25$ m $\Omega$ 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)
Cabling (screw clamp terminals)	XE2S P●151 and XE2S P2141	Clamping capacity, min: $1 \times 0.34$ mm <sup>2</sup> , max: $2 \times 1.5$ mm <sup>2</sup>
	XE2N P21●1 and XE2N P31●1	Clamping capacity, min: $1 \times 0.5$ mm <sup>2</sup> , max: $2 \times 2.5$ mm <sup>2</sup>
	XE3N P and XE3S P	Clamping capacity, min: $1 \times 0.34$ mm <sup>2</sup> , max: $1 \times 1$ mm <sup>2</sup> or $2 \times 0.75$ mm <sup>2</sup>
Minimum actuation speed (for head with end plunger)		XE2S P●151, XE2S P2141 and XE3S P: 0.01 m/minute
		XE2N P21●1, XE2N P31●1 and XE3N P: 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>

a.c. supply  
 $\sim$  50/60 Hz  
 m inductive circuit

#### XE2S P●151, XE2S P2141



#### XE2N P21●1, XE2N P31●1



d.c. supply  $\equiv$

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

Voltage	V	24	48	120
m	W	10	7	4

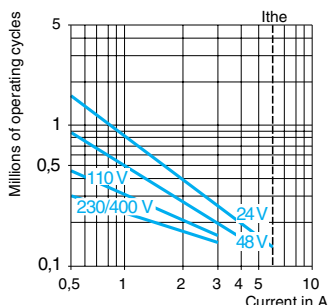
#### Power broken in W for 5 million operating cycles.

Voltage	V	24	48	120
m	W	13	9	7

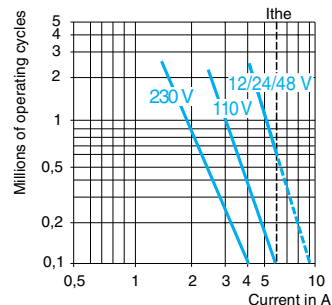
For XE2S P●151 on  $\sim$  or  $\equiv$ , N/C and N/O contacts simultaneously loaded to the values shown with reverse polarity.

a.c. supply  
 $\sim$  50/60 Hz  
 m inductive circuit

#### XE3N P●●●●



#### XE3S P●●●●



d.c. supply  $\equiv$

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

Voltage	V	24	48	120
m	W	3	2	1

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







Voltage	V	24	48	120
m	W	4	3	2



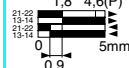
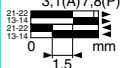
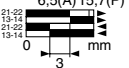
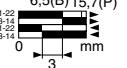


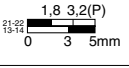
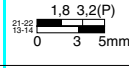
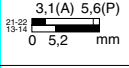
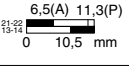
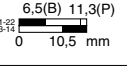
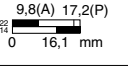

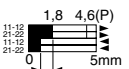

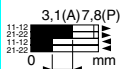
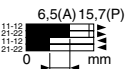
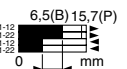


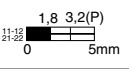
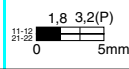
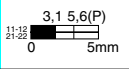
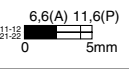
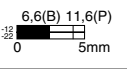


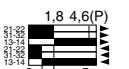

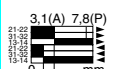
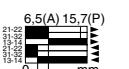
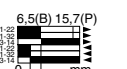
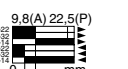

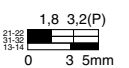
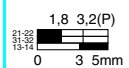
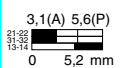
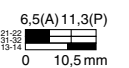
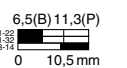




# Limit switches





Osiswitch® Universal, Osiconcept®

Compact design, metal, type XCK D

Complete units with 1 ISO M16 x 1.5 cable entry

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	Steel roller plunger	Thermoplastic rollerleverplunger, horizontal actuation in 1 direction	Thermoplastic rollerleverplunger, vertical actuation in 1 direction	Thermoplastic roller lever plunger, horiz. or vert. actuation in 1 direction

References (2) (3)							
	2-pole N/C + N/O snap action (XE2S P2151)	XCK D2110P16 	XCK D2111P16 	XCK D2102P16 	XCK D2121P16 	XCK D2127P16 	XCK D2128P16 
	2-pole N/C + N/O break before make, slow break (XE2N P2151)	XCK D2510P16 	XCK D2511P16 	XCK D2502P16 	XCK D2521P16 	XCK D2527P16 	XCK D2528P16 
	2-pole N/C + N/C snap action (XE2S P2141)	ZCD 29 + ZCD EP16 + ZCE 10 	ZCD 29 + ZCD EP16 + ZCE 11 	ZCD 29 + ZCD EP16 + ZCE 02 	ZCD 29 + ZCD EP16 + ZCE 21 	ZCD 29 + ZCD EP16 + ZCE 27 	ZCD 29 + ZCD EP16 + ZCE 28 
	2-pole N/C + N/C simultaneous, slow break (XE2N P2141)	ZCD 27 + ZCD EP16 + ZCE 10 	ZCD 27 + ZCD EP16 + ZCE 11 	ZCD 27 + ZCD EP16 + ZCE 02 	ZCD 27 + ZCD EP16 + ZCE 21 	ZCD 27 + ZCD EP16 + ZCE 27 	ZCD 27 + ZCD EP16 + ZCE 28 
	3-pole N/C + N/C + N/O snap action (XE3S P2141)	ZCD 39 + ZCD EP16 + ZCE 10 	ZCD 39 + ZCD EP16 + ZCE 11 	ZCD 39 + ZCD EP16 + ZCE 02 	ZCD 39 + ZCD EP16 + ZCE 21 	ZCD 39 + ZCD EP16 + ZCE 27 	ZCD 39 + ZCD EP16 + ZCE 28 
	3-pole N/C + N/C + N/O break before make, slow break (XE3N P2141)	ZCD 37 + ZCD EP16 + ZCE 10 	ZCD 37 + ZCD EP16 + ZCE 11 	ZCD 37 + ZCD EP16 + ZCE 02 	ZCD 37 + ZCD EP16 + ZCE 21 	ZCD 37 + ZCD EP16 + ZCE 27 	ZCD 37 + ZCD EP16 + ZCE 28 
Weight (kg)		0.180	0.180	0.185	0.195	0.190	0.195
Contact operation		 contact closed  contact open		(A)(B) = cam displacement (P) = positive opening point		 N/C contact with positive opening operation	

Characteristics		On end		By 30° cam	
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	
Minimum force or torque	For tripping	15 N		12 N	
	For positive opening	45 N		36 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 5/184.

(2) Switches with gold contacts or ring type connections: please consult our Regional Sales Office.

(3) For an entry tapped for a n° 11 cable gland, replace P16 in the reference by G11. Examples: XCK D2110P16 becomes XCK D2110G11, ZCD EP16 becomes ZCD EG11.



# Limit switches

Osiswitch® Universal, Osiconcept®  
Compact design, metal, type XCK D  
Complete units with 1 ISO M16 x 1.5 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" (4)

References (2) (3)								
	2-pole N/C + N/O snap action (XE2S P2151)	XCK D21H0P16 1.8 4,6(P) 0,9 5mm	XCK D21H2P16 3,1(A) 7,8(P) 1,5 mm	XCK D2118P16 25° 70°(P) 12° 90°	XCK D2145P16 25° 70°(P) 12° 90°	XCK D2139P16 25° 70°(P) 12° 90°	XCK D2149P16 25° 70°(P) 12° 90°	XCK D2106P16 20° 15°
	2-pole N/C + N/O break before make, slow break (XE2N P2151)	XCK D25H0P16 1,8 3,2(P) 0 3 5mm	XCK D25H2P16 3,1(A) 5,6(P) 0 5,2 mm	XCK D2518P16 25° 46°(P) 0 42° 90°	XCK D2545P16 25° 46°(P) 0 42° 90°	XCK D2539P16 25° 46°(P) 0 42° 90°	XCK D2549P16 25° 46°(P) 0 42° 90°	XCK D2506P16 20° 0 45°
	2-pole N/C + N/C snap action (XE2S P2141)	ZCD 29 + ZCD EP16 + ZCE H0	ZCD 29 + ZCD EP16 + ZCE H2	ZCD 29 + ZCD EP16 + ZCE 01 + ZCY 18	ZCD 29 + ZCD EP16 + ZCE 01 + ZCY 45	ZCD 29 + ZCD EP16 + ZCE 01 + ZCY 39	ZCD 29 + ZCD EP16 + ZCE 01 + ZCY 49	ZCD29 + ZCD EP16 + ZCE 06 20° 15°
	2-pole N/C + N/C simultaneous, slow break (XE2N P2141)	ZCD 27 + ZCD EP16 + ZCE H0	ZCD 27 + ZCD EP16 + ZCE H2	ZCD 27 + ZCD EP16 + ZCE 01 + ZCY 18	ZCD 27 + ZCD EP16 + ZCE 01 + ZCY 45	ZCD 27 + ZCD EP16 + ZCE 01 + ZCY 39	ZCD 27 + ZCD EP16 + ZCE 01 + ZCY 49	ZCD 27 + ZCD EP16 + ZCE 06 20° 0
	3-pole N/C + N/C + N/O snap action (XE3S P2141)	ZCD 39 + ZCD EP16 + ZCE H0	ZCD 39 + ZCD EP16 + ZCE H2	ZCD 39 + ZCD EP16 + ZCE 01 + ZCY 18	ZCD 39 + ZCD EP16 + ZCE 01 + ZCY 45	ZCD 39 + ZCD EP16 + ZCE 01 + ZCY 39	ZCD 39 + ZCD EP16 + ZCE 01 + ZCY 49	ZCD 39 + ZCD EP16 + ZCE 06 20° 15°
	3-pole N/C + N/C + N/O break before make, slow break (XE3N P2141)	ZCD 37 + ZCD EP16 + ZCE H0	ZCD 37 + ZCD EP16 + ZCE H2	ZCD 37 + ZCD EP16 + ZCE 01 + ZCY 18	ZCD 37 + ZCD EP16 + ZCE 01 + ZCY 45	ZCD 37 + ZCD EP16 + ZCE 01 + ZCY 39	ZCD 37 + ZCD EP16 + ZCE 01 + ZCY 49	ZCD 37 + ZCD EP16 + ZCE 06 25° 46°(P) 0 42° 90°
<b>Weight (kg)</b>	0.220	0.220	0.225	0.235	0.235	0.245	0.175	
<b>Contact operation</b>	contact closed contact open		(A) = cam displacement (P) = positive opening point		N/C contact with positive opening operation			

Characteristics					
<b>Switch actuation</b>	On end	By 30° cam		By any moving part	
<b>Type of actuation</b>					
<b>Maximum actuation speed</b>	0.5 m/s		1.5 m/s		
<b>Mechanical durability</b>	10 million operating cycles				
<b>Minimum force or torque</b>	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	-
<b>Cable entry (3)</b>	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 5/184.  
 (2) Switches with gold contacts or ring type connections: please consult our Regional Sales Office.  
 (3) For an entry tapped for a n° 11 cable gland, replace P16 in the reference by G11. Examples: XCK D21H0P16 becomes XCK D21H0G11, ZCD EP16 becomes ZCD EG11.  
 (4) Value taken with actuation by moving part at 100 mm from the fixings.

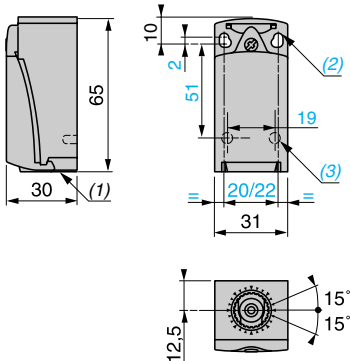
## Limit switches

Osiswitch® Universal, Osiconcept®

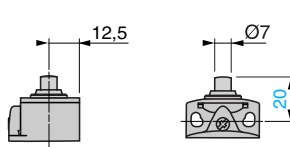
Compact design, metal, type XCK D

Complete units with 1 ISO M16 x 1.5 cable entry

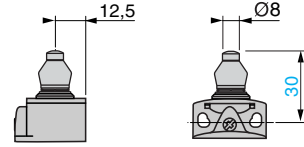
ZCD 2● + ZCD EP16 / ZCD 3● + ZCDE P16



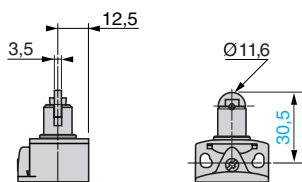
ZCE 10



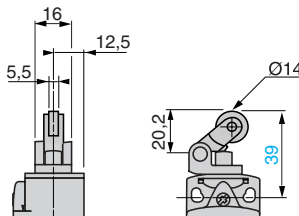
ZCE 11



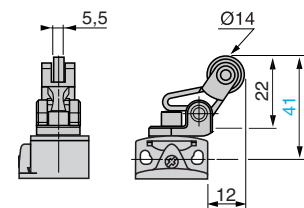
ZCE 02



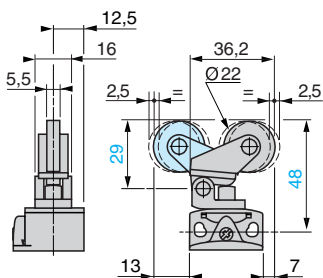
ZCE 21



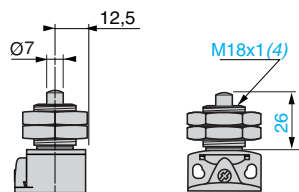
ZCE 27



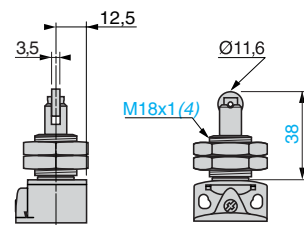
ZCE 28



ZCE H0



ZCE H2



5

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

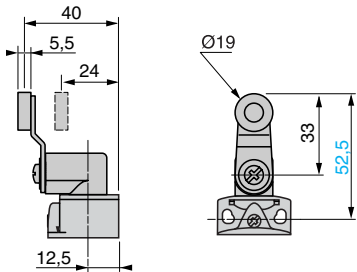
# Limit switches

Osiswitch® Universal, Osiconcept®

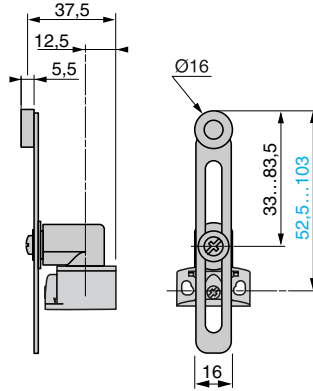
Compact design, metal, type XCK D

Complete units with 1 ISO M16 x 1.5 cable entry

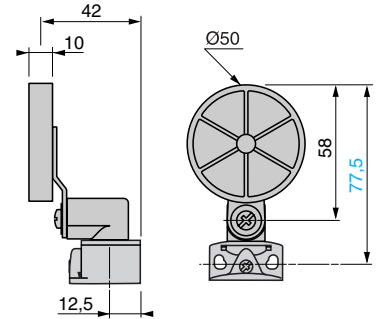
ZCE 01 + ZCY 18



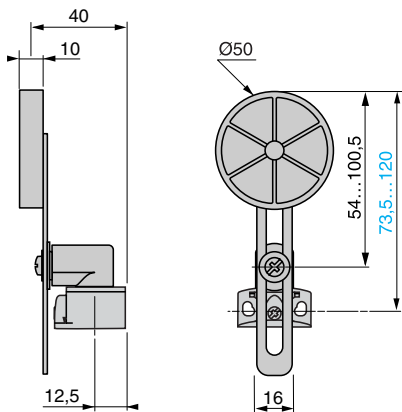
ZCE 01 + ZCY 45



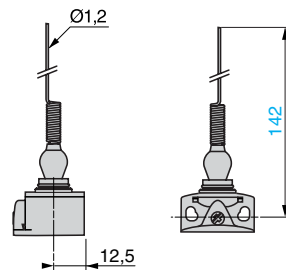
ZCE 01 + ZCY 39



ZCE 01 + ZCY 49



ZCE 06



# Limit switches

Osiswitch® Universal, Osiconcept®  
Compact design, metal, type XCK D  
Integral M12 connector

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	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	XCK D2110M12	XCK D2111M12	XCK D2102M12	XCK D2121M12	XCK D2127M12	XCK D2128M12
2-pole N/C + N/O snap action (XE2S P2151)						
2-pole N/C + N/C snap action (XE2S P2141)						
Weight (kg)	0.190	0.190	0.195	0.205	0.200	0.205
Contact operation	 (A) (B) = cam displacement (P) = positive opening point (1) Form conforming to EN 50047, see page 5/184.					

Characteristics	On end	By 30° cam		
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	15 N For tripping 45 N For positive opening	12 N 36 N	6 N 18 N	
Connection	M12 5-pin connector, Ui = 60 V, Ie = 4 A maximum, Ith = 4 A			

## Connections

Integral M12 connector	XE2S P2151	XE2S P2141
	1-2: N/C 3-4: N/O 5: ⊥	1-2: N/C 3-4: N/C 5: ⊥

See connection on page 9/44




## Dimensions

ZCD 2●M12	ZCE 10	ZCE 11	ZCE 02	ZCE 21


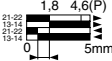

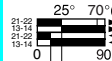

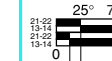
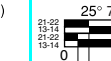


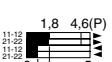
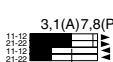



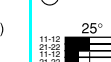
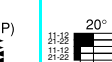


(1) 2 elongated holes  $\varnothing 4.3 \times 6.3$  mm on 22 mm centres, 2 holes  $\varnothing 4.3$  on 20 mm centres.  
 (2) 2 x  $\varnothing 3$  holes for support studs, depth 4 mm.  
 (3) Fixing nut thickness 3.5 mm.

# Limit switches

Osiswitch® Universal, Osiconcept®  
Compact design, metal, type XCK D  
Integral M12 connector

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)

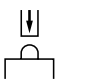
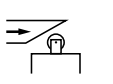
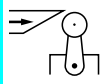
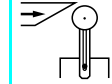

## References

2-pole N/C + N/O snap action (XE2S P2151)	XCK D21H0M12	XCK D21H2M12	XCK D2118M12	XCK D2145M12	XCK D2139M12	XCK D2149M12	XCK D2106M12
							
2-pole N/C + N/C snap action (XE2S P2141)	ZCD 29M12 + ZCE H0	ZCD 29M12 + ZCE H2	ZCD 29M12 + ZCE 01 + ZCY 18	ZCD 29M12 + ZCE 01 + ZCY 45	ZCD 29M12 + ZCE 01 + ZCY 39	ZCD 29M12 + ZCE 01 + ZCY 49	ZCD 29M12 + ZCE 06
							
Weight (kg)	0.235	0.235	0.220	0.220	0.220	0.220	0.185
Contact operation	 contact closed  contact open		(A) = cam displacement (P) = positive opening point				

(1) Form conforming to EN 50047, see page 5/184.

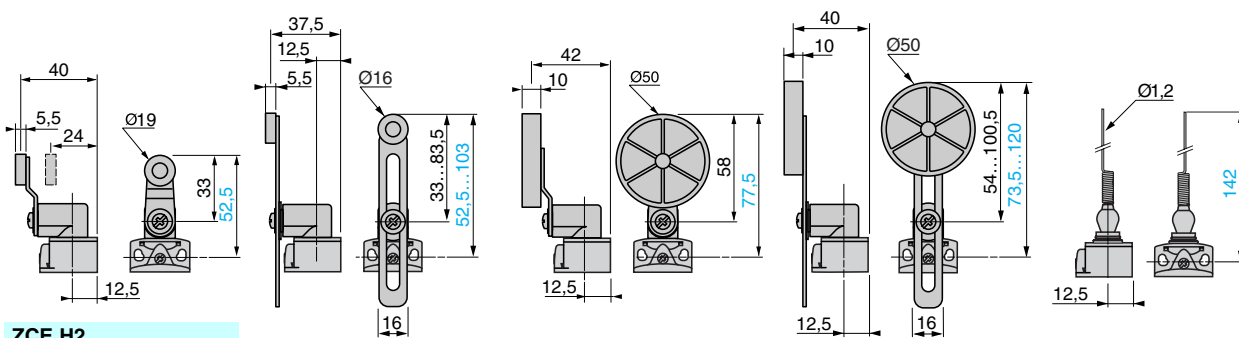
(2) Value taken with actuation by moving part at 100 mm from the fixing.

## Characteristics

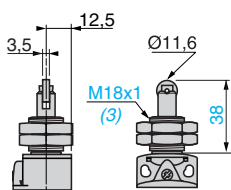
Switch actuation	On end	By 30° cam			By any moving part
Type of actuation					
Maximum actuation speed	0.5 m/s	1.5 m/s			1 m/s (any direct.)
Mechanical durability (in millions of operating cycles)	10				5
Minimum force or torque	For tripping For positive opening	15 N 45 N	10 N 36 N	0.1 N.m 0.25 N.m	0.13 N.m -
Connection	M12 5-pin connector, U <sub>i</sub> = 60 V, I <sub>e</sub> = 4 A maximum, I <sub>th</sub> = 4 A				

## Dimensions

ZCE 01 + ZCY 18	ZCE 01 + ZCY 45	ZCE 01 + ZCY 39	ZCE 01 + ZCY 49	ZCE 06
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### ZCE H2









(3) Fixing nut thickness 3.5 mm.


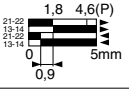
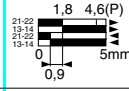
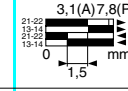
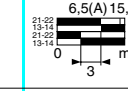
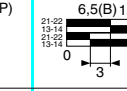
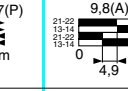

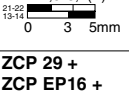

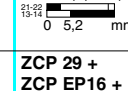
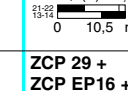
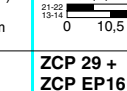
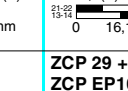

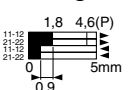

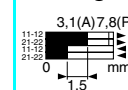
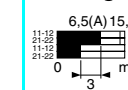
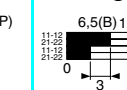
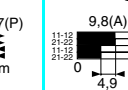

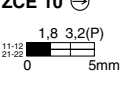
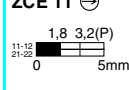
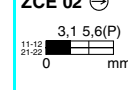
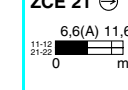
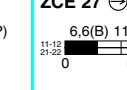
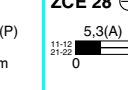

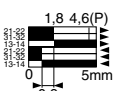
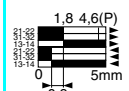
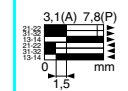
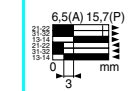
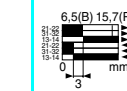
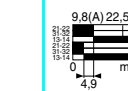

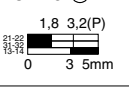
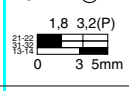
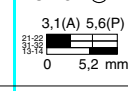
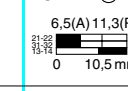
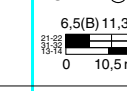
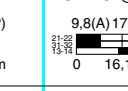



# Limit switches






Osiswitch® Universal, Osiconcept®

Compact design, plastic, type XCK P

Complete units with 1 ISO M16 x 1.5 cable entry

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	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) (3)							
	2-pole N/C + N/O snap action (XE2S P2151)	XCK P2110P16 	XCK P2111P16 	XCK P2102P16 	XCK P2121P16 	XCK P2127P16 	XCK P2128P16 
	2-pole N/C + N/O break before make, slow break (XE2N P2151)	XCK P2510P16 	XCK P2511P16 	XCK P2502P16 	XCK P2521P16 	XCK P2527P16 	XCK P2528P16 
	2-pole N/C + N/C snap action (XE2S P2141)	ZCP 29 + ZCP EP16 + ZCE 10 	ZCP 29 + ZCP EP16 + ZCE 11 	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 N/C + N/C 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 N/C + N/C + N/O 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 N/C + N/C + N/O 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	
Contact operation	 contact closed  contact open		(A)(B) = cam displacement (P) = positive opening point		 N/C contact with positive opening operation		

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	
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 5/184.

(2) Switches with gold contacts or ring type connections: please consult our Regional Sales Office.

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

# Limit switches

Osiswitch® Universal, Osiconcept®  
Compact design, plastic, type XCK P  
Complete units with 1 ISO M16 x 1.5 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" (4)

References (2)							
	XCK P21H0P16 1.8 4,6(P) 5mm	XCK P21H2P16 3,1(A) 7,8(P) 1,5 mm	XCK P2118P16 25° 70°(P) 12° 90°	XCK P2145P16 25° 70°(P) 12° 90°	XCK P2139P16 25° 70°(P) 12° 90°	XCK P2149P16 25° 70°(P) 12° 90°	XCK P2106P16 20° 15°
	XCK P25H0P16 1.8 3,2(P) 5mm	XCK P25H2P16 3,1(A) 5,6(P) 5,2 mm	XCK P2518P16 25° 46°(P) 0 42° 90°	XCK P2545P16 25° 46°(P) 0 42° 90°	XCK P2539P16 25° 46°(P) 0 42° 90°	XCK P2549P16 25° 46°(P) 0 42° 90°	XCK P2506P16 20° 45°
	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
	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
	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
	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
Contact operation	contact closed contact open		(A) = cam displacement (P) = positive opening point		⊕ N/C contact with positive opening operation		

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				5 million op. cycles
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	-
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 5/184.  
 (2) Switches with gold contacts or ring type connections: please consult our Regional Sales Office.  
 (3) For an entry tapped for a n° 11 cable gland, replace P16 in the ref. by G11. Examples: XCK P21H0P16 becomes XCK P21H0G11, ZCP EP16 becomes ZCP EG11.  
 (4) Value taken with actuation by moving part at 100 mm from the fixings.

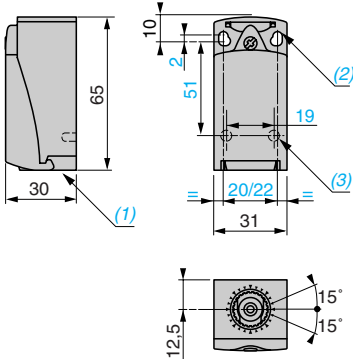
# Limit switches

Osiswitch® Universal, Osiconcept®

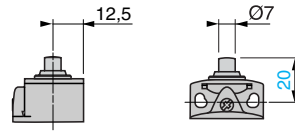
Compact design, plastic, type XCK P

Complete units with 1 ISO M16 x 1.5 cable entry

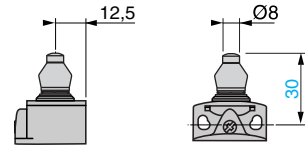
ZCP 2● + ZCP EP16 / ZCP 3● + ZCP EP16



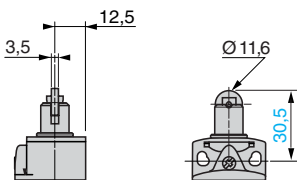
ZCE 10



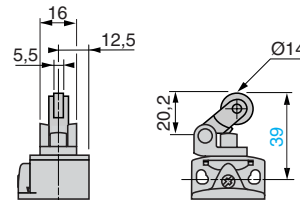
ZCE 11



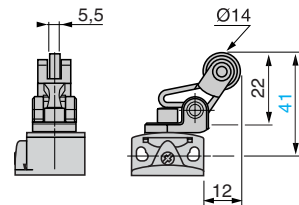
ZCE 02



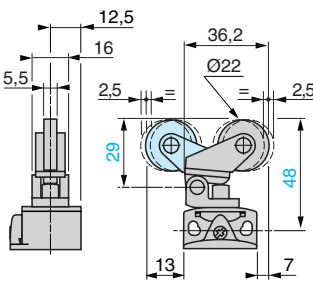
ZCE 21



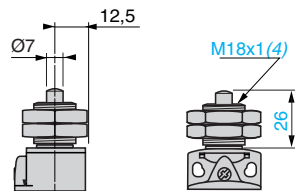
ZCE 27



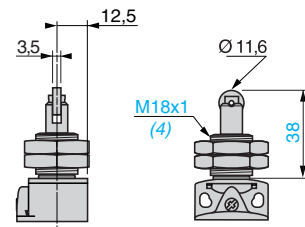
ZCE 28



ZCE H0



ZCE H2



5

- (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.



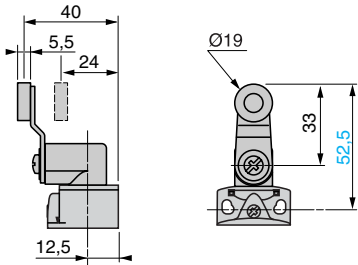
## Limit switches

Osiswitch® Universal, Osiconcept®

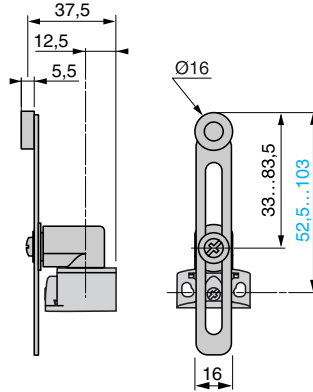
Compact design, plastic, type XCK P

Complete units with 1 ISO M16 x 1.5 cable entry

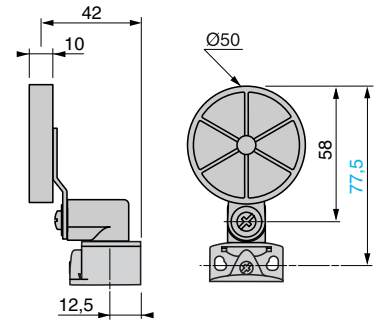
ZCE 01 + ZCY 18



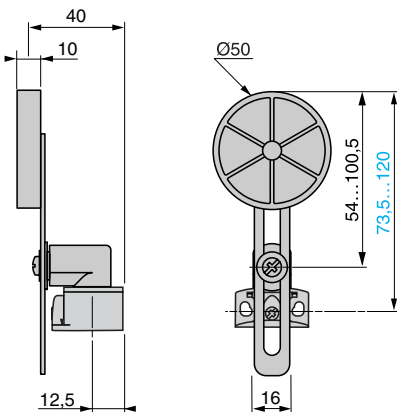
ZCE 01 + ZCY 45



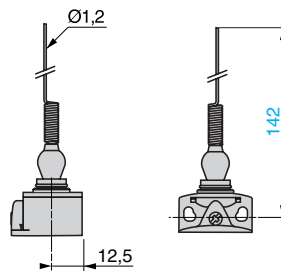
ZCE 01 + ZCY 39



ZCE 01 + ZCY 49



ZCE 06



# Limit switches

Osiswitch® Universal, Osiconcept®  
Compact design, plastic, type XCK P  
Integral M12 connector

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
<b>References</b>						
2-pole N/C + N/O snap action (XE2S P2151)	<b>XCK P2110M12</b> 	<b>XCK P2111M12</b> 	<b>XCK P2102M12</b> 	<b>XCK P2121M12</b> 	<b>XCK P2127M12</b> 	<b>XCK P2128M12</b> 
2-pole N/C + N/C snap action (XE2S P2141)	<b>ZCP 29M12 + ZCE 10</b> 	<b>ZCP 29M12 + ZCE 11</b> 	<b>ZCP 29M12 + ZCE 02</b> 	<b>ZCP 29M12 + ZCE 21</b> 	<b>ZCP 29M12 + ZCE 27</b> 	<b>ZCP 29M12 + ZCE 28</b> 
Weight (kg)	0.100	0.100	0.100	0.110	0.110	0.110
Contact operation	contact closed contact open			(A)(B) = cam displacement		⊕ N/C contact with positive opening operation
(1) Form conforming to EN 50047, see page 5/184.						

## 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
Minimum force or torque	For tripping: 15 N For positive opening: 45 N	12 N 36 N
Connection	M12 4-pin connector, U <sub>i</sub> = 250 V, I <sub>e</sub> = 3 A maximum, I <sub>th</sub> = 3 A	

## Connections

### Integral M12 connector

XE2S P2151	XE2S P2141
1-2: N/C	1-2: N/C
3-4: N/O	3-4: N/C

See connection page 9/44

## Dimensions

ZCP 29M12	ZCE 10	ZCE 11	ZCE 02	ZCE 21
	<b>ZCE 27</b>	<b>ZCE 28</b>		<b>ZCE H0</b>

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

# Limit switches

Osiswitch® Universal, Osiconcept®  
Compact design, plastic, type XCK P  
Integral M12 connector

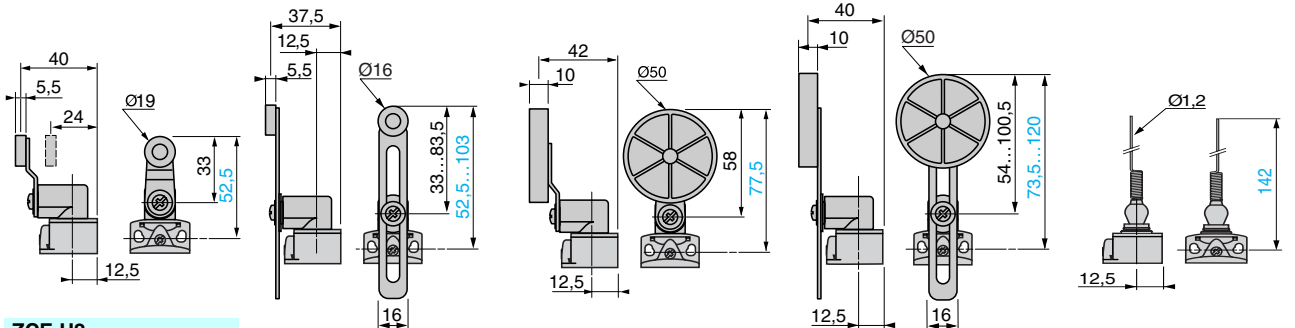
Type of head	Plunger (fixing by the head)		Rotary (fixing by the body)				Multi-directional
			Form A (1)				
Type of operator	M18 with metal end plunger	M18 with steel roller plunger	Thermoplastic roller lever	Variable length thermoplastic roller lever	Thermoplastic roller lever, Ø 50 mm	Variable length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

References	XCK P21H0M12	XCK P21H2M12	XCK P2118M126	XCK P2145M12	XCK P2139M12	XCK P2149M12	XCK P2106M126
2-pole N/C + N/O snap action (XE2S P2151)							
2-pole N/C + N/C snap action (XE2S P2141)							
Weight (kg)	0.140	0.140	0.140	0.150	0.155	0.160	0.090
Contact operation			(A) = cam displacement		⊕ N/C contact with positive opening operation		
	(P) = positive opening point						

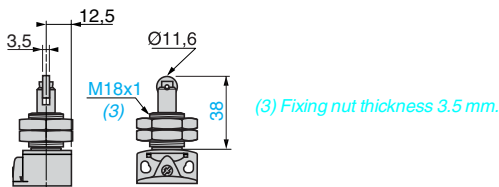
(1) Form conforming to EN 50047, see page 5/184.  
(2) Value taken with actuation by moving part at 100 mm from the fixings.

Characteristics	On end		By 30° cam		By any moving part
Switch actuation					
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		10		5
Minimum force or torque	For tripping: 15 N For positive opening: 45 N	10 N 36 N	0.1 N.m 0.25 N.m		0.13 N.m -
Connection	M12 4-pin connector, U <sub>i</sub> = 250 V, I <sub>e</sub> = 3 A maximum, I <sub>th</sub> = 3 A				

Dimensions	ZCE 01 + ZCY 18	ZCE 01 + ZCY 45	ZCE 01 + ZCY 59	ZCE 01 + ZCY 49	ZCE 06
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### ZCE H2



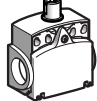
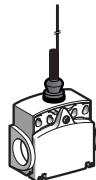



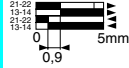
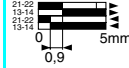
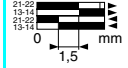
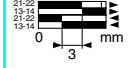
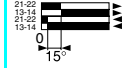

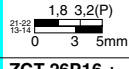
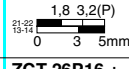
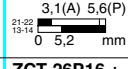
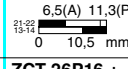
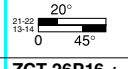

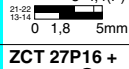
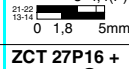
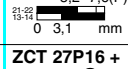
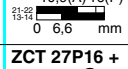
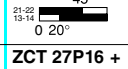

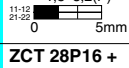
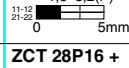
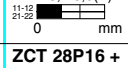
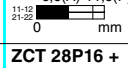
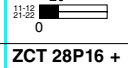

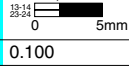
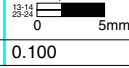
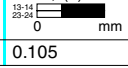
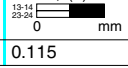
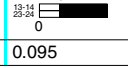



# Limit switches





Osiswitch® Universal, Osiconcept®

Compact design, plastic, type XCK T

Complete units with 2 ISO M16 x 1.5 cable entries

Type of head	Plunger (fixing by the body)			Multi-directional
	Form B (1)	Form C (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

References (2) (3)						
	2-pole N/C + N/O snap action (XE2S P3151)	XCK T2110P16 ⊕ 1,8 4,6(P) 	XCK T2111P16 ⊕ 1,8 4,6(P) 	XCK T2102P16 ⊕ 3,1(A) 7,8(P) 	XCK T2121P16 ⊕ 6,5(A) 15,7(P) 	XCK T2106P16 20° 
	2-pole N/C + N/O break before make, slow break (XE2N P3151)	ZCT 25P16 + ZCE 10 ⊖ 1,8 3,2(P) 	ZCT 25P16 + ZCE 11 ⊖ 1,8 3,2(P) 	ZCT 25P16 + ZCE 02 ⊖ 3,1(A) 5,6(P) 	ZCT 25P16 + ZCE 21 ⊖ 6,5(A) 11,3(P) 	ZCT 25P16 + ZCE 06 20° 
	2-pole N/C + N/O make before break, slow break (XE2N P3161)	ZCT 26P16 + ZCE 10 ⊖ 3 4,4(P) 	ZCT 26P16 + ZCE 11 ⊖ 3 4,4(P) 	ZCT 26P16 + ZCE 02 ⊖ 5,2 7,6(P) 	ZCT 26P16 + ZCE 21 ⊖ 10,9(A) 16(P) 	ZCT 26P16 + ZCE 06 45° 20° 
	2-pole N/C + N/C simultaneous, slow break (XE2N P3141)	ZCT 27P16 + ZCE 10 ⊖ 1,8 3,2(P) 	ZCT 27P16 + ZCE 11 ⊖ 1,8 3,2(P) 	ZCT 27P16 + ZCE 02 ⊖ 3,1 5,6(P) 	ZCT 27P16 + ZCE 21 ⊖ 6,6(A) 11,6(P) 	ZCT 27P16 + ZCE 06 20° 
	2-pole N/O + N/O simultaneous, slow break (XE2N P3131)	ZCT 28P16 + ZCE 10 ⊖ 1,8 	ZCT 28P16 + ZCE 11 ⊖ 1,8 	ZCT 28P16 + ZCE 02 ⊖ 3,1(A) 	ZCT 28P16 + ZCE 21 ⊖ 6,6(A) 	ZCT 28P16 + ZCE 06 20° 
Weight (kg)	0.100	0.100	0.105	0.115	0.095	
Contact operation	 contact closed (A) = cam displacement  contact open (P) = positive opening point			 N/C contact with positive opening operation		

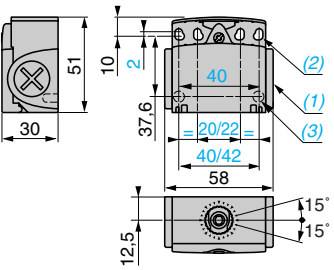
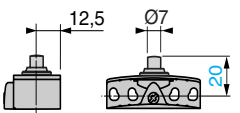
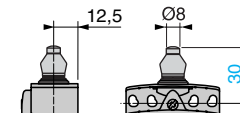
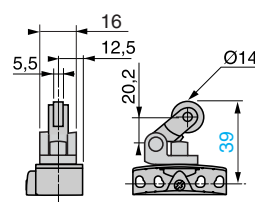
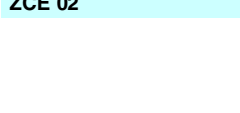
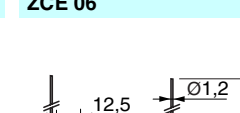
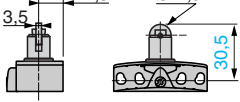
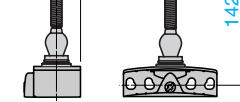
Characteristics					
Switch actuation	On end	By 30° cam	By any moving part		
Type of actuation					
Maximum actuation speed	0.5 m/s		1 m/s	1 m/s (any direction)	
Mechanical durability (in millions of operating cycles)	15	10	15	5	
Minimum force or torque	For tripping	15 N	12 N	6 N	0.3 N.m
	For positive opening	45 N	36 N	18 N	—
Cable entry (3)	2 entries tapped M16 x 1.5 for ISO cable gland. Clamping capacity 4 to 8 mm (1 entry fitted with blanking plug).				

(1) Form conforming to EN 50047, see page 5/184.

(2) Switches with gold contacts or ring connections: please consult our Regional Sales Office.

(3) For cable entries tapped for a n° 11 cable gland, replace P16 in the reference by G11. Example: XCK T2110P16 becomes XCK T2110G11.

(4) Value taken with actuation by moving part at 100 mm from the fixings.

ZCT 2●P16	ZCE 10	ZCE 11	ZCE 21
			
			
			

(1) 2 tapped entries for ISO M16 x 1.5 or Pg 11 cable gland.  
 (2) 4 elongated holes Ø 4.3 x 6.3 mm on 22/42 mm ctrs., 4 holes Ø 4.3 on 20/40 mm ctrs.  
 (3) 2 x Ø 3 holes for support studs, depth 4 mm.

# Limit switches

Osiswitch® Universal, Osiconcept®

Compact design, plastic, type XCK T

Complete units with 2 ISO M16 x 1.5 cable entries

Type of head	Plunger (fixing by the head)		Rotary (fixing by the body) 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

References (2) (3)						
	2-pole N/C + N/O snap action (XE2S P3151)	XCK T21H0P16 	XCK T21H2P16 	XCK T2118P16 	XCK T2145P16 	XCK T2139P16 
	2-pole N/C + N/O break before make, slow break (XE2N P3151)	ZCT 25P16 + ZCE H0 	ZCT 25P16 + ZCE H2 	ZCT 25P16 + ZCE 01 + ZCY 18 	ZCT 25P16 + ZCE 01 + ZCY 45 	ZCT 25P16 + ZCE 01 + ZCY 39 
	2-pole N/O + N/C make before break, slow break (XE2N P3161)	ZCT 26P16 + ZCE H0 	ZCT 26P16 + ZCE H2 	ZCT 26P16 + ZCE 01 + ZCY 18 	ZCT 26P16 + ZCE 01 + ZCY 45 	ZCT 26P16 + ZCE 01 + ZCY 39 
	2-pole N/C + N/C simultaneous, slow break (XE2N P3141)	ZCT 27P16 + ZCE H0 	ZCT 27P16 + ZCE H2 	ZCT 27P16 + ZCE 01 + ZCY 18 	ZCT 27P16 + ZCE 01 + ZCY 45 	ZCT 27P16 + ZCE 01 + ZCY 39 
	2-pole N/O + N/O simultaneous, slow break (XE2N P3131)	ZCT 28P16 + ZCE H0 	ZCT 28P16 + ZCE H2 	ZCT 28P16 + ZCE 01 + ZCY 18 	ZCT 28P16 + ZCE 01 + ZCY 45 	ZCT 28P16 + ZCE 01 + ZCY 39 
Weight (kg)	0.145	0.145	0.145	0.155	0.160	
Contact operation	contact closed (A) = cam displacement contact open (P) = positive opening point			N/C 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	10 million operating cycles	
Minimum force or torque	For tripping	15 N
	For positive opening	45 N
Cable entry (3)	2 entries tapped M16 x 1.5 for ISO cable gland.	
	Clamping capacity 4 to 8 mm (1 entry fitted with blanking plug).	

(1) Form conforming to EN 50047, see page 5/184.

(2) Switches with gold contacts or ring type connections: please consult our Regional Sales Office.

(3) For cable entries tapped for a n° 11 cable gland, replace P16 in the reference by G11. Example: XCK T21H0P16 becomes XCK T21H0G11.

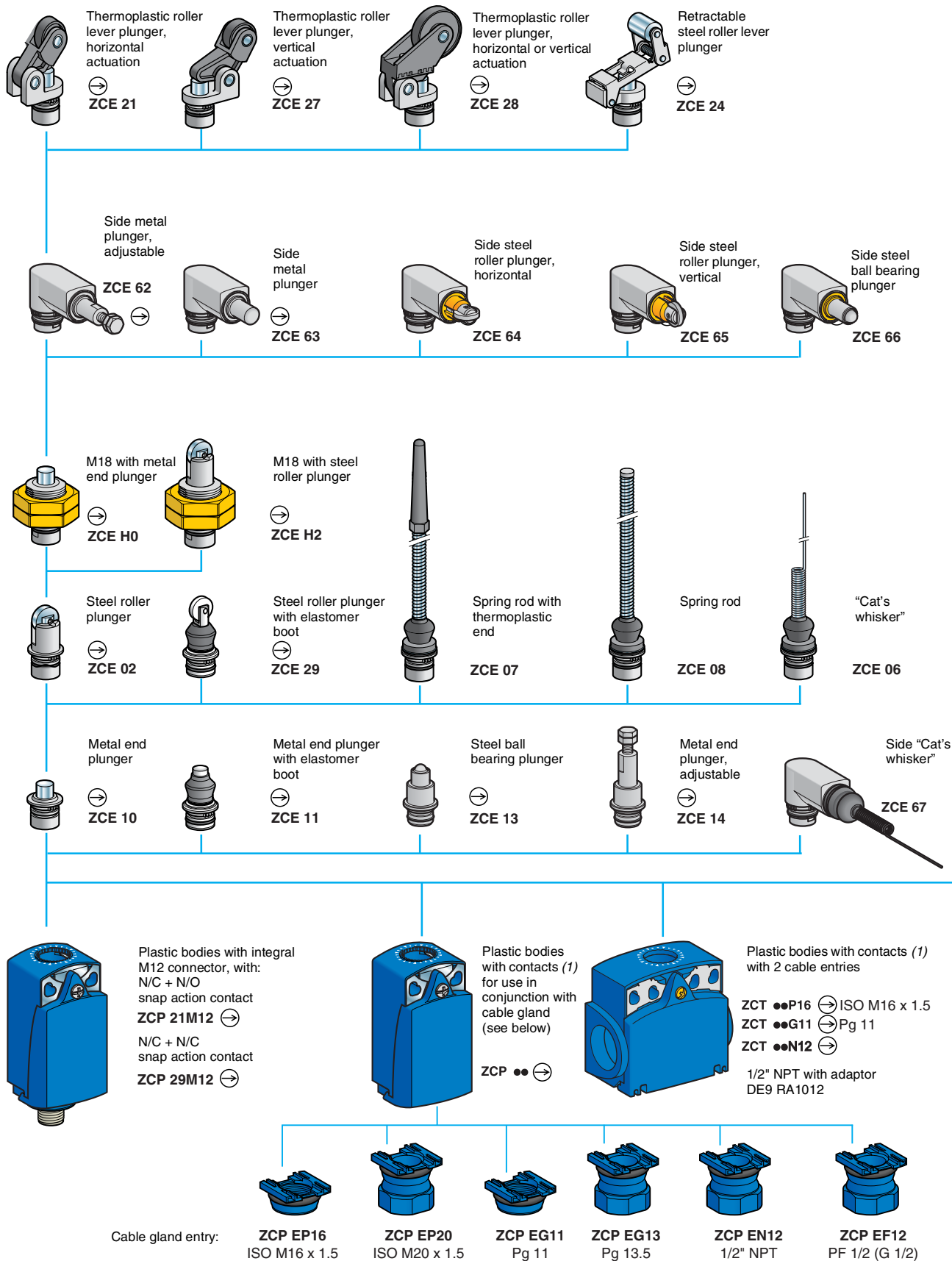
Dimensions	ZCE H0	ZCE 01 + ZCY 18	ZCE 01 + ZCY 39	ZCE 01 + ZCY 45

(4) Fixing nut thickness 3.5 mm

# Limit switches

Osiswitch® Universal, Osiconcept®  
Compact design, types XCK D, XCK P and XCK T  
Variable composition

5



(1) For further details, see page 5/46.

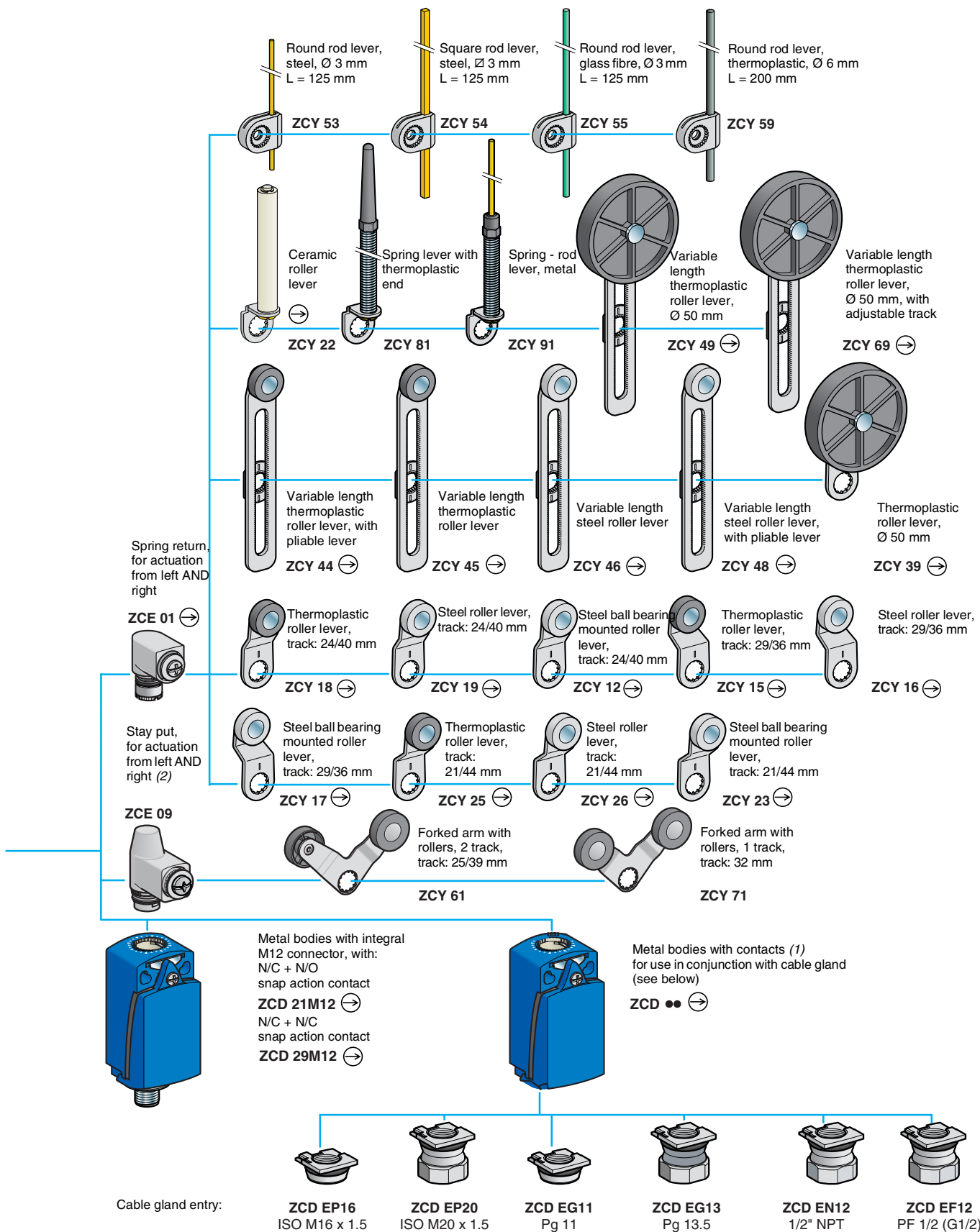
(2) Cannot be used on bodies: ZCD 21, ZCP 21, ZCT 21, ZCD 29, ZCP 29, ZCD 31, ZCP 31, ZCD 39, ZCP 39, ZCD 2●M12, ZCP 2●M12.

# Limit switches

Osiswitch® Universal, Osiconcept®

Compact design, types XCK D, XCK P and XCK T

Variable composition

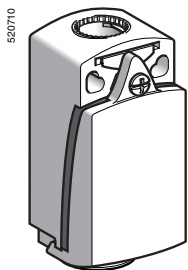


# Limit switches

Osiswitch® Universal, Osiconcept®

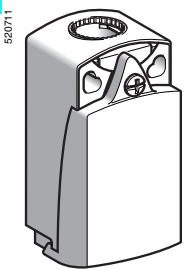
Compact design, metal, type XCK D or plastic, types XCK P and XCK T

Adaptable sub-assemblies: bodies with contacts



ZCD ●●

5



ZCP ●●

## Bodies with contacts, types XCK D and XCK P<sup>(1)</sup>

Type of contact	Positive operation <sup>(2)</sup>	Scheme	Body material	Reference	Weight kg
<b>2-pole</b>					
N/C + N/O snap action (XE2S P2151)	⊕		Metal	ZCD 21	0.140
			Plastic	ZCP 21	0.070
N/C + N/C snap action (XE2S P2141)	⊕		Metal	ZCD 29	0.140
			Plastic	ZCP 29	0.070
N/C + N/O break before make, slow break (XE2N P2151)	⊕		Metal	ZCD 25	0.140
			Plastic	ZCP 25	0.070
N/O + N/C make before break, slow break (XE2N P2161)	⊕		Metal	ZCD 26	0.140
			Plastic	ZCP 26	0.070
N/C + N/C simultaneous, slow break (XE2N P2141)	⊕		Metal	ZCD 27	0.140
			Plastic	ZCP 27	0.070
N/O + N/O simultaneous, slow break (XE2N P2131)	-		Metal	ZCD 28	0.140
			Plastic	ZCP 28	0.070
<b>3-pole</b>					
N/C + N/O + N/O snap action (XE3S P2151)	⊕		Metal	ZCD 31	0.140
			Plastic	ZCP 31	0.070
N/C + N/C + N/O snap action (XE3S P2141)	⊕		Metal	ZCD 39	0.140
			Plastic	ZCP 39	0.070
N/C + N/C + N/O break before make, slow break (XE3N P2141)	⊕		Metal	ZCD 37	0.140
			Plastic	ZCP 37	0.070
N/C + N/O + N/O break before make, slow break (XE3N P2151)	⊕		Metal	ZCD 35	0.140
			Plastic	ZCP 35	0.070

(1) Bodies with gold contacts or eyelet type connections: please consult your Regional Sales Office.

(2) ⊕ : bodies with contacts assuring positive opening operation.



## Limit switches

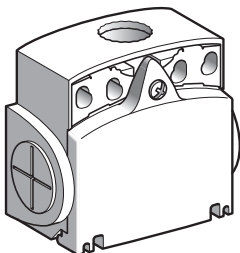
Osiswitch® Universal, Osiconcept®

Compact design, metal, type XCK D or

plastic, types XCK P and XCK T

Adaptable sub-assemblies: bodies with contacts

561390



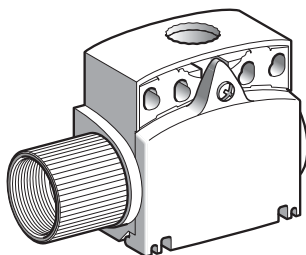
ZCT ●●●

## Bodies with contacts, type XCK T plastic, 2 cable entries

Type of contact	Positive operation (1)	Scheme	Cable entries	Reference	Weight kg
<b>2-pole</b>					
N/C + N/O snap action (XE2S P3151)	⊖		ISO	ZCT 21P16	0.085
			M16 x 1.5 Pg 11	ZCT 21G11	0.085
N/C + N/O break before make, slow break (XE2N P3151)	⊖		ISO	ZCT 25P16	0.085
			M16 x 1.5 Pg 11	ZCT 25G11	0.085
N/C + N/C simultaneous, slow break (XE2N P3141)	⊖		ISO	ZCT 27P16	0.085
			M16 x 1.5 Pg 11	ZCT 27G11	0.085
N/O + N/O simultaneous, slow break (XE2N P3131)	-		ISO	ZCT 28P16	0.085
			M16 x 1.5 Pg 11	ZCT 28G11	0.085
N/O + N/C make before break, slow break (XE2N P3161)	⊖		ISO	ZCT 26P16	0.085
			M16 x 1.5 Pg 11	ZCT 26G11	0.085

## Bodies with contacts, type XCK T, plastic, 2 cable entries with 1/2" NPT adaptor

561397



ZCT ●●N12

Type of contact	Positive operation (1)	Scheme	Reference	Weight kg
<b>2-pole</b>				
N/C + N/O snap action (XE2S P3151)	⊖		ZCT 21N12	0.130
			ZCT 25N12	0.130
N/C + N/O break before make, slow break (XE2N P3151)	⊖		ZCT 27N12	0.130
			ZCT 28N12	0.130
N/O + N/O simultaneous, slow break (XE2N P3131)	-		ZCT 26N12	0.130
			ZCT 26N12	0.130

(1) ⊖ : bodies with contact assuring positive opening operation.

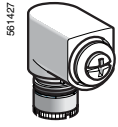
# Limit switches

Osiswitch® Universal, Osiconcept®

Compact design, metal, type XCK D or

plastic, types XCK P and XCK T

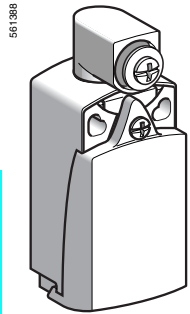
Adaptable sub-assemblies: bodies with contacts



ZCE 05

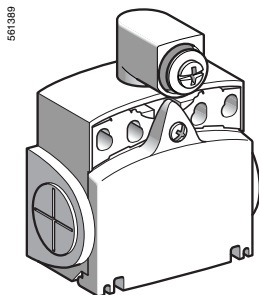


DE9 RA1012



XCK 220100

5



XCK T20100

## Accessories

Description	Suitable levers for use with head	Unit reference	Weight kg
Rotary head, without lever, spring return, for actuation from left AND right or left OR right (1)	ZCY 12, ZCY 15, ZCY 16, ZCY 17, ZCY 18, ZCY 19, ZCY 22, ZCY 23, ZCY 25, ZCY 26, ZCY 39, ZCY 53, ZCY 54, ZCY 55, ZCY 81	ZCE 05	0.045
Tap-off terminal (for XCK T)	Sold in lots of 10	XAL Z09	0.010
Spacer for angular positioning of heads with adjustable levers, for values other than - 90°, 0° and 90°	–	XCM Z07	0.002
Adaptor for 1/2" NPT conduit	Sold in lots of 10	DE9 RA1012	0.050

## Bodies with contacts, type XCK P plastic, with rotary head (without operating lever)

Type of contact	Scheme	Positive operation (2)	Cable entry	Reference	Weight kg
<b>2-pole</b>					
N/C + N/O snap action (XE2S P2151)		☉	ISO M16 x 1.5	XCK P2101P16	0.115
		☉	Pg 11	XCK P2101G11	0.115
		☉	M12 connector	XCK P2101M12	0.125
N/C + N/O break before make, slow break (XE2N P2151)		☉	ISO M16 x 1.5	XCK P2501P16	0.115
		☉	Pg 11	XCK P2501G11	0.115

## Bodies with contacts, type XCK D metal, with rotary head (without operating lever)

Type of contact	Scheme	Positive operation (2)	Cable entry	Reference	Weight kg
<b>2-pole</b>					
N/C + N/O snap action (XE2S P2151)		☉	ISO M16 x 1.5	XCK D2101P16	0.185
		☉	Pg 11	XCK D2101G11	0.185
		☉	M12 connector	XCK D2101M12	0.195
N/C + N/O break before make, slow break (XE2N P2151)		☉	ISO M16 x 1.5	XCK D2501P16	0.185
		☉	Pg 11	XCK D2501G11	0.185

## Bodies with contacts, type XCK T plastic, with rotary head (without operating lever)

Type of contact	Scheme	Positive operation (2)	Cable entry	Reference	Weight kg
<b>2-pole</b>					
N/C + N/O snap action (XE2S P3151)		☉	ISO M16 x 1.5	XCK T2101P16	0.130
		☉	Pg 11	XCK T2101G11	0.130
N/C + N/O break before make, slow break (XE2N P3151)		☉	ISO M16 x 1.5	XCK T2501P16	0.130
		☉	Pg 11	XCK T2501G11	0.130

(1) For programming see page 5/178.

(2) ☉ : bodies with contact assuring positive opening operation.

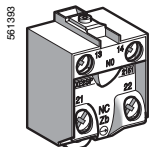
# Limit switches

Osiswitch® Universal, Osiconcept®

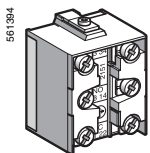
Compact design, metal, type XCK D or

plastic, types XCK P and XCK T

Adaptable sub-assemblies: contact blocks



XE2 ● ●21 ●●



XE3 ● ●21 ●●

## Contact blocks with screw clamp terminals for XCK D and XCK P

Type of contact	Positive operation (1)	Scheme	Reference for standard contacts	Weight kg
<b>2-pole</b>				
N/C + N/O snap action	⊕		XE2S P2151	0.020
N/C + N/C simultaneous, snap action	⊕		XE2S P2141	0.020
N/C + N/O break before make, slow break	⊕		XE2N P2151	0.020
N/O + N/C make before break, slow break	⊕		XE2N P2161	0.020
N/C + N/C simultaneous, slow break	⊕		XE2N P2141	0.020
N/O + N/O simultaneous, slow break	-		XE2N P2131	0.020

## 3-pole

N/C + N/O + N/O snap action	⊕		XE3S P2151	0.035
N/C + N/C + N/O snap action	⊕		XE3S P2141	0.035
N/C + N/C + N/O break before make, slow break	⊕		XE3N P2141	0.035
N/C + N/O + N/O break before make, slow break	⊕		XE3N P2151	0.035

## Contact blocks with screw clamp terminals for XCK T

Type of contact	Positive operation (1)	Scheme	Reference for standard contacts	Weight kg
<b>2-pole</b>				
N/C + N/O snap action	⊕		XE2S P3151	0.015
N/C + N/O break before make, slow break	⊕		XE2N P3151	0.015
N/O + N/C make before break, slow break	⊕		XE2N P3161	0.015
N/C + N/C simultaneous, slow break	⊕		XE2N P3141	0.015
N/O + N/O simultaneous, slow break	-		XE2N P3131	0.015

(1) ⊕ : contact blocks assuring positive opening operation.

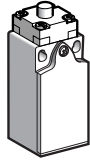
# Limit switches

Osiswitch® Optimum  
Compact design, plastic, type XCK N

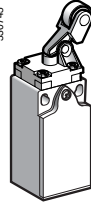
■ XCK N  
with 1 cable entry  
Conforming to CENELEC EN 50047

□ With head for linear movement (plunger)

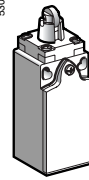
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530745



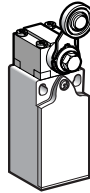
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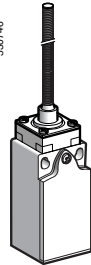
Page 5/52

□ With head for rotary movement (lever) or multi-directional

530749



530746



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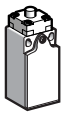
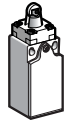
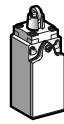


Environment characteristics		
Conforming to standards	Products	IEC 60947-5-1, EN 60947-5-1, UL 508, CSA C22-2 n° 14
	Machine assemblies	IEC 60204-1, EN 60204-1
Product certifications		UL, CSA, CCC
Protective treatment	Version	Standard "TC", special "TH"
Ambient air temperature	Operation	- 25...+ 70 °C
	Storage	- 40...+ 70 °C
Vibration resistance	Conforming to IEC 60068-2-6	25 gn (10...500 Hz)
Shock resistance	Conforming to IEC 60068-2-27	50 gn (11 ms) except XCK N2●49●●: 15 gn and XCK N2●08●●: 10 gn
Electric shock protection		Class II conforming to IEC 61140 and NF C 20030
Degree of protection		<b>IP 65 conforming to IEC 60529; IK 04 conforming to EN 50102</b>
Cable entry		Depending on model: tapped entry for ISO M20 x 1.5 cable gland or n° 11 cable gland
Materials	Bodies	Plastic
	Heads	Plastic
Contact block characteristics		
Rated operational characteristics		~ AC-15; A300 (Ue = 240 V, Ie = 3 A); Ithe = 10 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		Ui = 500 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		U imp = 6 kV conforming to IEC 60947-1, IEC 60664
Positive operation		N/C contacts with positive opening operation conforming to IEC 60947-5-1 Appendix K, EN 60947-5-1
Short-circuit protection		10 A cartridge fuse type gG (gl)
Cabling	Screw clamp terminals	Clamping capacity, min: 1 x 0.34 mm <sup>2</sup> , max: 2 x 1.5 mm <sup>2</sup>


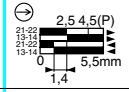
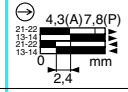
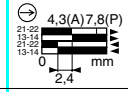
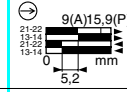
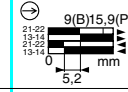

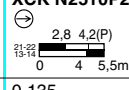
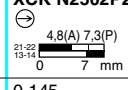

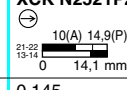



# Limit switches



Osiswitch® Optimum

Compact design, plastic, type XCK N

Complete switches with 1 ISO M20 x 1.5 cable entry

Type of head	Plunger (fixing by the body)				
					
Type of operator	Metal end plunger	Steel roller plunger for lateral cam approach	Steel roller plunger for traverse cam approach	Thermoplastic roller lever plunger, horizontal actuation in 1 direction	Thermoplastic roller lever plunger, vertical actuation in 1 direction

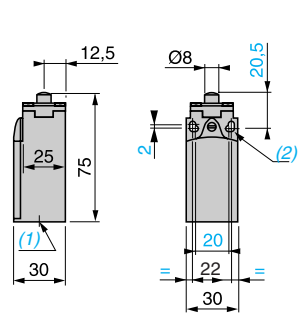
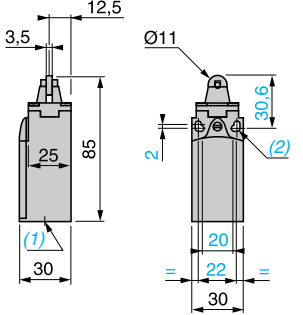
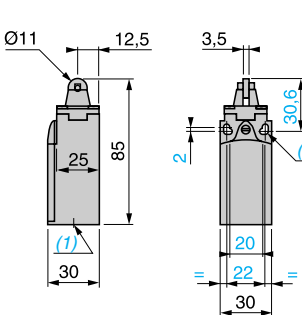
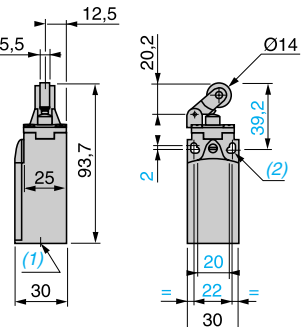
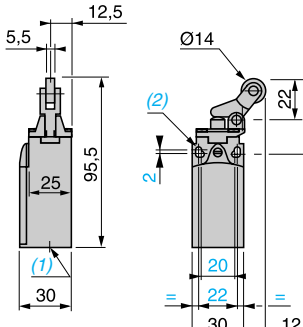
References (1) (2)					
 2-pole N/C + N/O snap action	<b>XCK N2110P20</b> 	<b>XCK N2102P20</b> 	<b>XCK N2103P20</b> 	<b>XCK N2121P20</b> 	<b>XCK N2127P20</b> 
	 2-pole N/C + N/O break before make, slow break	<b>XCK N2510P20</b> 	<b>XCK N2502P20</b> 	<b>XCK N2503P20</b> 	<b>XCK N2521P20</b> 
Weight (kg)	0.135	0.145	0.145	0.145	0.145
Contact operation	 contact closed (A) (B) = cam displacement  contact open (P) = positive opening point			 N/C contact with positive opening operation	

Characteristics					
Switch actuation	On end		By 30° cam		
Type of actuation					
Maximum actuation speed	0.5 m/s		0.3 m/s		1 m/s
Mechanical durability (in millions of operating cycles)	10				
Minimum force or torque	For tripping	15 N	12 N	6 N	
	For positive opening	30 N	20 N	10 N	
Cable entry (2)	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm				

(1) Sold and packed in lots 20.

(2) For an entry tapped for a n° 11 cable gland, replace P20 in the reference by G11. Example: XCK N2110P20 becomes XCK N2110G11.

## Dimensions

XCK N2●10P20	XCK N2●02P20	XCK N2●03P20
		
XCK N2●21P20	XCK N2●27P20	
		

(1) Tapped entry for ISO M20 x 1.5 or Pg 11 cable gland.

(2) Ø: 2 elongated holes Ø 4.3 x 6.3 on 22 mm centres, 2 holes Ø 4.3 on 20 mm centres.

# Limit switches

Osiswitch® Optimum

Compact design, plastic, type XCK N

Complete switches with 1 ISO M20 x 1.5 cable entry

Type of head	Rotary (fixing by the body)				Multi-directional	
Type of operator	Thermoplastic roller lever	Variable length thermoplastic roller lever	Thermoplastic roller lever, Ø 50 mm	Variable length thermoplastic roller lever, Ø 50 mm	Spring rod	"Cat's whisker"

References (1) (2)	XCK N2118P20	XCK N2145P20	XCK N2139P20	XCK N2149P20	XCK N2108P20	XCK N2106P20
 2-pole N/C + N/O snap action						
 2-pole N/C + N/O break before make, slow break						
Weight (kg)	0.175	0.180	0.200	0.200	0.140	0.135
Contact operation	contact closed contact open		(A) (B) = cam displacement (P) = positive opening point		N/C contact with positive opening operation	

Characteristics	By 30° cam		By any moving part
Switch actuation	By 30° cam		By any moving part
Type of actuation			
Maximum actuation speed	1.5 m/s		1 m/s (any direction)
Mechanical durability	10 million operating cycles		5 million operating cycles
Minimum force or torque	For tripping	0.1 N.m	0.13 N.m
	For positive opening	0.15 N.m	-
Cable entry (2)	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm		

(1) and (2) see previous page.

Dimensions	XCK N2●18P20	XCK N2●45P20	XCK N2●39P20	XCK N2●49P20

(1) Tapped entry for ISO M20 x 1.5 or Pg 11 cable gland.  
 (2) Ø: 2 elongated holes Ø 4.3 x 6.3 on 22 mm centres, 2 holes Ø 4.3 on 20 mm centres.

# Limit switches

Osiswitch® Application

Compact design, plastic, with reset,  
types XCP R and XCT R

Compact design, metal, with reset, type XCD R

■ XCP R, XCD R  
with 1 cable entry  
conforming to EN 50047

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

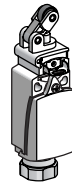
XCD R

XCP R

520412



520414



520425



520427



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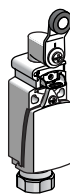
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□ With head for rotary movement (lever) or multi-directional. Fixing by the body.

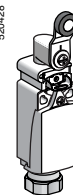
XCD R

XCP R

520416



520428



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■ XCT R  
with 2 cable entries  
Tripping/resetting points and fixing centres  
conforming to EN 50047

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

XCT R

520436



520437



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

XCT R

520438



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# Limit switches

## Osiswitch® Application

Compact design, plastic, with reset,  
types XCP R and XCT R

Compact design, metal, with reset, type XCD R

### Environment characteristics

<b>Conformity to standards</b>	Products	EN/IEC 60947-5-1, EN/IEC 60947-5-1, UL 508, CSA C22-2 n° 14
	Machine assemblies	EN/IEC 60204-1
<b>Product certifications</b>		UL, CSA
<b>Protective treatment</b>	Standard version	"TC"
<b>Ambient air temperature</b>	Operation	- 25...+ 70 °C
	Storage	- 40...+ 70 °C
<b>Vibration resistance</b>	Conforming to IEC 60068-2-6	25 gn (10...500 Hz)
<b>Shock resistance</b>	Conforming to IEC 60068-2-27	50 gn (11 ms)
<b>Electric shock protection</b>		Class II conforming to IEC 61140 and NF C 20-030 for <b>XCP R</b> and <b>XCT R</b>
		Class I conforming to IEC 61140 and NF C 20-030 for <b>XCD R</b>
<b>Degree of protection</b>		<b>IP 66 and IP 67 conforming to IEC 60529; IK 04 conforming to EN 50102</b>
<b>Repeat accuracy</b>		0.1 mm on the tripping points, with 1 million operating cycles for head with end plunger
<b>Cable entry</b>	Depending on model	Either: tapped entry for n° 13 cable gland, tapped ISO M20 x 1.5 or tapped 1/2" NPT
<b>Materials</b>		<b>XCD R</b> : zamak bodies and heads, <b>XCP R</b> and <b>XCT R</b> : plastic bodies, zamak heads

### Contact block characteristics




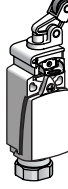
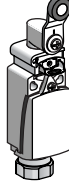
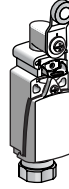
<b>Rated operational characteristics</b>		$\sim$ AC-15; A300 (Ue = 240 V, Ie = 3 A); Ithe = 10 A $\equiv$ DC-13; Q300 (Ue = 250 V, Ie = 0.27 A), conforming to EN/IEC 60947-5-1 Appendix A, EN/IEC 60947-5-1
<b>Rated insulation voltage</b>		Ui = 500 V degree of pollution 3 conforming to EN/IEC 60947-1 Ui = 300 V conforming to UL 508, CSA C22-2 n° 14
<b>Rated impulse withstand voltage</b>		U imp = 6 kV conforming to EN/IEC 60947-1, IEC 60664
<b>Positive operation</b> (depending on model)		N/C contacts with positive opening operation conforming to EN/IEC 60947-5-1 Appendix K, EN/IEC 60947-5-1
<b>Resistance across terminals</b>		≤ 25 mΩ conforming to IEC 60255-7 category 3
<b>Short-circuit protection</b>		10 A cartridge fuse type gG (gl)
<b>Cabling</b> (screw clamp terminals)	XE2S P2151	Clamping capacity, min: 1 x 0.34 mm <sup>2</sup> , max: 2 x 1.5 mm <sup>2</sup>
	XE2N P2151	Clamping capacity, min: 1 x 0.5 mm <sup>2</sup> , max: 2 x 2.5 mm <sup>2</sup>
<b>Minimum actuation speed</b> (for head with end plunger)		<b>XE2S P2151</b> : 0.01 m/minute
		<b>XE2N P2151</b> : 6 m/minute


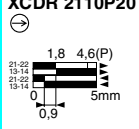
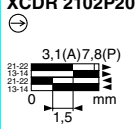
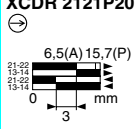
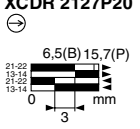
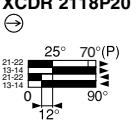
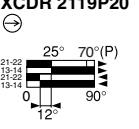
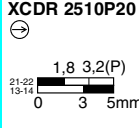
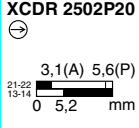
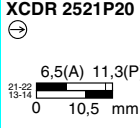
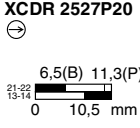
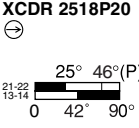
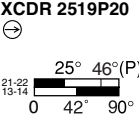
# Limit switches

## Osiswitch® Application

Compact design, metal, with reset, type XCDR

Complete switches with 1 cable entry

Type of head	Plunger (fixing by the body)				Rotary (fixing by the body)	
						
Type of operator	Metal end plunger	Steel roller plunger	Thermoplastic roller lever plunger, horizontal actuation in 1 direction	Thermoplastic roller lever plunger, vertical actuation in 1 direction	Thermoplastic roller lever	Steel roller lever

References of complete switches with 1 ISO M20 x 1.5 cable entry						
 <p>2-pole N/C + N/O snap action (XE2S P2151)</p>	<b>XCDR 2110P20</b> 	<b>XCDR 2102P20</b> 	<b>XCDR 2121P20</b> 	<b>XCDR 2127P20</b> 	<b>XCDR 2118P20</b> 	<b>XCDR 2119P20</b> 
	<b>XCDR 2510P20</b> 	<b>XCDR 2502P20</b> 	<b>XCDR 2521P20</b> 	<b>XCDR 2527P20</b> 	<b>XCDR 2518P20</b> 	<b>XCDR 2519P20</b> 
<b>Weight (kg)</b>	0.215	0.220	0.225	0.225	0.255	0.255






### References of complete switches with 1 Pg 13.5 cable entry

For complete switches with 1 Pg 13.5 cable entry replace P20 by G13.  
Example: XCDR 2110P20 becomes **XCDR 2110G13**.

### References of complete switches with 1 1/2" NPT cable entry

For complete switches with 1 1/2" NPT cable entry replace P20 by N12.  
Example: XCDR 2110P20 becomes **XCDR 2110N12**.

**Contact operation**  
 contact closed  
 contact open  
(A) (B) = cam displacement  
(P) = positive opening point  
 N/C contact with positive opening operation

Characteristics					
Switch actuation	On end		By 30° cam		
Type of actuation					
Maximum actuation speed	0.5 m/s		1 m/s		1.5 m/s
Minimum force or torque	For tripping	15 N	12 N	6 N	0.1 N.m
	For positive opening	45 N	36 N	18 N	0.25 N.m
Cable entry	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm, or 1 entry tapped Pg 13.5 for cable gland, clamping capacity 9 to 12 mm, or 1 entry tapped for 1/2" NPT (USAS B2-1) conduit				

# Limit switches

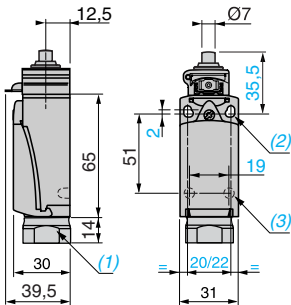
Osiswitch® Application

Compact design, metal, with reset, type XCDR

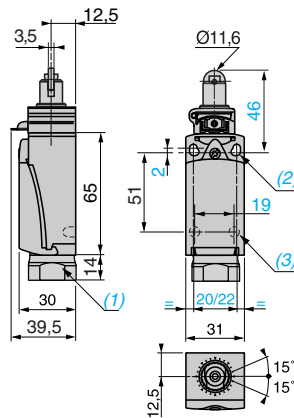
Complete switches with 1 cable entry

## Dimensions

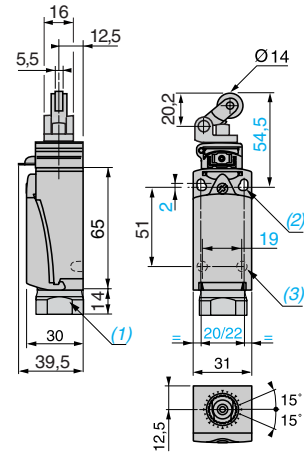
XCDR 2●10●●●



XCDR 2●02●●●



XCDR 2●21●●●



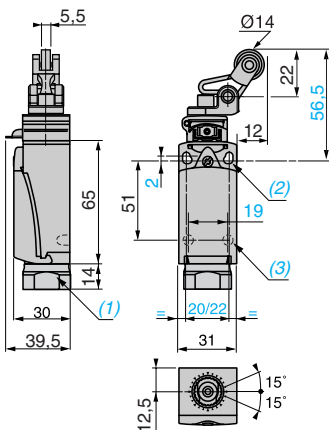
(1) Tapped entry for ISO M20 x 1.5 or Pg 13.5 cable gland or 1/2" NPT conduit.

(2) 2 elongated holes  $\varnothing 4.3 \times 6.3$  mm on 22 mm centres, 2 holes  $\varnothing 4.3$  on 20 mm centres.

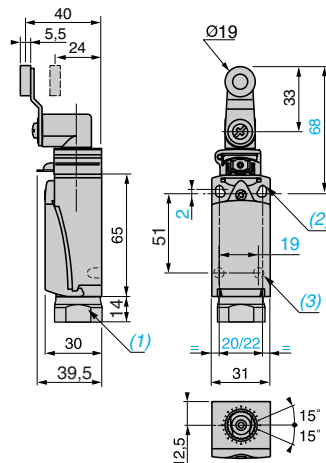
(3) 2 x  $\varnothing 3$  holes for support studs, depth 4 mm.

## Dimensions

XCDR 2●27●●●



XCDR 2●18●●●, XCDR 2●19●●●



(1) Tapped entry for ISO M20 x 1.5 or Pg 13.5 cable gland or 1/2" NPT conduit.

(2) 2 elongated holes  $\varnothing 4.3 \times 6.3$  mm on 22 mm centres, 2 holes  $\varnothing 4.3$  on 20 mm centres.

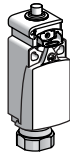
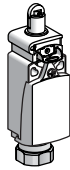
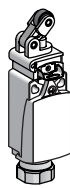
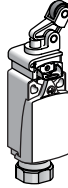

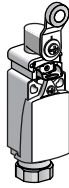
(3) 2 x  $\varnothing 3$  holes for support studs, depth 4 mm.

# Limit switches


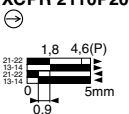
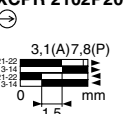

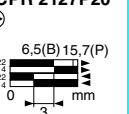
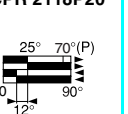
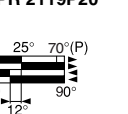

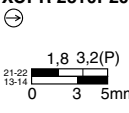
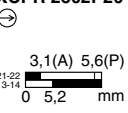
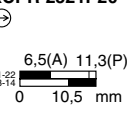
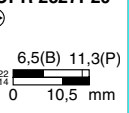
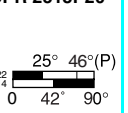
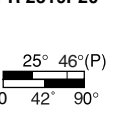

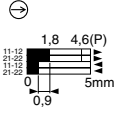
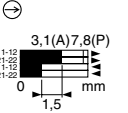
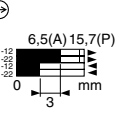
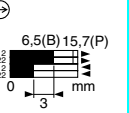
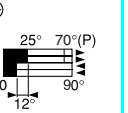
Osiswitch® Application

Compact design, plastic, with reset, type XCPR

Complete switches with 1 cable entry

Type of head	Plunger (fixing by the body)				Rotary (fixing by the body)	
						

Type of operator	Metal end plunger	Steel roller plunger	Thermoplastic roller lever plunger, horizontal actuation in 1 direction	Thermoplastic roller lever plunger, vertical actuation in 1 direction	Thermoplastic roller lever	Steel roller lever
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References of complete switches with 1 ISO M20 x 1.5 cable entry						
 <p>2-pole N/C + N/O snap action (XE2S P2151)</p>	<p><b>XCPR 2110P20</b></p> 	<p><b>XCPR 2102P20</b></p> 	<p><b>XCPR 2121P20</b></p> 	<p><b>XCPR 2127P20</b></p> 	<p><b>XCPR 2118P20</b></p> 	<p><b>XCPR 2119P20</b></p> 
 <p>2-pole N/C + N/O break before make, slow break (XE2N P2151)</p>	<p><b>XCPR 2510P20</b></p> 	<p><b>XCPR 2502P20</b></p> 	<p><b>XCPR 2521P20</b></p> 	<p><b>XCPR 2527P20</b></p> 	<p><b>XCPR 2518P20</b></p> 	<p><b>XCPR 2519P20</b></p> 
 <p>2-pole N/C + N/C snap action (XE2S P2141)</p>	<p><b>XCPR 2910P20</b></p> 	<p><b>XCPR 2902P20</b></p> 	<p><b>XCPR 2921P20</b></p> 	<p><b>XCPR 2927P20</b></p> 	<p><b>XCPR 2918P20</b></p> 	–
Weight (kg)	0.115	0.115	0.125	0.120	0.155	–

## References of complete switches with 1 Pg 13.5 cable entry






For complete switches with 1 Pg 13.5 cable entry replace P20 by G13.  
Example: XCPR 2110P20 becomes **XCPR 2110G13**.

## References of complete switches with 1 1/2" NPT cable entry

For complete switches with 1 1/2" NPT cable entry replace P20 by N12.  
Example: XCPR 2110P20 becomes **XCPR 2110N12**.

<b>Contact operation</b>	 contact closed	 contact open	(A) (B) = cam displacement (P) = positive opening point	 N/C contact with positive opening operation
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## Characteristics

Switch actuation	On end	By 30° cam			
Type of actuation					
<b>Maximum actuation speed</b>	0.5 m/s	1 m/s			
<b>Minimum force or torque</b>	For tripping	15 N	12 N	6 N	0.1 N.m
	For positive opening	45 N	36 N	18 N	0.25 N.m
<b>Cable entry</b>	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm, or 1 entry tapped Pg 13.5 for cable gland, clamping capacity 9 to 12 mm, or 1 entry tapped for 1/2" NPT (USAS B2-1) conduit				

**Other versions** Complete switches with cable entries other than those listed above. Please consult your Regional Sales Office.

# Limit switches

Osiswitch® Application

Compact design, plastic, with reset, type XCPR

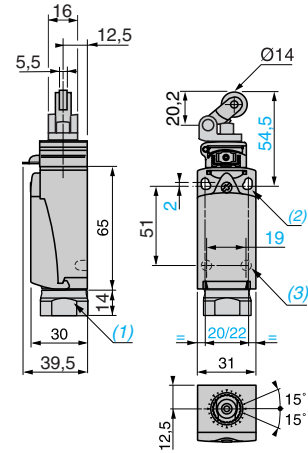
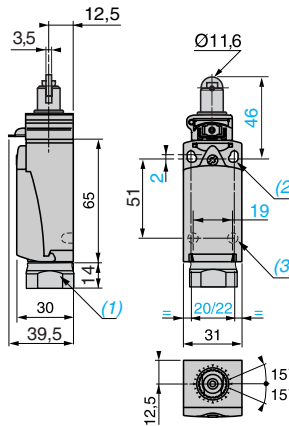
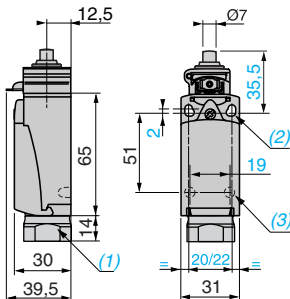
Complete switches with 1 cable entry

## Dimensions

XCPR 2●10●●●

XCPR 2●02●●●

XCPR 2●21●●●



(1) Tapped entry for ISO M20 x 1.5 or Pg 13.5 cable gland or 1/2" NPT conduit.

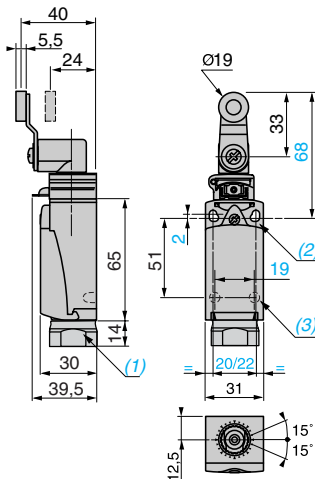
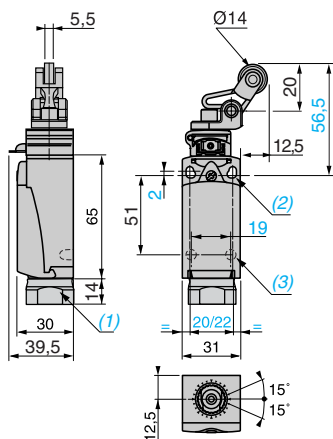
(2) 2 elongated holes  $\varnothing$  4.3 x 6.3 mm on 22 mm centres, 2 holes  $\varnothing$  4.3 on 20 mm centres.

(3) 2 x  $\varnothing$  3 holes for support studs, depth 4 mm.

## Dimensions

XCPR 2●27●●●

XCPR 2●18●●●, XCPR 2●19●●●



(1) Tapped entry for ISO M20 x 1.5 or Pg 13.5 cable gland or 1/2" NPT conduit.

(2) 2 elongated holes  $\varnothing$  4.3 x 6.3 mm on 22 mm centres, 2 holes  $\varnothing$  4.3 on 20 mm centres.


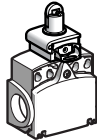

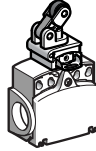
(3) 2 x  $\varnothing$  3 holes for support studs, depth 4 mm.


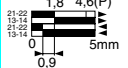
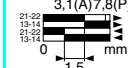
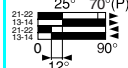
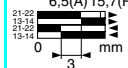

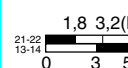
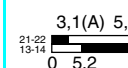
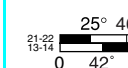
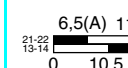
# Limit switches

Osiswitch® Application

Compact design, plastic, with reset, type XCTR



Complete switches with 2 cable entries





Type of head	Plunger (fixing by the body)			
Type of operator				
	Metal end plunger	Steel roller plunger	Thermoplastic roller lever plunger	Thermoplastic roller lever plunger, horizontal actuation in 1 direction

References of complete switches with 2 ISO M16 x 1.5 cable entries					
	2-pole N/C + N/O snap action (XE2S P3151)	XCTR 2110P16 ↻ 	XCTR 2102P16 ↻ 	XCTR 2118P16 ↻ 	XCTR 2121P16 ↻ 
	2-pole N/C + N/O break before make, slow break (XE2N P3151)	XCTR 2510P16 ↻ 	XCTR 2502P16 ↻ 	XCTR 2518P16 ↻ 	XCTR 2521P16 ↻ 
Weight (kg)		0.120	0.125	0.165	0.135

References of complete switches with 2 Pg 11 cable entries				
For complete switches with 2 Pg 11 cable entries replace P16 by G11. Example: XCTR 2110P16 becomes XCTR 2110G11.				

References of complete switches with 2 1/2" NPT cable entries				
For complete switches with 2 1/2" NPT cable entries replace P16 by N12. Example: XCTR 2110P16 becomes XCTR 2110N12.				

Weight (kg)	0.120	0.125	0.165	0.135
Contact operation	 contact closed  contact open	(A) = cam displacement (P) = positive opening point ↻ N/C 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	1 m/s
Minimum force or torque	For tripping	15 N	0.1 N.m	6 N
	For positive opening	45 N	36 N	18 N
Cable entry (1 entry fitted with blanking plug)	2 entries tapped M16 x 1.5 mm for ISO cable gland, clamping capacity 4 to 8 mm, or 2 entries tapped Pg 11 for cable gland, clamping capacity 7 to 10 mm, or 2 entries tapped for 1/2" NPT (USAS B2-1) conduit using Pg 11 - 1/2" NPT adaptor DE9 RA1012 (1 entry fitted with adaptor)			

# Limit switches

Osiswitch® Application

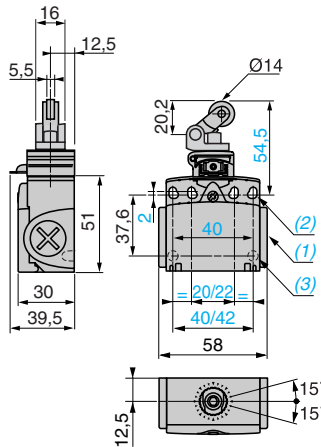
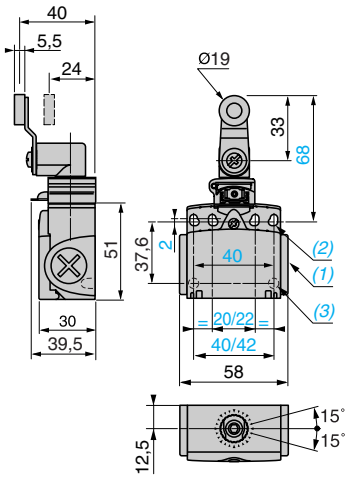
Compact design, plastic, with reset, type XCTR

Complete switches with 2 cable entries

## Dimensions

XCTR 2●18●●●

XCTR 2●21●●●



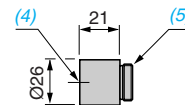
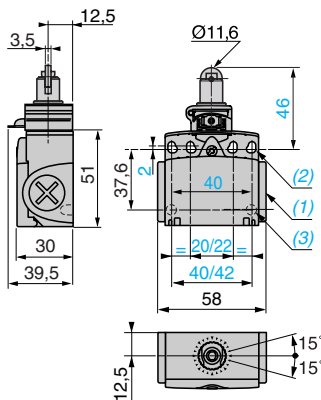
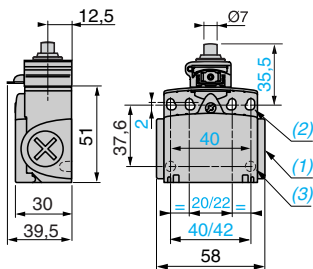
- (1) Tapped entry for ISO M16 x 1.5 or Pg 11 cable gland or 1/2" NPT conduit.
- (2) 4 elongated holes Ø 4.3 x 6.3 mm on 22/42 mm centres, 4 holes Ø 4.3 on 20/40 mm centres.
- (3) 2 x Ø 3 holes for support studs, depth 4 mm.

## Dimensions

XCTR 2●10●●●

XCTR 2●02●●●

DE9 RA1012



- (1) Tapped entry for ISO M16 x 1.5 or Pg 11 cable gland or 1/2" NPT conduit.
- (2) 4 elongated holes Ø 4.3 x 6.3 mm on 22/42 mm centres, 4 holes Ø 4.3 on 20/40 mm centres.
- (3) 2 x Ø 3 holes for support studs, depth 4 mm.
- (4) Tapped entry for 1/2" NPT conduit.
- (5) Pg 11 threaded sleeve.

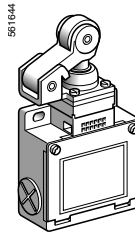
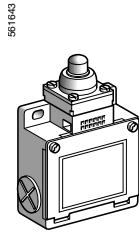
# Limit switches

Osiswitch® Classic

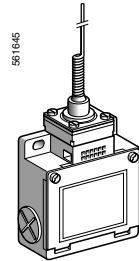
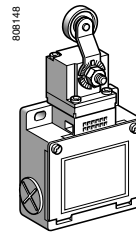
Metal, types XCK M, XCK L and XCK ML

■ **XCK M**  
with 3 cable entries

□ With plunger head



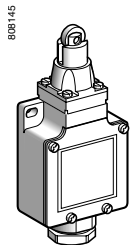
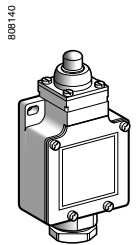
□ With rotary or multi-directional head



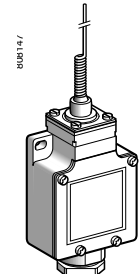
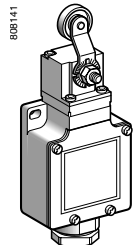
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■ **XCK L**  
with 1 cable entry

□ With plunger head



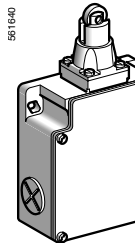
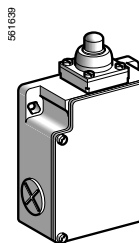
□ With rotary or multi-directional head



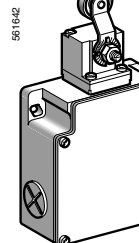
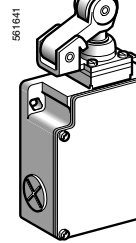
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■ **XCK ML**  
with 3 cable entries and two 2-pole contacts

□ With plunger head



□ With rotary or multi-directional head



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## Environment characteristics

<b>Conforming to standards</b>	Products	IEC 60947-5-1, EN 60947-5-1, UL 508, CSA C22-2 n° 14
	Machine assemblies	IEC 60204-1, EN 60204-1
<b>Product certifications</b>		UL, CSA, CCC (for XCK M)
<b>Protective treatment</b>	Version	Standard "TC". Special "TH"
<b>Ambient air temperature</b>	For operation	- 25...+ 70 °C
	For storage	- 40...+ 70 °C
<b>Vibration resistance</b>	Conforming to IEC 60068-2-6	25 gn (10...500 Hz)
<b>Shock resistance</b>	Conforming to IEC 60068-2-27	50 gn (11 ms)
<b>Electric shock protection</b>		Class I conforming to IEC 61140 and NF C 20-030
<b>Degree of protection</b>		IP 66 conforming to IEC 60529 ; IK 05 conforming to EN 50102
<b>Repeat accuracy</b>		<b>XCK ML</b> 0.1 mm ; <b>XCK M</b> and <b>XCK L</b> 0.05 mm on the tripping points, with 1 million operating cycles for head with end plunger
<b>Cable entry or integral connector</b>	Depending on model	<b>XCK M</b> : 3 tapped entries for n° 11 cable glands, or tapped M20 with 1/2" NPT adaptor <b>XCK L</b> : 1 tapped entry incorporating cable gland or 1 tapped entry 1/2" NPT <b>XCK ML</b> : 3 tapped entries for n° 13 cable gland, or tapped M20
<b>Materials</b>		Bodies : zamak Rotary heads : zamak or plastic depending on model ; other heads : plastic

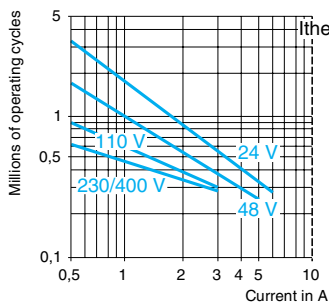


#### Contact block characteristics

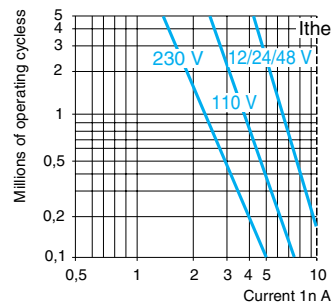
Rated operational characteristics	XE2● P	$\sim$ AC-15 ; A300 ( $U_e = 240$ V, $I_e = 3$ A) ; $I_{the} = 10$ A $\equiv$ DC-13 ; Q300 ( $U_e = 250$ V, $I_e = 0,27$ A), conforming to IEC 60947-5-1 Appendix A, EN 60947-5-1
	XE3● P	$\sim$ AC-15 ; B300 ( $U_e = 240$ V, $I_e = 1,5$ A) ; $I_{the} = 6$ A $\equiv$ DC-13 ; R300 ( $U_e = 250$ V, $I_e = 0,1$ A), conforming to IEC 60947-5-1 Appendix A, EN 60947-5-1
Rated insulation voltage	XE2● P	$U_i = 500$ V degree of pollution 3 conforming to IEC 60947-1 $U_i = 300$ V conforming to UL 508, CSA C22-2 n° 14
	XE3● P	$U_i = 400$ V degree of pollution 3 conforming to IEC 60947-1 $U_i = 300$ 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)		N/C contacts with positive opening operation conforming to IEC 947-5-1 Section 3, EN 60 947-5-1
Resistance across terminals		$\leq 25$ m $\Omega$ 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)
Cabling (screw and captive cable clamp terminals)	XE2S P21●1	Clamping capacity, min : 1 x 0,34 mm <sup>2</sup> , max : 2 x 1,5 mm <sup>2</sup>
	XE2N P21●1	Clamping capacity, min : 1 x 0,5 mm <sup>2</sup> , max : 2 x 2,5 mm <sup>2</sup>
	XES P2151L and XEN P2151L	Clamping capacity, min : 1 x 0,34 mm <sup>2</sup> , max : 2 x 1,5 mm <sup>2</sup> or 1 x 2,5 mm <sup>2</sup>
	XE3N P et 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		<b>XE2S P21●1, XES P2151L and XE3S P</b> : 0,01 m/minute
		<b>XE2N P21●1, XEN P2151L 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>

a.c. supply  
 $\sim$  50/60 Hz  
 $\square$  inductive circuit

**XE2S P21●1, XE2S P2141, XES P2151L**



**XE2N P21●1, XEN P2151L**



d.c. supply  $\equiv$

Power broken in W for 5 million operating cycles.

Voltage	V	24	48	120
$\square$	W	10	7	4

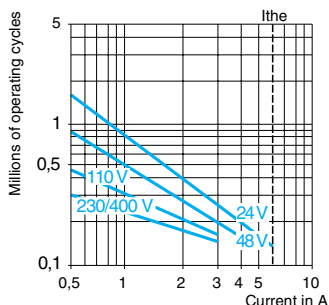
Power broken in W for 5 million operating cycles.

Voltage	V	24	48	120
$\square$	W	13	9	7

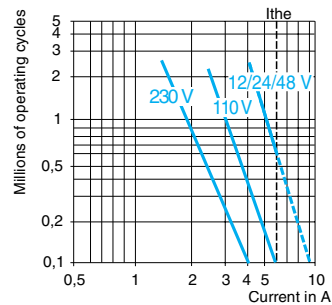
For XE2S P●151 on  $\sim$  or  $\equiv$ , the "N/C" and "N/O" contacts are simultaneously loaded to the values shown with reverse polarity.

a.c. supply  
 $\sim$  50/60 Hz  
 $\square$  inductive circuit

**XE3S P●●●●**



**XE3N P●●●●**



d.c. supply  $\equiv$

Power broken in W for 5 million operating cycles.

Voltage	V	24	48	120
$\square$	W	3	2	1

Power broken in W for 5 million operating cycles.

Voltage	V	24	48	120
$\square$	W	4	3	2

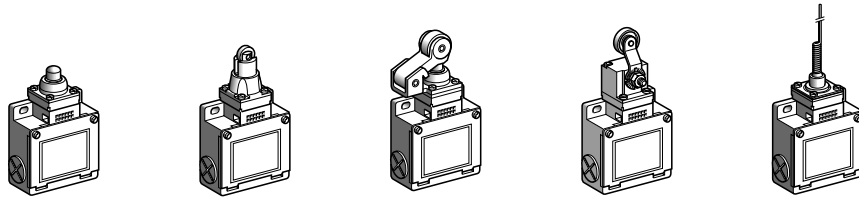
# Limit switches

Osiswitch® Classic

Metal, type XCK M

Complete switches with 3 ISO M20 x 1.5 cable entries

Type of head	Plunger (fixing by the body)	Rotary (fixing by the body)	Multi-directional (fixing by the body)
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Type of operator	Metal end plunger	Steel roller plunger	Thermoplastic roller lever plunger, horizontal actuation in 1 direction	Thermoplastic roller lever (1)	"Cat's whisker" (4)
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## References (2) (3)

2-pole N/C + N/O snap action (XE2S P2151)					
2-pole N/C + N/O break before make, slow break (XE2N P2151)					
2-pole N/C + N/C snap action (XE2S P2141)					
2-pole N/C + N/C simultaneous, slow break (XE2N P2141)					
3-pole N/C + N/C + N/O snap action (XE3S P2141)					
3-pole N/C + N/C + N/O break before make, slow break (XE3N P2141)					
Weight (kg)	0.250	0.255	0.300	0.280	0.250
Contact operation			(A) = cam displacement (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 direction)	
Mechanical durability (5) (in millions of operating cycles)	20			15	
Minimum force or torque	For tripping	15 N	12 N	8 N	0.1 N.m
	For positive opening	45 N	36 N	24 N	0.25 N.m
Cable entry (3)	3 entries tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm				

(1) Adjustable throughout 360° in 5° steps, or in 90° steps by reversing the notched washer.

(2) Switches with gold contacts or eyelet type connections: please consult your Regional Sales Office.

(3) For an entry tapped for a Pg 11 cable gland, delete H29 from the end of the reference. Example: XCK M110H29 becomes XCK M110.

(4) Value taken with actuation by moving part at 100 mm from the fixing.

(5) Limited to 15 million operating cycles for switches with contacts XE3•P.

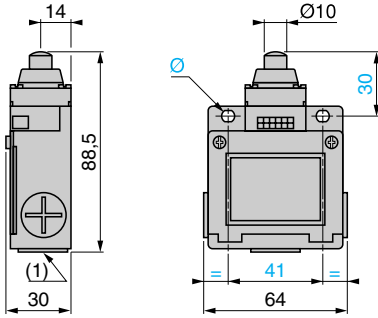
# Limit switches

Osiswitch® Classic

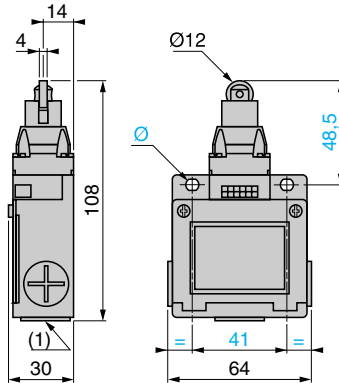
Metal, type XCK M

Complete switches with 3 ISO M20 x 1.5 cable entries

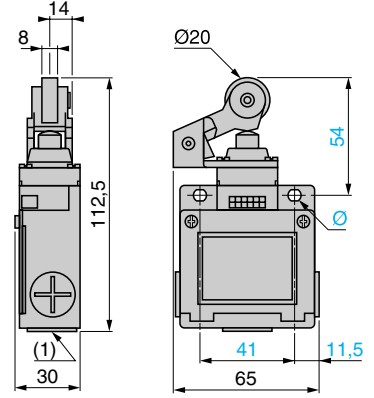
**XCK M●10**  
ZCK MD3● + ZCK D10



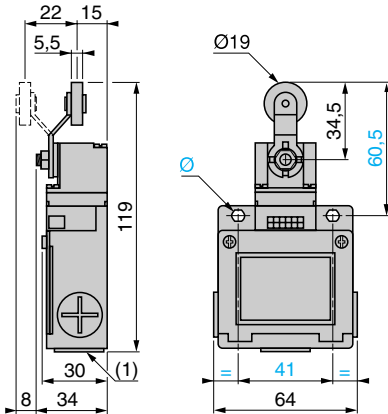
**XCK M●02**  
ZCK MD3● + ZCK D02



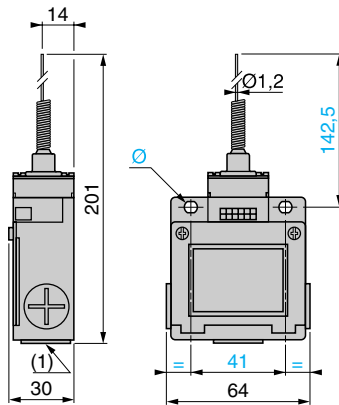
**XCK M●21**  
ZCK MD3● + ZCK D21



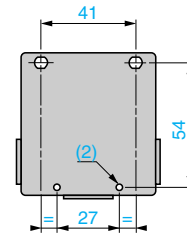
**XCK M●15**  
ZCK MD3● + ZCK D15



**XCK M●06**  
ZCK MD3● + ZCK D06

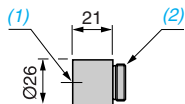


**Rear view**  
XCK M●●●, ZCK M●, ZCK MD3●



(1) 3 tapped entries for ISO M20 x 1.5 or Pg 11 cable gland or with 1/2" NPT conduit adaptor DE9 RA1012.  
(2) 2 x Ø 4 H 11, depth 10.  
Ø: 2 elongated holes Ø 5.2 x 6.2.

**Adaptor for 1/2" NPT conduit**  
DE9 RA1012



(1) Tapped entry for 1/2" NPT conduit.  
(2) Threaded sleeve.

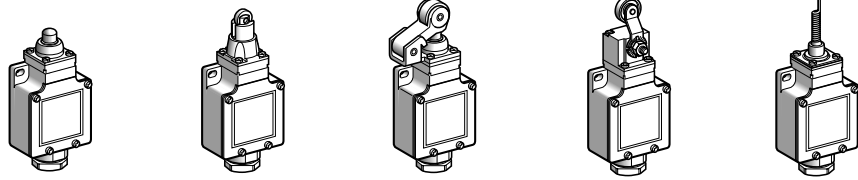
# Limit switches

Osiswitch® Classic

Metal, type XCK L

Complete switches incorporating cable gland

Type of head	Plunger (fixing by the body)	Rotary (fixing by the body)	Multi-directional (fixing by the body)
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Type of operator	Metal end plunger	Steel roller plunger	Thermoplastic roller lever plunger, horizontal actuation in 1 direction	Thermoplastic roller lever (1)	"Cat's whisker" (2)
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### References (3)

2-pole N/C + N/O snap action (XE2S P2151)					
2-pole N/C + N/O break before make, slow break (XE2N P2151)					
3-pole N/C + N/C + N/O snap action (XE3S P2141)					
2-pole N/C + N/C simultaneous, slow break (XE2N P2141)					
3-pole N/C + N/C + N/O break before make, slow break (XE3N P2141)					
Weight (kg)	0.255	0.260	0.305	0.285	0.255
Contact operation	contact closed contact open	(A) = cam displacement (P) = positive opening point		⊖ N/C contact with positive opening operation	

### 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 direction)	
Mechanical durability (4) (in millions of operating cycles)	20	15	10	
Minimum force or torque	For tripping: 15 N For positive opening: 45 N	12 N 36 N	8 N 24 N	0.1 N.m 0.25 N.m
Cable entry	1 entry incorporating metal cable gland. Clamping capacity 6 to 13.5 mm.			

(1) Adjustable throughout 360° in 5° steps, or in 90° steps by reversing the notched washer.

(2) Value taken with actuation by moving part at 100 mm from the fixing.

(3) Switches with gold contacts or eyelet type connections: please consult your Regional Sales Office.

(4) Limited to 15 million operating cycles for switches with contacts XE3●P.

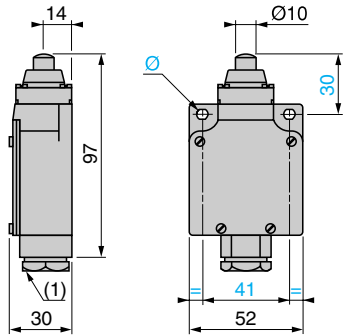
# Limit switches

Osiswitch® Classic

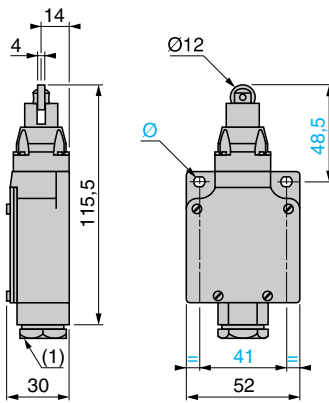
Metal, type XCK L

Complete switches incorporating cable gland

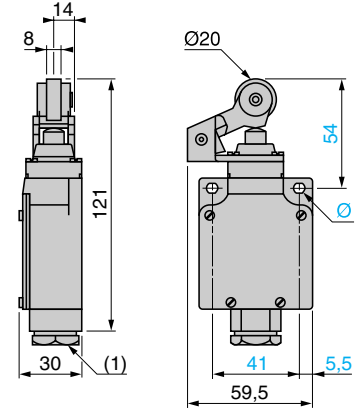
**XCK L●10**  
ZCK L● + ZCK D10  
ZCK LD3● + ZCK D10



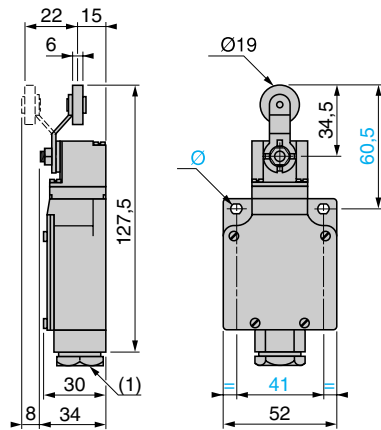
**XCK L●02**  
ZCK L3● + ZCK D02  
ZCK LD3● + ZCK D02



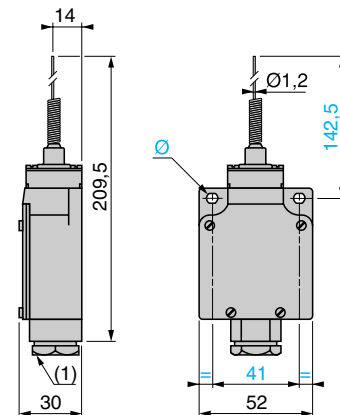
**XCK L●21**  
ZCK L● + ZCK D21  
ZCK LD3● + ZCK D21



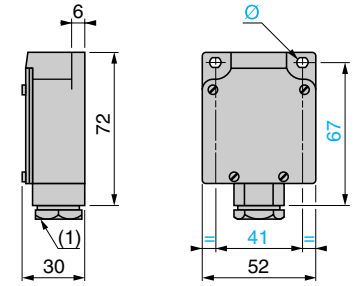
**XCK L●15**  
ZCK L● + ZCK D15  
ZCK LD3● + ZCK D15



**XCK L●06**  
ZCK L● + ZCK D06  
ZCK LD3● + ZCK D06



**Body fixings**



(1) Incorporated cable gland.  
Ø: 2 elongated holes Ø 5.2 x 6.2.

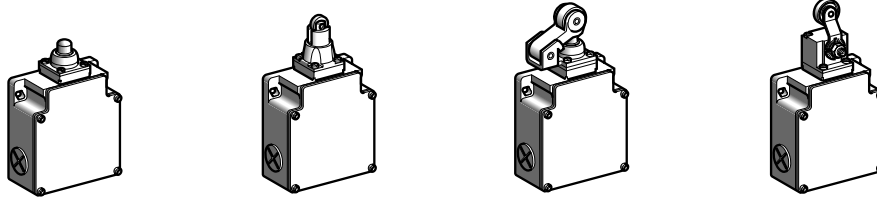
# Limit switches

Osiswitch® Classic

Metal, 2 x 2-pole contacts, type XCK ML

Complete switches with 3 ISO M20 x 1.5 or Pg 13 cable entries

Type of head	Plunger (fixing by the body)	Rotary (fixing by the body)	
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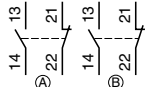


Type of operator	Metal end plunger	Steel roller plunger	Thermoplastic roller lever plunger, horizontal actuation in 1 direction	Thermoplastic roller lever (1)
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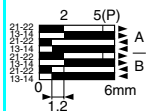
## References (2)

### Switches with 3 entries tapped ISO M20 x 1.5

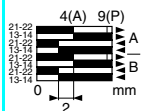
2 x 2-pole N/C + N/O snap action (XES P2151L)



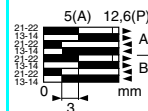
XCK ML110H29 ↻



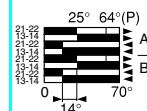
XCK ML102H29 ↻



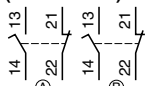
XCK ML121H29 ↻



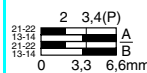
XCK ML115H29 ↻



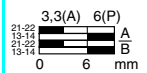
2 x 2-pole N/C + N/O break before make, slow break (XEN P2151L)



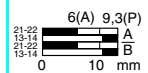
XCK ML510H29 ↻



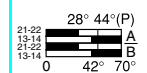
XCK ML502H29 ↻



XCK ML521H29 ↻

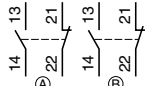


XCK ML515H29 ↻

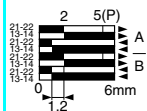


### Switches with 3 entries tapped for Pg 13 cable gland

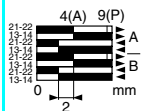
2 x 2-pole N/C + N/O snap action (XES P2151L)



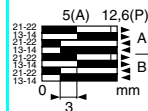
XCK ML110 ↻



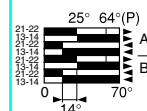
XCK ML102 ↻



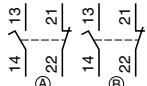
XCK ML121 ↻



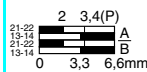
XCK ML115 ↻



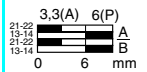
2 x 2-pole N/C + N/O break before make, slow break (XEN P2151L)



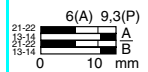
XCK ML510 ↻



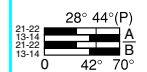
XCK ML502 ↻



XCK ML521 ↻



XCK ML515 ↻



Weight (kg)

0.400

0.405

0.450

0.430

Contact operation

■ contact closed  
□ contact open

(A) = cam displacement  
(P) = positive opening point

↻ N/C 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	3 million operating cycles				
Minimum force	For tripping	15 N	12 N	8 N	0.2 N.m
	For positive opening	60 N	50 N	50 N	0.5 N.m
Cable entry	3 entries tapped ISO M20 x 1.5, clamping capacity 7 to 13 mm, or 3 entries tapped for n° 13 cable gland conforming to NF C 68-300 (DIN Pg 13.5), clamping capacity 9 to 12 mm.				

(1) Adjustable throughout 360° in 5° steps, or in 90° steps by reversing the notched washer.

(2) Switches available with other 2-pole slow break contact blocks: N/O + N/C make before break, N/C + N/C simultaneous (with positive opening operation), N/C + N/C simultaneous, please consult your Regional Sales Office.

### Note: replacement parts

The heads of limit switches type XCK ML are the same as those for types XCK M and XCK L (see heads ZCK D10, ZCK D02, ZCK D21 and ZCK D15 on page 5/70).

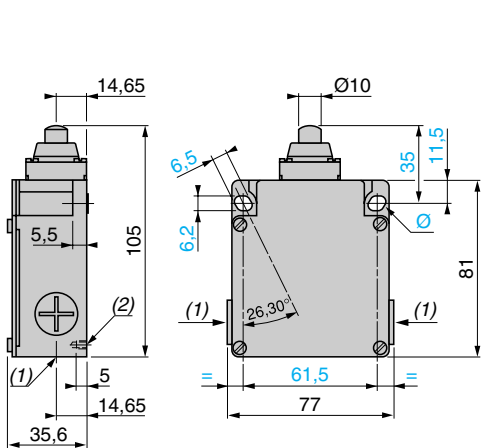
# Limit switches

## Osiswitch® Classic

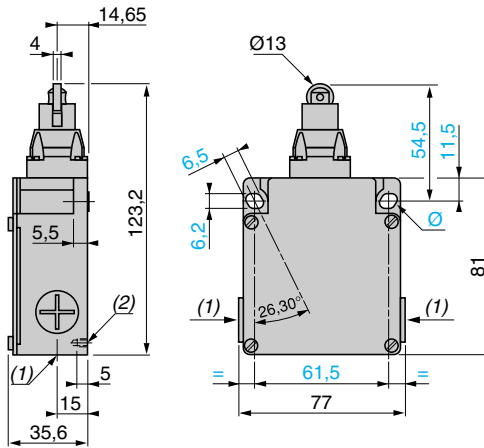
Metal, 2 x 2-pole contacts, type XCK ML

Complete switches with 3 ISO M20 x 1.5 or Pg 13 cable entries

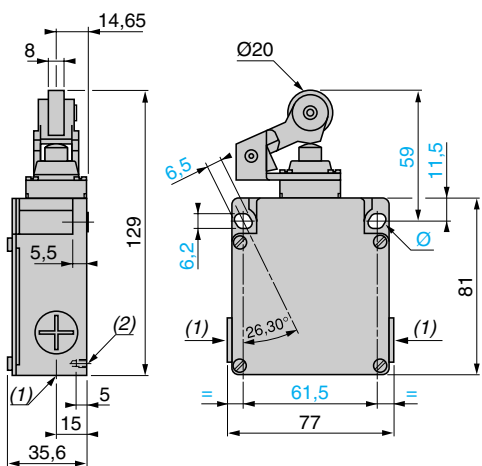
XCK ML110H29, XCK ML510H29, XCK ML110, XCK ML510



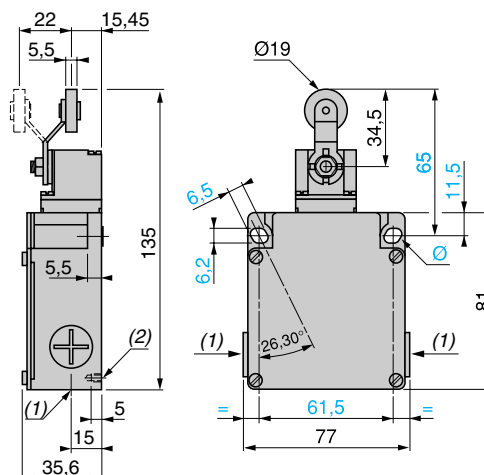
XCK ML102H29, XCK ML502H29, XCK ML102, XCK ML502



XCK ML121H29, XCK ML521H29, XCK ML121, XCK ML521



XCK ML115H29, XCK ML515H29, XCK ML115, XCK ML515



(1) XCK ML●●●H29: 3 entries tapped M20 x 1.5. XCK ML●●●: 3 entries tapped for n° 13 cable gland.

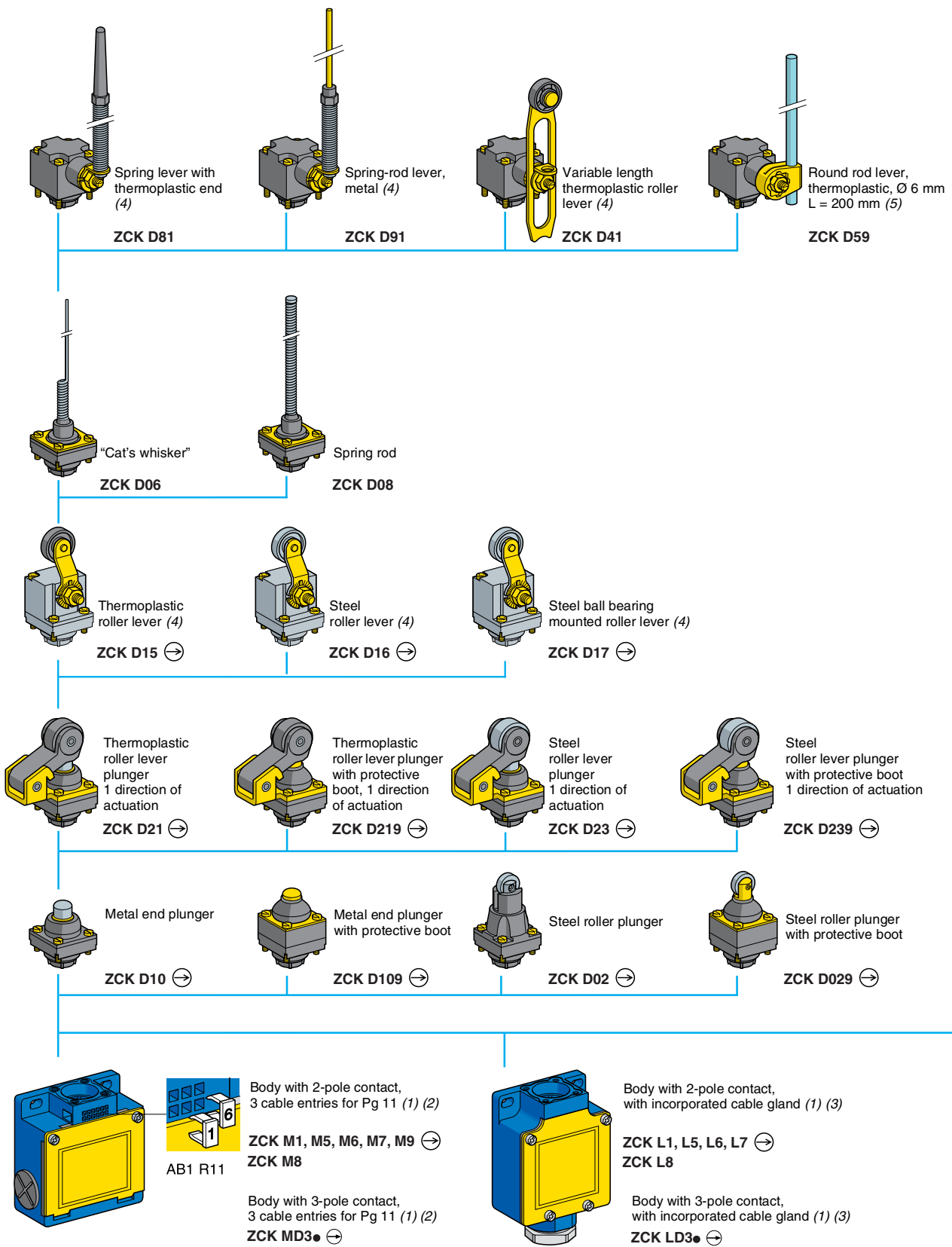
(2) 2 centering holes Ø 3.9 ± 0.2, cover fixing holes axis.

Ø: 2 elongated holes 6.2 x 6.5, inclined at 26°30' to the vertical axis, for M5 screws.

# Limit switches

Osiswitch® Classic  
Metal, types XCK M and XCK L  
Variable composition

5



(1) For further details, see page 5/72.

(2) For 3 cable entries tapped ISO M20 x 1.5, add **H29** to the reference. Example: ZCK M1 becomes **ZCK M1H29**.

For one cable entry with 1/2" NPT adaptor, add **H7** to the reference. Example: ZCK M1 becomes **ZCK M1H7**.

(3) For one cable entry tapped 1/2" NPT, add **H7** to the reference. Example: ZCK L1 becomes **ZCK L1H7**.

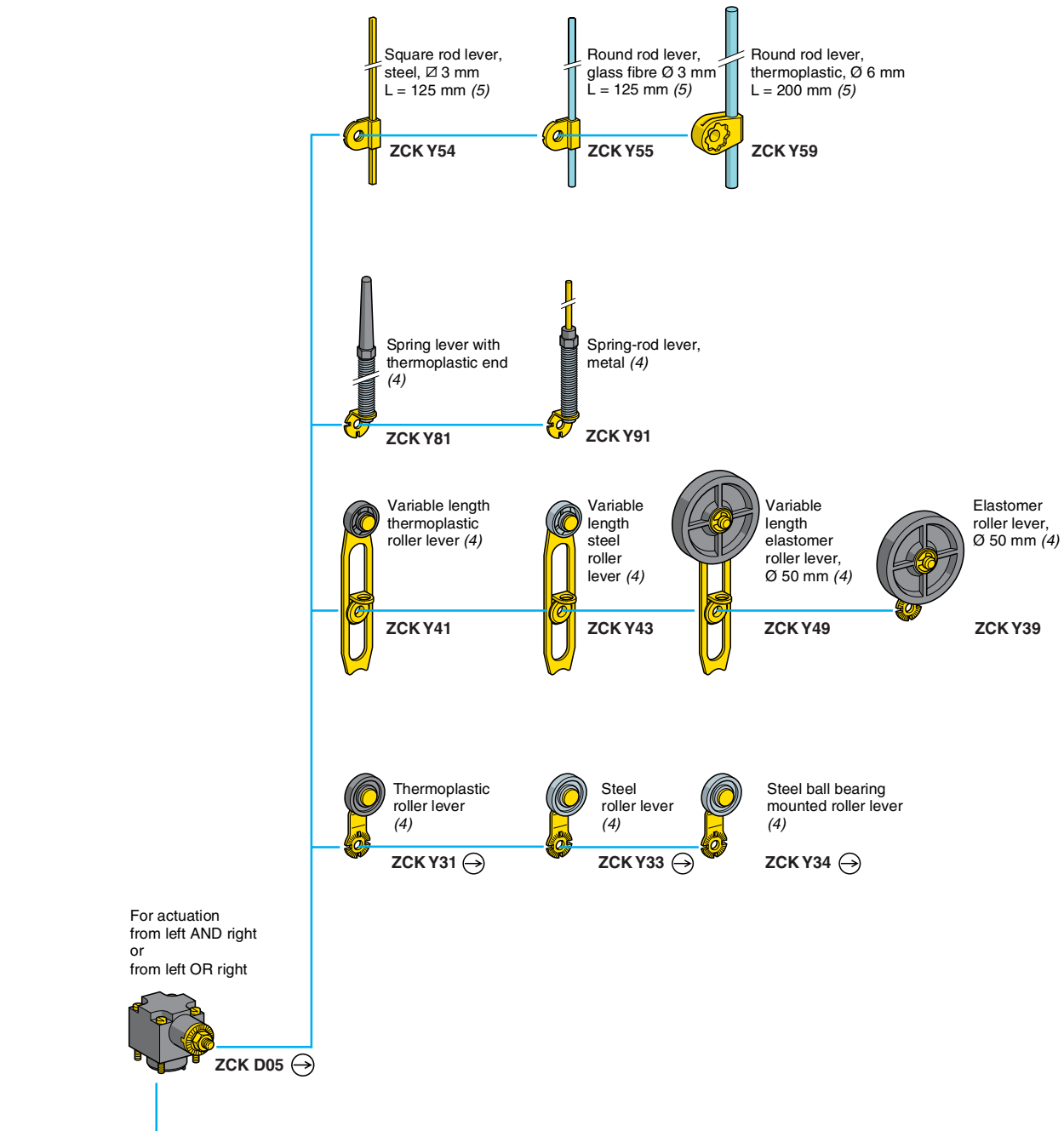


# Limit switches

Osiswitch® Classic

Metal, types XCK M and XCK L

Variable composition



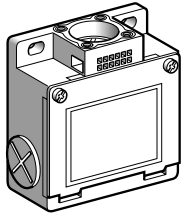
⊙ : head assuring positive opening operation.  
 (4) Adjustable throughout 360° in 5° steps, or in 90° steps by reversing the notched washer.  
 (5) Adjustable throughout 360° in 5° steps, or in 45° steps by reversing the lever mounting.

# Limit switches

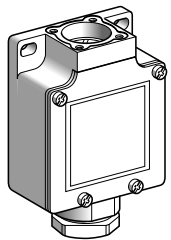
## Osiswitch® Classic

### Metal, types XCK M and XCK L

#### Adaptable sub-assemblies



ZCK M●



ZCK L●

#### Bodies with 2-pole contact

With contact block	Scheme	Positive operation (1)	Cable entry	Reference	Weight kg
<b>For limit switches type XCK M</b>					
N/C + N/O snap action (XE2S P2151)		⊕	Pg 11 ISO M20 x 1.5 1/2" NPT (2)	ZCK M1 ZCK M1H29 ZCK M1H7	0.210 0.210 0.210
N/C + N/O break before make, slow break (XE2N P2151)		⊕	Pg 11 ISO M20 x 1.5 1/2" NPT (2)	ZCK M5 ZCK M5H29 ZCK M5H7	0.210 0.210 0.210
N/O + N/C make before make, slow break (XE2N P2161)		⊕	Pg 11 ISO M20 x 1.5 1/2" NPT (2)	ZCK M6 ZCK M6H29 ZCK M6H7	0.210 0.210 0.210
N/C + N/C simultaneous, slow break (XE2N P2141)		⊕	Pg 11 ISO M20 x 1.5 1/2" NPT (2)	ZCK M7 ZCK M7H29 ZCK M7H7	0.210 0.210 0.210
N/O + N/O simultaneous, slow break (XE2N P2131)		-	Pg 11 ISO M20 x 1.5 1/2" NPT (2)	ZCK M8 ZCK M8H29 ZCK M8H7	0.210 0.210 0.210
N/C + N/C snap action (XE2S P2141)		⊕	Pg 11 ISO M20 x 1.5	ZCK M9 ZCK M9H29	0.210 0.210
<b>For limit switches type XCK L</b>					
N/C + N/O snap action (XE2S P2151)		⊕	Pg 11 1/2" NPT	ZCK L1 ZCK L1H7	0.210 0.210
N/C + N/O break before make, slow break (XE2N P2151)		⊕	Pg 11 1/2" NPT	ZCK L5 ZCK L5H7	0.210 0.210
N/O + N/C make before make, slow break (XE2N P2161)		⊕	Pg 11 1/2" NPT	ZCK L6 ZCK L6H7	0.210 0.210
N/C + N/C simultaneous, slow break (XE2N P2141)		⊕	Pg 11 1/2" NPT	ZCK L7 ZCK L7H7	0.210 0.210
N/O + N/O simultaneous, slow break (XE2N P2131)		-	Pg 11 1/2" NPT	ZCK L8 ZCK L8H7	0.210 0.210

(1) ⊕: N/C contact with positive opening operation.

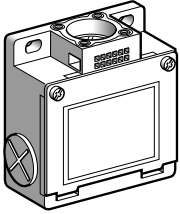
(2) 3 tapped entries, one with metal adaptor for 1/2" NPT (USASB2-1) conduit.

# Limit switches

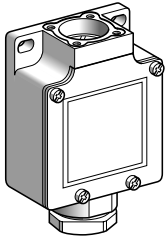
## Osiswitch® Classic

### Metal, types XCK M and XCK L

#### Adaptable sub-assemblies



ZCK MD3●



ZCK LD3●

#### Bodies with 3-pole contact

With contact block	Scheme	Positive operation (1)	Cable entry	Reference	Weight kg
<b>For limit switches type XCK M</b>					
N/C + N/O + N/O snap action (XE3S P2151)		⊕	Pg 13	<b>ZCK MD31</b>	0.210
			ISO M20 x 1.5	<b>ZCK MD31H29</b>	0.210
			1/2" NPT (2)	<b>ZCK MD31H7</b>	0.210
N/C + N/C + N/O snap action (XE3S P2141)		⊕	Pg 13	<b>ZCK MD39</b>	0.210
			ISO M20 x 1.5	<b>ZCK MD39H29</b>	0.210
			1/2" NPT (2)	<b>ZCK MD39H7</b>	0.210
N/C + N/C + N/O break before make, slow break (XE3N P2141)		⊕	Pg 13	<b>ZCK MD37</b>	0.210
			ISO M20 x 1.5	<b>ZCK MD37H29</b>	0.210
			1/2" NPT (2)	<b>ZCK MD37H7</b>	0.210
N/C + N/O + N/O break before make, slow break (XE3N P2151)		⊕	Pg 13	<b>ZCK MD35</b>	0.210
			ISO M20 x 1.5	<b>ZCK MD35H29</b>	0.210
			1/2" NPT (2)	<b>ZCK MD35H7</b>	0.210
<b>For limit switches type XCK L</b>					
N/C + N/O + N/O snap action (XE3S P2151)		⊕	Pg 11	<b>ZCK LD31</b>	0.210
			1/2" NPT	<b>ZCK LD31H7</b>	0.210
N/C + N/C + N/O snap action (XE3S P2141)		⊕	Pg 11	<b>ZCK LD39</b>	0.210
			1/2" NPT	<b>ZCK LD39H7</b>	0.210
N/C + N/C + N/O break before make, slow break (XE3N P2141)		⊕	Pg 11	<b>ZCK LD37</b>	0.210
			1/2" NPT	<b>ZCK LD37H7</b>	0.210
N/C + N/O + N/O break before make, slow break (XE3N P2151)		⊕	Pg 11	<b>ZCK LD35</b>	0.210
			1/2" NPT	<b>ZCK LD35H7</b>	0.210

(1) ⊕: N/C contact with positive opening operation.

(2) 3 tapped entries, one with metal adaptor for 1/2" NPT (USASB2-1) conduit.

# Limit switches

## Osiswitch® Classic

Metal, types XCK M and XCK L  
Adaptable sub-assemblies

### Contact blocks

Type of contact	Scheme	For bodies	Positive operation (1)	Reference	Weight kg
<b>2-pole contact</b>					
<b>N/C + N/O snap action</b>		ZCK M1 ZCK L1	⊖	XE2S P2151	0.020
<b>N/C + N/O break before make, slow break</b>		ZCK M5 ZCK L5	⊖	XE2N P2151	0.020
<b>N/O + N/C make before break, slow break</b>		ZCK M6 ZCK L6	⊖	XE2N P2161	0.020
<b>N/C + N/C simultaneous, slow break</b>		ZCK M7 ZCK L7	⊖	XE2N P2141	0.020
<b>N/O + N/O simultaneous, slow break</b>		ZCK M8 ZCK L8	-	XE2N P2131	0.020
<b>N/C + N/C snap action</b>		ZCK M9	⊖	XE2S P2141	0.020
<b>3-pole contact</b>					
<b>N/C + N/O + N/O snap action</b>		ZCK MD31 ZCK LD31	⊖	XE3S P2151	0.035
<b>N/C + N/C + N/O snap action</b>		ZCK MD39 ZCK LD39	⊖	XE3S P2141	0.035
<b>N/C + N/C + N/O break before make, slow break</b>		ZCK MD37 ZCK LD37	⊖	XE3N P2141	0.035
<b>N/C + N/O + N/O break before make, slow break</b>		ZCK MD35 ZCK LD35	⊖	XE3N P2151	0.035

(1) ⊖: N/C contact with positive opening operation or sub-assembly assuring positive opening operation.

### Accessories for limit switches type XCK M

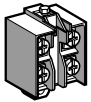
Description	Sold in lots of	Unit reference	Weight kg
<b>Tap-off terminal</b> for cabling continuity	1	XCK Z09	0.010
<b>Clip-in markers</b> (strips of 10 numbers: 0 to 9) <b>Other markers</b> , please consult your Regional Sales Office.	25	AB1 R11	0.002

### Other versions

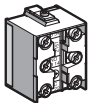
Gold flashed contacts.  
Please consult your Regional Sales Office.



XE2S P21 1



XE2N P21 1

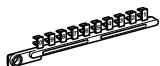


XE3 P21 2

5



XCK Z09



AB1 R11

# Limit switches

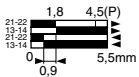
## Osiswitch® Classic

### Metal, types XCK M and XCK L

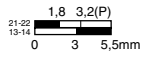
### Adaptable sub-assemblies

#### Heads ZCK D10, D109 with body

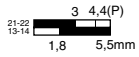
##### ZCK M1, L1



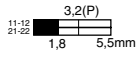
##### ZCK M5, L5



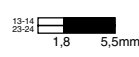
##### ZCK M6, L6



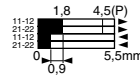
##### ZCK M7, L7



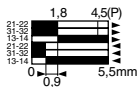
##### ZCK M8, L8



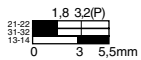
##### ZCK M9



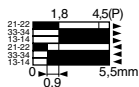
##### ZCK MD39, LD39



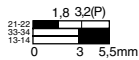
##### ZCK MD37, LD37



##### ZCK MD31, LD31

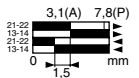


##### ZCK MD35, LD35

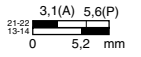


#### Heads ZCK D02, D029 with body

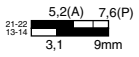
##### ZCK M1, L1



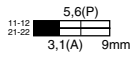
##### ZCK M5, L5



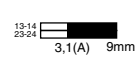
##### ZCK M6, L6



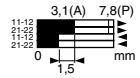
##### ZCK M7, L7



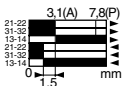
##### ZCK M8, L8



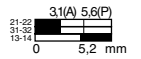
##### ZCK M9



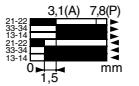
##### ZCK MD39, LD39



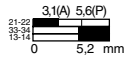
##### ZCK MD37, LD37



##### ZCK MD31, LD31

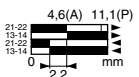


##### ZCK MD35, LD35

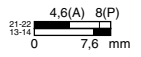


#### Heads ZCK D21, D23, D219, D239 with body

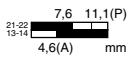
##### ZCK M1, L1



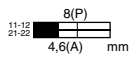
##### ZCK M5, L5



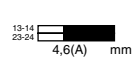
##### ZCK M6, L6



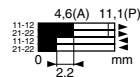
##### ZCK M7, L7



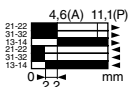
##### ZCK M8, L8



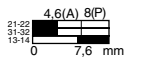
##### ZCK M9



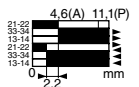
##### ZCK MD39, LD39



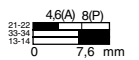
##### ZCK MD37, LD37



##### ZCK MD31, LD31

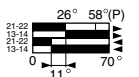


##### ZCK MD35, LD35

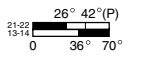


#### Heads ZCK D15, D16, D17 with body

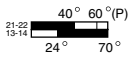
##### ZCK M1, L1



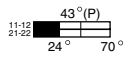
##### ZCK M5, L5



##### ZCK M6, L6



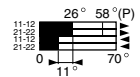
##### ZCK M7, L7



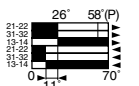
##### ZCK M8, L8



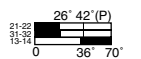
##### ZCK M9



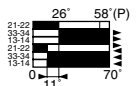
##### ZCK MD39, LD39



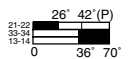
##### ZCK MD37, LD37



##### ZCK MD31, LD31

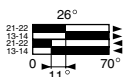


##### ZCK MD35, LD35

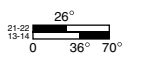


#### Heads ZCK D41, D59, D81, D91 with body

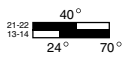
##### ZCK M1, L1



##### ZCK M5, L5



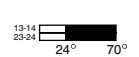
##### ZCK M6, L6



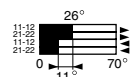
##### ZCK M7, L7



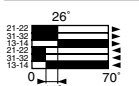
##### ZCK M8, L8



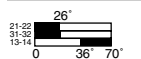
##### ZCK M9



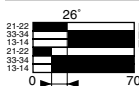
##### ZCK MD39, LD39



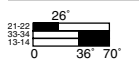
##### ZCK MD37, LD37



##### ZCK MD31, LD31

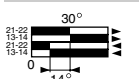


##### ZCK MD35, LD35

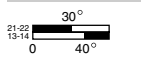


#### Heads ZCK D06, D08 with body

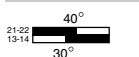
##### ZCK M1, L1



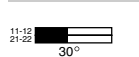
##### ZCK M5, L5



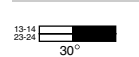
##### ZCK M6, L6



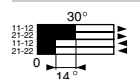
##### ZCK M7, L7



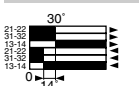
##### ZCK M8, L8



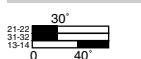
##### ZCK M9



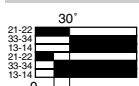
##### ZCK MD39, LD39



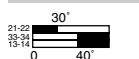
##### ZCK MD37, LD37



##### ZCK MD31, LD31



##### ZCK MD35, LD35



Contact operation

■ contact closed  
□ contact open

(A) = cam displacement  
(P) = positive opening point

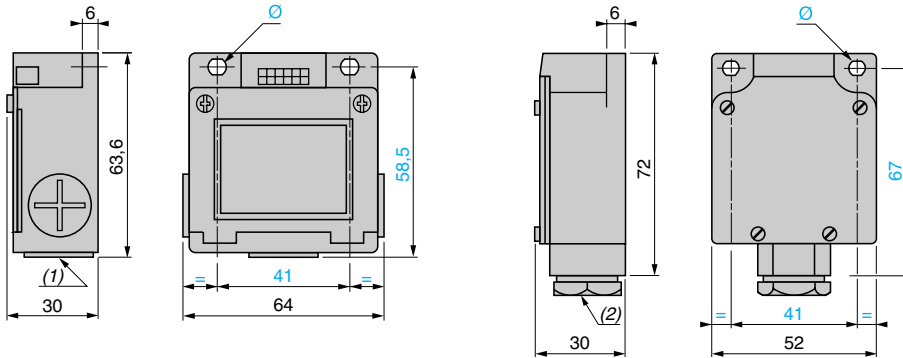
# Limit switches

Osiswitch® Classic  
Metal, types XCK M and XCK L  
Adaptable sub-assemblies

**Bodies with contacts**

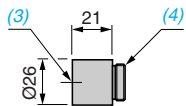
ZCK M1, M5, M6, M7, M8, M9, MD3●, MD3H●29, MD3●H7  
ZCK M1H29, M5H29, M6H29, M7H29, M8H29, M9H29  
ZCK M1H7, M5H7, M6H7, M7H7, M8H7

ZCK L1, L5, L6, L7, L8, LD3●  
ZCK L1H7, L5H7, L6H7, L7H7, L8H7, LD3●H7



**Adaptor for 1/2" NPT conduit**

DE9 RA1012



(1) 3 tapped entries for ISO M20 x 1.5 or Pg 11 cable gland.

(2) Incorporated cable gland.

Ø: 2 elongated holes Ø 5.2 x 6.2.

(3) Tapped entry for 1/2" NPT conduit.

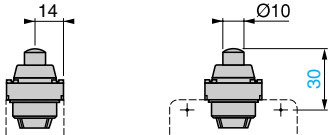
(4) Threaded sleeve.

# Limit switches

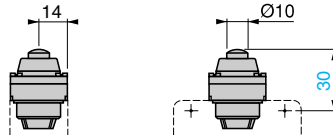
Osiswitch® Classic  
Metal, types XCK M and XCK L  
Adaptable sub-assemblies

## Plunger heads

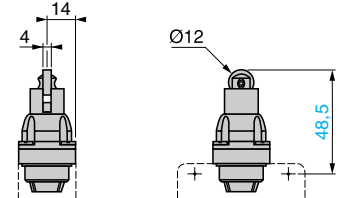
ZCK D10



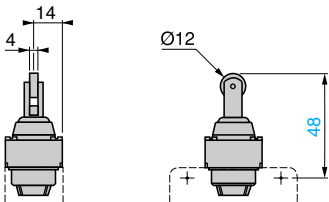
ZCK D109



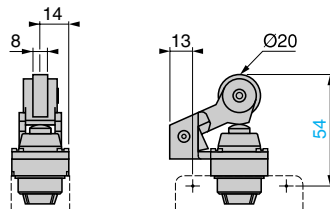
ZCK D02



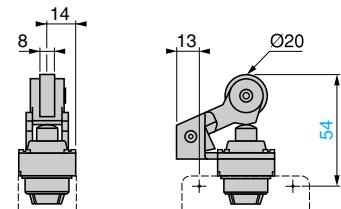
ZCK D029



ZCK D21, D23

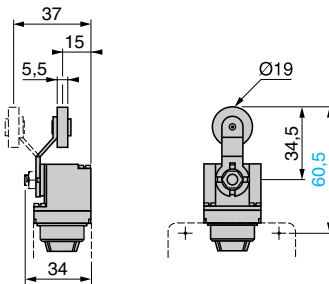


ZCK D219, D239

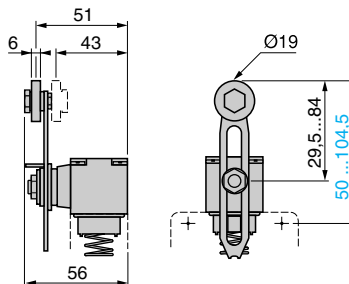


## Rotary heads

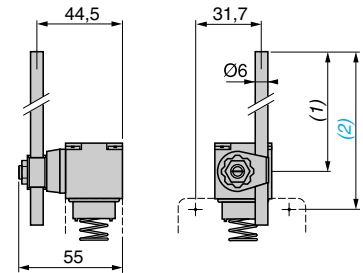
ZCK D15, D16, D17



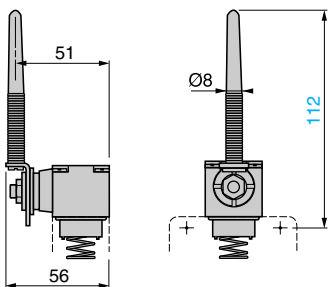
ZCK D41



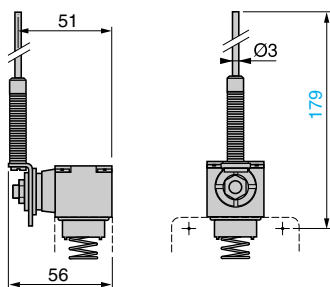
ZCK D59



ZCK D81

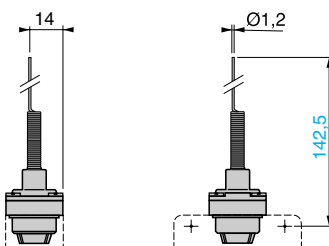


ZCK D91

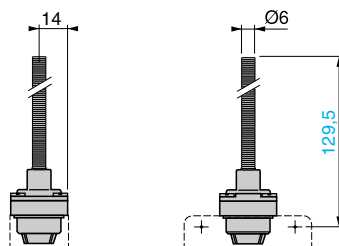


## Multi-directional heads

ZCK D06



ZCK D08



(1) 190 max.  
(2) 215.5 max.

Note: operating lever spindle threaded M6.

# Limit switches

Osiswitch® Classic

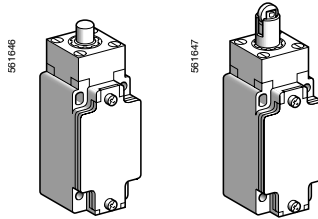
Metal, type XCK J

Conforming to CENELEC EN 50041

## ■ XCK J

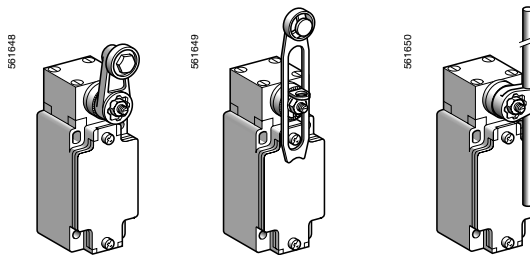
fixed body with 1 cable entry

### □ With head for linear movement (plunger)



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### □ With head for rotary movement (lever) or multi-directional

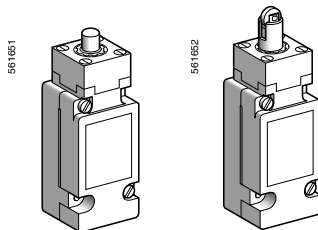


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## ■ XCK J

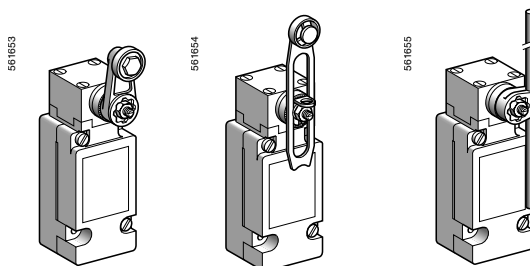
plug-in body with 1 cable entry

### □ With head for linear movement (plunger)



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### □ With head for rotary movement (lever)



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## Environment characteristics

Conforming 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	Version	Standard "TC", special "TH"
Ambient air temperature	Operation	- 25...+ 70 °C, special sub-assemblies available for extreme temperatures (-40 °C or +120 °C)
	Storage	- 40...+ 70 °C
Vibration resistance	Conforming to IEC 60068-2-6	25 gn (10...500 Hz)
Shock resistance	Conforming to IEC 60068-2-27	50 gn (11 ms)
Electric shock protection		Class I conforming to IEC 61140 and NF C 20-030
Degree of protection		IP 66 conforming to IEC 60529; IK 07 conforming to EN 50 102
Repeat accuracy		0.01 mm on the tripping points, with 1 million operating cycles for head with end plunger
Cable entry or integral connector	Depending on model	Tapped entry for n° 13 cable gland, or tapped ISO M20 x 1.5 or 1/2" NPT, or M12 connector
Materials		Bodies and heads in zamak



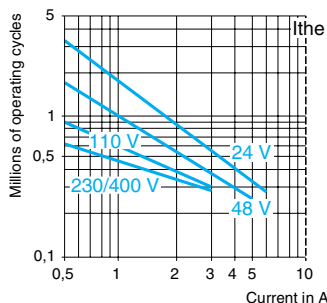
### Contact block characteristics

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)		N/C 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)
Cabling (screw clamp terminals)	XE2S P21●1	Clamping capacity, min: 1 x 0.34 mm <sup>2</sup> , max: 2 x 1.5 mm <sup>2</sup>
	XE2N P21●1	Clamping capacity, min: 1 x 0.5 mm <sup>2</sup> , max: 2 x 2.5 mm <sup>2</sup>
	XCK J plug-in and XES P20●1	Clamping capacity, min: 1 x 0.75 mm <sup>2</sup> , max: 2 x 1.5 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		XE2S P21●1 and XE3S P: 0.01 m/minute
		XE2N P21●1 and XE3N P: 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>

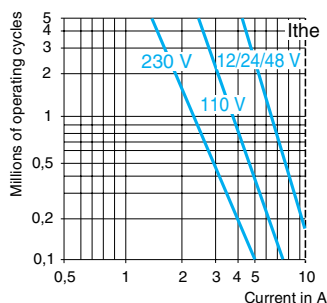
5

a.c. supply  
~ 50/60 Hz  
mm inductive circuit

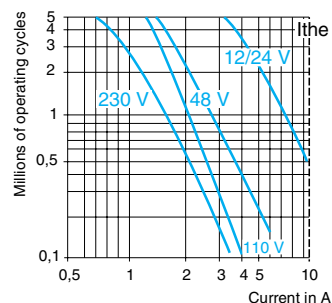
XE2S P21●1, XE2S P2141



XE2N P21●1



XCK J plug-in, XES P20●1



d.c. 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

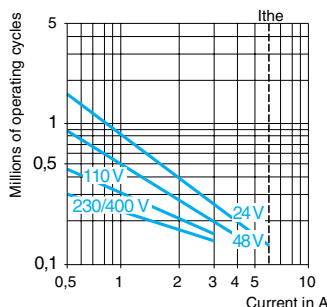
Power broken in W for 5 million operating cycles.

Voltage V	24	48	120
mm W	10	7	4

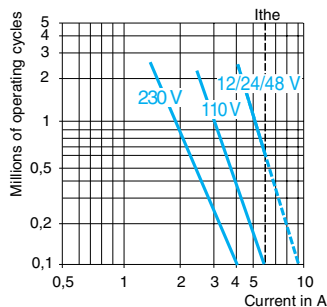
For XE2S P●151 on ~ or ==, N/C and N/O contacts simultaneously loaded to the values shown with reverse polarity.

XE3N P●●●●

a.c. supply  
~ 50/60 Hz  
mm inductive circuit



XE3S P●●●●



d.c. 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

Osiswitch® Classic

Metal, conforming to CENELEC EN 50041, type XCK J

Complete switches, fixed body

1 ISO M20 x 1.5 cable entry

Type of head	Plunger (fixing by the body)		Rotary (fixing by the body) (switches supplied for actuation from left AND right)			
	Form B (1)	Form C (1)	Form A (1)			Form D (1)
Type of operator	Metal end plunger	Steel roller plunger	Thermoplastic roller lever (4)	Steel roller lever (4)	Variable length thermoplastic roller lever (4)	Round thermoplastic rod lever, Ø 6 mm (4) (5)

## References (2) (3)

	<b>XCK J161H29</b> ⊖	<b>XCK J167H29</b> ⊖	<b>XCK J10511H29</b> ⊖	<b>XCK J10513H29</b> ⊖	<b>XCK J10541H29</b> ⊖	<b>XCK J10559H29</b> ⊖
	<b>XCK J561H29</b> ⊖	<b>XCK J567H29</b> ⊖	<b>XCK J50511H29</b> ⊖	<b>XCK J50513H29</b> ⊖	<b>XCK J50541H29</b> ⊖	<b>XCK J50559H29</b> ⊖
	<b>ZCK J9H29 + ZCK E61</b> ⊖	<b>ZCK J9H29 + ZCK E67</b> ⊖	<b>ZCK J9H29 + ZCK E05 + ZCK Y11</b> ⊖	<b>ZCK J9H29 + ZCK E05 + ZCK Y13</b> ⊖	<b>ZCK J9H29 + ZCK E05 + ZCK Y41</b> ⊖	<b>ZCK J9H29 + ZCK E05 + ZCK Y59</b> ⊖
	<b>ZCK J7H29 + ZCK E61</b> ⊖	<b>ZCK J7H29 + ZCK E67</b> ⊖	<b>ZCK J7H29 + ZCK E05 + ZCK Y11</b> ⊖	<b>ZCK J7H29 + ZCK E05 + ZCK Y13</b> ⊖	<b>ZCK J7H29 + ZCK E05 + ZCK Y41</b> ⊖	<b>ZCK J7H29 + ZCK E05 + ZCK Y59</b> ⊖
	<b>ZCK JD39H29 + ZCK E61</b> ⊖	<b>ZCK JD39H29 + ZCK E67</b> ⊖	<b>ZCK JD39H29 + ZCK E05 + ZCK Y11</b> ⊖	<b>ZCK JD39H29 + ZCK E05 + ZCK Y13</b> ⊖	<b>ZCK JD39H29 + ZCK E05 + ZCK Y41</b> ⊖	<b>ZCK JD39H29 + ZCK E05 + ZCK Y59</b> ⊖
	<b>ZCK JD37H29 + ZCK E61</b> ⊖	<b>ZCK JD37H29 + ZCK E67</b> ⊖	<b>ZCK JD37H29 + ZCK E05 + ZCK Y11</b> ⊖	<b>ZCK JD37H29 + ZCK E05 + ZCK Y13</b> ⊖	<b>ZCK JD37H29 + ZCK E05 + ZCK Y41</b> ⊖	<b>ZCK JD37H29 + ZCK E05 + ZCK Y59</b> ⊖
Weight (kg)	0.430	0.455	0.480	0.490	0.485	0.485

Contact operation contact closed (A) = cam displacement ⊖ N/C contact with positive opening operation  
 contact 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 m/s	1.5 m/s	
Mechanical durability (6) (in millions of operating cycles)	30	25	30	
Minimum force or torque	For tripping: 20 N For positive opening: 50 N	16 N 40 N	0.25 N.m 0.50 N.m	-
Cable entry (3)	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 9 to 12 mm			

(1) Form conforming to EN 50041, see page 5/185.

(2) Switches with gold contacts or eyelet type connections: please consult your Regional Sales Office.

(3) For an entry tapped for a Pg 13 cable gland, delete H29 from the end of the reference. Example: XCK J161H29 becomes XCK J161.

For an entry tapped for 1/2" NPT (USAS B2-1) conduit, replace H29 at the end of the reference by H7. Example: XCK J161H29 becomes XCK J161H7.

(4) Adjustable throughout 360° in 5° steps, or in 45° steps by reversing the lever or its mounting.

(5) Value taken with actuation by moving part at 100 mm from the fixing.

(6) Limited to 15 million operating cycles for switches with contacts XE3•P.

# Limit switches

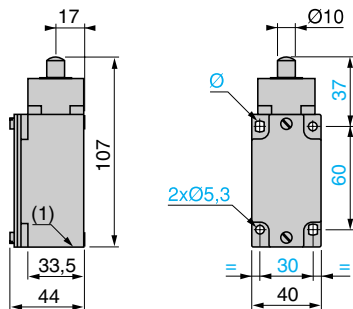
Osiswitch® Classic

Metal, conforming to CENELEC EN 50041, type XCK J

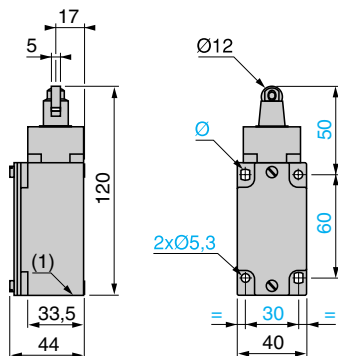
Complete switches, fixed body

1 ISO M20 x 1.5 cable entry

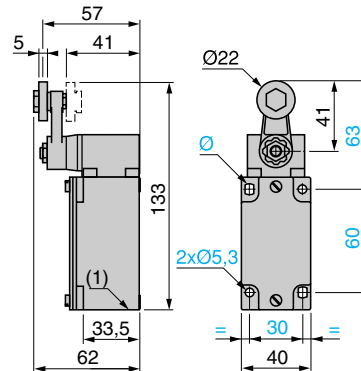
**XCK J●61H29**  
ZCK J● + ZCK E61



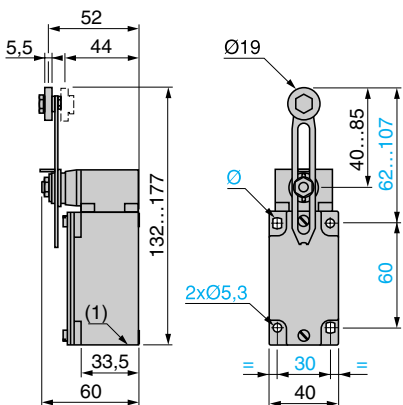
**XCK J●67H29**  
ZCK J● + ZCK E67



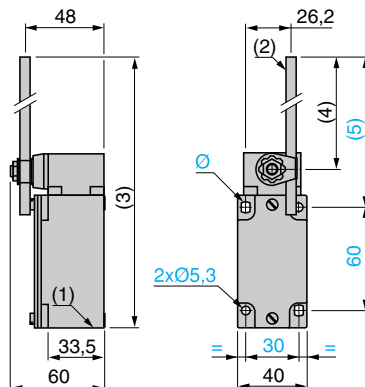
**XCK J●051●H29**  
ZCK J● + ZCK E05 + ZCK Y11 or Y13



**XCK J●0541H29**  
ZCK J● + ZCK E05 + ZCK Y41



**XCK J●0559H29**  
ZCK J● + ZCK E05 + ZCK Y59



(1) 1 tapped entry for ISO M20 x 1.5 or Pg 13 cable gland or 1/2" NPT.

(2) Ø 6 rod, length 200 mm.

(3) 282 max.

(4) 190 max.

(5) 212 max.

Ø: 2 elongated holes Ø 5.3 x 7.3.


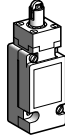
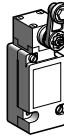

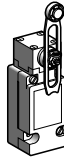


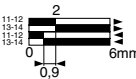
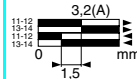
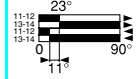
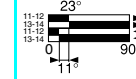

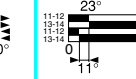







# Limit switches

Osiswitch® Classic

Metal, conforming to CENELEC EN 50041, type XCK J

Complete switches, plug-in body

ISO M20 x 1.5 cable entry

Type of head	Plunger (fixing by the body)		Rotary (fixing by the body) (switches supplied for actuation from left AND right)			
	Form B (1)	Form C (1)	Form A (1)		Form D (1)	
						
Type of operator	Metal end plunger	Steel roller plunger	Thermoplastic roller lever (4)	Steel roller lever (4)	Variable length thermoplastic roller lever (4)	Round thermoplastic roller lever, Ø 6 mm (4) (5)
<b>References (2) (3)</b>						
	<b>XCK J1161H29</b>	<b>XCK J1167H29</b>	<b>XCK J110511H29</b>	<b>XCK J110513H29</b>	<b>XCK J110541H29</b>	<b>XCK J110559H29</b>
						
Weight (kg)	0.430	0.455	0.480	0.490	0.485	0.485
Contact operation	 contact closed  contact open		(A) = cam displacement			
<b>Characteristics</b>						
Switch actuation	On end	By 30° cam			By any moving part	
Type of actuation						
Maximum actuation speed	0.5 m/s	1 m/s	1.5 m/s			
Mechanical durability (in millions of operating cycles)	30	25	30			
Minimum force or torque for tripping	20 N	16 N	0.25 N.m			
Cable entry (3)	1 entry tapped M20 x 1.5 for ISO cable gland. Clamping capacity 7 to 13 mm					

(1) Form conforming to EN 50041, see page 5/185.

(2) Switches with gold contacts: please consult your Regional Sales Office.

(3) For an entry tapped for a n° 13 cable gland, delete **H29** from the end of the reference. Example: **XCK J1161H29** becomes **XCK J1161**.

For an entry tapped for 1/2" NPT (USAS B2-1) conduit, replace **H29** at the end of the reference by **H7**. Example: **XCK J1161H29** becomes **XCK J1161H7**.

(4) Adjustable throughout 360° in 5° steps, or in 45° steps by reversing the lever mounting or clamp.

(5) Value taken with actuator operating at 100 mm from the fixing.

# Limit switches

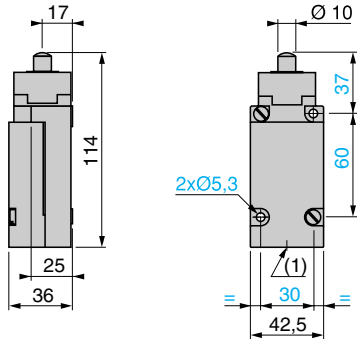
Osiswitch® Classic

Metal, conforming to CENELEC EN 50041, type XCK J

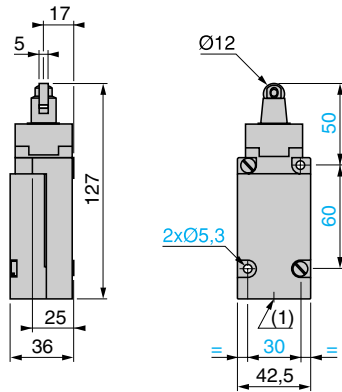
Complete switches, plug-in body

ISO M20 x 1.5 cable entry

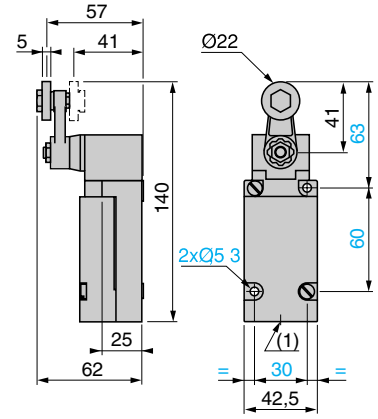
XCK J1611H29



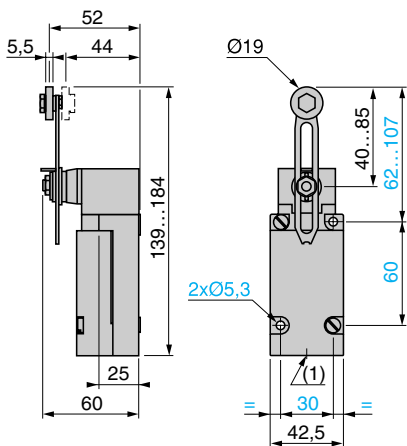
XCK J1167H29



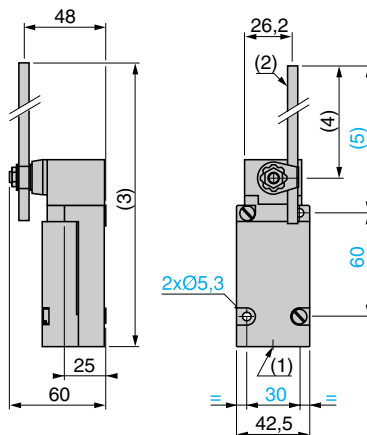
XCK J110511H29, XCK J110513H29



XCK J110541H29



XCK J110559H29



(1) Tapped entry for ISO M20 x 1.5 or Pg 13 cable gland or 1/2" NPT conduit.

(2) Ø 6 rod, length 200 mm.

(3) 289 max.

(4) 190 max.

(5) 212 max.

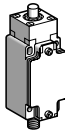
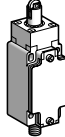
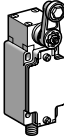
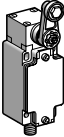

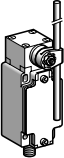

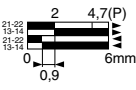
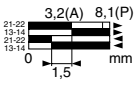
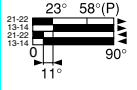
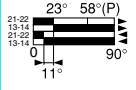
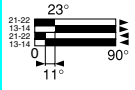
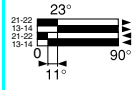







# Limit switches

Osiswitch® Classic

Metal, conforming to CENELEC EN 50041, type XCK J

Complete switches, fixed body

Integral M12 connector

Type of head	Plunger (fixing by the body)		Rotary (fixing by the body) (switches supplied for actuation from left AND right)			
	Form B (1)	Form C (1)	Form A (1)		Form D (1)	
						
Type of operator	Metal end plunger	Steel roller plunger	Thermoplastic roller lever (2)	Steel roller lever (2)	Variable length thermoplastic roller lever (2)	Round thermoplastic rod lever, Ø 6 mm (2) (3)
<b>References (4)</b>						
 2-pole N/C + N/O snap action (XE2S P2151)	<b>XCK J161D</b>	<b>XCK J167D</b>	<b>XCK J10511D</b>	<b>XCK J10513D</b>	<b>XCK J10541D</b>	<b>XCK J10559D</b>
						
Weight (kg)	0.430	0.455	0.480	0.490	0.485	0.485
Contact operation	 contact closed  contact open		(A) = cam displacement (P) = positive opening point			
<b>Characteristics</b>						
Switch actuation	On end	By 30° cam			By any moving part	
Type of actuation						
Maximum actuation speed	0.5 m/s	1 m/s	1.5 m/s			
Mechanical durability (in millions of operating cycles)	30	25	30			
Minimum force or torque	For tripping	20 N	16 N	0.25 N.m		
	For positive opening	50 N	40 N	0.50 N.m		
Connection	M12 5-pin connector, U <sub>i</sub> = 60 V, I <sub>e</sub> = 4 A (see suitable pre-wired female connectors below).					
(1) Form conforming to EN 50041, see page 5/185. (2) Adjustable throughout 360° in 5° steps, or in 45° steps by reversing the lever or its mounting. (3) Value taken with actuation by moving part at 100 mm from the fixing. (4) Switches with gold contacts: please consult your Regional Sales Office.						
<b>References of suitable pre-wired female connectors</b>						
Type of connector		M12 straight, 5-pin, 4 A/24 V max.		M12 elbowed, 5-pin, 4 A/24 V max.		
With cable, Ø 5.8 mm (4 x 0.34 mm <sup>2</sup> + 1 x 0.5 mm <sup>2</sup> )	L = 2 m	XZ CP1164L2		XZ CP1264L2		
	L = 5 m	XZ CP1164L5		XZ CP1264L5		
	L = 10 m	XZ CP1164L10		XZ CP1264L10		
Weight (kg)	L = 2 m	0.115				
	L = 5 m	0.270				
	L = 10 m	0.520				

# Limit switches

Osiswitch® Classic

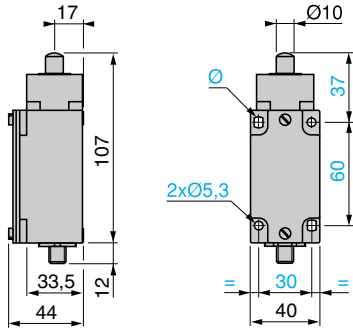
Metal, conforming to CENELEC EN 50041, type XCK J

Complete switches, fixed body

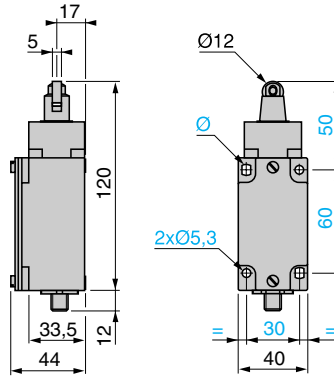
Integral M12 connector

## Dimensions

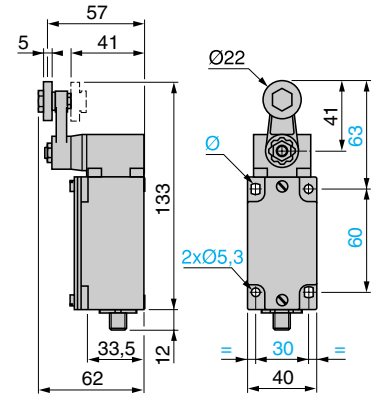
XCK J161D



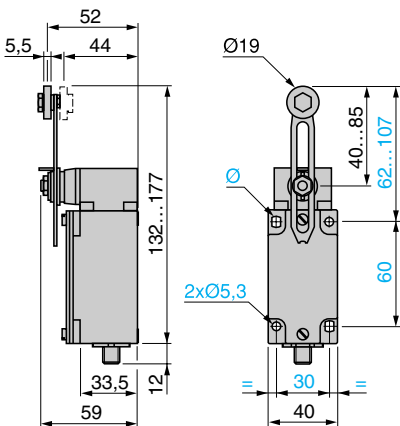
XCK J167D



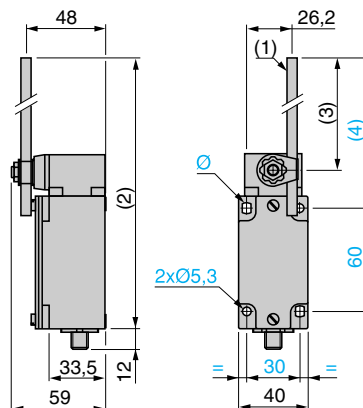
XCK J1051D



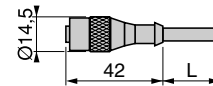
XCK J10541D



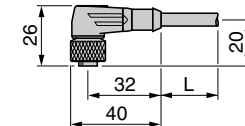
XCK J10559D



XZ CP1164L



XZ CP1264L



(1) Ø 6 rod, length 200 mm.

(2) 282 max.

(3) 190 max.

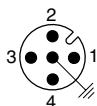
(4) 212 max.

Ø: 2 elongated holes Ø 5.3 x 7.3.

L: Cable length 2, 5 or 10 m.

## Connections

Limit switch XCK J●●●D



1-2 = N/C

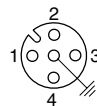
3-4 = N/O

5 = ⚬

4 A / 24 V max.



Pre-wired female connector XZ CP1●64L●



1 = brown

2 = white

3 = blue

4 = black

5 = ⚬ yellow/green

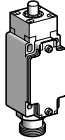
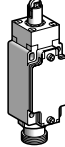
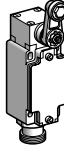

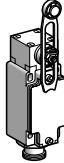
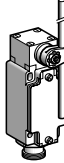
# Limit switches


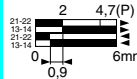
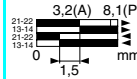
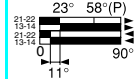
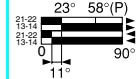
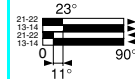
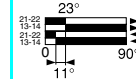


Osiswitch® Classic





Metal, conforming to CENELEC EN 50041, type XCK J

Complete switches, fixed body

Integral 7/8" 16UN connector

Type of head	Plunger (fixing by the body)		Rotary (fixing by the body) (switches supplied for actuation from left AND right)			
	Form B (1)	Form C (1)	Form A (1)		Form D (1)	
						
Type of operator	Metal end plunger	Steel roller plunger	Thermoplastic roller lever (2)	Steel roller lever (2)	Variable length thermoplastic roller lever (2)	Round thermoplastic rod lever, Ø 6 mm (2) (3)

References (4)	XCK J161A	XCK J167A	XCK J10511A	XCK J10513A	XCK J10541A	XCK J10559A
 2-pole N/C + N/O snap action (XE2S P2151)	 2, 4.7(P) 0, 6mm 0,9	 3.2(A), 8.1(P) 0, 1.5mm	 23°, 58°(P) 0, 90° 11°	 23°, 58°(P) 0, 90° 11°	 23° 0, 90° 11°	 23° 0, 90° 11°
Weight (kg)	0.430	0.455	0.480	0.490	0.485	0.485
Contact operation	 contact closed  contact open		(A) = cam displacement (P) = positive opening point		⊖ N/C contact with positive opening operation	

Characteristics				
Switch actuation	On end	By 30° cam		By any moving part
Type of actuation				
Maximum actuation speed	0.5 m/s	1 m/s	1.5 m/s	
Mechanical durability (in millions of operating cycles)	30	25	30	
Minimum force or torque	For tripping	20 N	16 N	0.25 N.m
	For positive opening	50 N	40 N	0.50 N.m
Connection	7/8" 16UN 5-pin connector, U <sub>i</sub> = 250 V; I <sub>e</sub> = 6 A (see suitable pre-wired female connectors below).			

(1) Form conforming to EN 50041, see page 5/185.

(2) Adjustable throughout 360° in 5° steps, or in 45° steps by reversing the lever mounting or clamp.

(3) Value taken with actuator operating at 100 mm from the fixing.

(4) Switches with gold contacts: please consult your Regional Sales Office.

References of suitable pre-wired female connectors		
Type of connector	7/8" 16UN straight, 5-pin, 6 A/250 V max.	
With cable, Ø 6.7 mm (5 x 0.5 mm <sup>2</sup> )	L = 2 m	XZ CP1771L2
	L = 5 m	XZ CP1771L5
	L = 10 m	XZ CP1771L10
Weight (kg)	L = 2 m	0.190
	L = 5 m	0.475
	L = 10 m	0.950



# Limit switches

Osiswitch® Classic

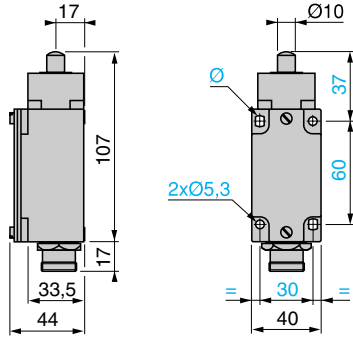
Metal, conforming to CENELEC EN 50041, type XCK J

Complete switches, fixed body

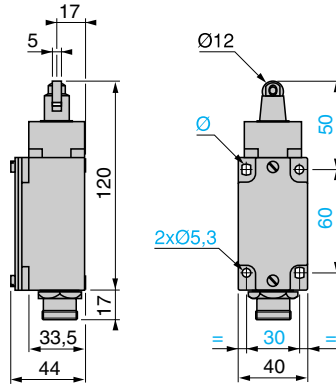
Integral 7/8" 16UN connector

## Dimensions

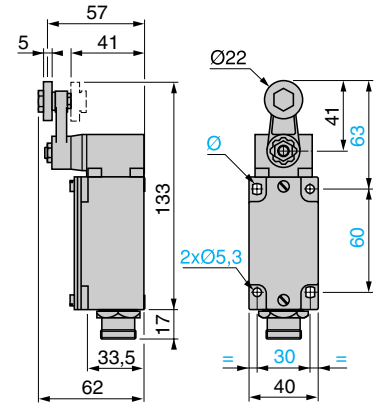
XCK J161A



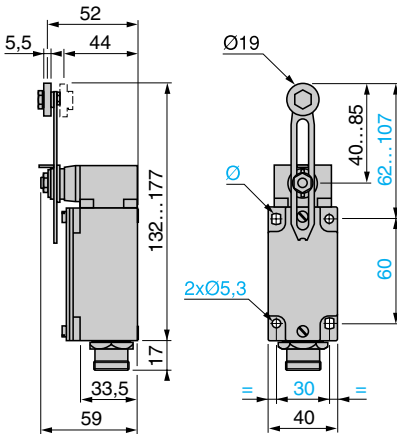
XCK J167A



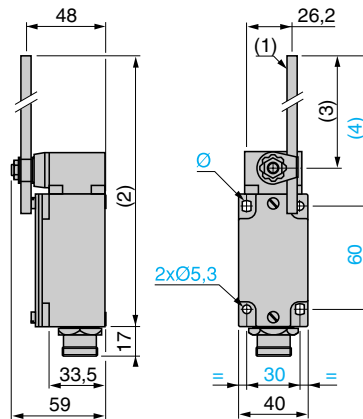
XCK J1051●A



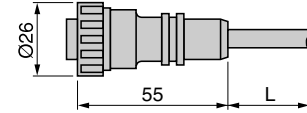
XCK J10541A



XCK J10559A



XZ CP1771L●



(1) Ø 6 rod, length 200 mm.

(2) 282 max.

(3) 190 max.

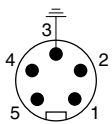
(4) 212 max.

Ø: 2 elongated holes Ø 5.3 x 7.3.

L: cable length 2, 5 or 10 m.

## Connections

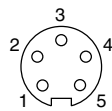
Limit switch XCK J●●●●A



- 1 = 21
- 2 = 22
- 3 = 1
- 4 = 14
- 5 = 13



Pre-wired female connector XZ CP1771L●



- 1 = black
- 2 = blue
- 3 = yellow/green ⊥
- 4 = brown
- 5 = white

# Limit switches

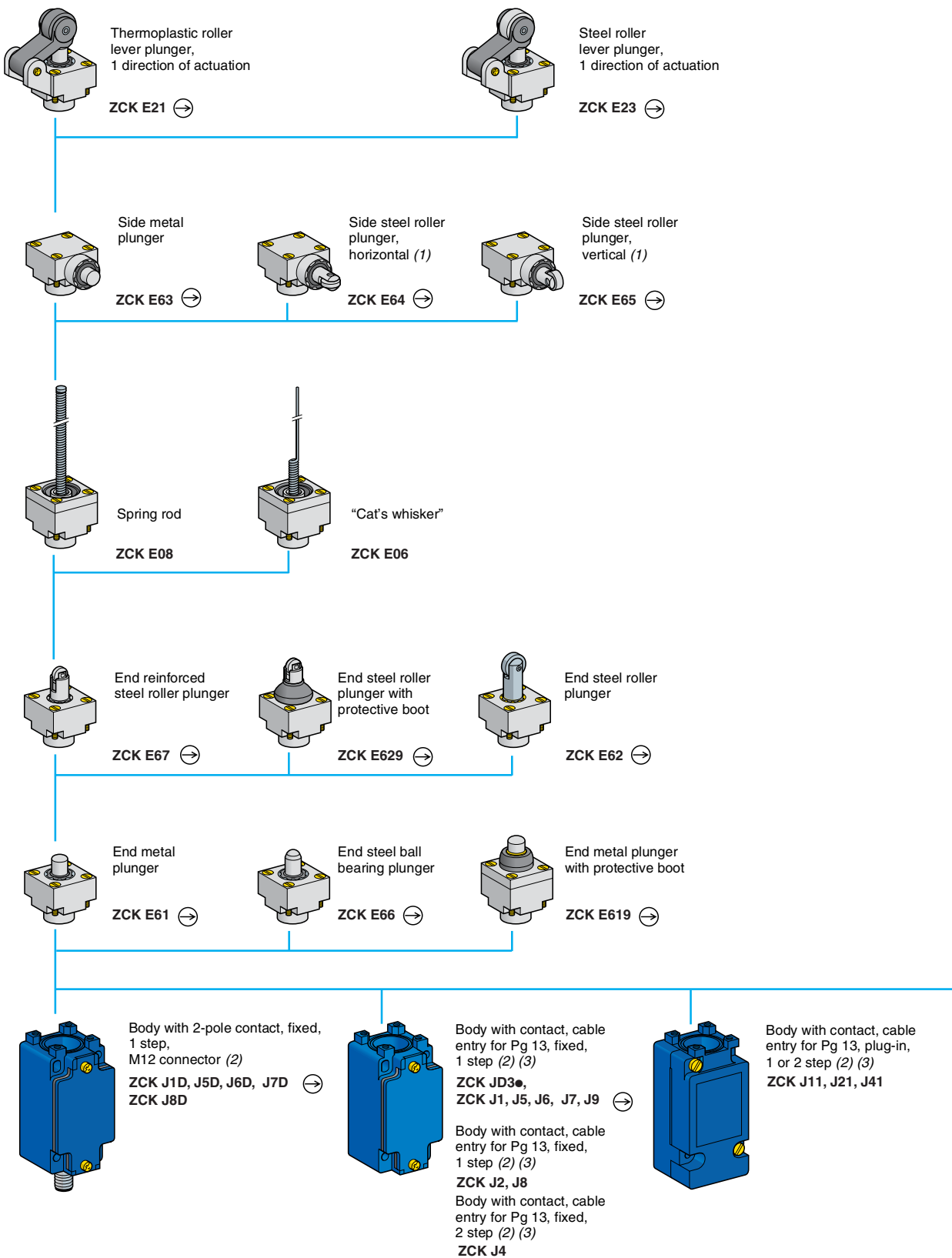
Osiswitch® Classic

Metal, conforming to CENELEC EN 50041, type XCK J

Fixed or plug-in body

Variable composition: standard bodies

5



(1) Cannot be used with bodies ZCK J4 and ZCK J41.

(2) For further details, see page 5/90.

(3) For a cable entry tapped ISO M20 x 1.5, add **H29** to the reference. Example: ZCK J1 becomes **ZCK J1H29**.  
For a cable entry tapped 1/2" NPT, add **H7** to the reference. Example: ZCK J1 becomes **ZCK J1H7**.

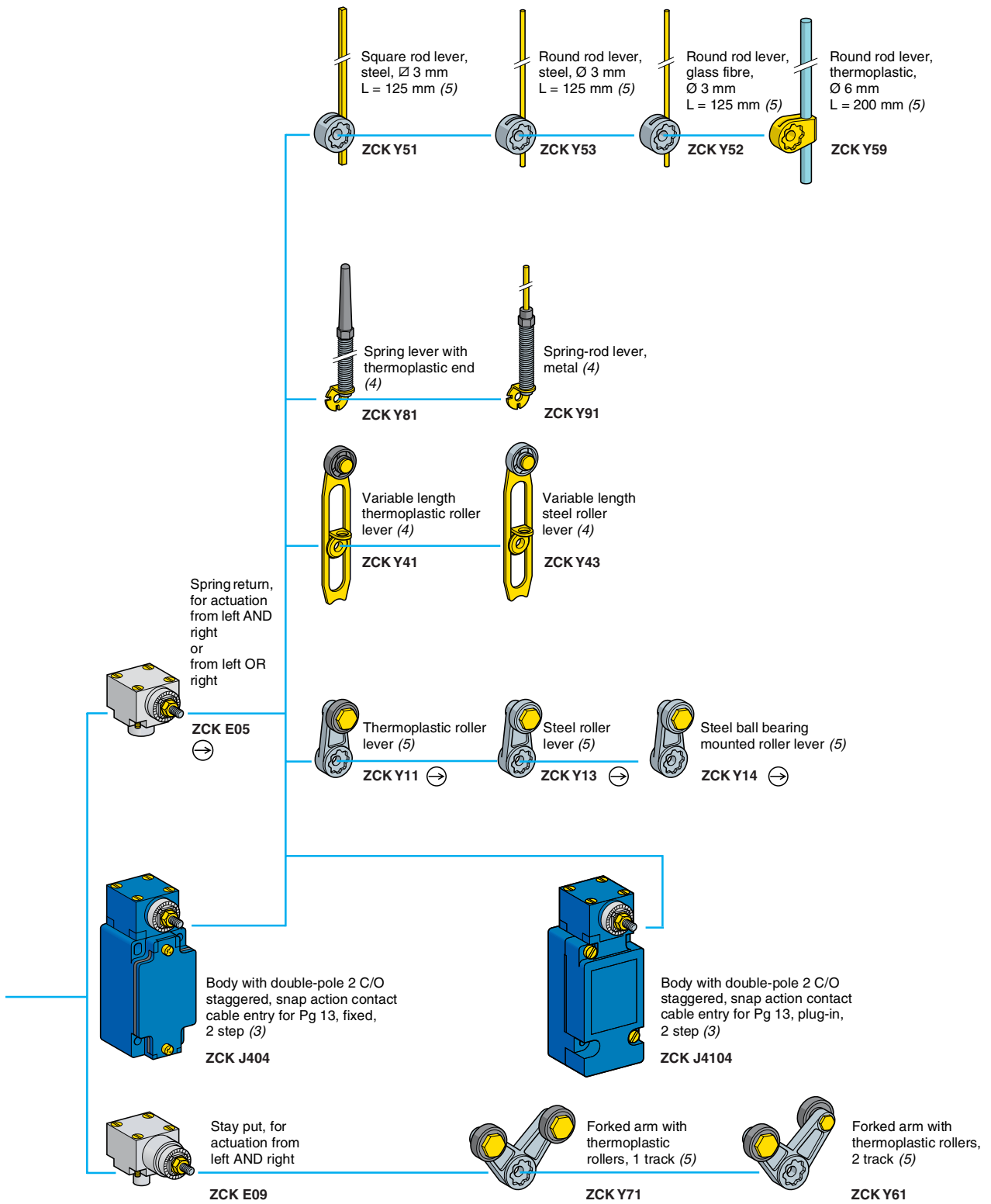
# Limit switches

Osiswitch® Classic

Metal, conforming to CENELEC EN 50041, type XCK J

Fixed or plug-in body

Variable composition: standard bodies



5

⊖: head assuring positive opening operation.

(4) Adjustable throughout 360° in 5° steps, or in 90° steps by reversing the notched washer.

(5) Adjustable throughout 360° in 5° steps, or in 45° steps by reversing the lever mounting.

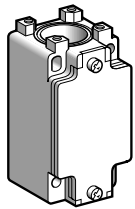
# Limit switches

## Osiswitch® Classic

Metal, conforming to CENELEC EN 50041, type XCK J

Fixed or plug-in body

Adaptable sub-assemblies: standard bodies



ZCK J●

### Fixed bodies with 2-pole contact

Type	With contact block	Scheme	Positive operation (1)	Cable entry	Reference	Weight kg	
1 step	N/C + N/O snap action (XE2S P2151)		⊖	Pg 13	<b>ZCK J1</b>	0.310	
				ISO M20 x 1.5	<b>ZCK J1H29</b>	0.310	
				1/2" NPT	<b>ZCK J1H7</b>	0.310	
	2 C/O simultaneous, snap action (XES P2021)		-	Pg 13	<b>ZCK J2</b>	0.310	
				ISO M20 x 1.5	<b>ZCK J2H29</b>	0.310	
					1/2" NPT	<b>ZCK J2H7</b>	0.310
	N/C + N/O break before make, slow break (XE2N P2151)		⊖	Pg 13	<b>ZCK J5</b>	0.310	
ISO M20 x 1.5				<b>ZCK J5H29</b>	0.310		
				1/2" NPT	<b>ZCK J5H7</b>	0.310	
N/C + N/O make before make, slow break (XE2N P2161)		⊖	Pg 13	<b>ZCK J6</b>	0.310		
			ISO M20 x 1.5	<b>ZCK J6H29</b>	0.310		
				1/2" NPT	<b>ZCK J6H7</b>	0.310	
N/C + N/C simultaneous, slow break (XE2N P2141)		⊖	Pg 13	<b>ZCK J7</b>	0.310		
			ISO M20 x 1.5	<b>ZCK J7H29</b>	0.310		
				1/2" NPT	<b>ZCK J7H7</b>	0.310	
N/O + N/O simultaneous, slow break (XE2N P2131)		-	Pg 13	<b>ZCK J8</b>	0.310		
			ISO M20 x 1.5	<b>ZCK J8H29</b>	0.310		
				1/2" NPT	<b>ZCK J8H7</b>	0.310	
N/C + N/C snap action (XE2S P2141)		⊖	Pg 13	<b>ZCK J9</b>	0.310		
			ISO M20 x 1.5	<b>ZCK J9H29</b>	0.310		
				1/2" NPT	<b>ZCK J9H7</b>	0.310	
2 step	2 C/O staggered, snap action (XES P2031)		-	Pg 13	<b>ZCK J4</b>	0.310	
				ISO M20 x 1.5	<b>ZCK J4H29</b>	0.310	
				1/2" NPT	<b>ZCK J4H7</b>	0.310	

### Fixed bodies with 3-pole contact

Type	With contact block	Scheme	Positive operation (1)	Cable entry	Reference	Weight kg
-	N/C + N/O + N/O snap action (XE3S P2151)		⊖	Pg 13	<b>ZCK JD31</b>	0.310
				ISO M20 x 1.5	<b>ZCK JD31H29</b>	0.310
				1/2" NPT	<b>ZCK JD31H7</b>	0.310
-	N/C + N/C + N/O snap action (XE3S P2141)		⊖	Pg 13	<b>ZCK JD39</b>	0.310
				ISO M20 x 1.5	<b>ZCK JD39H29</b>	0.310
				1/2" NPT	<b>ZCK JD39H7</b>	0.310
-	N/C + N/C + N/O break before make, slow break (XE3N P2141)		⊖	Pg 13	<b>ZCK JD37</b>	0.310
				ISO M20 x 1.5	<b>ZCK JD37H29</b>	0.310
				1/2" NPT	<b>ZCK JD37H7</b>	0.310
-	N/C + N/O + N/O break before make, slow break (XE3N P2151)		⊖	Pg 13	<b>ZCK JD35</b>	0.310
				ISO M20 x 1.5	<b>ZCK JD35H29</b>	0.310
				1/2" NPT	<b>ZCK JD35H7</b>	0.310

(1) ⊖: N/C contact with positive opening operation.

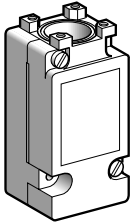
# Limit switches

## Osiswitch® Classic

Metal, conforming to CENELEC EN 50041, type XCK J

Fixed or plug-in body

Adaptable sub-assemblies: standard bodies



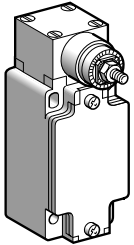
ZCK J01

### Plug-in bodies with contact

Type	With contact block	Scheme	Positive operation (1)	Cable entry	Reference	Weight kg
1 step	Single-pole C/O snap action		-	Pg 13	<b>ZCK J11</b>	0.300
				ISO M20 x 1.5	<b>ZCK J11H29</b>	0.300
				1/2" NPT	<b>ZCK J11H7</b>	0.300
2 step	Double-pole 2 C/O simultaneous, snap action		-	Pg 13	<b>ZCK J21</b>	0.300
				ISO M20 x 1.5	<b>ZCK J21H29</b>	0.300
				1/2" NPT	<b>ZCK J21H7</b>	0.300
2 step	Double-pole 2 C/O staggered, snap action		-	Pg 13	<b>ZCK J41</b>	0.300
				ISO M20 x 1.5	<b>ZCK J41H29</b>	0.300
				1/2" NPT	<b>ZCK J41H7</b>	0.300

### Bodies with contact, with rotary head (without operating lever)

Type	With contact block	Scheme	Positive operation (1)	Cable entry	Reference	Weight kg
<b>Fixed body</b>						
2 step 1 from the left AND 1 from the right	Double-pole 2 C/O staggered, snap action		-	Pg 13	<b>ZCK J404</b>	0.455
				ISO M20 x 1.5	<b>ZCK J404H29</b>	0.455
				1/2" NPT	<b>ZCK J404H7</b>	0.455
<b>Plug-in body</b>						
2 step 1 from the left AND 1 from the right	Double-pole 2 C/O staggered, snap action		-	Pg 13	<b>ZCK J4104</b>	0.465
				ISO M20 x 1.5	<b>ZCK J4104H29</b>	0.465
				1/2" NPT	<b>ZCK J4104H7</b>	0.465

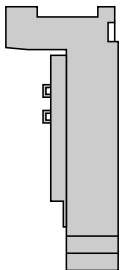


ZCK J404

### Plug-in housing only

Description	For use with	Contacts	Reference	Weight kg
<b>Single-pole 1 C/O</b> with positive opening operation	ZCK J11	Silver	<b>ZCK J01</b>	0.150
<b>Double-pole 2 C/O simultaneous</b> with positive opening operation	ZCK J21	Silver	<b>ZCK J02</b>	0.160
<b>Double-pole 1 C/O + 1 C/O staggered</b>	ZCK J41	Silver	<b>ZCK J04</b>	0.160

(1) ⊕ : N/C contact with positive opening operation.



ZCK J01

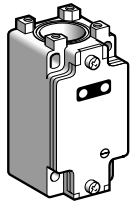
# Limit switches

## Osiswitch® Classic

Metal, conforming to CENELEC EN 50041, type XCK J

Fixed or plug-in body

Adaptable sub-assemblies: bodies with indicator light module



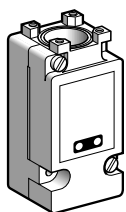
ZCK J ●●●

### Fixed bodies with 2-pole contact

Type	With contact block	Scheme	Positive operation (1)	Cable entry	Reference	Weight kg
<b>With module comprising 1 LED, <math>\bar{\bar{=}}</math> 24 V</b>						
1 step	N/C + N/O snap action (XE2S P2151)		$\ominus$	Pg 13	<b>ZCK J120</b>	0.320
	N/C + N/O break before make, slow break (XE2N P2151)		$\ominus$	Pg 13	<b>ZCK J520</b>	0.320
<b>With module comprising 2 LEDs, <math>\bar{\bar{=}}</math> 24 V</b>						
1 step	N/C + N/O snap action (XE2S P2151)		$\ominus$	Pg 13	<b>ZCK J121</b>	0.320
				ISO M20 x 1.5	<b>ZCK J121H29</b>	0.320
1 step	N/C + N/O break before make, slow break (XE2N P2151)		$\ominus$	Pg 13	<b>ZCK J521</b>	0.320
				ISO M20 x 1.5	<b>ZCK J521H29</b>	0.320
<b>With module comprising 2 neon indicator lights, <math>\sim</math> 110/120 V</b>						
1 step	N/C + N/O snap action (XE2S P2151)		$\ominus$	Pg 13	<b>ZCK J133</b>	0.320
				ISO M20 x 1.5	<b>ZCK J133H29</b>	0.320
1 step	N/C + N/O break before make, slow break (XE2N P2151)		$\ominus$	Pg 13	<b>ZCK J533</b>	0.320
				ISO M20 x 1.5	<b>ZCK J533H29</b>	0.320
<b>With module comprising 2 neon indicator lights, <math>\sim</math> 220/240 V</b>						
1 step	N/C + N/O snap action (XE2S P2151)		$\ominus$	Pg 13	<b>ZCK J134</b>	0.320
				ISO M20 x 1.5	<b>ZCK J134H29</b>	0.320
1 step	N/C + N/O break before make, slow break (XE2N P2151)		$\ominus$	Pg 13	<b>ZCK J534</b>	0.320
				ISO M20 x 1.5	<b>ZCK J534H29</b>	0.320

### Plug-in bodies with single-pole contact

Type	With contact block	Scheme	Positive operation (1)	Cable entry	Reference	Weight kg
<b>With module comprising 2 LEDs, <math>\bar{\bar{=}}</math> 24 V</b>						
1 step	C/O snap action		-	Pg 13	<b>ZCK J1121</b>	0.340
				ISO M20 x 1.5	<b>ZCK J1121H29</b>	0.340
<b>With module comprising 2 neon indicator lights, <math>\sim</math> 110/120 V</b>						
1 step	C/O snap action		-	Pg 13	<b>ZCK J1133</b>	0.340
				ISO M20 x 1.5	<b>ZCK J1133H29</b>	0.340
<b>With module comprising 2 neon indicator lights, <math>\sim</math> 220/240 V</b>						
1 step	C/O snap action		-	Pg 13	<b>ZCK J1134</b>	0.340
				ISO M20 x 1.5	<b>ZCK J1134H29</b>	0.340



ZCK J1 ●●●

(1)  $\ominus$  : N/C contact with positive opening operation.

### Indicator light module characteristics

Type of indicator	1 LED or 2 LEDs	2 neon lights	
Rated insulation voltage	$\bar{\bar{=}}$ 50 V, conforming to IEC 60947-1	$\sim$ 250 V, conforming to IEC 60947-1	
Current consumption	7 mA per LED	2.5 mA per neon	5 mA per neon
Rated operational voltage	$\bar{\bar{=}}$ 24 V	$\sim$ 110/120 V	$\sim$ 220/240 V
Voltage limits	$\bar{\bar{=}}$ 20...30 V (including ripple)	$\sim$ 95...130 V	$\sim$ 190...260 V
Service life	100 000 hours	20 000 hours	20 000 hours
Reverse polarity protection	Yes	-	

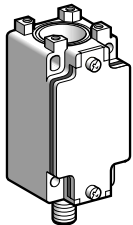
# Limit switches

Osiswitch® Classic

Metal, conforming to CENELEC EN 50041, type XCK J

Fixed or plug-in body

Adaptable sub-assemblies: bodies with M12 connector



ZCK JxD

## Fixed bodies with 2-pole contact

Type	With contact block	Scheme	Positive operation (1)	Reference	Weight kg
1 step	N/C + N/O snap action (XE2S P2151)		⊕	ZCK J1D	0.320
	N/C + N/O break before make, slow break (XE2N P2151)		⊕	ZCK J5D	0.320
	N/O + N/C make before make, slow break (XE2N P2161)		⊕	ZCK J6D	0.320
	N/C + N/C simultaneous, slow break (XE2N P2141)		⊕	ZCK J7D	0.320
	N/O + N/O simultaneous, slow break (XE2N P2131)		-	ZCK J8D	0.320

(1) N/C contact with positive opening operation.

# Limit switches

## Osiswitch® Classic

Metal, conforming to CENELEC EN 50041, type XCK J

Fixed or plug-in body

Adaptable sub-assemblies: contact blocks

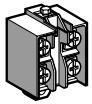
### Contact blocks

Type of contact	Scheme	For bodies	Positive operation (1)	Reference	Weight kg
<b>2-pole contact</b>					
N/C + N/O snap action		ZCK J1 ZCK J1D	⊕	XE2S P2151	0.020
N/C + N/O break before make, slow break		ZCK J5 ZCK J5D	⊕	XE2N P2151	0.020
2 C/O simultaneous, snap action		ZCK J2	-	XES P2021	0.045
2 C/O staggered, snap action		ZCK J4	-	XES P2031	0.045
N/O + N/C make before break, slow break		ZCK J6 ZCK J6D	⊕	XE2N P2161	0.020
N/C + N/C simultaneous, slow break		ZCK J7 ZCK J7D	⊕	XE2N P2141	0.020
N/O + N/O simultaneous, slow break		ZCK J8 ZCK J8D	-	XE2N P2131	0.020
N/C + N/C snap action		ZCK J9	⊕	XE2S P2141	0.020
<b>3-pole contact</b>					
N/C + N/O + N/O snap action		ZCK JD31	⊕	XE3S P2151	0.035
N/C + N/C + N/O snap action		ZCK JD39	⊕	XE3S P2141	0.035
N/C + N/C + N/O break before make, slow break		ZCK JD37	⊕	XE3N P2141	0.035
N/C + N/O + N/O break before make, slow break		ZCK JD35	⊕	XE3N P2151	0.035

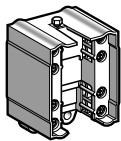
(1) ⊕ : N/C contact with positive opening operation.



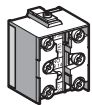
XE2S P21●1



XE2N P21●1



XES P20●1



XE3● P21●1



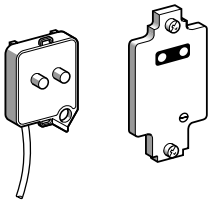
# Limit switches

Osiswitch® Classic

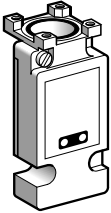
Metal, conforming to CENELEC EN 50041, type XCK J

Fixed or plug-in body

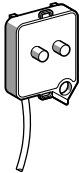
Adaptable sub-assemblies: add-ons



ZCK Z0●●



ZCK J01●●



ZCK J90●



ZCK J82A

## Covers + indicator light module

For use with	Number and type of indicators	Voltage	Reference	Weight kg
Fixed body	1 LED	— 24 V	ZCK Z020	0.060
	2 LEDs	— 24 V	ZCK Z021	0.060
	2 neon lights	~ 110/120 V	ZCK Z033	0.060
		~ 220/240 V	ZCK Z034	0.060
Plug-in body	2 LEDs	— 24 V	ZCK J0121	0.200
	2 neon lights	~ 110/120 V	ZCK J0133	0.200
		~ 220/240 V	ZCK J0134	0.200

## Indicator light modules

For use with	Number and type of indicators	Voltage	Reference	Weight kg
Fixed body	1 LED	— 24 V	ZCK J902	0.030
	2 LEDs	— 24 V	ZCK J906	0.030
	2 neon lights	~ 110/120 V	ZCK J903	0.030
		~ 220/240 V	ZCK J904	0.030

## Module with resistor for machine diagnostics

For use with	Resistor value	Reference	Weight kg
Fixed body (ZCK J1 only)	15 kΩ, 1/4 W	ZCK J82A	0.030

## Other versions

Covers + indicator light module for other supply voltages.  
Please consult your Regional Sales Office.

# Limit switches

Osiswitch® Classic

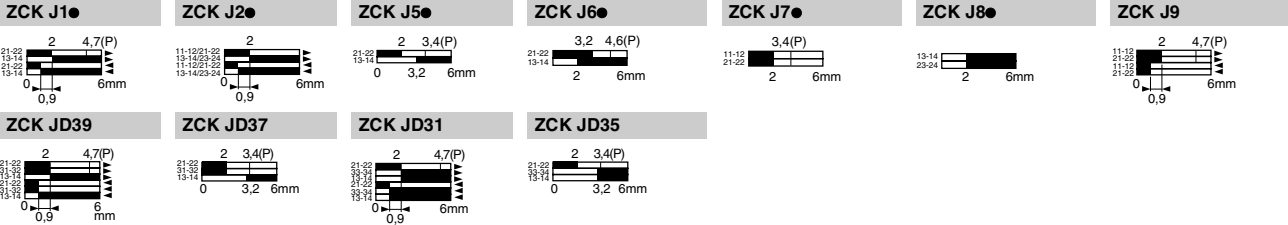
Metal, conforming to CENELEC EN 50041, type XCK J

Fixed or plug-in body

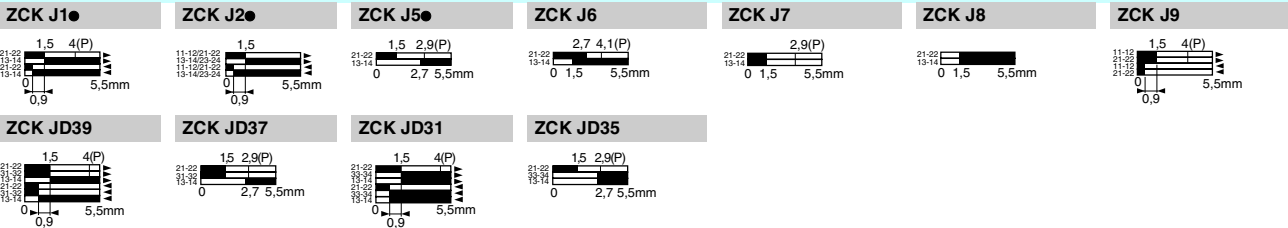
Adaptable sub-assemblies

Function diagrams (positive operation assured only if the associated sub-assemblies are ☞)

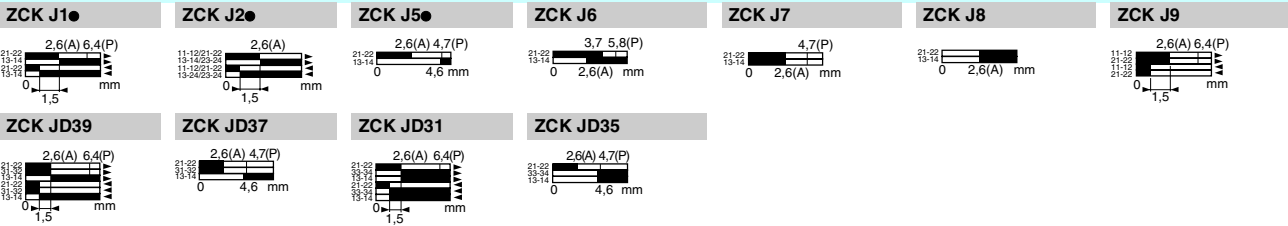
**Heads ZCK E61, E619, E66 with body**



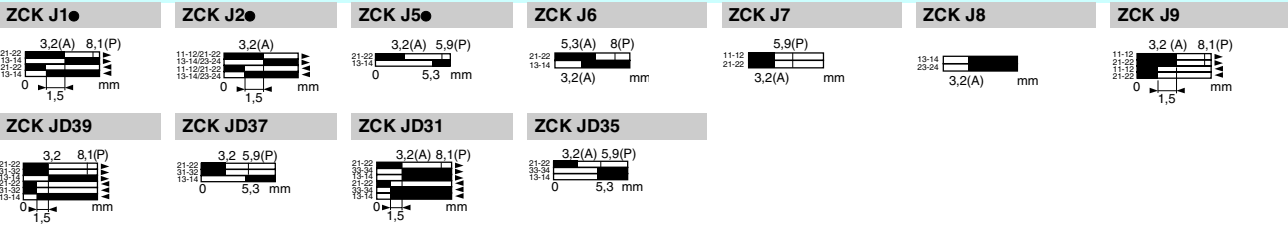
**Head ZCK E63 with body**



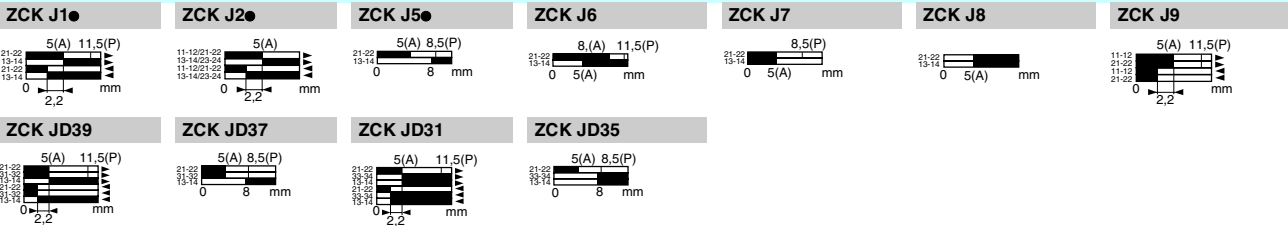
**Heads ZCK E64, E65 with body**



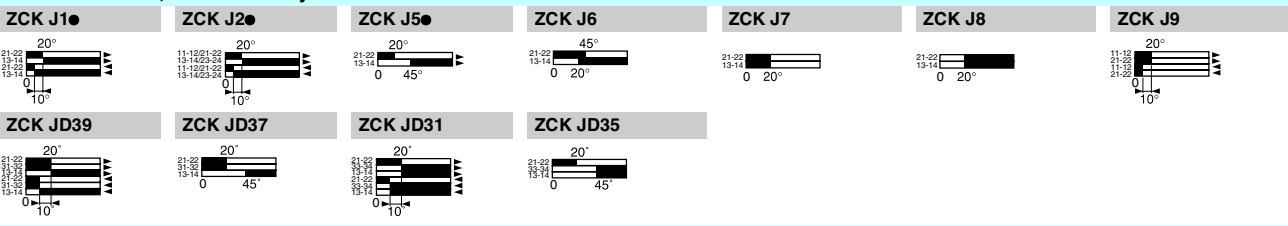
**Heads ZCK E67, E629 with body**



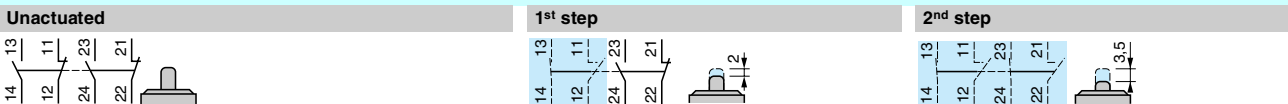
**Heads ZCK E21, E23 with body**



**Heads ZCK E06, E08 with body**



**ZCK J4●**



Contact operation

■ contact closed  
□ contact open

(A) = cam displacement  
(P) = positive opening point

5

# Limit switches

Osiswitch® Classic

Metal, conforming to CENELEC EN 50041, type XCK J

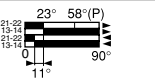
Fixed or plug-in body

Adaptable sub-assemblies

## Function diagrams (positive operation assured only if the associated sub-assemblies are ☺)

### Head ZCK E05 with body

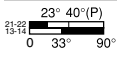
#### ZCK J1●



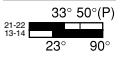
#### ZCK J2●



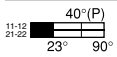
#### ZCK J5●



#### ZCK J6



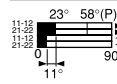
#### ZCK J7



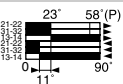
#### ZCK J8



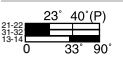
#### ZCK J9



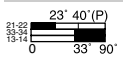
#### ZCK JD39



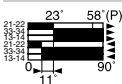
#### ZCK JD37



#### ZCK JD39

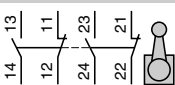


#### ZCK JD31

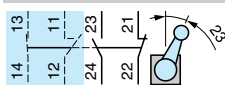


### ZCK J4●

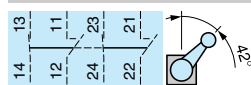
#### Unactuated



#### 1st step, actuated from left or right

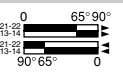


#### 2nd step, actuated from left or right

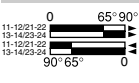


### Head ZCK E09 with body

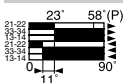
#### ZCK J1●



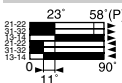
#### ZCK J2●



#### ZCK JD31

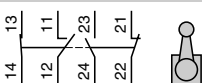


#### ZCK JD39

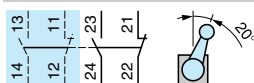


### ZCK J404, J4104 (body with head)

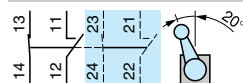
#### Unactuated



#### Actuated from left



#### Actuated from right



Contact operation

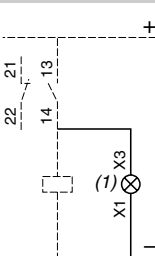
■ contact closed  
□ contact open

(P) = positive opening point

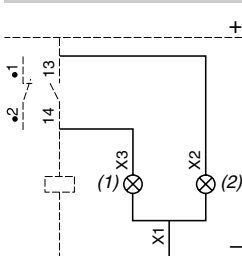
## Wiring schemes

### Indicator light modules

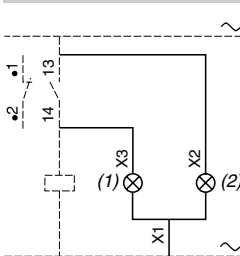
#### 1 LED, = 24 V



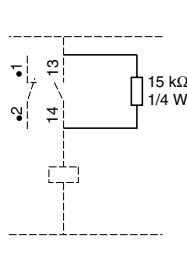
#### 2 LEDs, = 24 V



#### 2 neon lights, ~ 110/120 or 220/240 V

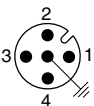


### Module with resistor



(1) Orange indicator  
(2) Green indicator

### ZCK J●D



1 - 2 = N/C  
3 - 4 = N/O  
5 = ⊥  
4 A / 24 V max.



# Limit switches

Osiswitch® Classic

Metal, conforming to CENELEC EN 50041, type XCK J

Fixed or plug-in body

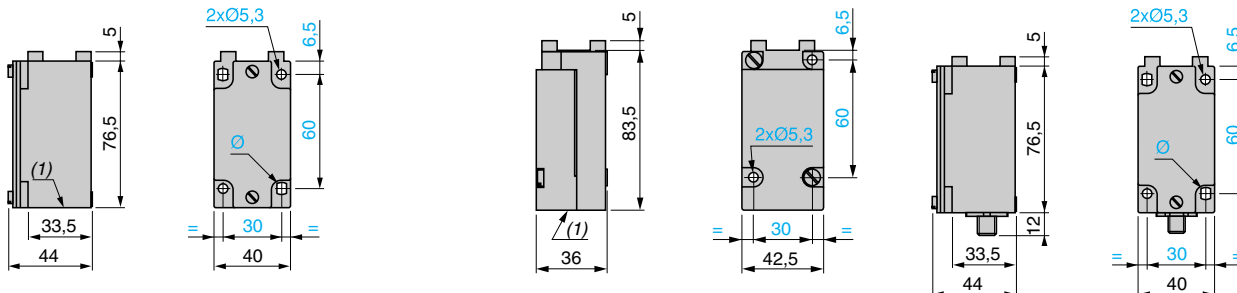
Adaptable sub-assemblies

## Bodies

ZCK J1, J2, J5, J4, J2●, J3●, J6, J7, J8, J9  
ZCK J1H29, J2H29, J5H29, J4H29, J2●H29, J3●H29, J6H29, J7H29, J8H29, J9H29  
ZCK J1H7, J2H7, J5H7, J4H7, J2●H7, J3●H7, J6H7, J7H7, J8H7, J9H7

ZCK J11, J21, J41, J11●●  
ZCK J11H29, J21H29, J41H29, J11●●H29  
ZCK J11H7, J21H7, J41H7, J11●●H7

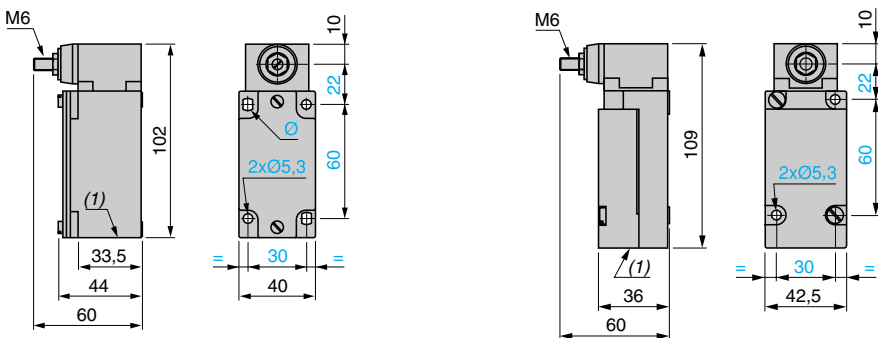
ZCK J1D, J5D, J6D, J7D, J8D



## Bodies with rotary head mounted

ZCK J404, ZCK J404H29, ZCK J404H7

ZCK J4104, ZCK J4104H29, ZCK J4104H7

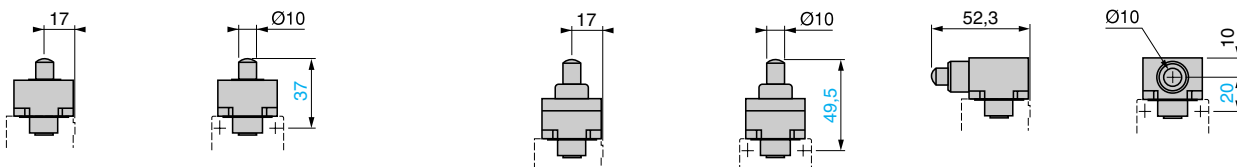


## Plunger heads

ZCK E61

ZCK E619

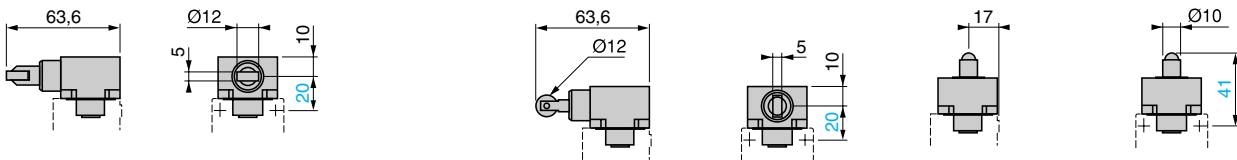
ZCK E63



ZCK E64

ZCK E65

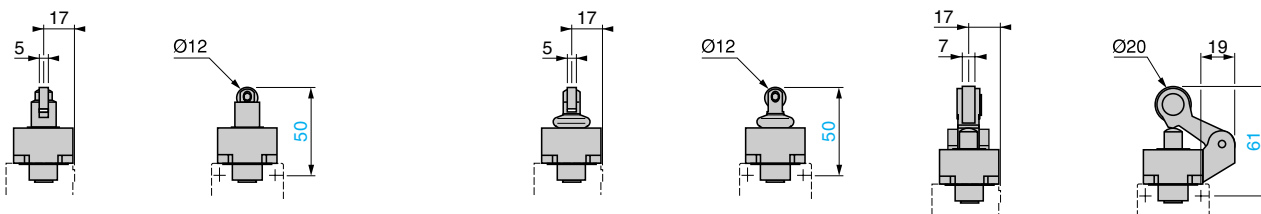
ZCK E66



ZCK E62, ZCK E67

ZCK E629

ZCK E21, E23



(1) 1 tapped entry for ISO M20 x 1.5 or Pg 13 cable gland or tapped 1/2" NPT.  
Ø: 2 elongated holes Ø 5.3 x 7.3.

5

# Limit switches

Osiswitch® Classic

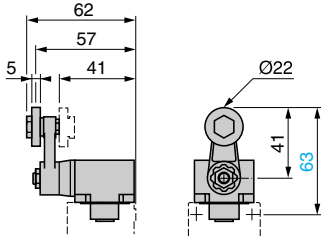
Metal, conforming to CENELEC EN 50041, type XCK J

Fixed or plug-in body

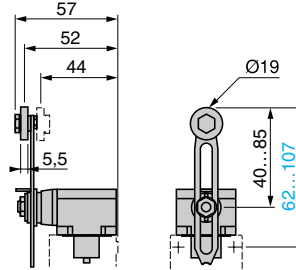
Adaptable sub-assemblies

## Rotary head ZCK E05 with operating lever

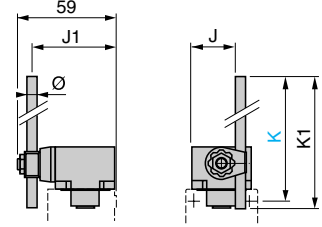
ZCK Y11, Y13, Y14



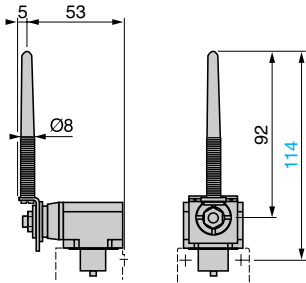
ZCK Y41, Y43



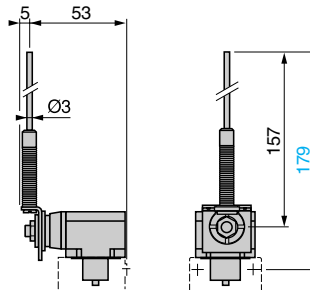
ZCK Y51, Y52, Y53, Y59



ZCK Y81



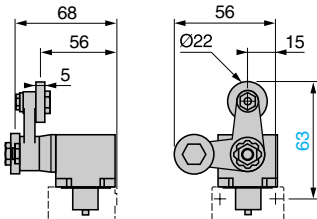
ZCK Y91



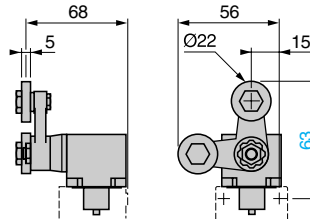
	J	J1	K max.	K1	Ø
ZCK Y51	20	49	137	123	∅ 3
ZCK Y52	20	49	137	125	∅ 3
ZCK Y53	20	49	137	125	∅ 3
ZCK Y59	26.2	48	212	200	∅ 6

## Rotary head ZCK E09 with operating lever

ZCK Y61

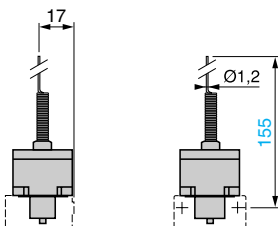


ZCK Y71

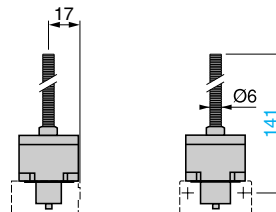


## Multi-directional heads

ZCK E06



ZCK E08



Note: operating lever spindle threaded M6.

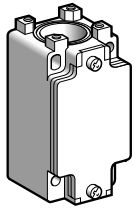
## Limit switches

## Osiswitch® Classic

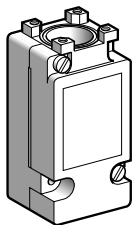
Metal, conforming to CENELEC EN 50041, type XCK J

Fixed or plug-in body

Adaptable sub-assemblies for low temperature applications (- 40 °C)



ZCK J1



ZCK J11

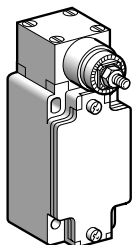
## Body with contacts For plunger or rotary head

Type	Contact block	Scheme	Positive operation (1)	Cable entry	Reference	Weight kg
<b>Fixed body</b>						
1 step	2-pole 1 N/C + 1 N/O snap action (XE2S P2151)		⊕	Pg 13	<b>ZCK J1</b>	0.310
		ISO M20 x 1.5	<b>ZCK J1H29</b>	0.310		
		1/2" NPT	<b>ZCK J1H7</b>	0.310		
	Double-pole 2 C/O simultaneous snap action (XES P2021)		-	Pg 13	<b>ZCK J2</b>	0.310
		ISO M20 x 1.5	<b>ZCK J2H29</b>	0.310		
		1/2" NPT	<b>ZCK J2H7</b>	0.310		
	2-pole 1 N/C + 1 N/O break before make slow break (XE2N P2151)		⊕	Pg 13	<b>ZCK J5</b>	0.310
		ISO M20 x 1.5	<b>ZCK J5H29</b>	0.310		
		1/2" NPT	<b>ZCK J5H7</b>	0.310		
	2-pole 1 N/O + 1 N/C make before break slow break (XE2N P2161)		⊕	Pg 13	<b>ZCK J6</b>	0.310
		ISO M20 x 1.5	<b>ZCK J6H29</b>	0.310		
		1/2" NPT	<b>ZCK J6H7</b>	0.310		
2-pole 1 N/C + 1 N/C simultaneous slow break (XE2N P2141)		⊕	Pg 13	<b>ZCK J7</b>	0.310	
	ISO M20 x 1.5	<b>ZCK J7H29</b>	0.310			
	1/2" NPT	<b>ZCK J7H7</b>	0.310			
2-pole 1 N/O + 1 N/O simultaneous slow break (XE2N P2131)		-	Pg 13	<b>ZCK J8</b>	0.310	
	ISO M20 x 1.5	<b>ZCK J8H29</b>	0.310			
	1/2" NPT	<b>ZCK J8H7</b>	0.310			
2-pole 1 N/C + 1 N/C snap action (XE2S P2141)		⊕	Pg 13	<b>ZCK J9</b>	0.310	
	ISO M20 x 1.5	<b>ZCK J9H29</b>	0.310			
	1/2" NPT	<b>ZCK J9H7</b>	0.310			
2 step	Double-pole 2 C/O staggered snap action (XES P2031)		-	Pg 13	<b>ZCK J4</b>	0.310
		ISO M20 x 1.5	<b>ZCK J4H29</b>	0.310		
		1/2" NPT	<b>ZCK J4H7</b>	0.310		
<b>Plug-in body</b>						
1 step	Single-pole 1 C/O snap action		-	Pg 13	<b>ZCK J11</b>	0.300
		ISO M20 x 1.5	<b>ZCK J11H29</b>	0.300		
		1/2" NPT	<b>ZCK J11H7</b>	0.300		
	Double-pole 2 C/O simultaneous snap action		-	Pg 13	<b>ZCK J21</b>	0.300
		ISO M20 x 1.5	<b>ZCK J21H29</b>	0.300		
		1/2" NPT	<b>ZCK J21H7</b>	0.300		
2 step	Double-pole 2 C/O staggered snap action		-	Pg 13	<b>ZCK J41</b>	0.300
		ISO M20 x 1.5	<b>ZCK J41H29</b>	0.300		
		1/2" NPT	<b>ZCK J41H7</b>	0.300		

## Body with contacts With spring return rotary head (without operating lever)

Type	Contact block	Scheme	Positive operation (1)	Cable entry	Reference	Weight kg
<b>Fixed body</b>						
2 step 1 from the left and 1 from the right	Double-pole 2 C/O staggered snap action		-	Pg 13	<b>ZCK J4046</b>	0.455
		ISO M20 x 1.5	<b>ZCK J4046H29</b>	0.455		
		1/2" NPT	<b>ZCK J4046H7</b>	0.455		
<b>Plug-in body</b>						
2 step 1 from the left and 1 from the right	Double-pole 2 C/O staggered snap action		-	Pg 13	<b>ZCK J41046</b>	0.465
		ISO M20 x 1.5	<b>ZCK J41046H29</b>	0.465		
		1/2" NPT	<b>ZCK J41046H7</b>	0.465		

(1) ⊕ : operating head able to guarantee positive opening operation.



ZCK J4046

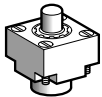
# Limit switches

## Osiswitch® Classic

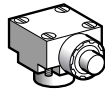
Metal, conforming to CENELEC EN 50041, type XCK J

Fixed or plug-in body

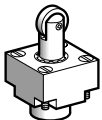
Adaptable sub-assemblies for low temperature applications (-40 °C)



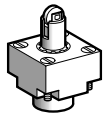
ZCK E616



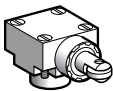
ZCK E636



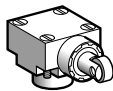
ZCK E626



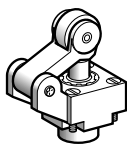
ZCK E676



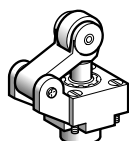
ZCK E646



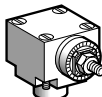
ZCK E656



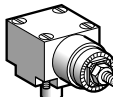
ZCK E216



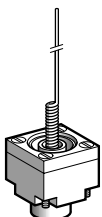
ZCK E236



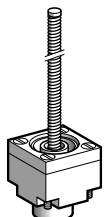
ZCK E056



ZCK E096



ZCK E066



ZCK E086

### Plunger heads

Type of operator	Compatible bodies	Max. actuation speed	Positive operation (1)	Reference	Weight kg	
<b>For actuation on end</b>						
<b>End plunger metal</b>	ZCK J●, ZCK J●●	0.5 m/s	⊖	<b>ZCK E616</b>	0.140	
<b>Side plunger metal</b>	ZCK J●, ZCK J●●, except ZCK J4 and J41	0.5 m/s	⊖	<b>ZCK E636</b>	0.200	
<b>For actuation by 30° cam</b>						
<b>End roller plunger steel</b>	ZCK J●, ZCK J●●	1 m/s	⊖	<b>ZCK E626</b>	0.155	
<b>End reinforced roller plunger steel</b>	ZCK J●, ZCK J●●	1 m/s	⊖	<b>ZCK E676</b>	0.155	
<b>Side roller plunger steel</b>	Horizontal	ZCK J●, ZCK J●●, except ZCK J4 and J41	0.6 m/s	⊖	<b>ZCK E646</b>	0.205
	Vertical	ZCK J●, ZCK J●●, except ZCK J4 and J41	0.6 m/s	⊖	<b>ZCK E656</b>	0.205
<b>Roller lever plunger (1 direction of actuation)</b>	Thermoplastic	ZCK J●, ZCK J●●	1.5 m/s	⊖	<b>ZCK E216</b>	0.185
	Steel	ZCK J●, ZCK J●●	1.5 m/s	⊖	<b>ZCK E236</b>	0.195

### Rotary heads (without operating lever)

Type	Compatible bodies	Max. actuation speed	Positive operation (1)	Reference	Weight kg
<b>Spring return, actuation from left AND right or from left OR right (see page 5/184)</b>	ZCK J●, ZCK J●●	1.5 m/s by 30° cam	⊖	<b>ZCK E056</b>	0.165
<b>Stay put, actuation from left AND right (see page 5/184)</b>	ZCK J1, J11 ZCK J2, J21	1.5 m/s	–	<b>ZCK E096</b>	0.190

### Multi-directional heads

Type of operator	Compatible bodies	Max. actuation speed	Positive operation (1)	Reference	Weight kg
<b>For actuation by any moving part</b>					
<b>“Cat's whisker”</b>	ZCK J●, ZCK J●●, except ZCK J4 and ZCK J41	1 m/s in any direction	–	<b>ZCK E066</b>	0.115
<b>Spring rod lever</b>	ZCK J●, ZCK J●●, except ZCK J4 and ZCK J41	0.5 m/s in any direction	–	<b>ZCK E086</b>	0.125

(1) ⊖ : operating head able to guarantee positive opening operation.

# Limit switches

## Osiswitch® Classic

Metal, conforming to CENELEC EN 50041, type XCK J

Fixed or plug-in body

Adaptable sub-assemblies for low temperature applications (-40 °C)



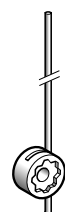
ZCK Y1●



ZCK Y4●



ZCK Y51



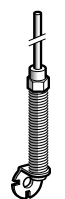
ZCK Y5●



ZCK Y59



ZCK Y81



ZCK Y91



ZCK Y71



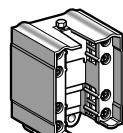
ZCK Y61



XE2S P21●1



XE2N P21●1



XES P20●1

### Operating levers for rotary heads

Description		Positive operation (1)	Reference	Weight kg
<b>For actuation by 30° cam</b>				
Roller lever (2)	Thermoplastic	⊕	ZCK Y11	0.025
	Steel	⊕	ZCK Y13	0.035
	Steel, ball bearing mounted	⊕	ZCK Y14	0.030
Variable length roller lever (3)	Thermoplastic	–	ZCK Y41	0.030
	Steel	–	ZCK Y43	0.040

### For actuation by any moving part

Square rod (2)	∅ 3 mm steel, L = 125 mm	–	ZCK Y51	0.025
Round rod (2)	∅ 3 mm steel, L = 125 mm	–	ZCK Y53	0.025
	∅ 3 mm glass fibre, L = 125 mm	–	ZCK Y52	0.020
	∅ 6 mm thermoplastic, L = 200 mm	–	ZCK Y59	0.030
Spring lever (3)		–	ZCK Y81	0.020
Spring metal rod lever (3)		–	ZCK Y91	0.025

### For actuation by specific cam (for operation with ZCK-E096 head)

Forked arm and rollers (2)	1 track	–	ZCK Y71	0.035
	2 track	–	ZCK Y61	0.035

### 2- or double-pole contact blocks

Type	Scheme	For body type	Positive operation (1)	Reference	Weight kg
1 N/C + 1 N/O snap action		ZCK J1	⊕	XE2S P2151	0.020
1 N/C + 1 N/O break before make slow break		ZCK J5	⊕	XE2N P2151	0.020
2 C/O simultaneous snap action		ZCK J2	–	XES P2021	0.045
2 C/O staggered snap action		ZCK J4	–	XES P2031	0.045
1 N/O + 1 N/C make before break slow break		ZCK J6	⊕	XE2N P2161	0.020
1 N/C + 1 N/C simultaneous slow break		ZCK J7	⊕	XE2N P2141	0.020
1 N/O + 1 N/O simultaneous slow break		ZCK J8	–	XE2N P2131	0.020
1 N/C + 1 N/C snap action		ZCK J9	⊕	XE2S P2141	0.020

(1) ⊕ : operating lever able to guarantee positive opening operation or N/C contact with positive opening operation.

(2) Adjustable throughout 360° in 5° steps, or in 45° steps by reversing the lever mounting or clamp.

(3) Adjustable throughout 360° in 5° steps.



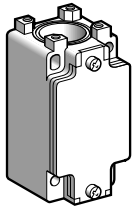
## Limit switches

## Osiswitch® Classic

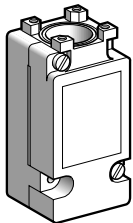
Metal, conforming to CENELEC EN 50041, type XCK J

Fixed or plug-in body

Adaptable sub-assemblies for high temperature applications (+ 120 °C)



ZCK J●



ZCK J●15

## Body with contacts For plunger or rotary head

Type	Contact block	Scheme	Positive operation (1)	Cable entry	Reference	Weight kg
<b>Fixed body</b>						
1 step	2-pole 1 N/C + 1 N/O snap action (XE2S P2151)		⊕	Pg 13	<b>ZCK J1</b>	0.310
				ISO M20 x 1.5	<b>ZCK J1H29</b>	0.310
				1/2" NPT	<b>ZCK J1H7</b>	0.310
	Double-pole 2 C/O simultaneous snap action (XES P20215)		-	Pg 13	<b>ZCK J25</b>	0.310
				ISO M20 x 1.5	<b>ZCK J25H29</b>	0.310
				1/2" NPT	<b>ZCK J25H7</b>	0.310
	2-pole 1 N/C + 1 N/O break before make slow break (XE2N P2151)		⊕	Pg 13	<b>ZCK J5</b>	0.310
ISO M20 x 1.5				<b>ZCK J5H29</b>	0.310	
1/2" NPT				<b>ZCK J5H7</b>	0.310	
2-pole 1 N/O + 1 N/C make before break slow break (XE2N P2161)		⊕	Pg 13	<b>ZCK J6</b>	0.310	
			ISO M20 x 1.5	<b>ZCK J6H29</b>	0.310	
			1/2" NPT	<b>ZCK J6H7</b>	0.310	
2-pole 1 N/C + 1 N/C simultaneous slow break (XE2N P2141)		⊕	Pg 13	<b>ZCK J7</b>	0.310	
			ISO M20 x 1.5	<b>ZCK J7H29</b>	0.310	
			1/2" NPT	<b>ZCK J7H7</b>	0.310	
2-pole 1 N/O + 1 N/O simultaneous slow break (XE2N P2131)		-	Pg 13	<b>ZCK J8</b>	0.310	
			ISO M20 x 1.5	<b>ZCK J8H29</b>	0.310	
			1/2" NPT	<b>ZCK J8H7</b>	0.310	
2-pole 1 N/C + 1 N/C snap action (XE2S P2141)		⊕	Pg 13	<b>ZCK J9</b>	0.310	
			ISO M20 x 1.5	<b>ZCK J9H29</b>	0.310	
			1/2" NPT	<b>ZCK J9H7</b>	0.310	
2 step	Double-pole 2 C/O break before make snap action (XES P20315)		-	Pg 13	<b>ZCK J45</b>	0.310
				ISO M20 x 1.5	<b>ZCK J45H29</b>	0.310
				1/2" NPT	<b>ZCK J45H7</b>	0.310
<b>Plug-in body</b>						
1 step	Single-pole 1 C/O snap action		-	Pg 13	<b>ZCK J115</b>	0.300
				ISO M20 x 1.5	<b>ZCK J115H29</b>	0.300
				1/2" NPT	<b>ZCK J115H7</b>	0.300
Double-pole 2 C/O simultaneous snap action		-	Pg 13	<b>ZCK J215</b>	0.300	
			ISO M20 x 1.5	<b>ZCK J215H29</b>	0.300	
			1/2" NPT	<b>ZCK J215H7</b>	0.300	
2 step	Double-pole 2 C/O break before make snap action		-	Pg 13	<b>ZCK J415</b>	0.300
				ISO M20 x 1.5	<b>ZCK J415H29</b>	0.300
				1/2" NPT	<b>ZCK J415H7</b>	0.300
<b>Body with contacts With spring return rotary head (without operating lever)</b>						
Type	Contact block	Scheme	Positive operation (1)	Cable entry	Reference	Weight kg
<b>Fixed body</b>						
2 step 1 from the left AND 1 from the right	Double-pole 2 C/O break before make snap action		-	Pg 13	<b>ZCK J4045</b>	0.455
				ISO M20 x 1.5	<b>ZCK J4045H29</b>	0.455
				1/2" NPT	<b>ZCK J4045H7</b>	0.455
<b>Plug-in body</b>						
2 step 1 from the left AND 1 from the right	Double-pole 2 C/O break before make snap action		-	Pg 13	<b>ZCK J41045</b>	0.465
				ISO M20 x 1.5	<b>ZCK J41045H29</b>	0.465
				1/2" NPT	<b>ZCK J41045H7</b>	0.465

(1) ⊕ : operating head able to guarantee positive opening operation.

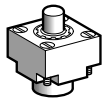
## Limit switches

## Osiswitch® Classic

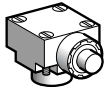
Metal, conforming to CENELEC EN 50041, type XCK J

Fixed or plug-in body

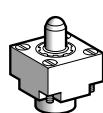
Adaptable sub-assemblies for high temperature applications (+ 120 °C)



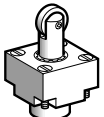
ZCK E615



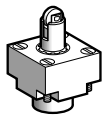
ZCK E635



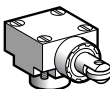
ZCK E665



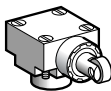
ZCK E625



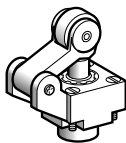
ZCK E675



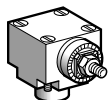
ZCK E645



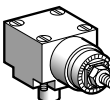
ZCK E655



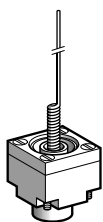
ZCK E235



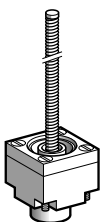
ZCK E055



ZCK E095



ZCK E065



ZCK E085

## Plunger heads

Type of operator		Compatible bodies	Max. actuation speed	Positive operation (1)	Reference	Weight kg
<b>For actuation on end</b>						
End plunger	Metal	ZCK J1, J2, J4, ZCK J115, J215, J415, ZCK J5, J6, J7, J8, J9	0.5 m/s	⊖	ZCK E615	0.140
Side plunger	Metal	ZCK J1, J2, ZCK J115, J215, ZCK J5, J6, J7, J8, J9	0.5 m/s	⊖	ZCK E635	0.200
<b>For actuation by 30° cam</b>						
End ball bearing plunger	Steel	ZCK J1, J2, J4, ZCK J115, J215, J415, ZCK J5, J6, J7, J8, J9	0.1 m/s	⊖	ZCK E665	0.150
End roller plunger	Steel	ZCK J1, J2, J4, ZCK J115, J215, J415, ZCK J5, J6, J7, J8, J9	1 m/s	⊖	ZCK E625	0.155
End reinforced roller plunger	Steel	ZCK J1, J2, J4, ZCK J115, J215, J415, ZCK J5, J6, J7, J8, J9	1 m/s	⊖	ZCK E675	0.155
Side roller plunger	Steel Horizontal	ZCK J1, J2, ZCK J115, J215, ZCK J5, J6, J7, J8, J9	0.6 m/s	⊖	ZCK E645	0.205
	Steel Vertical	ZCK J1, J2, ZCK J115, J215, ZCK J5, J6, J7, J8, J9	0.6 m/s	⊖	ZCK E655	0.205
Roller lever plunger (1 direction of actuation)	Steel	ZCK J1, J2, J4, ZCK J115, J215, J415, ZCK J5, J6, J7, J8, J9	1.5 m/s	⊖	ZCK E235	0.195
	Thermoplastic	ZCK J1, J2, J4, ZCK J115, J215, J415, ZCK J5, J6, J7, J8, J9	1.5 m/s	⊖	ZCK E215	0.185

## Rotary heads (without operating lever)

Type	Compatible bodies	Max. actuation speed	Positive operation (1)	Reference	Weight kg
Spring return, actuation from left AND right or from left OR right (see page 5/184)	ZCK J1, J2, J4, ZCK J115, J215, ZCK J415, ZCK J5, J6, J7, J8, J9	1.5 m/s by 30° cam	⊖	ZCK E055	0.165
Stay put, actuation from left AND right (see page 5/184)	ZCK J1, J2, ZCK J115, J215	0.5 m/s	–	ZCK E095	0.190

## Multi-directional heads

Type of operator	Compatible bodies	Max. actuation speed	Positive operation (1)	Reference	Weight kg
<b>For actuation by any moving part</b>					
“Cat's whisker”	ZCK J1, J2, ZCK J115, J215, ZCK J5, J6, J7, J8, J9	1 m/s in any direction	–	ZCK E065	0.115
Spring rod lever	ZCK J1, J2, ZCK J115, J215, ZCK J5, J6, J7, J8, J9	0.5 m/s in any direction	–	ZCK E085	0.125

(1) ⊖ : operating head able to guarantee positive opening operation.

# Limit switches

## Osiswitch® Classic

Metal, conforming to CENELEC EN 50041, type XCK J

Fixed or plug-in body

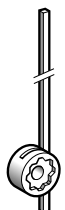
Adaptable sub-assemblies for high temperature applications (+ 120 °C)



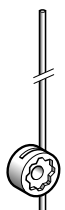
ZCK Y1●



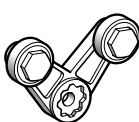
ZCK Y43



ZCK Y51



ZCK Y5●



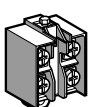
ZCK Y715



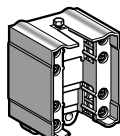
ZCK Y615



XE2S P21●1



XE2N P21●1



XES P20●15

### Operating levers for rotary heads

Description		Positive operation (1)	Reference	Weight kg
<b>For actuation by 30° cam</b>				
Roller lever (2)	Thermoplastic	⊕	ZCK Y115	0.025
	Steel	⊕	ZCK Y13	0.035
	Steel, ball bearing mounted	⊕	ZCK Y14	0.030
Variable length roller lever (3)	Thermoplastic	–	ZCK Y415	0.030
	Steel	–	ZCK Y43	0.040
<b>For actuation by any moving part</b>				
Square rod (2)	∅ 3 mm Steel, L = 125 mm	–	ZCK Y51	0.025
Round rod (2)	∅ 3 mm steel, L = 125 mm	–	ZCK Y53	0.025
	∅ 3 mm glass fibre, L = 125 mm	–	ZCK Y52	0.020

### For actuation by specific cam (for operation with ZCK-E095 head only)

Forked arm and rollers (2)	1 track	–	ZCK Y715	0.035
	thermoplastic	–	ZCK Y615	0.035

### 2- or double-pole contact blocks

Type of operator	Scheme	For body type	Positive operation (1)	Reference	Weight kg
1 N/C + 1 N/O snap action		ZCK J1	⊕	XE2S P2151	0.020
1 N/C + 1 N/O break before make slow break		ZCK J5	⊖	XE2N P2151	0.020
2 C/O simultaneous snap action		ZCK J25	–	XES P20215	0.045
2 C/O staggered snap action		ZCK J45	–	XES P20315	0.045
1 N/O + 1 N/C make before break slow break		ZCK J6	⊕	XE2N P2161	0.020
1 N/C + 1 N/C simultaneous slow break		ZCK J7	⊕	XE2N P2141	0.020
1 N/O + 1 N/O simultaneous slow break		ZCK J8	–	XE2N P2131	0.020
1 N/C + 1 N/C snap action		ZCK J9	⊕	XE2S P2141	0.020

(1) ⊕ : operating lever able to guarantee positive opening operation or N/C contact with positive opening operation.

(2) Adjustable throughout 360° in 5° steps, or in 45° steps by reversing the lever mounting or clamp.

(3) Adjustable throughout 360° in 5° steps.

## Limit switches

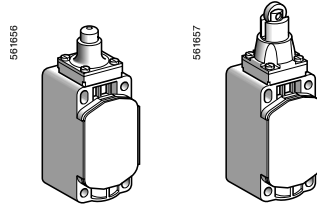
Osiswitch® Classic

Double insulated, type XCK S

Conforming to CENELEC EN 50041

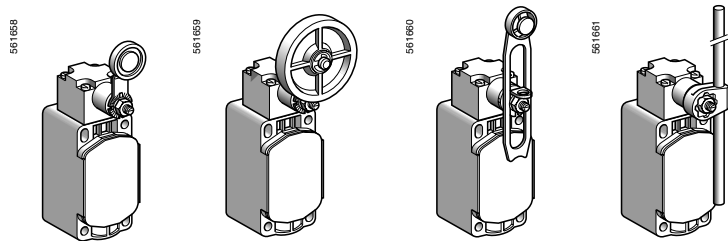
■ XCK S  
with 1 cable entry

□ With head for linear movement (plunger) operators



Page 5/108

□ With head for rotary movement (lever) operators



Page 5/108

### Environment characteristics

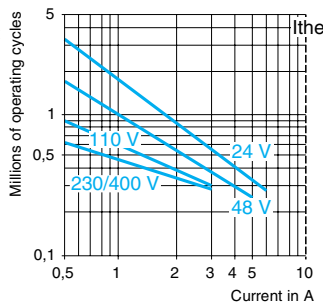
<b>Conforming to standards</b>	Products	IEC 60947-5-1, EN 60947-5-1, UL 508, CSA C22-2 n° 14
	Machine assemblies	IEC 60204-1, EN 60204-1
<b>Approvals</b>		UL, CSA, CCC
<b>Protective treatment</b>	Version	Standard "TC" and "TH"
<b>Ambient air temperature</b>	For operation	- 25...+ 70 °C
	For storage	- 40...+ 70 °C
<b>Vibration resistance</b>	Conforming to IEC 60068-2-6	25 gn (10...500 Hz)
<b>Shock resistance</b>	Conforming to IEC 60068-2-27	50 gn (11 ms)
<b>Electric shock protection</b>		Class II conforming to IEC 61140 and NF C 20-030
<b>Degree of protection</b>		IP 65 conforming to IEC 60529 ; IK 03 conforming to EN 50102
<b>Repeat accuracy</b>		0.05 mm on the tripping points, with 1 million operating cycles for head with end plunger
<b>Cable entry</b>	Depending on model	Tapped entry for n° 13 cable gland, or tapped ISO M20 x 1.5
<b>Materials</b>		Body and heads : plastic

### Contact block characteristics

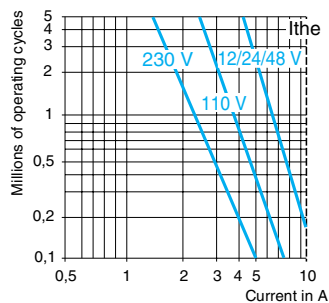
Rated operational characteristics	XE2● P	~ AC-15 ; A300 (Ue = 240 V, Ie = 3 A) ; Ithe = 10 A = DC-13 ; Q300 (Ue = 250 V, Ie = 0,27 A), conforming to IEC 60947-5-1 Appendix A, EN 60947-5-1
	XE3● P	~ AC-15 ; B300 (Ue = 240 V, Ie = 1,5 A) ; Ithe = 6 A = DC-13 ; R300 (Ue = 250 V, Ie = 0,1 A), conforming 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 (Dpg. on model)		N/C 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)
Cabling (screw and captive cable clamp terminals)	XE2S P21●1	Clamping capacity, min. : 1 x 0.34 mm <sup>2</sup> , max. : 2 x 1.5 mm <sup>2</sup>
	XE2N P21●1	Clamping capacity, min. : 1 x 0.5 mm <sup>2</sup> , max. : 2 x 2.5 mm <sup>2</sup>
	XES P3021	Clamping capacity, min. : 1 x 0.75 mm <sup>2</sup> , max. : 2 x 1.5 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		<b>XE2S P21●1, XES P3021 and XE3S P</b> : 0.01 m/minute <b>XE2N P21●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 per hour</li> <li>■ Load factor : 0.5</li> </ul>

**XE2S P21●1, XE2S P2141**

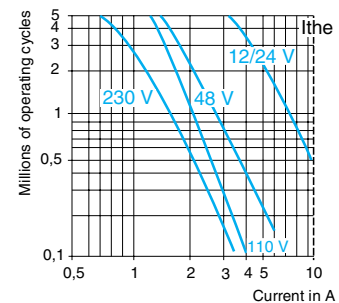
a.c. supply  
~ 50/60 Hz  
m inductive circuit



**XE2N P21●1**



**XES P3021**



d.c. supply =

Power broken in W for 5 million operating cycles.			
Voltage V	24	48	120
m W	10	7	4

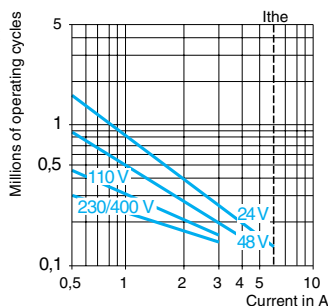
Power broken in W for 5 million operating cycles.			
Voltage V	24	48	120
m W	13	9	7

Power broken in W for 5 million operating cycles.			
Voltage V	24	48	120
m W	10	7	4

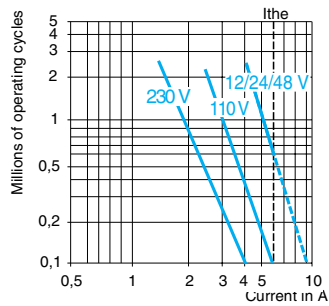
For XE2S P●151 on ~ ou =, "N/C" and "N/O" contacts simultaneously loaded to the values shown with reverse polarity.

**XE3S P●●●**

a.c. supply  
~ 50/60 Hz  
m inductive circuit



**XE3N P●●●**



d.c. supply =

Power broken in W for 5 million operating cycles.			
Voltage V	24	48	120
m W	3	2	1

Power broken in W for 5 million operating cycles.			
Voltage V	24	48	120
m W	4	3	2








# Limit switches


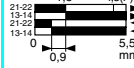





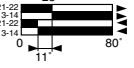


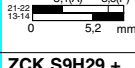
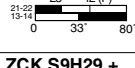
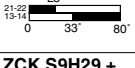
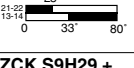
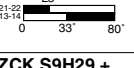
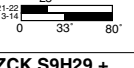


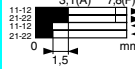

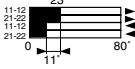




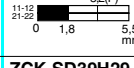
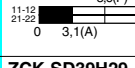
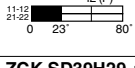
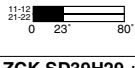
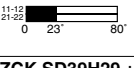
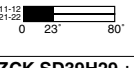
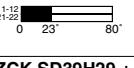










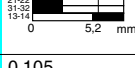
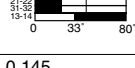
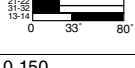
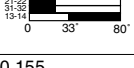
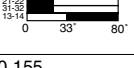
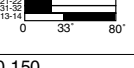


Osiswitch® Classic






Plastic, double insulated, type XCK S

Conforming to CENELEC EN 50041

Complete switches with 1 ISO M20 x 1.5 cable entry

Type of head	Plunger (fixing by the body)		Rotary (fixing by the body)				
	Form B (1)	Form C (1)	Form A (1)				
							
Type of operator	Metal end plunger	Steel roller plunger	Thermoplastic roller lever (4)	Elastomer roller lever, Ø 50 mm (4)	Variable length thermoplastic roller lever (4)	Variable length elastomer roller lever, Ø 50 mm (4)	Round thermoplastic rod lever, Ø 6 mm (5) (6)

References (2) (3)								
	2-pole N/C + N/O snap action (XE2S P2151)	<b>XCK S101H29</b> 	<b>XCK S102H29</b> 	<b>XCK S131H29</b> 	<b>XCK S139H29</b> 	<b>XCK S141H29</b> 	<b>XCK S149H29</b> 	<b>XCK S159H29</b> 
	2-pole N/C + N/O break before make, slow break (XE2N P2151)	<b>XCK S501H29</b> 	<b>XCK S502H29</b> 	<b>XCK S531H29</b> 	<b>XCK S539H29</b> 	<b>XCK S541H29</b> 	<b>XCK S549H29</b> 	<b>XCK S559H29</b> 
	2-pole N/C + N/C snap action (XE2S P2141)	<b>ZCK S9H29 + ZCK D01</b> 	<b>ZCK S9H29 + ZCK D02</b> 	<b>ZCK S9H29 + ZCK D31</b> 	<b>ZCK S9H29 + ZCK D39</b> 	<b>ZCK S9H29 + ZCK D41</b> 	<b>ZCK S9H29 + ZCK D49</b> 	<b>ZCK S9H29 + ZCK D59</b> 
	2-pole N/C + N/C simultaneous, slow break (XE2N P2141)	<b>ZCK S7H29 + ZCK D01</b> 	<b>ZCK S7H29 + ZCK D02</b> 	<b>ZCK S7H29 + ZCK D31</b> 	<b>ZCK S7H29 + ZCK D39</b> 	<b>ZCK S7H29 + ZCK D41</b> 	<b>ZCK S7H29 + ZCK D49</b> 	<b>ZCK S7H29 + ZCK D59</b> 
	3-pole N/C + N/C + N/O snap action (XE3S P2141)	<b>ZCK SD39H29 + ZCK D01</b> 	<b>ZCK SD39H29 + ZCK D02</b> 	<b>ZCK SD39H29 + ZCK D31</b> 	<b>ZCK SD39H29 + ZCK D39</b> 	<b>ZCK SD39H29 + ZCK D41</b> 	<b>ZCK SD39H29 + ZCK D49</b> 	<b>ZCK SD39H29 + ZCK D59</b> 
	3-pole N/C + N/C + N/O break before make, slow break (XE3N P2141)	<b>ZCK SD37H29 + ZCK D01</b> 	<b>ZCK SD37H29 + ZCK D02</b> 	<b>ZCK SD37H29 + ZCK D31</b> 	<b>ZCK SD37H29 + ZCK D39</b> 	<b>ZCK SD37H29 + ZCK D41</b> 	<b>ZCK SD37H29 + ZCK D49</b> 	<b>ZCK SD37H29 + ZCK D59</b> 
Weight (kg)	0.095	0.105	0.145	0.150	0.155	0.155	0.150	
Contact operation	 contact closed  contact open		(A) = cam displacement (P) = positive opening point		⊖ N/C contact with positive opening operation			

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	
Mechanical durability (7) (in millions of operating cycles)	25	15	20				
Minimum force or torque	For tripping	15 N	12 N	0.15 N.m			
	For positive opening	45 N	36 N	0.3 N.m		-	
Cable entry (3)	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm						

(1) Form conforming to EN 50041, see page 5/185.

(2) Switches with gold contacts or eyelet type connections: please consult your Regional Sales Office.

(3) For an entry tapped for a Pg 13 cable gland, delete H29 from the end of the reference. Example: XCK S101H29 becomes XCK S101.

(4) Adjustable throughout 360° in 5° steps, or in 90° steps by reversing the notched washer.

(5) Adjustable throughout 360° in 5° steps, or in 45° steps by reversing the lever mounting.

(6) Value taken with actuation by moving part at 100 mm from the fixing.

(7) Limited to 15 million operating cycles for switches with contacts XE3•P.

# Limit switches

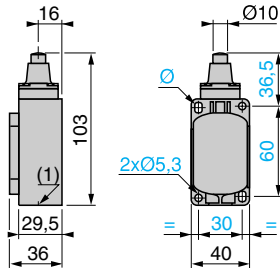
Osiswitch® Classic

Plastic, double insulated, type XCK S

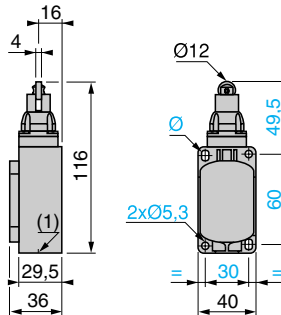
Conforming to CENELEC EN 50041

Complete switches with 1 ISO M20 x 1.5 cable entry

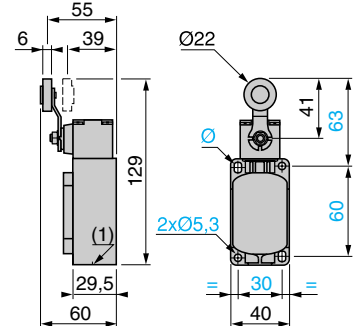
**XCK S01H29**  
ZCK S0 + ZCK D01



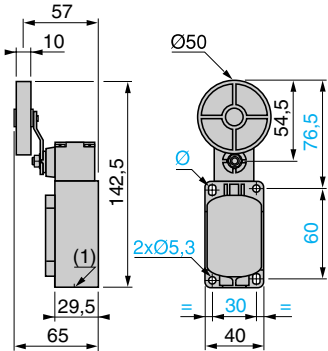
**XCK S02H29**  
ZCK S0 + ZCK D02



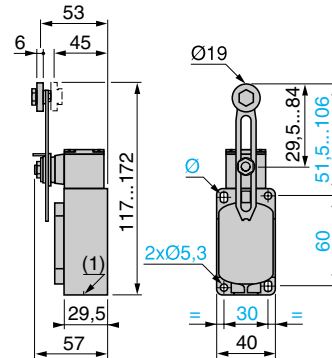
**XCK S031H29**  
ZCK S0 + ZCK D31



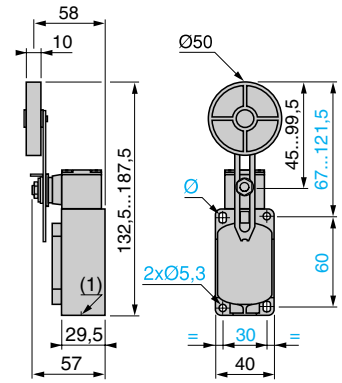
**XCK S039H29**  
ZCK S0 + ZCK D39



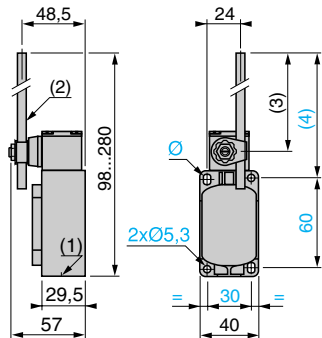
**XCK S041H29**  
ZCK S0 + ZCK D41



**XCK S049H29**  
ZCK S0 + ZCK D49



**XCK S059H29**  
ZCK S0 + ZCK D59



(1) 1 tapped entry for ISO M20 x 1.5 or Pg 13 cable gland.

(2) Ø 6 rod, length 200 mm.

(3) 190 max.

(4) 212 max.

Ø: 2 elongated holes Ø 5.3 x 7.3.

# Limit switches

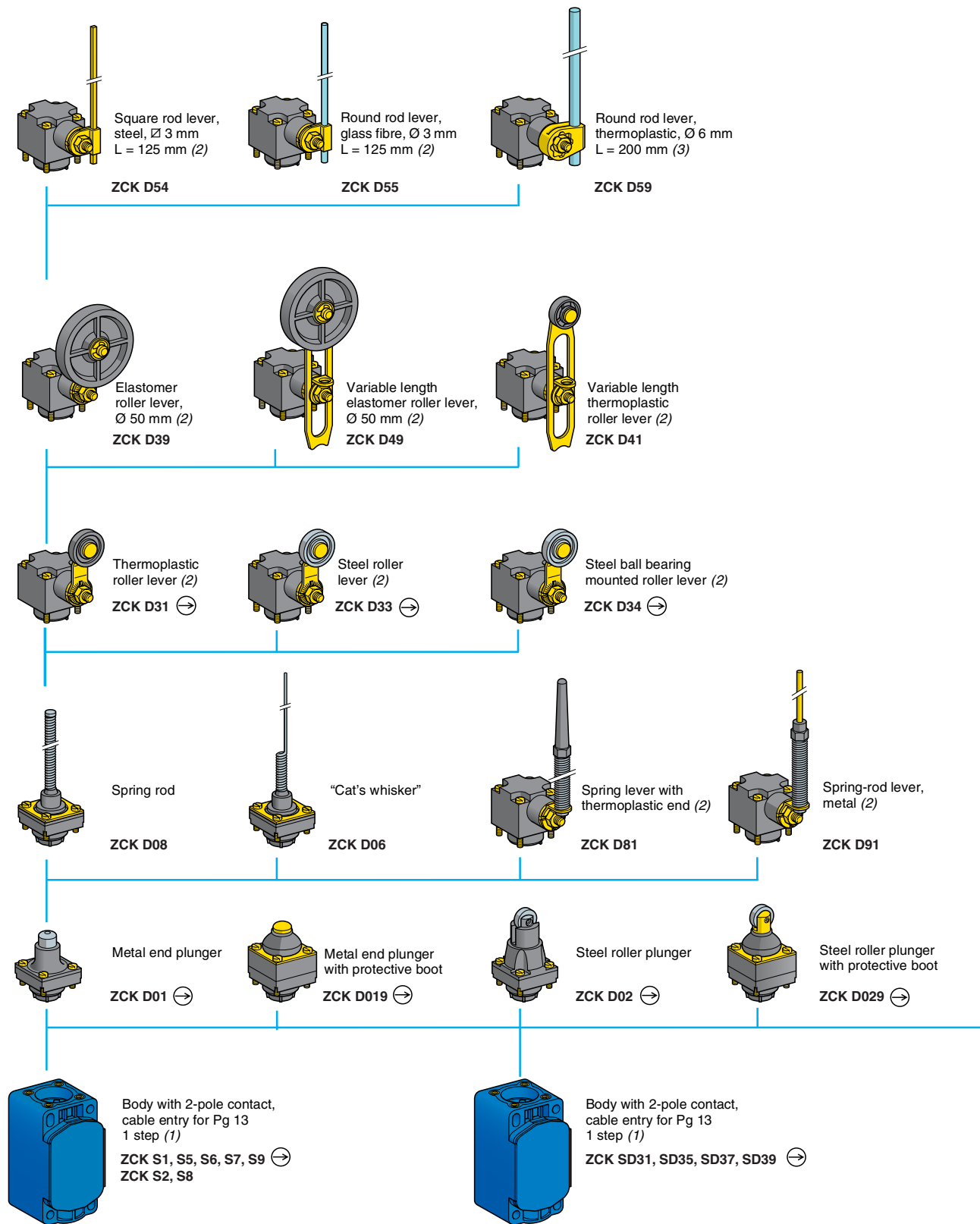
Osiswitch® Classic

Plastic, double insulated, type XCK S

Conforming to CENELEC EN 50041

Variable composition

5



(1) For further details, see page 5/112. For a cable entry tapped ISO M20 x 1.5, add **H29** to the reference.

Example: ZCK S1 becomes **ZCK S1H29**.

(2) Adjustable throughout 360° in 5° steps, or in 90° steps by reversing the notched washer.

(3) Adjustable throughout 360° in 5° steps, or in 45° steps by reversing the lever mounting.



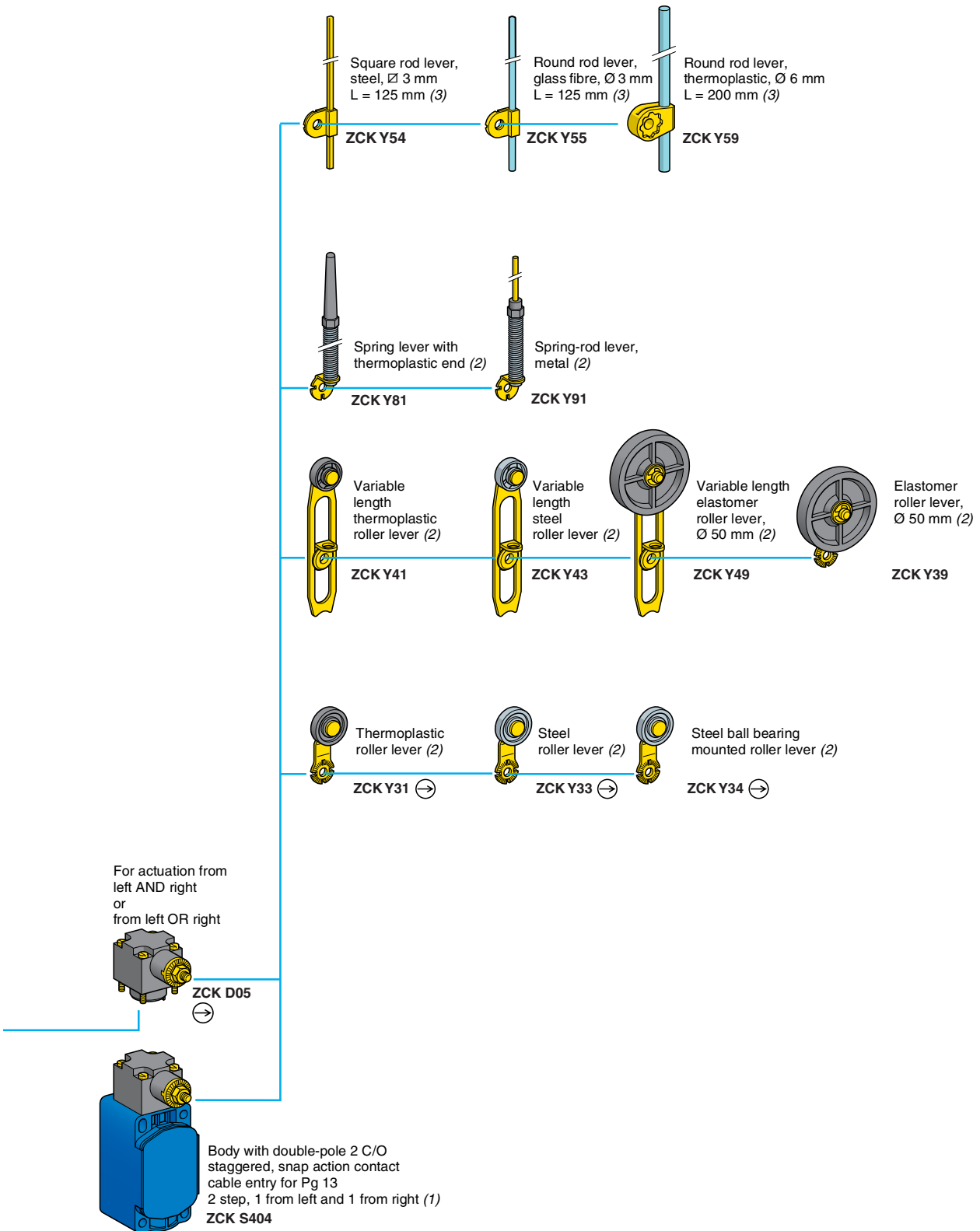
# Limit switches

Osiswitch® Classic

Plastic, double insulated, type XCK S

Conforming to CENELEC EN 50041

Variable composition



(1) For further details, see page 5/112. For a cable entry tapped ISO M20 x 1.5, add **H29** to the reference.

Example: ZCK S1 becomes **ZCK S1H29**.

⊕: N/C contact with positive opening operation or head assuring positive opening operation.

(2) Adjustable throughout 360° in 5° steps, or in 90° steps by reversing the notched washer.

(3) Adjustable throughout 360° in 5° steps, or in 45° steps by reversing the lever mounting.

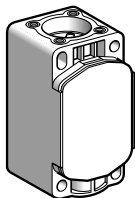
# Limit switches

## Osiswitch® Classic

Plastic, double insulated, type XCK S

Conforming to CENELEC EN 50041

Adaptable sub-assemblies



ZCK S●

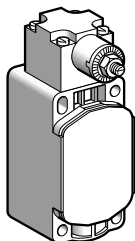
### Bodies with 2-pole contact

Type	With contact block	Scheme	Positive operation (1)	Cable entry	Reference	Weight kg
1 step	N/C + N/O snap action (XE2S P2151)		⊖	Pg 13	<b>ZCK S1</b>	0.080
				ISO M20 x 1.5	<b>ZCK S1H29</b>	0.080
	2 C/O simultaneous, snap action (XES P3021)		-	Pg 13	<b>ZCK S2</b>	0.080
				ISO M20 x 1.5	<b>ZCK S2H29</b>	0.080
	N/C + N/O break before make, slow break (XE2N P2151)		⊖	Pg 13	<b>ZCK S5</b>	0.080
				ISO M20 x 1.5	<b>ZCK S5H29</b>	0.080
	N/O + N/C make before make, slow break (XE2N P2161)		⊖	Pg 13	<b>ZCK S6</b>	0.080
				ISO M20 x 1.5	<b>ZCK S6H29</b>	0.080
N/C + N/C simultaneous, slow break (XE2N P2141)		⊖	Pg 13	<b>ZCK S7</b>	0.080	
			ISO M20 x 1.5	<b>ZCK S7H29</b>	0.080	
N/O + N/O simultaneous, slow break (XE2N P2131)		-	Pg 13	<b>ZCK S8</b>	0.080	
			ISO M20 x 1.5	<b>ZCK S8H29</b>	0.080	
N/C + N/C snap action (XE2S P2141)		⊖	Pg 13	<b>ZCK S9</b>	0.080	
			ISO M20 x 1.5	<b>ZCK S9H29</b>	0.080	

### Bodies with double-pole contact and spring return rotary head

#### Without operating lever

Type	With contact block	Scheme	Positive operation (1)	Cable entry	Reference	Weight kg
2 step 1 from left and 1 from right	2 C/O staggered, snap action		-	Pg 13	<b>ZCK S404</b>	0.150
				ISO M20 x 1.5	<b>ZCK S404H29</b>	0.150



ZCK S404

### Bodies with 3-pole contact and 1 cable entry

Type	With contact block	Scheme	Positive operation (1)	Cable entry	Reference	Weight kg
-	N/C + N/O + N/O snap action (XE3S P2151)		⊖	Pg 13	<b>ZCK SD31</b>	0.080
				ISO M20 x 1.5	<b>ZCK SD31H29</b>	0.080
-	N/C + N/C + N/O snap action (XE3S P2141)		⊖	Pg 13	<b>ZCK SD39</b>	0.080
				ISO M20 x 1.5	<b>ZCK SD39H29</b>	0.080
-	N/C + N/C + N/O break before make, slow break (XE3N P2141)		⊖	Pg 13	<b>ZCK SD37</b>	0.080
				ISO M20 x 1.5	<b>ZCK SD37H29</b>	0.080
-	N/C + N/O + N/O break before make, slow break (XE3N P2151)		⊖	Pg 13	<b>ZCK SD35</b>	0.080
				ISO M20 x 1.5	<b>ZCK SD35H29</b>	0.080

(1) ⊖ : N/C contact with positive opening operation or head assuring positive opening operation.

## Limit switches

Osiswitch® Classic

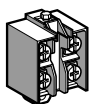
Plastic, double insulated, type XCK S

Conforming to CENELEC EN 50041

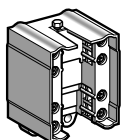
Adaptable sub-assemblies



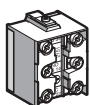
XE2S P21●1



XE2N P21●1



XES P3021



XE3● P21●●

Contact blocks					
Type of contact	Scheme	For body	Positive operation (1)	Reference	Weight kg
<b>2-pole contact</b>					
N/C + N/O snap action		ZCK S1	⊕	XE2S P2151	0.020
N/C + N/O break before make, slow break		ZCK S5	⊕	XE2N P2151	0.020
2 C/O simultaneous, snap action		ZCK S2	-	XES P3021	0.045
N/O + N/C make before break, slow break		ZCK S6	⊕	XE2N P2161	0.020
N/C + N/C simultaneous, slow break		ZCK S7	⊕	XE2N P2141	0.020
N/O + N/O simultaneous, slow break		ZCK S8	-	XE2N P2131	0.020
N/C + N/C snap action		ZCK S9	⊕	XE2S P2141	0.020
<b>3-pole contact</b>					
N/C + N/O + N/O snap action		ZCK SD31	⊕	XE3S P2151	0.035
N/C + N/C + N/O snap action		ZCK SD39	⊕	XE3S P2141	0.035
N/C + N/C + N/O break before make, slow break		ZCK SD37	⊕	XE3N P2141	0.035
N/C + N/O + N/O break before make, slow break		ZCK SD35	⊕	XE3N P2151	0.035

(1) ⊕ : N/C contact with positive opening operation or sub-assembly assuring positive opening operation.

## Other versions

Gold flashed contacts.  
Please consult your Regional Sales Office.

# Limit switches

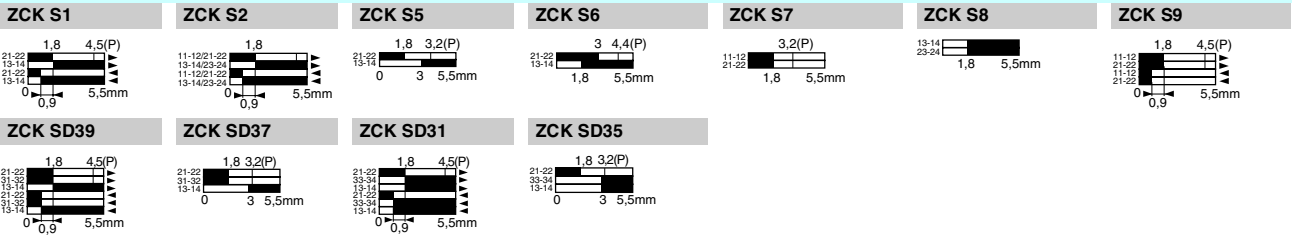
Osiswitch® Classic

Plastic, double insulated, type XCK S

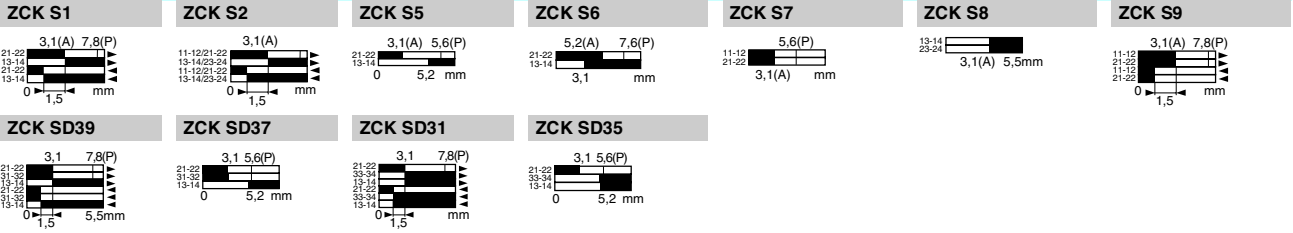
Conforming to CENELEC EN 50041

Adaptable sub-assemblies

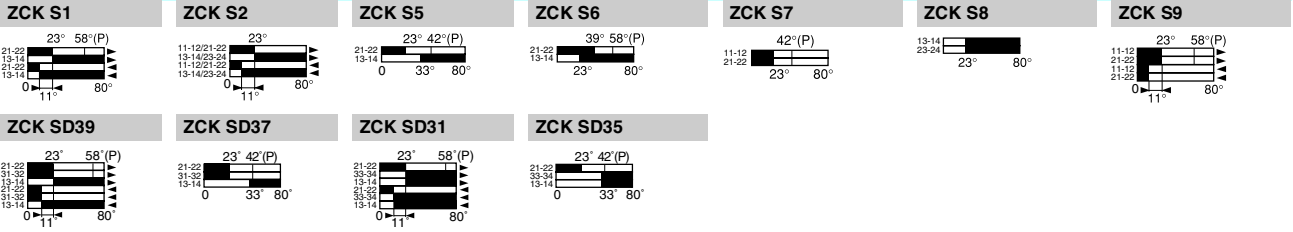
## Heads ZCK D01, D109 with body



## Heads ZCK D02, D029 with body

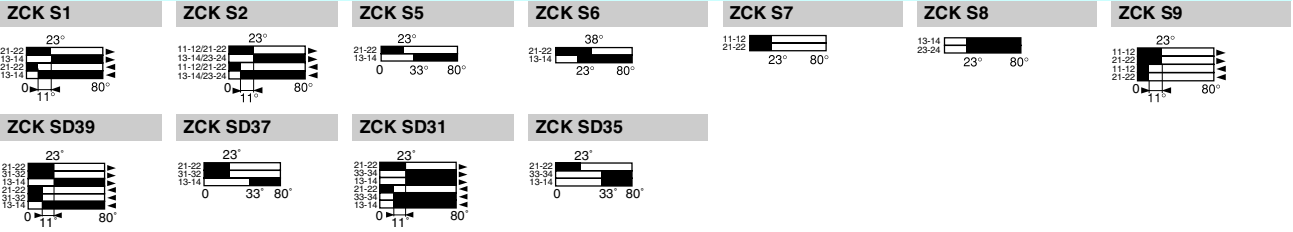


## Heads ZCK D31, D33, D34 with body

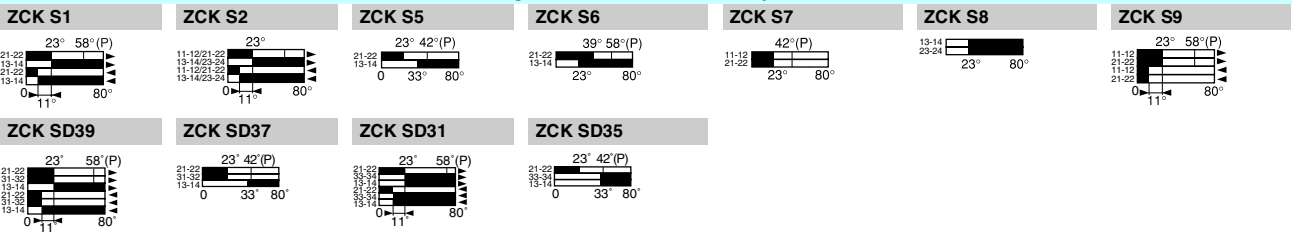


5

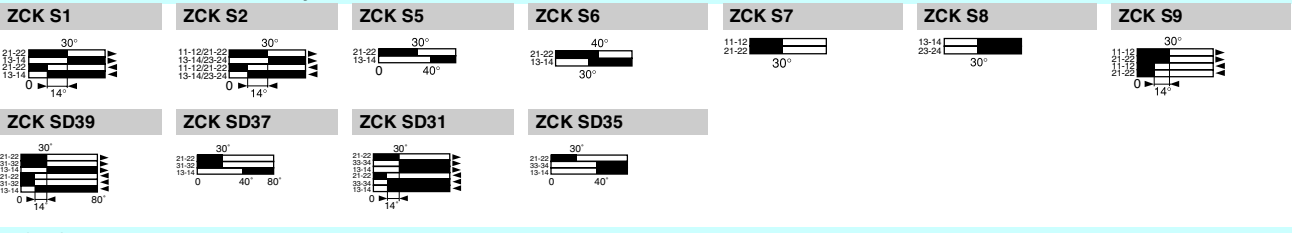
## Heads ZCK D39, D41, D49, D54, D55, D81, D91 with body



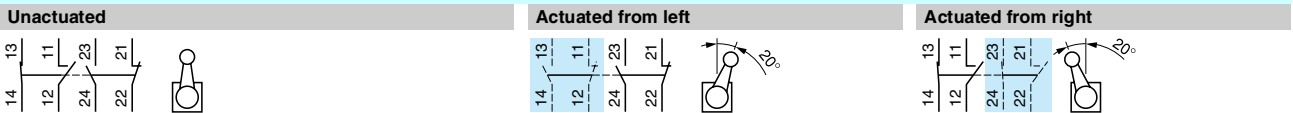
## Heads ZCK D05 (positive operation only assured with a ↻ operating lever) with body



## Heads ZCK D06, D08 with body



## ZCK S404 (body with head)



Contact operation

■ contact closed

□ contact open

(A) = cam displacement (P) = positive opening point

# Limit switches

Osiswitch® Classic

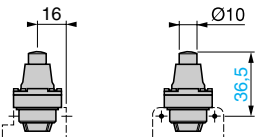
Plastic, double insulated, type XCK S

Conforming to CENELEC EN 50041

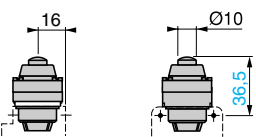
Adaptable sub-assemblies

## Plunger heads

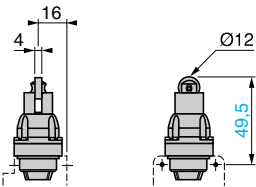
ZCK D01



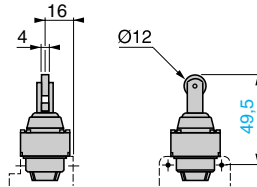
ZCK D019



ZCK D02

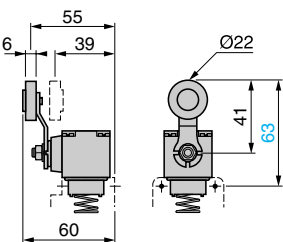


ZCK D029

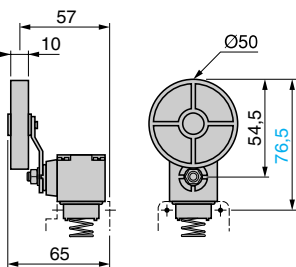


## Rotary heads

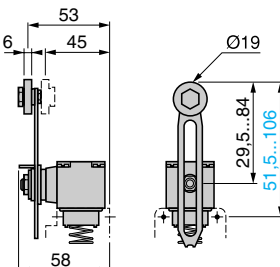
ZCK D31, D33, D34



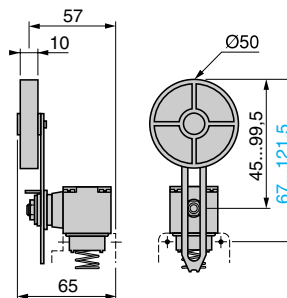
ZCK D39



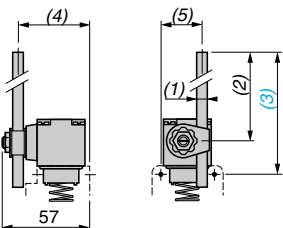
ZCK D41



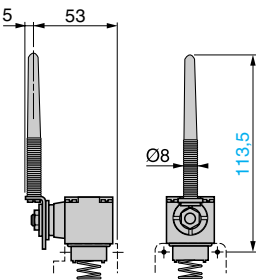
ZCK D49



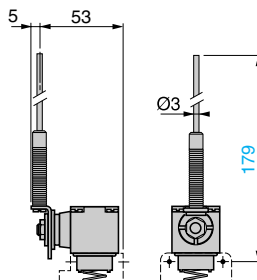
ZCK D54, D55, D59



ZCK D81



ZCK D91

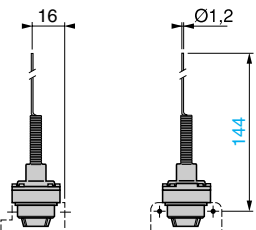


ZCK	(1) rod	(2)	(3)	(4)	(5)
D54	∅ 3, L = 125	115 max.	137 max.	49	24
D55	∅ 3, L = 125	115 max.	137 max.	49	24
D59	∅ 6, L = 200	190 max.	212 max.	46.5	26.2

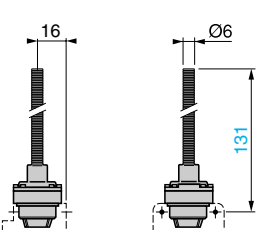
Nota : operating lever spindle threaded M6.

## Multi-directional heads

ZCK D06



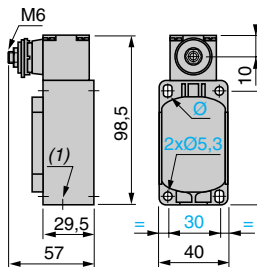
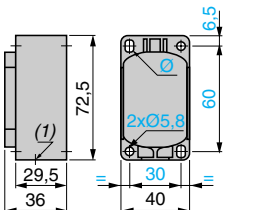
ZCK D08



## Bodies with contacts

ZCK S1, S2, S5, S6, S7, S8, S9  
ZCK S1H29, S2H29, S5H29,  
S6H29, S7H29, S8H29, S9H29  
ZCK SD3●, SD3●H29

ZCK S404, S404H29



(1) 1 tapped entry for ISO M20 x 1.5 or Pg 13 cable gland.  
∅: 2 elongated holes ∅ 5.3 x 7.3.

# Limit switches

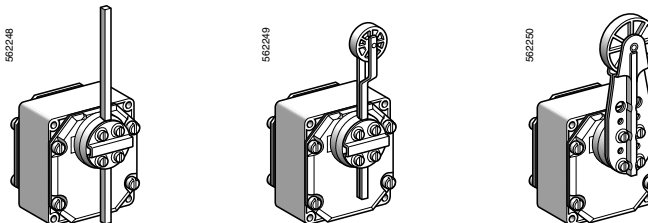
## Osiswitch® Classic

For hoisting and mechanical handling applications,  
types XCR and XCK MR

For conveyor belt shift monitoring, type XCR T

■ XCR

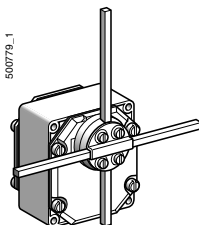
□ With head for rotary movement operators, spring return to off position  
1 contact actuation position per direction



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□ With head for rotary movement operators, stay put

1 contact actuation position per direction



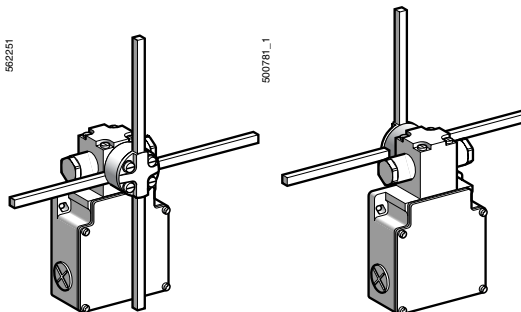
Page 5/118

5

■ XCK MR

□ With head for rotary movement operators, stay put

4 contact actuation positions  
1 contact per position: + 90°, + 180°, - 90° and - 180°

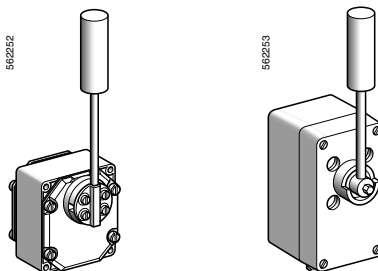


Page 5/124

■ XCR T

□ With head for rotary movement operators, spring return to off position

2 contact actuation positions per direction  
1 actuated at 10°, other contact actuated at 18°



Page 5/120

# Limit switches

## Osiswitch® Classic

For hoisting and mechanical handling applications, types XCR and XCK MR


For conveyor belt shift monitoring, type XCR T

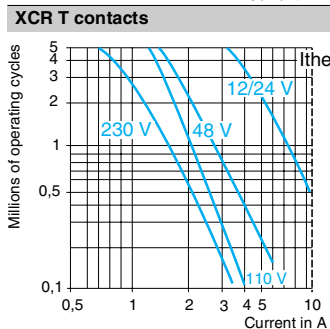
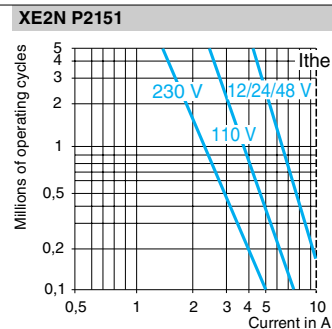
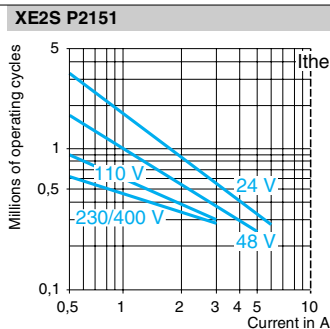
### Environment characteristics

Conforming to standards	Products	IEC/EN 60947-5-1, VDE 0660-200 (CSA C22-2 n° 14 for XCR), CCC (for XCR)
	Machine assemblies	IEC/EN 60204-1, NF C 79-130
Product certifications	Standard version	XCR A, B, E, F: CSA A300
	Special version	XCR A, B, E, F: CSA A300, 1/2" NPT
Protective treatment	Standard version	"TC"
Ambient air temperature	Operation	- 25...+ 70 °C
	Storage	- 40...+ 70 °C (+ 85 °C for XCK MR)
Vibration resistance		XCR: 9 gn (10...500 Hz), XCK MR: 25 gn (10...500 Hz) conforming to IEC 60068-2-6
Shock resistance		XCR A, B, E, F: 68 gn, XCR T: 30 gn (18 ms), XCK MR: 50 gn conforming to IEC 60068-2-27
Electric shock protection		Class I conforming to IEC 60536 and NF C 20-030
Degree of protection		XCR A, B, E, F: IP 54 conforming to IEC 60529 ; IP 54S conforming to NF C 20-010 XCR T: IP 65 conforming to IEC 60529 ; IP 65S conforming to NF C 20-010 XCK MR: IP 66 conforming to IEC 60529 ; IP 66S conforming to NF C 20-010
Enclosure		XCR and XCK MR: metal, except XCR T315: polyester
Cable entry		XCR: tapped entry for n° 13 (Pg 13.5) cable gland XCK MR: 3 tapped entries for n° 13 (Pg 13.5) cable gland or tapped M20 x 1.5

### Contact block characteristics

Rated operational characteristics	$\sim$ AC-15 ; A300 (Ue = 240 V, Ie = 3 A) $\equiv$ DC-13 ; XCR: Q300 (Ue = 250 V, Ie = 0.27 A), XCK MR: Q150 (Ue = 125 V, Ie = 0.55 A), conforming to IEC 60947-5-1 Appendix A, EN 60947-5-1
Rated insulation voltage	Ui = 500 V degree of pollution 3 conforming to IEC 60947-1 and VDE 0110, group C conforming to NF C 20-040 Ui = 300 V conforming to UL 508, CSA C22-2 n° 14
Rated impulse withstand voltage	U imp = 6 kV conforming to IEC 60947-1, IEC 60664
Positive operation (Depending on model)	N/C contacts with positive opening operation to IEC 60947-5-1 Section 3, EN 60947-5-1 (contacts 21-22 of XCK MR)
Resistance across terminals	≤ 25 mΩ conforming to NF C 93-050 method A or IEC 60255-7 category 3
Short-circuit protection	10 A cartridge fuse type gG (gl)
Cabling	Screw clamp terminals <b>XE2S P2151:</b> Clamping capacity, min: 1 x 0.34 mm <sup>2</sup> , max: 2 x 1.5 mm <sup>2</sup> <b>XE2N P2151:</b> Clamping capacity, min: 1 x 0.5 mm <sup>2</sup> , max: 2 x 2.5 mm <sup>2</sup> <b>XCR T contacts:</b> Clamping capacity, min: 1 x 0.5 mm <sup>2</sup> , max: 2 x 2.5 mm <sup>2</sup> <b>XCK MR contacts:</b> Clamping capacity, min: 1 x 0.34 mm <sup>2</sup> , max: 2 x 1.5 mm <sup>2</sup> or 1 x 2.5 mm <sup>2</sup>
Minimum actuation speed	<b>XE2S P2151 and XCR T contacts:</b> 0.01 m/minute, <b>XE2N P2151 and XCK MR contacts:</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 per hour</li> <li>Load factor: 0.5</li> </ul>

a.c. supply  
 $\sim$  50/60 Hz  
 inductive circuit



	Voltage V	24	48	120
Power broken in W for 5 million operating cycles	<b>XE2S P2151</b>	10	7	4
	<b>XE2N P2151</b>	13	9	7
	<b>XCR T contacts</b>	10	7	4

For XE2S P2151 on  $\sim$  or  $\equiv$ : N/C and N/O contacts simultaneously loaded to the values shown with reverse polarity.

5

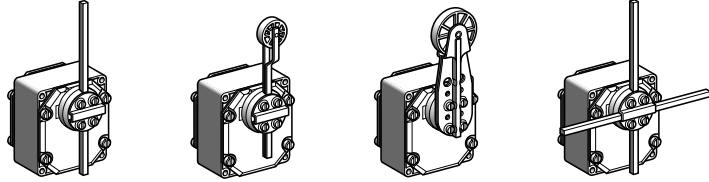
# Limit switches

## Osiswitch® Classic

For hoisting and materials handling applications,  
type XCR

Complete switches with 1 cable entry

<b>Type of head</b>	<b>Rotary with spring return to off position</b>	<b>Stay put</b>
<b>Maximum displacement</b>	<b>55° in each direction</b>	<b>90° in each direction</b>



<b>Type of operator</b>	<b>Metal rod, <math>\varnothing</math> 6 mm</b>	<b>Thermoplastic roller lever</b>	<b>Large thermoplastic roller lever</b>	<b>Metal rods, <math>\varnothing</math> 6 mm crossed or "T" (1)</b>
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(1) Crossed rods for XCR E●8, "T" rods for XCR F●7.

### References of complete switches (↔ N/C contact with positive opening operation)

<b>Two 2-pole 1 N/C + 1 N/O snap action</b> <b>XE2S P2151</b> 	Both contacts operate in each direction	<b>XCR A11</b> ↔ 	<b>XCR A12</b> ↔ 	<b>XCR A15</b> ↔ 	<b>XCR E18</b> ↔ 
		1 contact operates in each direction	<b>XCR B11</b> ↔ 	<b>XCR B12</b> ↔ 	<b>XCR B15</b> ↔ 
<b>Two 2-pole 1 N/C + 1 N/O break before make, slow break</b> <b>XE2N P2151</b> 	Both contacts operate in each direction	<b>XCR A51</b> ↔ 	<b>XCR A52</b> ↔ 	<b>XCR A55</b> ↔ 	<b>XCR E58</b> ↔ 
		1 contact operates in each direction	<b>XCR B51</b> ↔ 	<b>XCR B52</b> ↔ 	<b>XCR B55</b> ↔ 
<b>Weight (kg)</b>		1.110	1.145	1.155	1.135
<b>Contact operation</b>		■ contact closed (P) = positive opening point □ contact open (1) 1st contact (2) 2nd contact			

### Complementary characteristics not shown under general characteristics (page 5/107)

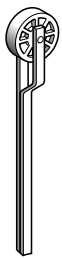
<b>Maximum actuation speed</b>		1.5 m/s
<b>Mechanical durability</b>		10 million operating cycles
<b>Minimum torque</b>	For tripping	0.45 N.m
	For positive opening	0.75 N.m
<b>Cable entry</b>		1 entry tapped for n° 13 cable gland conforming to NF C 68-300 (DIN Pg 13.5) Clamping capacity 9 to 12 mm



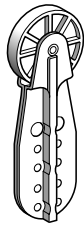
## Limit switches

### Osiswitch® Classic

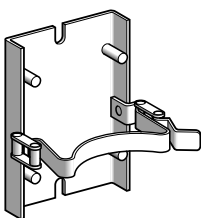
For hoisting and materials handling applications,  
type XCR



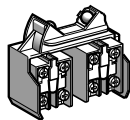
XCR Z02



XCR Z05



XCR Z09



XCR Z12

#### Separate components

Description	For switches	Type	Reference	Weight kg
Rod, $\varnothing$ 6 mm	XCR A XCR B	L = 200 mm	<b>XCR Z03</b>	0.020
		L = 300 mm	<b>XCR Z04</b>	0.030
Roller lever thermoplastic roller	XCR A XCR B	–	<b>XCR Z02</b>	0.050
		–	<b>XCR Z05</b>	0.090
Large roller lever thermoplastic roller	XCR A XCR B	–	<b>XCR Z05</b>	0.090
Quick fixing/release bracket	XCR A, XCR B XCR E, XCR F	–	<b>XCR Z09</b>	0.520
Contact block (2 contacts) with mounting plate	XCR A, XCR B XCR E, XCR F	2-pole 1 N/C + 1 N/O snap action	<b>XCR Z12</b>	0.135
		2-pole 1 N/C + 1 N/O break before make, slow break	<b>XCR Z15</b>	0.135

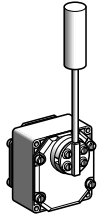
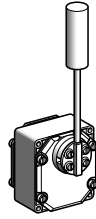
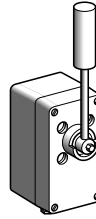
Description	Application	Sold in lots of	Unit reference	Weight kg
Adaptor	Pg 13.5 to ISO M20 x 1.5	5	<b>DE9 RA13520</b>	0.050

# Limit switches

## Osiswitch® Classic

For conveyor belt shift monitoring applications,  
type XCR T

Complete switches with 1 cable entry

Type of switch	Standard	For corrosive atmospheres	
			

Features	Zinc alloy enclosure Colour: industrial blue Zinc plated steel lever, spring return to off position Cam angles: 10° and 18° Maximum displacement: 90°	Zinc alloy enclosure Colour: blue Stainless steel lever, spring return to off position Cam angles: 10° and 18° Maximum displacement: 90°	Glass reinforced polyester enclosure Colour: grey Stainless steel lever, spring return to off position Cam angles: 10° and 18° Maximum displacement: 70°
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### References of complete switches

2 single-pole C/O snap action



1<sup>st</sup> contact



2<sup>nd</sup> contact

	XCR T115	XCR T215	XCR T315
90° 10° 0° 10° 90°			
90° 18° 0° 18° 90°			
Weight (kg)	1.170	1.170	1.520



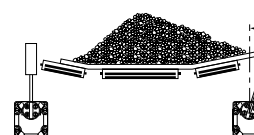
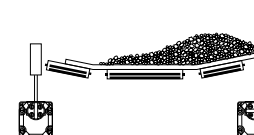
Contact operation

■ contact closed  
□ contact open

### Complementary characteristics not shown under general characteristics (page 5/107)

Mechanical durability	0.3 million operating cycles
Minimum tripping torque	1 N.m
Cable entry	1 entry tapped for n° 13 cable gland conforming to NF C 68-300 (DIN Pg 13.5) Clamping capacity 9 to 12 mm

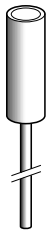
### Switch operation

Normal position	Fault signalling	Stopping of the conveyor belt	Maximum rotation
			

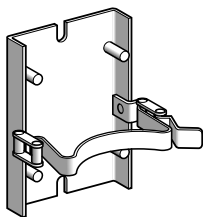
## Limit switches

Osiswitch® Classic

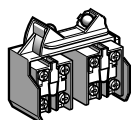
For conveyor belt shift monitoring applications,  
type XCR T



XCR Z900



XCR Z09



XCR Z42

### Separate components

Description	Type	For switches	Reference	Weight kg
Roller with lever	Zinc plated steel	XCR T115	XCR Z901	0.230
		XCR T215		
	Stainless steel	XCR T115 XCR T215	XCR Z902	0.230
		XCR T315	XCR Z903	0.230
Quick fixing/release bracket	–	XCR T115 XCR T215	XCR Z09	0.520
Contact block (2 contacts) with mounting plate	Single-pole C/O snap action	XCR T115	XCR Z42	0.135

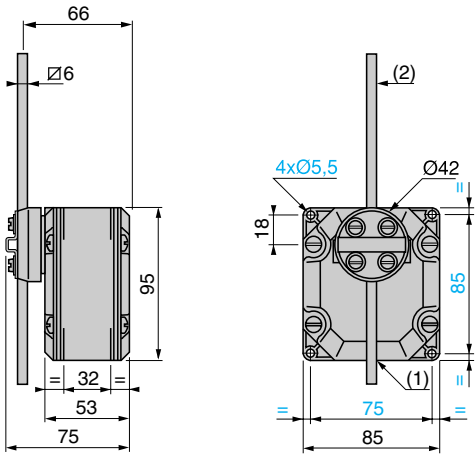
Description	Application	Sold in lots of	Unit reference	Weight kg
Adaptor	Pg 13.5 to ISO M20 x 1.5	5	DE9 RA13520	0.050

# Limit switches

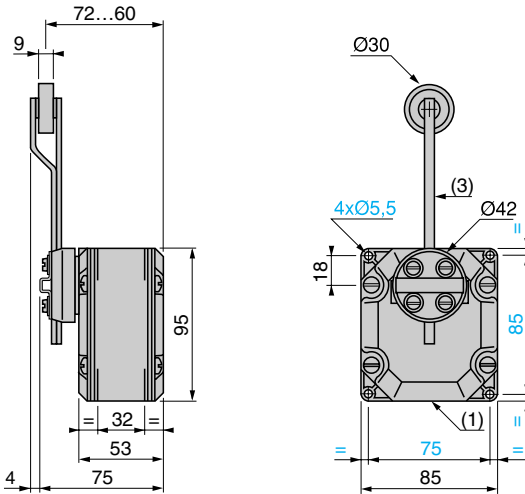
Osiswitch® Classic

For hoisting and materials handling applications, type XCR

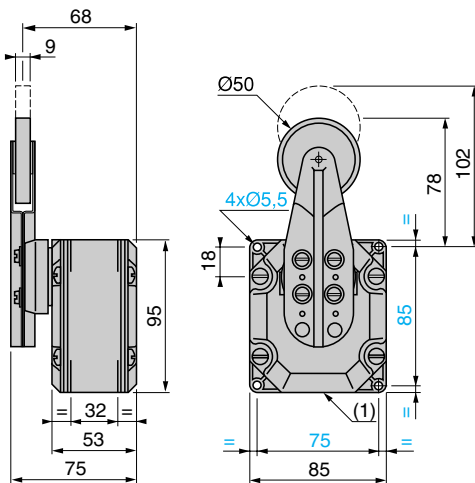
XCR A11, B11, A51, B51



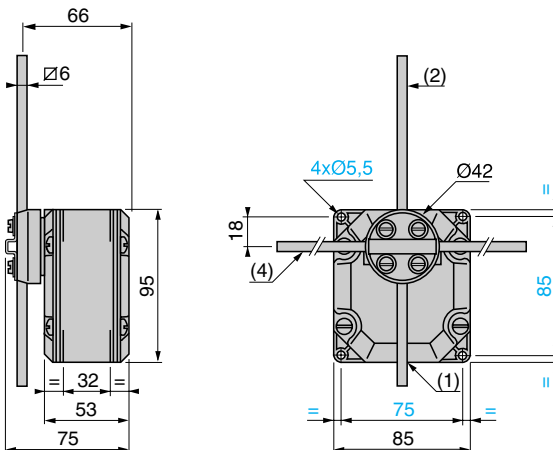
XCR A12, B12, A52, B52



XCR A15, B15, A55, B55



XCR E18, E58, F17, F57



5

(1) 1 tapped entry for n° 13 cable gland.

(2) Rod length: 200 mm.

(3) Rod + roller length: 160 mm.

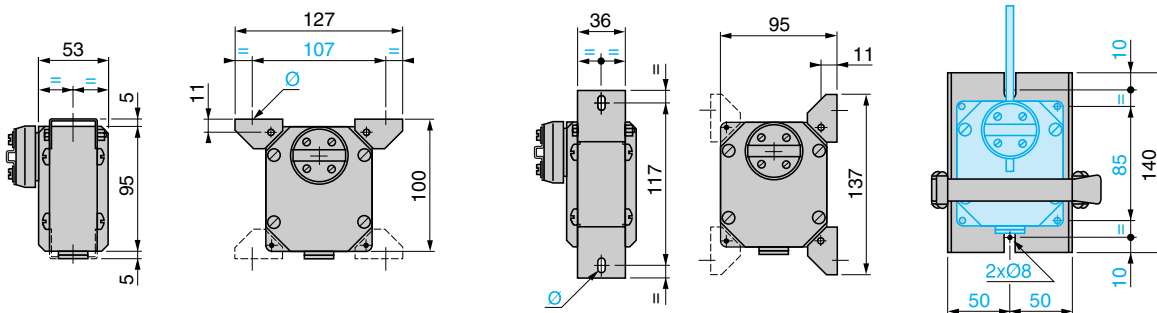
(4) Rod length: 300 mm for XCR F17 and F57, 200 mm for XCR E18 and E58.

**Supplementary fixing using 2 adjustable lugs (included with switch)**

Horizontally positioned

Vertically positioned

**Quick fixing/release bracket XCR Z09**



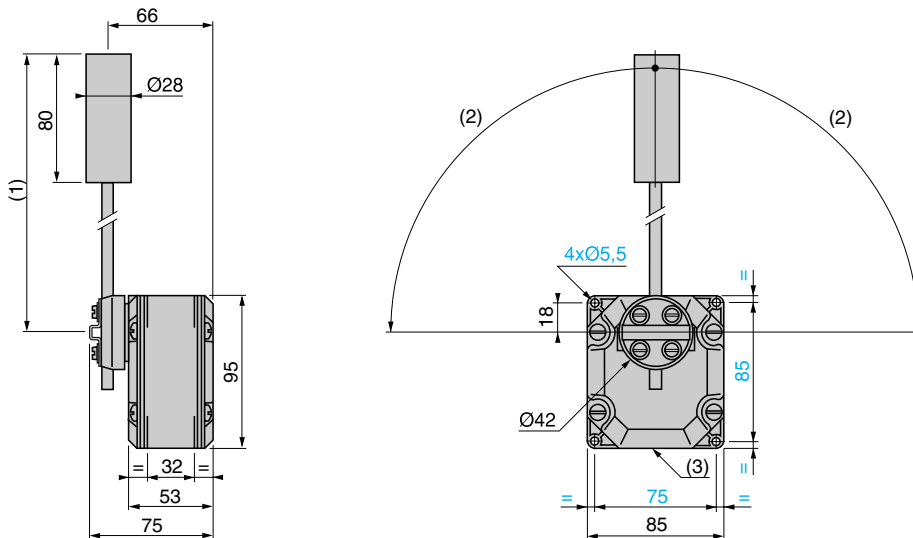
Ø: 1 elongated hole Ø 6 x 8.

# Limit switches

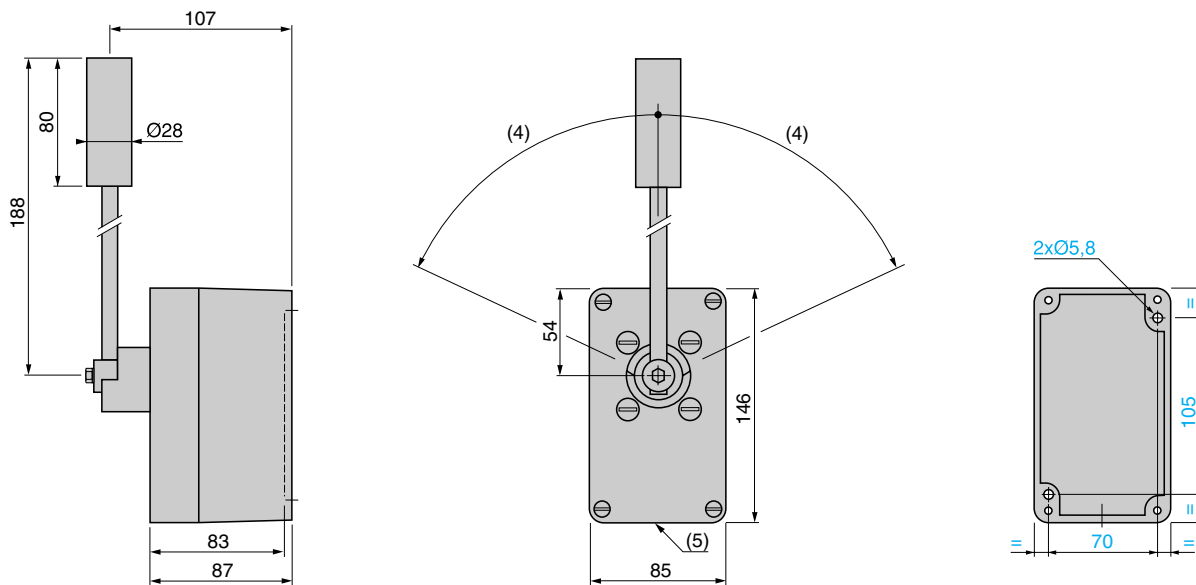
## Osiswitch® Classic

For conveyor belt shift monitoring applications, type XCR T

### XCR T115, T215



### XCR T315



(1) 200 max., 83 min.

(2) 90° max.

(3) 1 tapped entry for n° 13 cable gland.

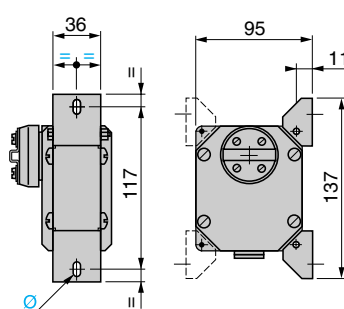
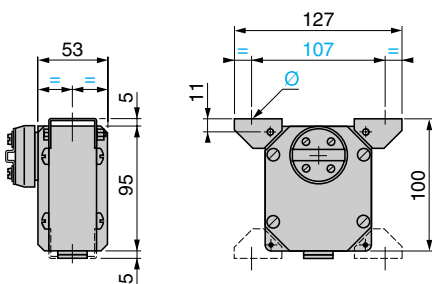
(4) 70° max.

(5) 1 plain entry for n° 13 cable gland.

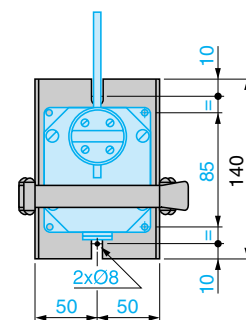
### Supplementary fixing using 2 adjustable lugs (included with XCR T115 and T215)

Horizontally positioned

Vertically positioned



### Quick fixing/release bracket XCR Z09



Ø: 1 elongated hole Ø 6 x 8.

# Limit switches

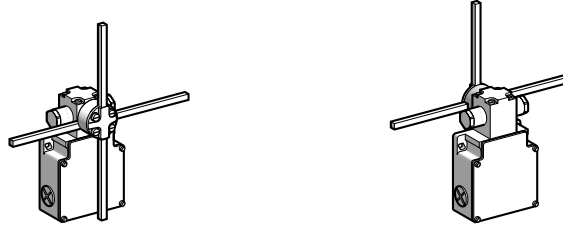
Osiswitch® Classic

For hoisting and mechanical handling applications,  
type XCK MR

Complete switches with 3 cable entries

Type of operating head

Angular



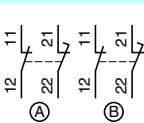
Type of operator

With cruciform metal rods

With cruciform metal rods, reversed head

**References for complete switches (↻ N/C contact with positive opening operation on contacts 21-22)**

Devices with 3 tapped cable entries ISO M20 x 1.5

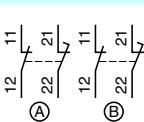


2 x 2-pole N/C + N/C  
break before make contacts  
(non interchangeable contacts)

XCK MR54D1H29 ↻

XCK MR54D2H29 ↻

Devices with 3 cable entries for 13 mm cable gland



2 x 2-pole N/C + N/C  
break before make contacts  
(non interchangeable contacts)

XCK MR54D1 ↻

XCK MR54D2 ↻

Weight (kg)

0.550

0.550

**Complementary characteristics not shown under general characteristics (page 5/117)**

Switch actuation

Lateral

Maximum actuation speed

1.5 m/s

Mechanical durability

2 million operating cycles

Minimum torque

For tripping

0.5 N.m

For positive opening

0.75 N.m

Accuracy

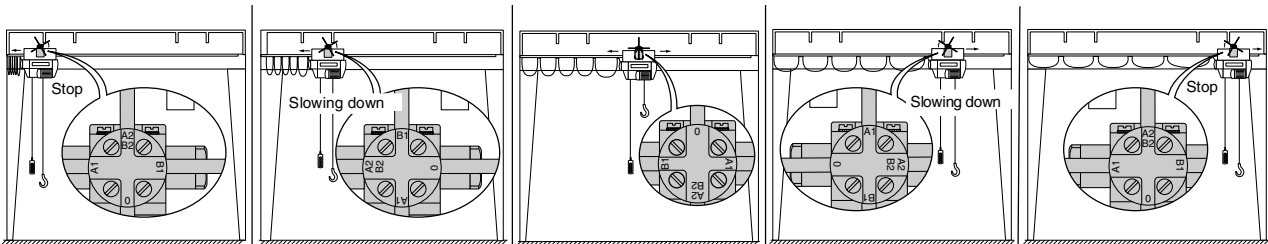
± 0.3 mm

Cable entry

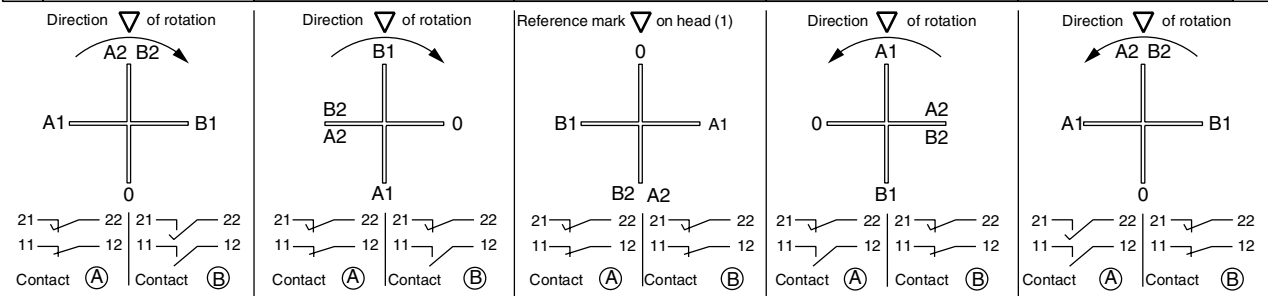
3 tapped entries ISO M20 x 1.5, clamping capacity 7 to 13 mm

3 tapped entries for 13 mm cable gland conforming to NF C 68-300 (DIN Pg 13.5), clamping capacity 9 to 12 mm

**Setting-up**



(A)					11-12
					21-22
(B)					11-12
					21-22



(1) Triangle symbol marked on top of operating head

## Limit switches

Osiswitch® Classic

For hoisting and mechanical handling applications,  
type XCK MR

Complete switches with 3 cable entries

### References for separate parts



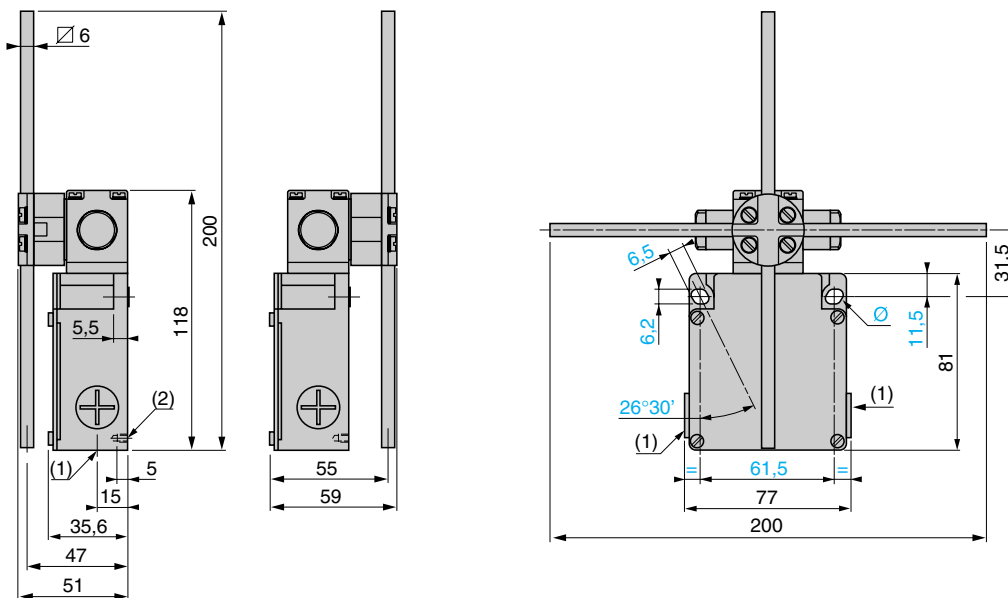
XCR Z03

Description	Reference	Weight kg
Rod $\varnothing$ 6 mm, L = 200 mm	XCR Z03	0.020

### Dimensions

XCK MR54D1H29  
XCK MR54D1

XCK MR54D2H29  
XCK MR54D2



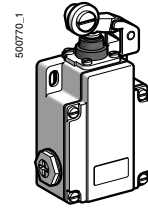
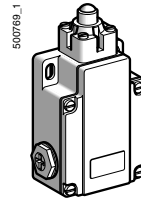
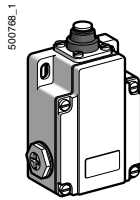
- (1) XCK MR54D●H29 = 3 tapped entries ISO M20 x 1.5.  
XCK MR54D● = 3 tapped entries for n°13 cable gland.  
(2) 2 centring holes  $\varnothing$  3.9  $\pm$  0.2, for cover fixing screws alignment.  
 $\varnothing$  : 2 elongated holes 6.2 x 6.5, inclined at 26°30' for M5 screws.

# Limit switches

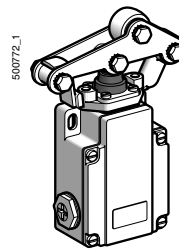
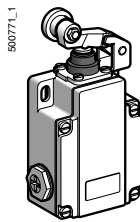
For materials handling applications,  
type XC1 AC

■ XC1 AC  
with slow break contacts

□ With head for linear movement (plunger)



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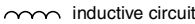
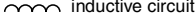
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## Environment characteristics

<b>Conformity to standards</b>		IEC/EN 60947-5-1, IEC 60337-1, VDE 0660-200, CSA C22-2 n° 14
<b>Product certifications</b>	Special version	CSA 600 V (ac) HD
<b>Protective treatment</b>	Version	Standard "TC", special "TH"
<b>Ambient air temperature</b>	For operation	- 25...+ 70 °C
	For storage	- 40...+ 70 °C
<b>Operating position</b>		All positions
<b>Vibration resistance</b>		9 gn (10...500 Hz) conforming to IEC 60068-2-6
<b>Shock resistance</b>		95 gn (11 ms) conforming to IEC 60068-2-27
<b>Electric shock protection</b>		Class I conforming to IEC 60536 and NF C 20-030
<b>Degree of protection</b>		<b>IP 65 conforming to IEC 60529 and NF C 20-010</b>
<b>Mechanical durability</b>		10 million operating cycles
<b>Cable entry</b>		3 tapped entries for n° 13 cable gland

## Contact block characteristics


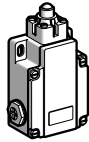
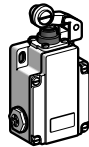
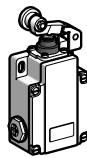
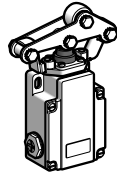
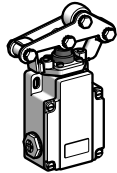
<b>Conventional thermal current</b>		10 A												
<b>Rated insulation voltage</b>	Slow break contact blocks	~ 500 V and = 600 V conforming to IEC 60947-5-1, NF C 20-040 ~ and = 600 V conforming to CSA C22-2 n° 14												
<b>Resistance across terminals</b>		≤ 8 mΩ												
<b>Minimum tripping force</b>		<b>XC1 AC1●1</b> : 33 N, <b>XC1 AC1●6</b> : 23 N, <b>XC1 AC1●7</b> : 29 N												
<b>Terminal referencing</b>		Conforming to CENELEC EN 50013												
<b>Short-circuit protection</b>		10 A cartridge fuse type gG (gl)												
<b>Electrical durability</b>		<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>												
		<b>Slow break contact blocks</b>												
	a.c. supply ~ 50/60 Hz  inductive circuit	<b>Power broken in VA</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Voltage V</th> <th>48</th> <th>110</th> <th>230</th> </tr> </thead> <tbody> <tr> <td>For 1 million operating cycles</td> <td>450</td> <td>900</td> <td>1900</td> </tr> <tr> <td>For 3 million operating cycles</td> <td>170</td> <td>350</td> <td>430</td> </tr> </tbody> </table>	Voltage V	48	110	230	For 1 million operating cycles	450	900	1900	For 3 million operating cycles	170	350	430
Voltage V	48	110	230											
For 1 million operating cycles	450	900	1900											
For 3 million operating cycles	170	350	430											
	d.c. supply =  inductive circuit	<b>Power broken in W</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Voltage V</th> <th>48</th> <th>110</th> <th>230</th> </tr> </thead> <tbody> <tr> <td>For 1 million operating cycles</td> <td>100</td> <td>100</td> <td>95</td> </tr> <tr> <td>For 3 million operating cycles</td> <td>35</td> <td>40</td> <td>33</td> </tr> </tbody> </table>	Voltage V	48	110	230	For 1 million operating cycles	100	100	95	For 3 million operating cycles	35	40	33
Voltage V	48	110	230											
For 1 million operating cycles	100	100	95											
For 3 million operating cycles	35	40	33											

# Limit switches


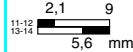
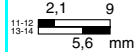
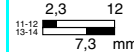
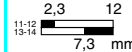
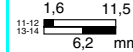
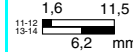

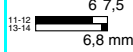
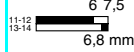
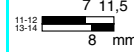
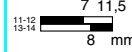
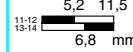
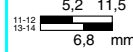

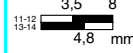
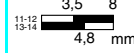
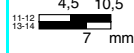
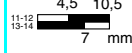
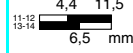
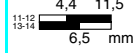

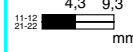
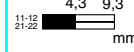
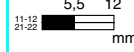
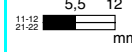
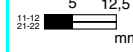
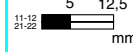


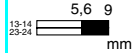
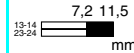
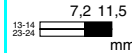
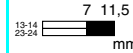
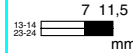

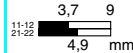
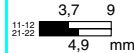
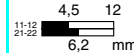
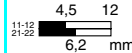

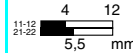

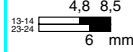
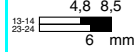
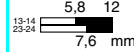
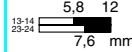
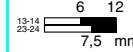
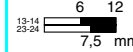
For materials handling applications,

type XC1 AC

Complete switches with slow break contacts


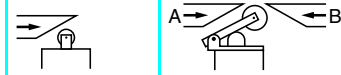
Type of head	Plunger					
						
Type of operator	End plunger	End ball bearing plunger	Roller lever	Offset roller lever	Reinforced roller lever	Roller lever on needle roller bearing

## References of complete switches

Single pole C/O slow break ZC1 AZ11 	<b>XC1 AC111</b> 	<b>XC1 AC115</b> 	<b>XC1 AC116</b> 	<b>XC1 AC118</b> 	<b>XC1 AC117</b> 	<b>XC1 AC119</b> 
2-pole N/C + N/O break before make, slow break ZC1 AZ12 	<b>XC1 AC121</b> 	<b>XC1 AC125</b> 	<b>XC1 AC126</b> 	<b>XC1 AC128</b> 	<b>XC1 AC127</b> 	<b>XC1 AC129</b> 
2-pole N/O + N/C make before break, slow break ZC1 AZ13 	<b>XC1 AC131</b> 	<b>XC1 AC135</b> 	<b>XC1 AC136</b> 	<b>XC1 AC138</b> 	<b>XC1 AC137</b> 	<b>XC1 AC139</b> 
2-pole N/C + N/C simultaneous, slow break ZC1 AZ14 	<b>XC1 AC141</b> 	<b>XC1 AC145</b> 	<b>XC1 AC146</b> 	<b>XC1 AC148</b> 	<b>XC1 AC147</b> 	<b>XC1 AC149</b> 
2-pole N/O + N/O simultaneous, slow break ZC1 AZ15 	<b>XC1 AC151</b> 	<b>XC1 AC155</b> 	<b>XC1 AC156</b> 	<b>XC1 AC158</b> 	<b>XC1 AC157</b> 	<b>XC1 AC159</b> 
2-pole N/C + N/C staggered, slow break ZC1 AZ16 	<b>XC1 AC161</b> 	<b>XC1 AC165</b> 	<b>XC1 AC166</b> 	<b>XC1 AC168</b> 	<b>XC1 AC167</b> 	<b>XC1 AC169</b> 
2-pole N/O + N/O staggered, slow break ZC1 AZ17 	<b>XC1 AC171</b> 	<b>XC1 AC175</b> 	<b>XC1 AC176</b> 	<b>XC1 AC178</b> 	<b>XC1 AC177</b> 	<b>XC1 AC179</b> 
Weight (kg)	0.530	0.530	0.595	0.595	0.870	0.870

Contact operation  contact closed  
 contact open

## Complementary characteristics not shown under general characteristics (page 5/127)

Switch actuation	On end	By 30° cam
Type of actuation		
Maximum actuation speed	0.5 m/s	1 m/s (direction A), 0.5 m/s (direction B) (1)
Cable entry	3 tapped entries for n° 13 (DIN Pg 13.5) cable gland, clamping capacity 9 to 12 mm (2 entries fitted with blanking plug)	
Connection	Screw terminals. Clamping capacity: min 1 x 0.5 mm <sup>2</sup> , max 1 x 2.5 mm <sup>2</sup>	

(1) For a 45° cam the maximum actuation speed becomes 0.5 m/s and for a 15° cam, 1 m/s.

## Dimensions

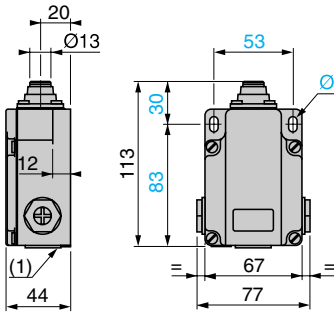
## Limit switches

For materials handling applications,

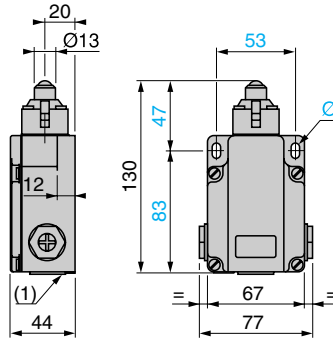
type XC1 AC

Complete switches with slow break contacts

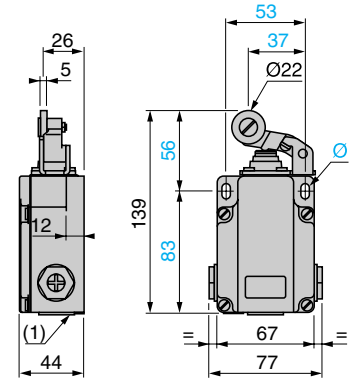
XC1 AC1●1



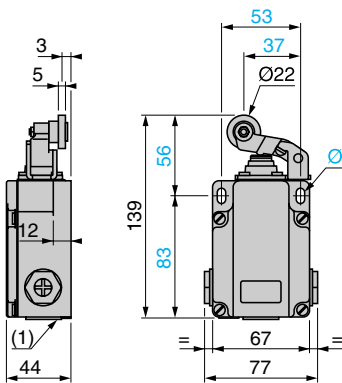
XC1 AC1●5



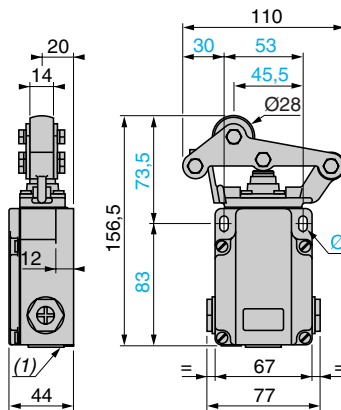
XC1 AC1●6



XC1 AC1●8



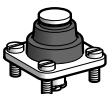
XC1 AC1●7, XC1 AC1●9



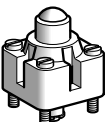
(1) 3 tapped entries for n° 13 cable gland or ISO 20 with adaptor DE9 RA13520  
 $\varnothing$ : 2 elongated holes  $\varnothing 6.5 \times 10$ .

# Limit switches

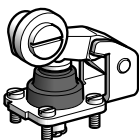
For materials handling applications,  
type XC1 AC  
Replacement parts



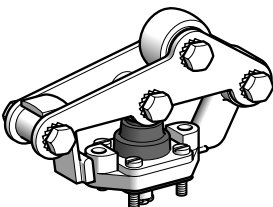
ZC1 AC001



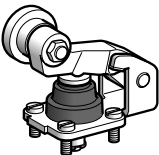
ZC1 AC005



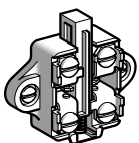
ZC1 AC006



ZC1 AC007  
ZC1 AC009



ZC1 AC008



ZC1 AZ1

## Plunger heads

Type of operator	Maximum actuation speed	Type of actuation	Reference	Weight kg
<b>For actuation on end</b>				
End plunger	0.5 m/s		ZC1 AC001	0.035

## For actuation by 30° cam

End ball bearing plunger	0.5 m/s		ZC1 AC005	0.050
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Roller lever	1 m/s (direction A) 0.5 m/s (direction B)		ZC1 AC006	0.100
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Reinforced roller lever	1 m/s (direction A) 0.5 m/s (direction B)		ZC1 AC007	0.375
-------------------------	--	--	-----------	-------

Offset roller lever	1 m/s (direction A) 0.5 m/s (direction B)		ZC1 AC008	0.100
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Roller lever on needle roller bearing	1 m/s (direction A) 0.5 m/s (direction B)		ZC1 AC009	3.380
---------------------------------------	--	--	-----------	-------

## Contact blocks

Type of contact	Scheme	Reference	Weight kg
C/O, single pole		ZC1 AZ11	0.040
N/C + N/O break before make		ZC1 AZ12	0.045
N/O + N/C make before break		ZC1 AZ13	0.040
N/C + N/C simultaneous		ZC1 AZ14	0.045
N/O + N/O simultaneous		ZC1 AZ15	0.045
N/C + N/C staggered		ZC1 AZ16	0.040
N/O + N/O staggered		ZC1 AZ17	0.040

## Adaptation plate

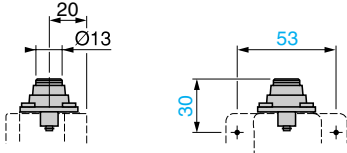
Description	Reference	Weight kg
Mounting plate (For replacing an old version type RN-67522 limit switch by an XC1-AC limit switch)	ZC1 AZ8	3.380

# Limit switches

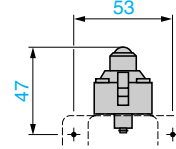
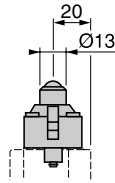
For materials handling applications,  
type XC1 AC  
Replacement parts

## Dimensions

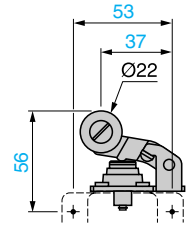
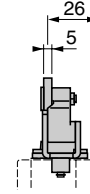
ZC1 AC001



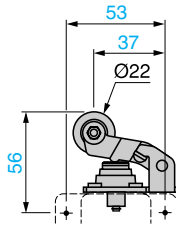
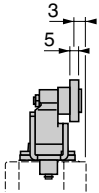
ZC1 AC005



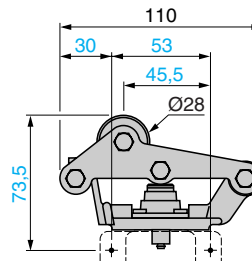
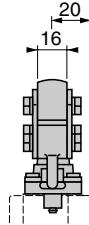
ZC1-AC006



ZC1 AC008



ZC1 AC007, AC009



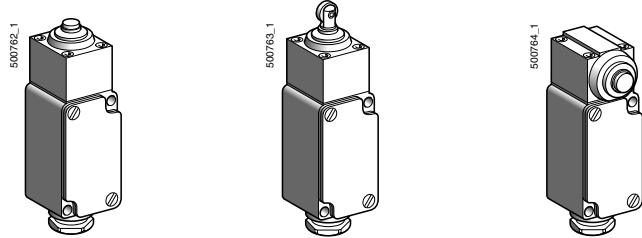
# Limit switches

Osiswitch® Application

For very severe applications, type XC2 J

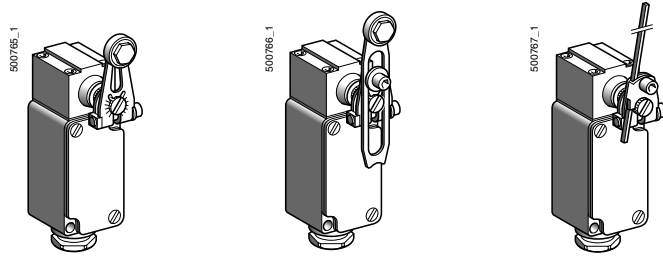
■ XC2 J  
with 1 cable entry

□ With head for linear movement (plunger)



Page 5/134

□ With head for rotary movement (lever)



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### Environment characteristics

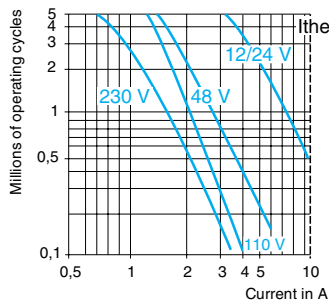
<b>Conformity to standards</b>	Products	IEC/EN 60947-5-1, IEC 60337-1, VDE 0660-200, UL 508, CSA C22-2 n° 14
	Machine assemblies	IEC/EN 60204-1, NF C 79-130
<b>Product certifications</b>	Standard version	DEMKO, NEMKO, CSA 300 V ~ HD, ~ 60 W
	Special version	UL 250 V ~ HD Listed, CSA 300 V ~ HD, 60 W with 1/2" NPT tapped cable entry
<b>Protective treatment</b>	Standard version	"TC"
<b>Ambient air temperature</b>	For operation	- 25...+ 70 °C. Special adaptable sub-assemblies: - 40 °C or + 120 °C
	For storage	- 40...+ 70 °C
<b>Vibration resistance</b>		10 gn (10...500 Hz) conforming to IEC 60068-2-6
<b>Shock resistance</b>		25 gn (18 ms) conforming to IEC 60068-2-27
<b>Electric shock protection</b>		Class I conforming to IEC 60536 and NF C 20-030
<b>Degree of protection</b>		<b>IP 65 conforming to IEC 60529, IP 657 conforming to NF C 20-010</b>
<b>Repeat accuracy</b>		0.01 mm on the tripping points, with 1 million operating cycles for head with end plunger
<b>Cable entry</b>		1 entry incorporating cable gland. Clamping capacity: 6...13.5 mm

### Contact block characteristics

<b>Rated operational characteristics</b>		~ AC-15; A300 (Ue = 240 V, Ie = 3 A) = DC-13; Q300 (Ue = 250 V, Ie = 0.27 A), conforming to IEC 60947-5-1 Appendix A, EN 60947-5-1
<b>Rated insulation voltage</b>		500 V conforming to IEC 60947-5-1, group C conforming to NF C 20-040, 300 V conforming to CSA C22-2 n° 14
<b>Resistance across terminals</b>		≤ 25 mΩ conforming to NF C 93-050 method A or IEC 60255-7 category 3
<b>Short-circuit protection</b>		10 A cartridge fuse type gG (gl)
<b>Connection</b>	Screw clamp terminals	<b>XCK Z01</b> : clamping capacity, min: 1 x 0.5 mm <sup>2</sup> , max: 2 x 2.5 mm <sup>2</sup> <b>XES P10●1</b> : clamping capacity, min: 1 x 0.75 mm <sup>2</sup> , max: 2 x 1.5 mm <sup>2</sup>
<b>Minimum actuation speed</b>		1 m/minute
<b>Electrical durability</b>		<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>

#### XCK Z01, XES P1021, XES P1031

a.c. supply ~ 50/60 Hz  
 inductive circuit



d.c. supply =	<b>Voltage V</b>	<b>24</b>	<b>48</b>	<b>120</b>
	<b>Power broken in W for 5 million operating cycles</b>	10	7	4
	<b>W</b>			

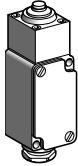
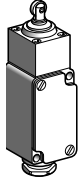
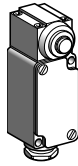
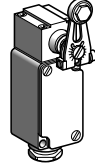
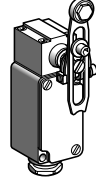
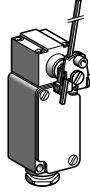
# Limit switches

## Osiswitch® Application

For very severe applications, type XC2 J

Complete switches, fixed body,

1 cable entry incorporating cable gland

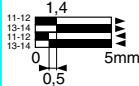
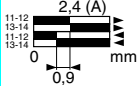
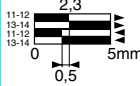
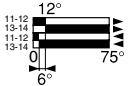
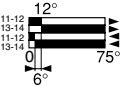
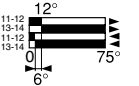
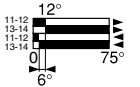
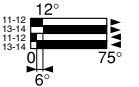
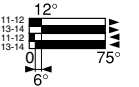
Type of head	Plunger			Rotary		
						
Type of operator	Metal end plunger	Steel roller plunger	Metal side plunger	Thermoplastic roller lever (1)	Variable length thermoplastic roller lever (1)	Steel rod lever Ø 3 mm (1)

(1) Adjustable throughout 360°.

### References

Single pole C/O  
snap action XCK Z01







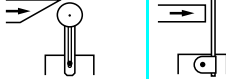
	ZC2 JC1 + ZC2 JE61	ZC2 JC1 + ZC2 JE62	ZC2 JC1 + ZC2 JE63	Actuation from left AND right		
						
				Actuation from left OR right		
						
Weight (kg)	0.555	0.560	0.600	0.605	0.620	0.605

Contact operation

■ contact closed  
□ contact open

(A) = cam displacement

### Complementary characteristics not shown under general characteristics (page 5/133)

Switch actuation	On end	By 30° cam	On end	By 30° cam	By any moving part
Type of actuation					
Maximum actuation speed	0.5 m/s		1.5 m/s		
Mechanical durability (in millions of operating cycles)	30	25	30		
Minimum tripping force or torque	18 N		26 N	With head ZC2 JE01: 0.30 N.m With head ZC2 JE05: 0.20 N.m	
Cable entry	1 tapped entry incorporating metal cable gland. Clamping capacity 6 to 13.5 mm				

Other versions

Switches with gold flashed contacts. Special protective treatments.  
Please consult your Regional Sales Office.



# Limit switches

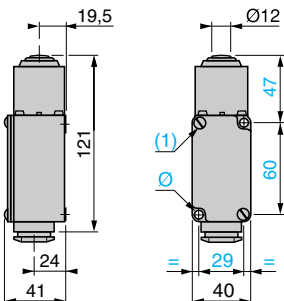
## Osiswitch® Application

For very severe applications, type XC2 J

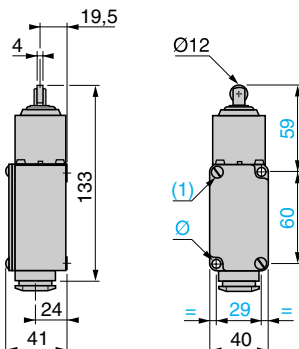
Complete switches, fixed body,

1 cable entry incorporating cable gland

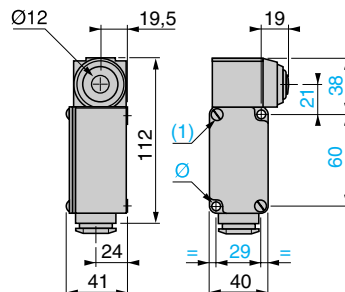
ZC2 JC1 + ZC2 JE61



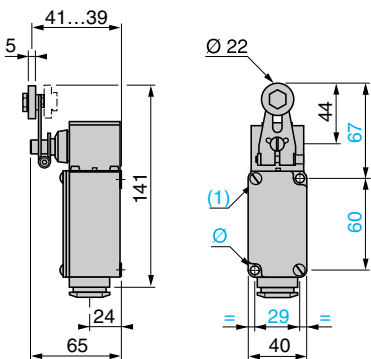
ZC2 JC1 + ZC2 JE62



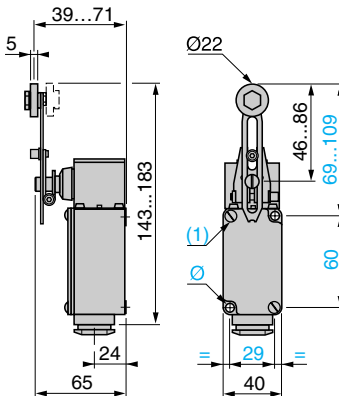
ZC2 JC1 + ZC2 JE63



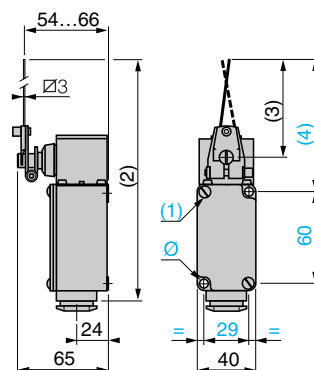
ZC2 JC1 + ZC2 JE0● + ZC2 JY11



ZC2 JC1 + ZC2 JE0● + ZC2 JY31



ZC2 JC1 + ZC2 JE0● + ZC2 JY51



(1) Fixing from the rear: by 2 M5 screws.

Depth of thread on switch: 10 mm.

(2) 222 max.

(3) 125 max.

(4) 148 max.

Ø: Fixing from the front via 2 holes Ø 5.5.

Cable gland incorporated (all XC2 JC models).

# Limit switches

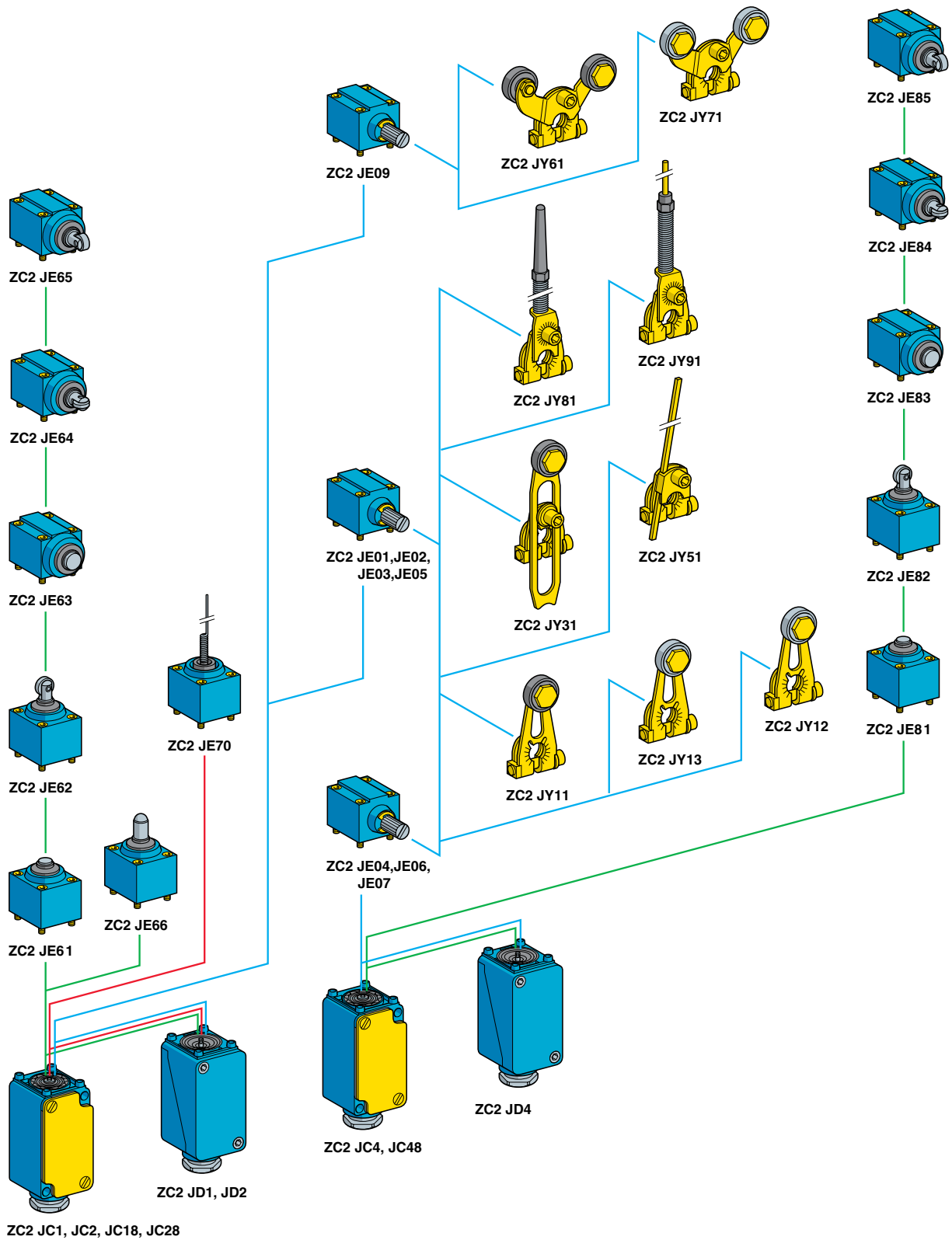
Osiswitch® Application

For very severe applications, type XC2 J

Fixed or plug-in body

Variable composition

5



- Plunger head
- Rotary head
- Multi-directional head

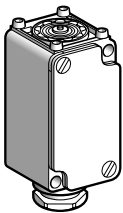
# Limit switches

## Osiswitch® Application

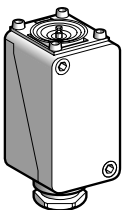
For very severe applications, type XC2 J

Fixed or plug-in body

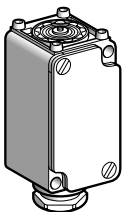
Adaptable sub-assemblies



ZC2 JC●



ZC2 JD●



ZC2 JC●8

### Bodies with contacts for plunger or rotary head

Type	With contact block	Scheme	Reference	Weight kg
<b>Fixed bodies</b>				
1 step	Single-pole 1 C/O snap action (XCK Z01)		ZC2 JC1	0.355
	Double-pole 2 C/O simultaneous snap action (XES P1021)		ZC2 JC2	0.355
2 step	Double-pole 2 C/O staggered snap action (XES P1031)		ZC2 JC4	0.355
<b>Plug-in bodies</b>				
1 step	Single-pole 1 C/O snap action		ZC2 JD1	0.380
	Double-pole 2 C/O simultaneous snap action		ZC2 JD2	0.380
2 step	Double-pole 2 C/O staggered snap action		ZC2 JD4	0.380

### Bodies incorporating gold flashed contacts, for plunger or rotary head

Type	With contact block	Scheme	Reference	Weight kg
<b>Fixed bodies</b>				
1 step	Single-pole 1 C/O snap action (XCK Z018)		ZC2 JC18	0.355
	Double-pole 2 C/O simultaneous snap action (XES P1028)		ZC2 JC28	0.360
2 step	Double-pole 2 C/O staggered snap action (XES P1038)		ZC2 JC48	0.360

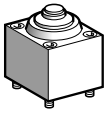
## Limit switches

Osiswitch® Application

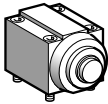
For very severe applications, type XC2 J

Fixed or plug-in body

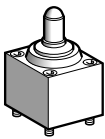
Adaptable sub-assemblies



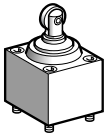
ZC2 JE01



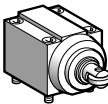
ZC2 JE03



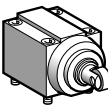
ZC2 JE66



ZC2 JE02



ZC2 JE04



ZC2 JE05

## Plunger heads

Type of operator	Compatible bodies	Maximum actuation speed	Reference	Weight kg
<b>For actuation on end</b>				
<b>End plunger metal</b>	ZC2 J01 ZC2 J02	0.5 m/s	<b>ZC2 JE61</b>	0.195
	ZC2 J04	0.5 m/s	<b>ZC2 JE81</b>	0.195
<b>Side plunger metal</b>	ZC2 J01 ZC2 J02	0.5 m/s	<b>ZC2 JE63</b>	0.240
	ZC2 J04	0.5 m/s	<b>ZC2 JE83</b>	0.240
<b>For actuation by 30° cam</b>				
<b>End ball bearing plunger</b>	ZC2 J01 ZC2 J02	0.1 m/s	<b>ZC2 JE66</b>	0.205
<b>End roller plunger steel</b>	ZC2 J01 ZC2 J02	1 m/s	<b>ZC2 JE62</b>	0.200
	ZC2 J04	1 m/s	<b>ZC2 JE82</b>	0.200
<b>Side plunger with horizontal roller steel</b>	ZC2 J01 ZC2 J02	0.6 m/s	<b>ZC2 JE64</b>	0.245
	ZC2 J04	0.6 m/s	<b>ZC2 JE84</b>	0.245
<b>Side plunger with vertical roller steel</b>	ZC2 J01 ZC2 J02	0.6 m/s	<b>ZC2 JE65</b>	0.245
	ZC2 J04	0.6 m/s	<b>ZC2 JE85</b>	0.245

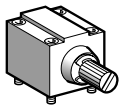
## Limit switches

Osiswitch® Application

For very severe applications, type XC2 J

Fixed or plug-in body

Adaptable sub-assemblies



ZC2 JE0

## Rotary heads (without operating lever)

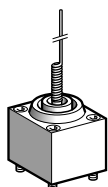
Type	Compatible bodies	Maximum actuation speed	Reference	Weight kg
<b>Spring return</b>				
Actuation from left AND right	ZC2 J●1	1.5 m/s	ZC2 JE01	0.210
	ZC2 J●2			
	ZC2 J●4	1.5 m/s	ZC2 JE04	0.210
Actuation from right	ZC2 J●1	1.5 m/s	ZC2 JE02	0.210
	ZC2 J●2			
	ZC2 J●4	1.5 m/s	ZC2 JE06	0.210
Actuation from left	ZC2 J●1	1.5 m/s	ZC2 JE03	0.210
	ZC2 J●2			
	ZC2 J●4	1.5 m/s	ZC2 JE07	0.210
Actuation from left OR right (see page 5/184)	ZC2 J●1	1.5 m/s	ZC2 JE05	0.210
	ZC2 J●2			

## Stay put (see page 5/184)

Actuation from left AND right	ZC2 J●1	1.5 m/s	ZC2 JE09	0.210
	ZC2 J●2			

## Multi-directional head (with operator)

Type of operator	Compatible bodies	Maximum actuation speed	Reference	Weight kg
<b>For actuation by any moving part</b>				
"Cat's whisker"	ZC2 J●1	1 m/s in any direction	ZC2 JE70	0.190
	ZC2 J●2			



ZC2 JE70

## Limit switches

## Osiswitch® Application

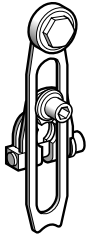
For very severe applications, type XC2 J

Fixed or plug-in body

Adaptable sub-assemblies



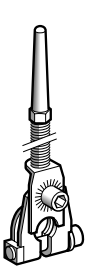
ZC2 JY1



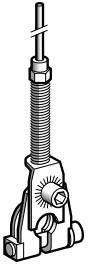
ZC2 JY31



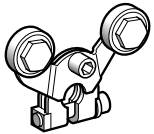
ZC2 JY51



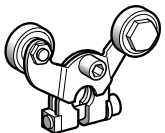
ZC2 JY81



ZC2 JY91



ZC2 JY71



ZC2 JY61

## Operating levers for rotary heads

Description	Reference	Weight kg	
<b>For actuation by 30° cam</b>			
<b>Roller lever</b> (1)	Thermoplastic	ZC2 JY11	0.030
	Steel	ZC2 JY13	0.040
	Steel, ball bearing mounted	ZC2 JY12	0.040
<b>Variable length roller lever</b> (1)	Thermoplastic	ZC2 JY31	0.045

## For actuation by any moving part

<b>Rigid rod lever</b>	Steel Ø 3 mm, L = 125 mm (1)	ZC2 JY51	0.035
<b>Spring lever</b> (1)		ZC2 JY81	0.040
<b>Spring-rod lever</b> (1)		ZC2 JY91	0.040

## For actuation by specific cam (only for operation with head ZC2 JE09, see page 5/184)

<b>Forked arm with rollers</b> thermoplastic (1)	1 track	ZC2 JY71	0.055
	2 track	ZC2 JY61	0.055

(1) Adjustable throughout 360°.

## Other versions

Other operating levers for rotary heads.  
Please consult your Regional Sales Office.

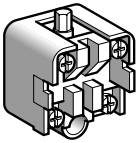
# Limit switches

Osiswitch® Application

For very severe applications, type XC2 J

Fixed or plug-in body

Adaptable sub-assemblies



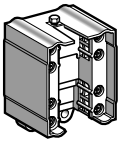
XCK Z01

## Contact blocks

Type of contact	Scheme	For body	Reference	Weight kg
Single-pole 1 C/O snap action		ZC2 JC1	XCK Z01	0.050

Double-pole 2 C/O simultaneous snap action		ZC2 JC2	XES P1021	0.045
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Double-pole 2 C/O staggered snap action		ZC2 JC4	XES P1031	0.045
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XES P1001

## Contact blocks with gold flashed contacts

Type of contact	Scheme	For body	Reference	Weight kg
Single-pole 1 C/O snap action		ZC2 JC18	XCK Z018	0.050

Double-pole 2 C/O simultaneous snap action		ZC2 JC28	XES P1028	0.055
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Double-pole 2 C/O staggered snap action		ZC2 JC48	XES P1038	0.055
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# Limit switches

Osiswitch® Application

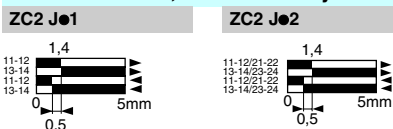
For very severe applications, type XC2 J

Fixed or plug-in body

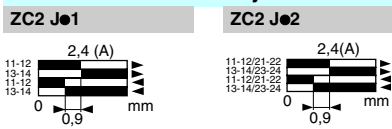
Adaptable sub-assemblies

## Operation (function diagrams)

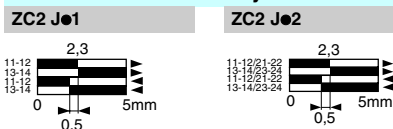
### Heads ZC2 JE61, JE66 with body



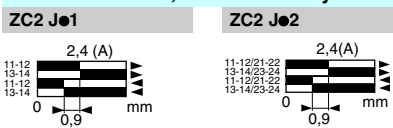
### Head ZC2 JE62 with body



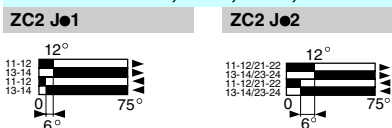
### Head ZC2 JE63 with body



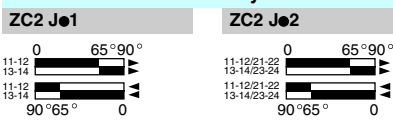
### Heads ZC2 JE64, JE65 with body



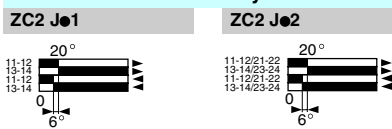
### Heads ZC2 JE01, JE02, JE03, JE05 with body



### Head ZC2 JE09 with body



### Head ZC2 JE70 with body



Contact operation

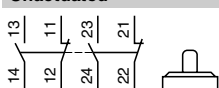
■ contact closed

□ contact open

(A) = cam displacement

### Heads ZC2 JE81, JE82 with body ZC2 Jø4

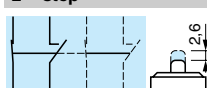
Unactuated



1<sup>st</sup> step

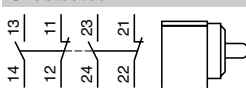


2<sup>nd</sup> step

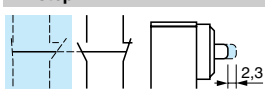


### Heads ZC2 JE83, JE84, J85 with body ZC2 Jø4

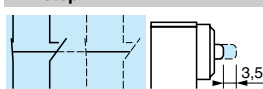
Unactuated



1<sup>st</sup> step

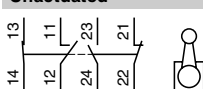


2<sup>nd</sup> step

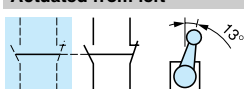


### Heads ZC2 JE04 with body ZC2 Jø4

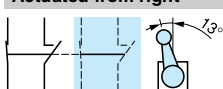
Unactuated



Actuated from left

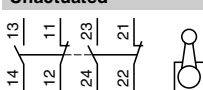


Actuated from right

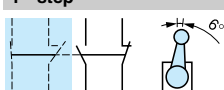


### Heads ZC2 JE06, JE07 with body ZC2 Jø4

Unactuated



1<sup>st</sup> step



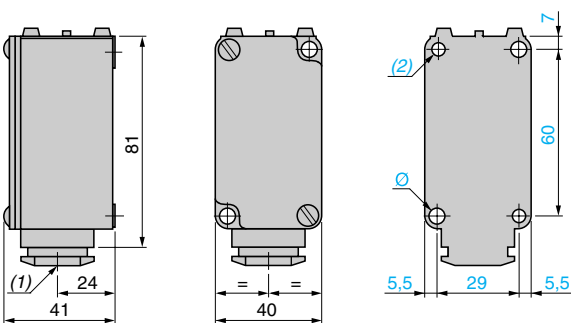
2<sup>nd</sup> step



## Dimensions

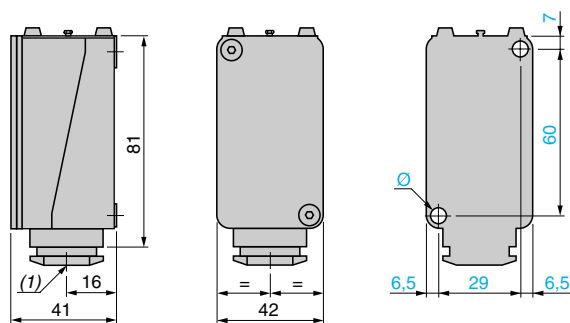
### Fixed bodies

ZC2 JC1, JC2, JC4



### Plug-in bodies

ZC2 JD1, JD2, JD4



(1) Incorporated cable gland

(2) Fixing from the rear by 2 M5 screws, depth of thread on switch: 10 mm

Ø: fixing from the front via 2 holes Ø 5.5

(1) Incorporated cable gland

Ø: fixing from the rear by 2 M6 screws

Fixing from the front via 2 holes Ø 5.5 (remove front part of switch for access)



# Limit switches

Osiswitch® Application

For very severe applications, type XC2 J

Fixed or plug-in body

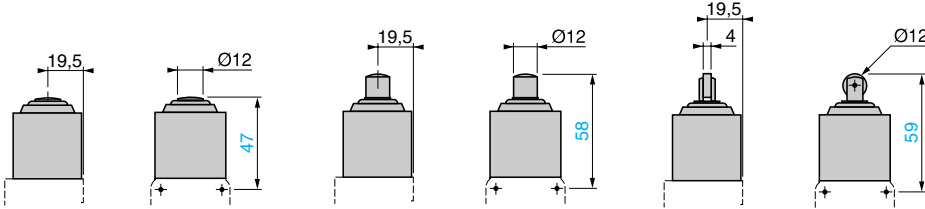
Adaptable sub-assemblies

## Plunger heads

ZC2 JE61, JE81

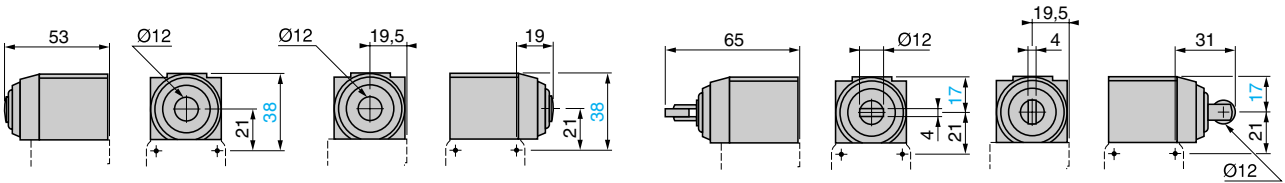
ZC2 JE66

ZC2 JE62, JE82



ZC2 JE63, JE83 (2 position)

ZC2 JE64, JE84, JE65, JE85 (2 position)

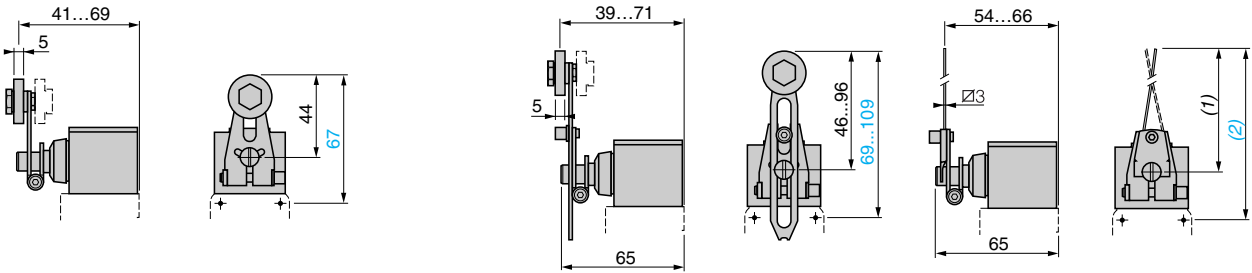


## Rotary heads (ZC2 JE01 to JE07) with operating lever

ZC2 JY11, JY12, JY13

ZC2 JY31

ZC2 JY51

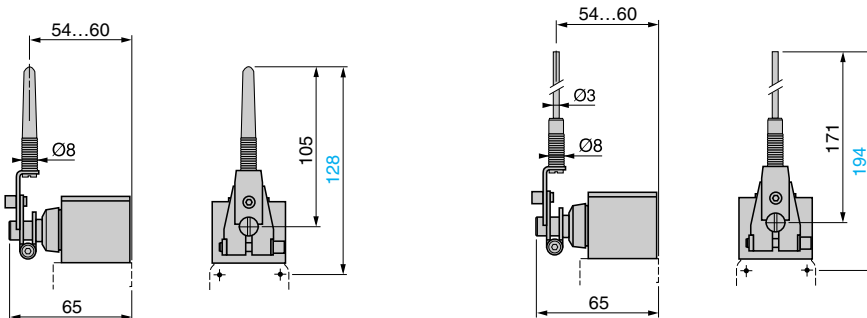


(1) 125 max.

(2) 148 max.

ZC2 JY81

ZC2 JY91



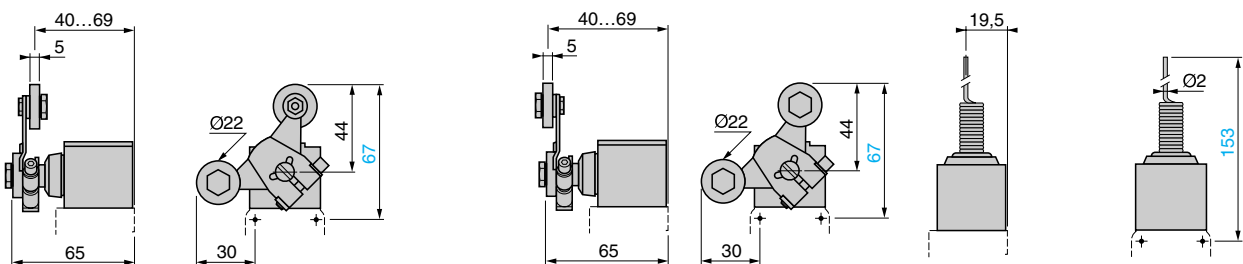
## Rotary heads (ZC2-JE09) with operating lever

ZC2 JY61

ZC2 JY71

## Multi-directional heads

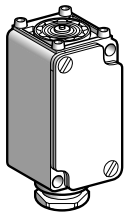
ZC2 JE70



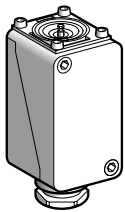
# Limit switches

## Osiswitch® Application

For very severe applications, type XC2 J  
Fixed or plug-in body. Adaptable sub-assemblies for  
low temperature applications (- 40 °C)



ZC2 JC06



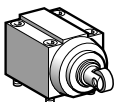
ZC2 JD06

### Bodies with contacts for plunger or rotary head

Type	With contact block	Scheme	Reference	Weight kg
<b>Fixed bodies</b>				
1 step	Single-pole 1 C/O snap action (XCK Z01)		ZC2 JC16	0.355
	Double-pole 2 C/O simultaneous snap action (XES P1021)		ZC2 JC26	0.355
2 step	Double-pole 2 C/O staggered snap action (XES P1031)		ZC2 JC46	0.355
<b>Plug-in bodies</b>				
1 step	Single-pole 1 C/O snap action		ZC2 JD16	0.380
	Double-pole 2 C/O simultaneous snap action		ZC2 JD26	0.380
2 step	Double-pole 2 C/O staggered snap action		ZC2 JD46	0.380

### Plunger heads

Type of operator	Compatible bodies	Maximum actuation speed	Reference	Weight kg
<b>For actuation on end</b>				
End plunger metal	ZC2 J016	0.5 m/s	ZC2 JE616	0.195
	ZC2 J026			
	ZC2 J046	0.5 m/s	ZC2 JE816	0.195
Side plunger metal	ZC2 J016	0.5 m/s	ZC2 JE636	0.240
	ZC2 J026			
	ZC2 J046	0.5 m/s	ZC2 JE836	0.240
<b>For actuation by 30° cam</b>				
End ball bearing plunger	ZC2 J016	0.1 m/s	ZC2 JE666	0.205
	ZC2 J026			
End roller plunger steel	ZC2 J016	1 m/s	ZC2 JE626	0.200
	ZC2 J026			
	ZC2 J046	1 m/s	ZC2 JE826	0.200
Side plunger with horizontal roller steel	ZC2 J016	0.6 m/s	ZC2 JE646	0.245
	ZC2 J026			
	ZC2 J046	0.6 m/s	ZC2 JE846	0.245
Side plunger with vertical roller steel	ZC2 J016	0.6 m/s	ZC2 JE656	0.245
	ZC2 J026			
	ZC2 J046	0.6 m/s	ZC2 JE856	0.245

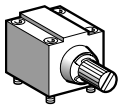


ZC2 JE06

# Limit switches

## Osiswitch® Application

For very severe applications, type XC2 J  
Fixed or plug-in body. Adaptable sub-assemblies for  
low temperature applications (- 40 °C)



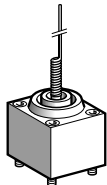
ZC2 JE06

### Rotary heads (without operating lever)

Type	Compatible bodies	Maximum actuation speed	Reference	Weight kg
<b>Spring return</b>				
Actuation from left AND right	ZC2 J●16	1.5 m/s	ZC2 JE016	0.210
	ZC2 J●26			
	ZC2 J●46	1.5 m/s	ZC2 JE046	0.210
Actuation from right	ZC2 J●16	1.5 m/s	ZC2 JE026	0.210
	ZC2 J●26			
	ZC2 J●46	1.5 m/s	ZC2 JE066	0.210
Actuation from left	ZC2 J●16	1.5 m/s	ZC2 JE036	0.210
	ZC2 J●26			
	ZC2 J●46	1.5 m/s	ZC2 JE076	0.210
Actuation from left OR right (see page 5/184)	ZC2 J●16	1.5 m/s	ZC2 JE056	0.210
	ZC2 J●26			

### Stay put (see page 5/184)

Actuation from left AND right	ZC2 J●16	1.5 m/s	ZC2 JE096	0.210
	ZC2 J●26			



ZC2 JE706

### Multi-directional head (with operator)

Type of operator	Compatible bodies	Maximum actuation speed	Reference	Weight kg
<b>For actuation by any moving part</b>				
"Cat's whisker"	ZC2 J●16	1 m/s in any direction	ZC2 JE706	0.190
	ZC2 J●26			

# Limit switches

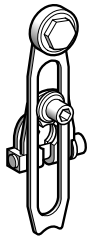
## Osiswitch® Application

For very severe applications, type XC2 J

Fixed or plug-in body. Adaptable sub-assemblies for low temperature applications (- 40 °C)



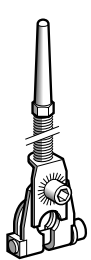
ZC2 JY1



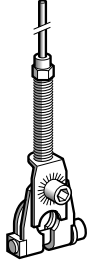
ZC2 JY31



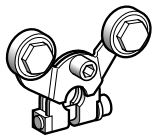
ZC2 JY51



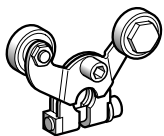
ZC2 JY81



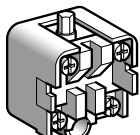
ZC2 JY91



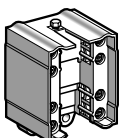
ZC2 JY71



ZC2 JY61



XCK Z01



XES P10

### Operating levers for rotary heads

Description		Reference	Weight kg
<b>For actuation by 30° cam</b>			
Roller lever (1)	Thermoplastic	ZC2 JY11	0.030
	Steel	ZC2 JY13	0.040
	Steel, ball bearing mounted	ZC2 JY12	0.040
Variable length roller lever (1)	Thermoplastic	ZC2 JY31	0.045

### For actuation by any moving part

Rigid rod lever	Steel Ø 3 mm, L = 125 mm (1)	ZC2 JY51	0.035
Spring lever (1)		ZC2 JY81	0.040
Spring-rod lever (1)		ZC2 JY91	0.040

### For actuation by specific cam (only for operation with head ZC2 JE096, see page 5/184)

Forked arm with rollers thermoplastic (1)	1 track	ZC2 JY71	0.055
	2 track	ZC2 JY61	0.055

### Contact blocks

Type of contact	Scheme	For body	Reference	Weight kg
Single-pole 1 C/O snap action		ZC2 JC16	XCK Z01	0.050
Double-pole 2 C/O simultaneous snap action		ZC2 JC26	XES P1021	0.045
Double-pole 2 C/O staggered snap action		ZC2 JC46	XES P1031	0.045

(1) Adjustable throughout 360°.

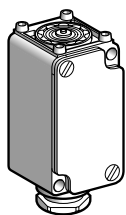
### Other versions

Other operating levers for rotary heads.  
Please consult your Regional Sales Office.

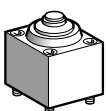
# Limit switches

## Osiswitch® Application

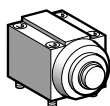
For very severe applications, type XC2 J  
Fixed body. Adaptable sub-assemblies for  
high temperature applications (+ 120 °C)



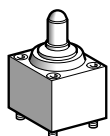
ZC2 JC15



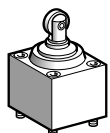
ZC2 JE15



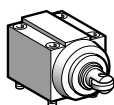
ZC2 JE35



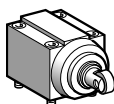
ZC2 JE665



ZC2 JE25



ZC2 JE45



ZC2 JE55

### Bodies with contacts for plunger or rotary head

Type	With contact block	Scheme	Reference	Weight kg
<b>Fixed bodies</b>				
1 step	Single-pole 1 C/O snap action (XCK Z01)		ZC2 JC15	0.355
	Double-pole 2 C/O simultaneous snap action (XES P10215)		ZC2 JC25	0.355
2 step	Double-pole 2 C/O staggered snap action (XES P10315)		ZC2 JC45	0.355

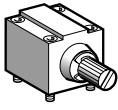
### Plunger heads

Type of operator	Compatible bodies	Maximum actuation speed	Reference	Weight kg
<b>For actuation on end</b>				
End plunger metal	ZC2 JC15 ZC2 JC25	0.5 m/s	ZC2 JE615	0.195
	ZC2 JC45	0.5 m/s	ZC2 JE815	0.195
Side plunger metal	ZC2 JC15 ZC2 JC25	0.5 m/s	ZC2 JE635	0.240
	ZC2 JC45	0.5 m/s	ZC2 JE835	0.240
<b>For actuation by 30° cam</b>				
End ball bearing plunger	ZC2 JC15 ZC2 JC25	0.1 m/s	ZC2 JE665	0.205
End roller plunger steel	ZC2 JC15 ZC2 JC25	1 m/s	ZC2 JE625	0.200
	ZC2 JC45	1 m/s	ZC2 JE825	0.200
Side plunger with horizontal roller steel	ZC2 JC15 ZC2 JC25	0.6 m/s	ZC2 JE645	0.245
	ZC2 JC45	0.6 m/s	ZC2 JE845	0.245
Side plunger with vertical roller steel	ZC2 JC15 ZC2 JC25	0.6 m/s	ZC2 JE655	0.245
	ZC2 JC45	0.6 m/s	ZC2 JE855	0.245

# Limit switches

## Osiswitch® Application

For very severe applications, type XC2 J  
Fixed body. Adaptable sub-assemblies for  
high temperature applications (+ 120 °C)



ZC2 JE05

### Rotary heads (without operating lever)

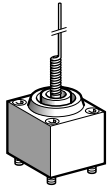
Type	Compatible bodies	Maximum actuation speed	Reference	Weight kg
<b>Spring return</b>				
Actuation from left AND right	ZC2 JC15	1.5 m/s	ZC2 JE015	0.210
	ZC2 JC25			
	ZC2 JC45	1.5 m/s	ZC2 JE045	0.210
Actuation from right	ZC2 JC15	1.5 m/s	ZC2 JE025	0.210
	ZC2 JC25			
	ZC2 JC45	1.5 m/s	ZC2 JE065	0.210
Actuation from left	ZC2 JC15	1.5 m/s	ZC2 JE035	0.210
	ZC2 JC25			
	ZC2 JC45	1.5 m/s	ZC2 JE075	0.210

### Stay put (see page 5/184)

Actuation from left AND right	ZC2 JC15 ZC2 JC25	1.5 m/s	ZC2 JE095	0.210
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### Multi-directional head (with operator)

Type of operator	Compatible bodies	Maximum actuation speed	Reference	Weight kg
<b>For actuation by any moving part</b>				
"Cat's whisker"	ZC2 JC15 ZC2 JC25	1 m/s in any direction	ZC2 JE705	0.190



ZC2 JE705

# Limit switches

## Osiswitch® Application

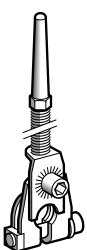
For very severe applications, type XC2 J  
Fixed body. Adaptable sub-assemblies for  
high temperature applications (+ 120 °C)



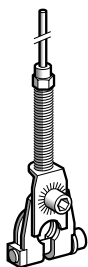
ZC2 JY1



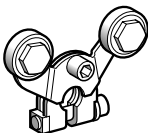
ZC2 JY51



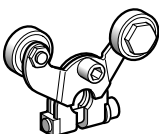
ZC2 JY815



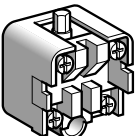
ZC2 JY915



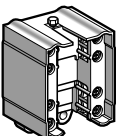
ZC2 JY715



ZC2 JY615



XCK Z015



XES P1015

### Operating levers for rotary heads

Description	Reference	Weight kg
<b>For actuation by 30° cam</b>		
<b>Roller lever (1)</b>	Thermoplastic	ZC2 JY115 0.030
	Steel	ZC2 JY13 0.040
	Steel, ball bearing mounted	ZC2 JY12 0.040
<b>Offset roller lever (1)</b>	Thermoplastic	ZC2 JY215 0.035
<b>Variable length roller lever (1)</b>	Thermoplastic	ZC2 JY315 0.035
<b>Variable length offset roller lever (1)</b>	Thermoplastic	ZC2 JY415 0.040
<b>Rigid rod lever</b>	Steel $\varnothing$ 3 mm, L = 125 mm (1)	ZC2 JY51 0.035
<b>Spring lever (1)</b>		ZC2 JY815 0.040
<b>Spring-rod lever (1)</b>		ZC2 JY915 0.040

### For actuation by any moving part

<b>Forked arm with rollers thermoplastic (1)</b>	1 track	ZC2 JY715 0.055
	2 track	ZC2 JY615 0.055

### For actuation by specific cam (only for operation with head ZC2 JE095, see page 5/184)

<b>Forked arm with rollers thermoplastic (1)</b>	1 track	ZC2 JY715 0.055
	2 track	ZC2 JY615 0.055

### Contact blocks

Type of contact	Scheme	For body	Reference	Weight kg
<b>Single-pole 1 C/O snap action</b>		ZC2 JC15	XCK Z015	0.050
<b>Double-pole 2 C/O simultaneous snap action</b>		ZC2 JC25	XES P10215	0.045
<b>Double-pole 2 C/O staggered snap action</b>		ZC2 JC45	XES P10315	0.045

(1) Adjustable throughout 360°.

### Other versions

Other operating levers for rotary heads.  
Please consult your Regional Sales Office.





# Miniature snap switches

Osiswitch®

Subminiature design, DIN 41635 B format, sealed

Sub-subminiature design, DIN 41635 D format

Switch type	XEP4 E1●●, XEP5 P1W2 Plunger	XEP4 E1●●A326, XEP5 P1W2Z55B Flat lever	XEP4 E1●●A454 Roller lever
<b>Environment characteristics</b>			
Lever fixing position (1)	–	A	A
Switch actuation	On end	Horizontal	
Product certifications	CE, IEC 60947-5-1, EN 60947-5-1, c UR us, UL 1054, EN 61058		
Degree of protection	IP 67 XEP4 E1FD●●, case IP 67 and tags IP 00 XEP4 E1W7●●, case IP 40 and tags IP 00 XEP 5P1W2●●		
Operating temperature	- 40...+ 105 °C XEP4 E1FD●●, - 40...+125 °C XEP4 E1W●●● and XEP5 P1●●●		
Materials	Enclosure	Polyester XEP4, diallyl-phtalate XEP5	
	Lever	–	Stainless steel
	Contact	AgCdO XEP4 E1●●, Ag XEP5	
	Tags	Tinned brass XEP4 E1W●●●, gold plated brass XEP5 P1●●	

## Mechanical characteristics

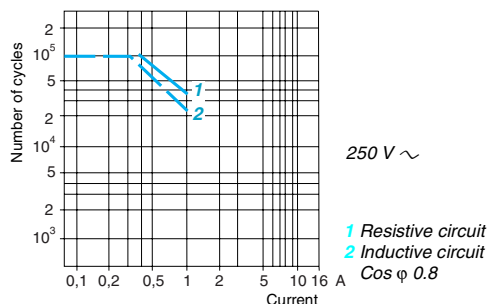
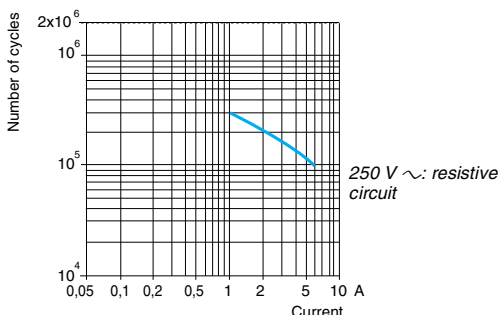
		Lever fixing position (1)			
Maximum tripping force	XEP4	A	2.5 N	0.63 N	0.83 N
		B	2.5 N	1.25 N	1.67 N
	XEP5		2 N	0.80 N	–
Minimum release force	XEP4	A	0.80 N	0.20 N	0.27 N
		B	0.80 N	0.40 N	0.53 N
	XEP5		0.40 N	0.15 N	–
Maximum permissible end of travel force	XEP4	A	10 N	2.5 N	3.33 N
		B	10 N	5 N	6.67 N
	XEP5		10 N	–	–
Tripping point (TP) (2)	XEP4	A	8.40 +/- 0.3 mm	10.7 +/- 1.7 mm	15.5 +/- 1.4 mm
		B	8.40 +/- 0.3 mm	9.6 +/- 1.0 mm	14.5 +/- 0.9 mm
	XEP5		8.40 mm	9.20 mm	–
Maximum differential travel	XEP4	A	0.13 mm	0.52 mm	0.39 mm
		B	0.13 mm	0.26 mm	0.20 mm
	XEP5		0.06 mm	0.25 mm	–
Minimum overtravel	XEP4	A	0.60 mm	2.40 mm	1.80 mm
		B	0.60 mm	1.20 mm	0.90 mm
Inter-contact distance	XEP4		0.4 mm	–	–
	XEP5		0.3 mm	–	–
Mechanical durability	XEP4		2 million operating cycles		
	XEP5		0.1 million operating cycles		

## Electrical characteristics

Operational characteristics	XEP4	AC-15: B300 (Ue: 240 V, Ie: 1.5 A) DC-13: R300 (Ue: 250 V, Ie: 0.1 A) conforming to IEC 60947-5-1, EN 60947-5-1 Appendix A 125-250 V AC 6.0 A conforming to UL 1054 6 (1) A 250 V AC 10,000 cycles conforming to EN 61058
	XEP5	AC-15: D300 (Ue: 240 V, Ie: 0.3 A) conforming to IEC 60947-5-1, EN 60947-5-1 Appendix A
Thermal current	XEP4	7.5 A on 250 V (50/60 Hz)
	XEP5	8.5 A on 250 V (50/60 Hz)
Connection	XEP4	XEP4 E1W7●: 2.8 mm cable clip tags XEP4 E1FD: Pre-cabled (horizontally in-line), 3 x 0.5 mm <sup>2</sup> , length 0.5 m
	XEP5	Solder tags

## Operating curves

XEP4 E1●●	XEP5 P1●●
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(1) Miniature snap switches fitted with a lever are supplied with the lever fixed in position A (see page 5/150). For basic (plunger) snap switches, it is possible to fix a lever in position A or B, depending on the required tripping conditions (see page 5/150).

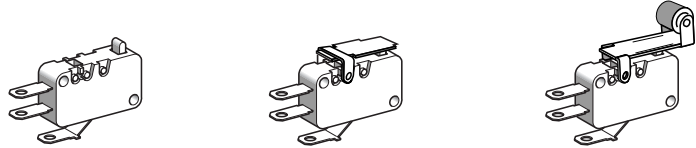
(2) Position of the operator in relation to the switch fixings (fixing hole centre line), at the instant the contact changes state.

# Miniature snap switches

Osiswitch®

Miniature design, DIN 41635 A format

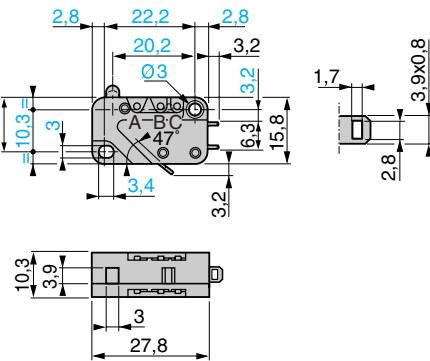
## References



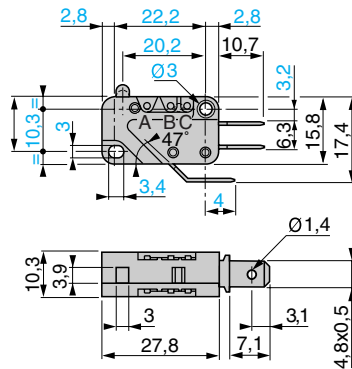
Type of operator		Plunger	Flat lever (1)	Roller lever (1)	
<p>Single-pole C/O snap action</p>	Standard Solder tags	XEP3 S1W2 (2)	XEP3 S1W2B524 (2)	XEP3 S1W2B529 (2)	
	4.8 mm cable clip tags	XEP3 S1W6 (2)	XEP3 S1W6B524 (2)	XEP3 S1W6B529 (2)	
	6.35 mm cable clip tags	XEP3 S1W3 (2)	XEP3 S1W3B524 (2)	XEP3 S1W3B529 (2)	
	Weight (g)	5.6	6.3	6.6	
	Very low operating force	Solder tags	XEP3 S2W2 (2)	XEP3 S2W2B524 (2)	XEP3 S2W2B529 (2)
	contacts	4.8 mm cable clip tags	XEP3 S2W6 (2)	XEP3 S2W6B524 (2)	XEP3 S2W6B529 (2)
	6.35 mm cable clip tags	XEP3 S2W3 (2)	XEP3 S2W3B524 (2)	XEP3 S2W3B529 (2)	
	Weight (g)	5.6	6.3	6.6	
Separate components	Flat lever (3)	ZEP3 L524 (2)			
	Weight (g)	0.7			
	Roller lever (3)	ZEP3 L529 (2)			
	Weight (g)	1			

## Dimensions

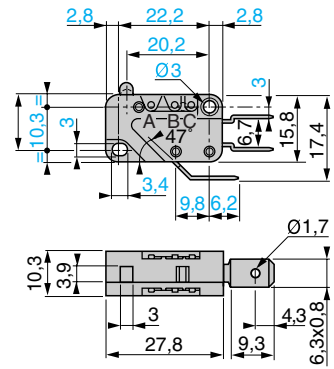
### XEP3 S●W2



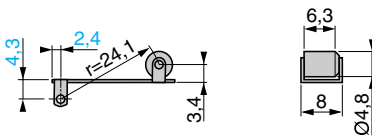
### XEP3 S●W6



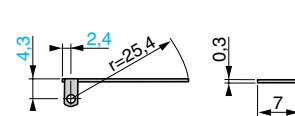
### XEP3 S●W3



### ZEP3 L529



### ZEP3 L524



(1) In order to avoid damage to the fixing spigots, removal of the lever from complete products is not recommended.

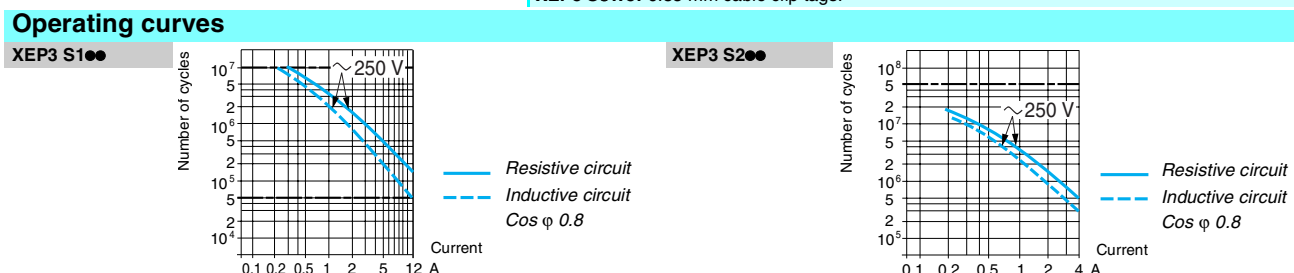
(2) Switches sold in lots of 10.

(3) Levers only for mounting on basic (plunger) snap switches (XEP3 S●W2, XEP3 S●W3 and XEP3 S●W6), in fixing positions A, B or C.

Switch type Type of operator	XEP3 S $\bullet$ W2	XEP3 S $\bullet$ W2B254	XEP3 S $\bullet$ W2B259
	Plunger	Flat lever	Roller lever
<b>Environment characteristics</b>			
Lever fixing position (1)	–	B	B
Switch actuation	On end	Horizontal	
Product certifications	UR us, CE, IEC/EN 60947-5-1, UL 1054, EN 61058-1		
Degree of protection	Case IP 40 and tags IP 00		
Operating temperature	- 25...+ 125 °C		
Materials	Enclosure	Polyester	
	Lever	–	Stainless steel
	Contact	AgNi	Stainless steel, glass reinforced polyamide roller

<b>Mechanical characteristics</b>				
		Lever fixing position (1)		
Maximum tripping force	Standard	A	0.8 N	
		B	0.8 N	
		C	0.8 N	
	Very low force	A	0.25 N	
		B	0.25 N	
		C	0.25 N	
Minimum release force	Standard	A	0.20 N	
		B	0.20 N	
		C	0.20 N	
	Very low force	A	0.05 N	
		B	0.05 N	
		C	0.05 N	
Maximum permissible end of travel force	Standard, very low force	A	20 N	
		B	20 N	
		C	20 N	
Tripping point (TP) (2)	Standard, very low force	A	14.70 $\pm$ 0.4 mm	
		B	14.70 $\pm$ 0.4 mm	
		C	14.70 $\pm$ 0.4 mm	
			A	15.20 $\pm$ 2.5 mm
			B	15.20 $\pm$ 1.0 mm
			C	15.20 $\pm$ 0.8 mm
Maximum differential travel	Standard, very low force	A	0.35 mm	
		B	0.35 mm	
		C	0.35 mm	
			A	1.40 mm
			B	0.70 mm
			C	0.53 mm
Minimum overtravel	Standard	A	1.20 mm	
		B	1.20 mm	
		C	1.20 mm	
	Very low force	A	1.10 mm	
		B	1.10 mm	
		C	1.10 mm	
Inter-contact distance		0.40 mm		
Mechanical durability for 2/3 overtravel	Standard	20 million operating cycles		
	Very low force	50 million operating cycles		

<b>Electrical characteristics</b>			
Operational characteristics	Standard	AC-15: B300 (Ue: 240 V, Ie: 1.5 A) DC-13: R300 (Ue: 250 V, Ie: 0.1 A) conforming to IEC/EN 60947-5-1 Appendix A 125-250 VAC 10.1A - 1/2 HP conforming to UL 1054 12 (3) A 250 V AC 10,000 cycles conforming to EN 61058-1	
	Very low force	AC-15: D300 (Ue: 240 V, Ie: 0.3 A) conforming to IEC/EN 60947-5-1 Appendix A 125-250 V AC 4 A - 1/10 HP conforming to UL 1054 4 (1) A 250 V AC 50,000 cycles conforming to EN 61058-1	
Thermal current	Standard	15 A on 250 V (50/60 Hz)	
	Very low force	5 A on 250 V (50/60 Hz)	
Connection		XEP3 S $\bullet$ W2: solder tags, XEP3 S $\bullet$ W6: 4.8 mm cable clip tags XEP3 S $\bullet$ W3: 6.35 mm cable clip tags.	



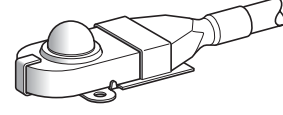
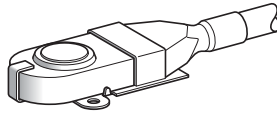
(1) Miniature snap switches fitted with a lever are supplied with the lever fixed in position B (see page 5/152). For basic (plunger) snap switches, it is possible to fix a lever in position A, B or C, depending on the required tripping conditions (see page 5/152).

(2) Position of the operator in relation to the switch fixings (fixing hole centre line), at the instant the contact changes state.

# Miniature snap switches

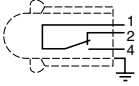
Osiswitch®  
Sealed design  
Pre-cabled

Type of head | Plunger (fixing by the body)



Type of operator | Head with flat plunger | Head with domed encased plunger

## References



Single-pole C/O snap action

Wiring:  
1 Black  
2 Brown  
4 Blue

XC 010L2

XC 011L2

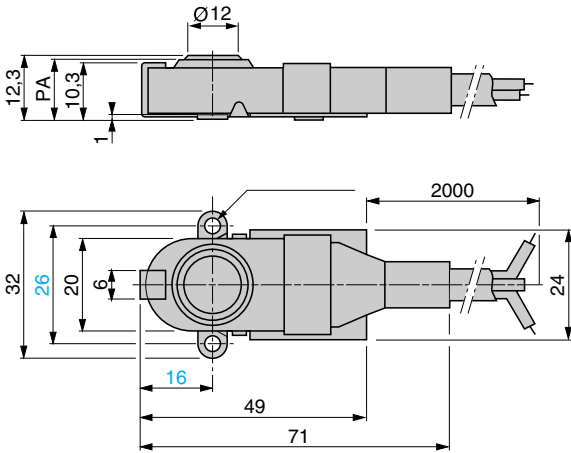
Weight (kg)

0.145

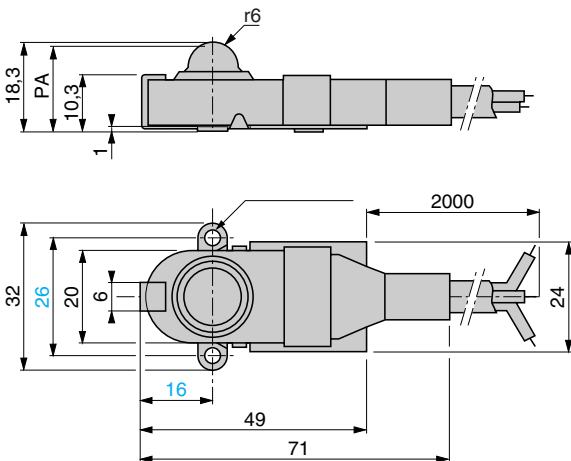
0.150

## Dimensions

XC 010L2



XC 011L2



# Miniature snap switches

Osiswitch®  
Sealed design  
Pre-cabled

Switch type	XC 010●	XC 011●
<b>Environment characteristics</b>		
Switch actuation	On end, flat plunger (1)	On end, domed plunger (1)
Product certifications	CE, IEC 60947-5-1	
Degree of protection	IP 66	
Operating temperature	0...+ 85 °C	
Materials	Internal housing	Metal
	Casing	Nitrile
	Fixing support	Steel, zinc passivated
	Contact	Ag
<b>Mechanical characteristics</b>		
Maximum tripping force	5.3 N	
Minimum release force	1.5 N	
Maximum permissible end of travel force	30 N	
Tripping point (TP) (2)	11.4±0.4 mm	17.4±0.5 mm
Maximum differential travel	0.2 mm	
Minimum overtravel	0.2 mm	
Inter-contact distance	0.5 mm	
Mechanical durability	2 million operating cycles	
<b>Electrical characteristics</b>		
Operational current	1 A on 24 V (50/60 Hz)	
Thermal current/insulation voltage	12 A/60 V	
Connection	A05 VVF cable, 3 x 0.75 mm <sup>2</sup> , length 2 metres, overall diameter ≤ 7.6 mm	
Electrical durability	AC-15: 0.5 million operating cycles	
<b>Operating curve</b>		

(1) Manual actuation must be made by an intermediate insulated part, in order to meet basic safety requirements.

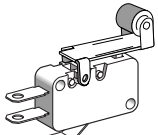
One of the two fixing holes must also be used as an earth protection terminal.

(2) Distance between the base of the switch and the top of the plunger at the instant the contact changes state (see dimensions, page 5/154).

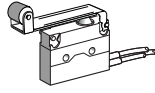
# Miniature snap switches

Osiswitch®  
Miniature design  
General

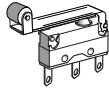
## Presentation



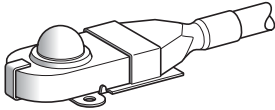
XEP3



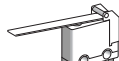
XEP4 E1W●



XEP4 E1FD●

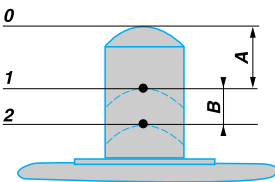


XC0

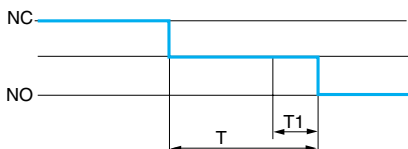


XEP5

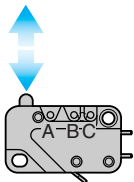
## Terminology



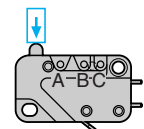
## Mechanical characteristics



T1: bounce time  
T: changeover time



## Mounting



## Electromechanical detection

■ Osiswitch miniature snap switches, featuring electromechanical technology, assure the following functions:

- detection of presence or absence,
- detection of position.

Actuation of the operator (plunger or lever) on the miniature snap switch causes the electrical contact to change state. This information can then be processed by a PLC controlling the installation.

Osiswitch miniature snap switches can be used both for industrial applications and the building sector.

## Features

■ Osiswitch miniature snap switches incorporate a C/O snap action, single break, contact.

- They are characterised by:
- high electrical ratings for their very small size,
  - short tripping travel,
  - low tripping force,
  - high repeat accuracy on the tripping points,
  - long service life.

## Forces

- Maximum tripping force:  
maximum force which must be applied to the operator to move it from the rest (unactuated) position to the trip position (tripping point).
- Minimum release force:  
value to which the force on the operator must be reduced to allow the snap action mechanism to return to its rest (unactuated) position.
- Maximum permissible end of travel force:  
maximum force that can be applied to the operator at the end of its travel without damaging the switch.

## Position / Travel

1 Tripping point: position of the operator in relation to the switch fixings (fixing hole centre line) at the instant the switch contact changes state.

A Differential travel: distance between the tripping point and the position at which the snap action mechanism returns to its initial state on release of the operator.

2 Overtravel limit: position of the operator when an extreme force has moved it to the effective end of its available travel.

B Overtravel: distance between the tripping point and the overtravel limit.

The reference point for the figures given for forces and travel is a point F, which is situated on the plunger in the case of a basic switch or at 3 mm from the end of the plain lever in the case of a lever operated switch.

## Changeover time

- This is the time taken by the moving contact when moving from one fixed contact to another until it becomes fully stable (contact bounce included).
- This time is related to the inter-contact distance, the mechanical characteristics of the snap action mechanism and the mass of the moving element. However, due to the snap action mechanisms used, the time is largely independent to the speed of operation. It is normally less than 20 milliseconds (including bounce times of less than 5 ms).

## Operating speed and maximum usable operating rate

- Our miniature snap switches are suitable for a wide range of operating speeds: generally, from 1 mm/mn to 1 m/s.
- The maximum usable operating rate on a light electrical load may be as high as 10 operations/second.

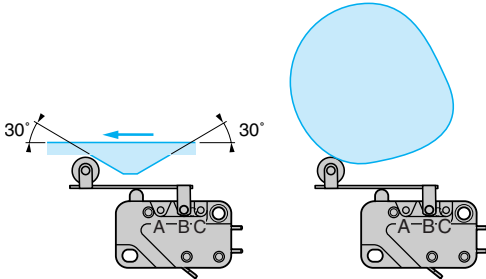
## Mounting and operation

- To conform to the leakage paths and air gaps in standards EEC 24 - EN/IEC 61058 and EN/IEC 60947:
  - an insulation pad must be inserted between the snap switch and the fixing surface if the latter is metal,
  - manual operation of a metal actuator must only be carried out with the aid of an intermediate actuator made of an insulating material.
- The installer must ensure adequate protection against direct contact with the output terminals.

## Actuation method

- Direct operation:
    - the plunger should preferably be actuated along its axis. However, the majority of our miniature snap switches will accept skewed operation provided the angle of actuation is not more than 45°.
- The travel of the actuator must not be limited to only reaching the tripping point. The actuator must always be operated in such a manner so that the plunger reaches a point at least 0.5 times the stated overtravel value of the switch. Steps must also be taken to ensure that it does not reach its end of travel nor exceed the maximum permissible end of travel force.

## Mounting (continued)



## Actuation method (continued)

- Lever operators:
  - when actuation is by a roller lever, force should preferably be applied in the direction shown in the diagrams opposite,
  - where the movements involved are fast, the ramp should be so designed as to ensure that the operator is not subjected to any violent impact or abrupt release.

## Fixing - Tightening torque

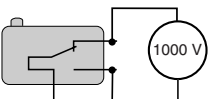
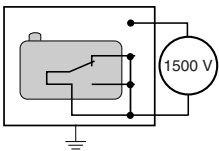
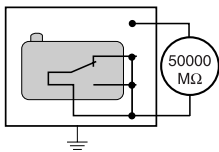
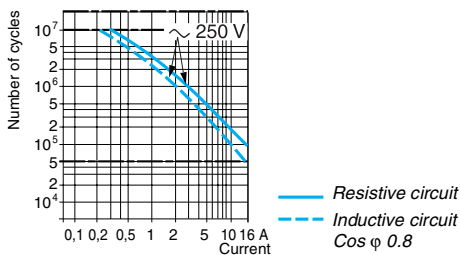
- The tightening torque of the fixing screws must conform to the following values:

Ø of fixing screw		2	2.5	3	3.5	4
Tightening torque (cm.N)	Maximum	25	35	60	100	150
	Minimum	15	25	40	60	100

## Resistance to mechanical shock and vibration

- Resistance to shock and vibration depends on the mass of the moving parts and on the forces holding the contacts together.
- In general, for a miniature snap switch without accessory:
  - vibration > 10 gn, 10 to 500 Hz,
  - shock > 50 gn 11 ms 1/2 sine wave.

## Electrical characteristics



## Operating curves

- These indicate the electrical life of the miniature snap switches under standard conditions (20°C, 1 cycle/2 seconds), by showing the number of switching operations which can be performed with given types of load. For sealed snap switches, the operating rate is 1 cycle/6 s.

## Insulation resistance

- The insulation resistance of the miniature snap switches is generally greater than 50,000 MΩ, measured at 500 V d.c.

## Dielectric strength

- The dielectric strength of our miniature snap switches is generally superior to:
  - 1500 Volts between live parts and earth,
  - 1000 Volts between contacts,
  - 600 Volts between contacts for switches with an inter-contact distance less than 0.3 mm.

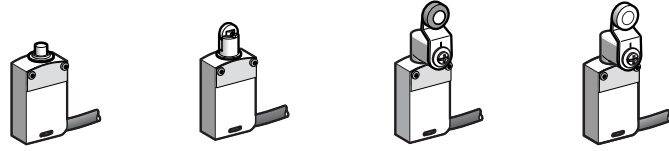
# Safety detection solutions

## Safety limit switches

Miniature design, metal, type XCS M

Pre-cabled

Type of head	Plunger (fixing by the body)	Rotary (fixing by the body)	
--------------	------------------------------	-----------------------------	--



Type of operator	Metal end plunger	Roller plunger	Thermoplastic roller lever	Steel roller lever
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### References

<p>3-pole N/C+N/C+N/O snap action contact</p>	<b>XCS M3910L1</b> 	<b>XCS M3902L1</b> 	<b>XCS M3915L1</b> 	<b>XCS M3916L1</b> 
	<b>XCS M3710L1</b> 	<b>XCS M3702L1</b> 	<b>XCS M3715L1</b> 	<b>XCS M3716L1</b> 
<p>4-pole N/C+N/C+N/O+N/O snap action contact</p>	<b>XCS M4110L1</b> 	<b>XCS M4102L1</b> 	<b>XCS M4115L1</b> 	<b>XCS M4116L1</b> 
	<b>Weight (kg)</b> 0.165	0.170	0.205	0.210
<b>Contact operation</b> 	(A) = cam displacement (P) = positive opening point ⊕ N/C contact with opening positive operation			

### Complementary characteristics not shown under general characteristics (page 37630/3)

<b>Switch actuation</b> <b>Type of actuation</b>	On end 	By 30° cam 	
<b>Maximum actuation speed</b>	0.5 m/s	0.5 m/s	1.5 m/s
<b>Mechanical durability</b>	10 million operating cycles		
<b>Minimum force or torque</b>	Tripping: 8.5 N	7 N	0.5 N.m
	Positive opening: 42.5 N	35 N	0.1 N.m
<b>Cabling</b>	3-pole contacts: PvR pre-cabled, 7 x 0.5 mm <sup>2</sup> , length 1 m (1)		
	4-pole contacts: PvR pre-cabled, 9 x 0.34 mm <sup>2</sup> , length 1 m (1)		

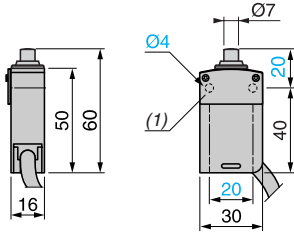
(1) For a 2 m long cable, replace L1 with L2.  
For a 5 m long cable, replace L1 with L5.





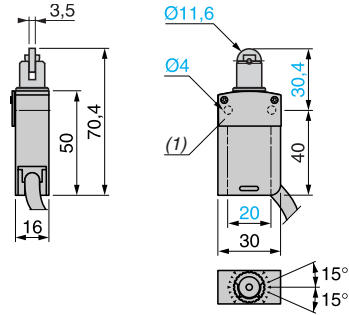
#### Dimensions

##### XCSM ●●10L1

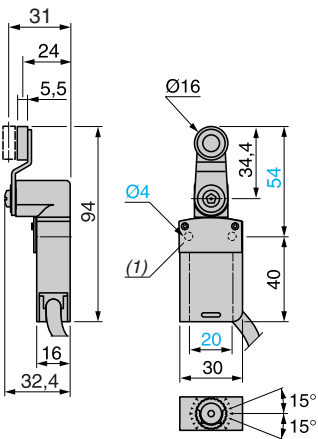


(1) Protective plate fixed by 5-lobe torque safety screws.

##### XCSM ●●02L1

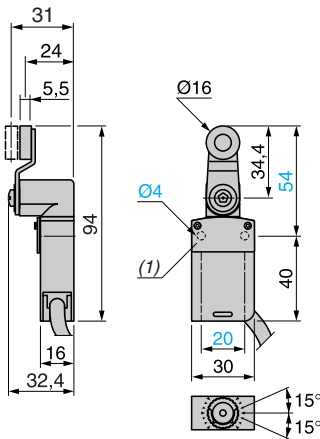


##### XCSM ●●15L1



(1) Protective plate fixed by 5-lobe torque safety screws.

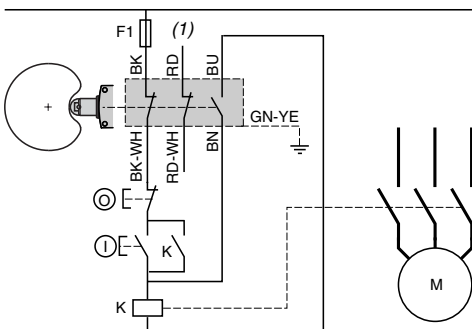
##### XCSM ●●16L1



#### Connections

##### Wiring to category 1 conforming to EN 954-1/ IEC 13849-1

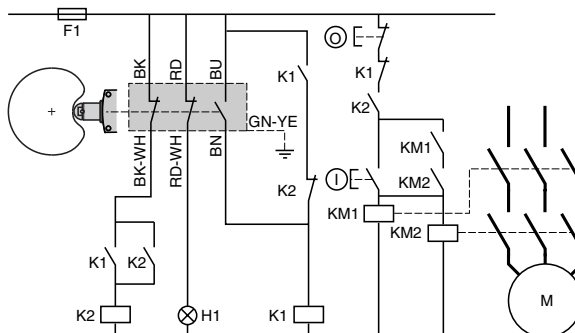
Example with 3-pole N/C+N/C+N/O contact and protection fuse to prevent shunting of the N/C contacts, either by cable damage or by tampering.



(1) Signalling contact

##### Wiring to category 3 conforming to EN 954-1/IEC 13849-1

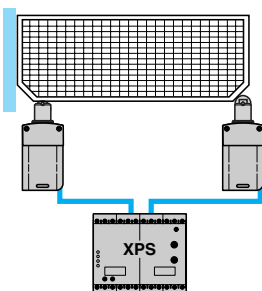
Example with 3-pole N/C+N/C+N/O contact with mixed redundancy of the contacts and the associated control relays. Opening and closing of the guard necessary to activate K1.



H1: "guard closed" indicator light

##### Example of guard monitoring using 2 switches and 1 safety module (category 4)

Operation in positive and negative (combined) mode



# Safety detection solutions

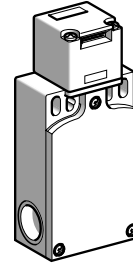
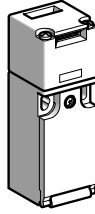
## Guard switches

Plastic, turret head (1), types XCS PA, XCS TA and XCS TE

1 or 2 cable entries M16 x 1.5 (2)

### Type of switch

### Without locking of actuator



### References of switches without actuator (⊖ N/C contact with positive opening operation)

2-pole N/C + N/O break before make slow break (3)		XCS PA592 ⊖	-
2-pole N/C + N/O make before break slow break (3)		XCS PA692 ⊖	-
2-pole N/C + N/C slow break (3)		XCS PA792 ⊖	-
3-pole N/C + N/O + N/O (2 N/O staggered) slow break (3)		-	XCS TA592 ⊖
3-pole N/C + N/C + N/O (N/O staggered) slow break (3)		-	XCS TA792 ⊖
3-pole N/C + N/C + N/C slow break (3)		-	XCS TA892 ⊖
Weight (kg)		0.110	0.160

### Characteristics

Actuation speed	Maximum: 0.5 m/s, minimum: 0.01 m/s
Resistance to forcible withdrawal of actuator	XCS PA, XCS TA: 2 N (50 N using actuators XCS Z12 or XCS Z13 together with guard retaining device XCS Z21) XCS TE: 500 N
Mechanical durability	XCS PA, XCS TA: > 1 million operating cycles XCS TE: 1 million operating cycles
Maximum operating rate	For maximum durability: 600 operating cycles per hour
Minimum force for extraction of actuator	≥ 15 to 30 N depending on type.
Cable entry	XCS PA, XCS TE: 1 entry tapped M16 x 1.5 for ISO cable gland XCS TA: 2 entries tapped M16 x 1.5 for ISO cable gland Clamping capacity 7 to 10 mm
Materials	Body: zamak. Head: zamak. Safety screws: 5-lobe torque. Protective plate: steel.

### References of accessories



XCS Z91

Description	For use with	Unit reference	Weight kg
Blanking plugs for operating head slot (Sold in lots of 10)	XCS PA, XCS TA, XCS TE	XCS Z28	0.050
Tool for forced opening of interlocking device (Sold in lots of 10)	XCS TE	XCS Z100	0.050
Padlocking device to prevent insertion of actuator, for up to 3 padlocks (padlocks not included)	XCS PA, XCS TA, XCS TE	XCS Z91	0.053

(1) Head adjustable in 90° steps throughout 360°. Blanking plug for operating head slot included with switch.

(2) For cable entries tapped for n° 11 (Pg 11) cable gland, replace the last number in the reference (2) by 1.

Example: XCS PA592 becomes XCS PA591.

(3) Schematic diagrams shown represent the contact states whilst the actuator is inserted in the head of the switch.

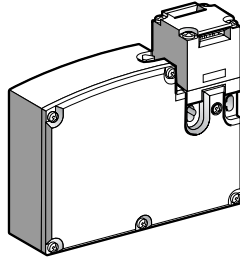
## Safety detection solutions

### Guard switches

Plastic, turret head (1), types XCS PA,  
XCS TA and XCS TE

1 or 2 cable entries M16 x 1.5 (2)

#### Type of switch With interlocking, locking by solenoid

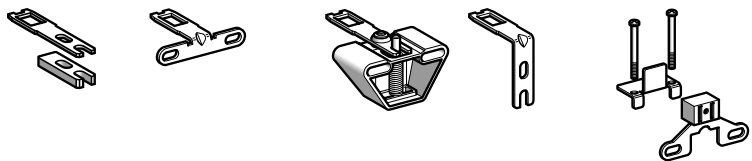


Type of interlocking	Locking on de-energisation and unlocking on energisation of solenoid (3). To order a guard switch with locking on energisation and unlocking on de-energisation of the solenoid, replace the 2nd number (3) by 5 in the references shown below. Example: XCS TE5312 becomes <b>XCS TE5512</b> .		
Supply voltage of solenoid	~ or --- 24 V (50/60 Hz on ~)	~ or --- 120 V (50/60 Hz on ~)	~ or --- 230 V (50/60 Hz on ~)

References of switches without actuator (⊖ N/C contact with positive opening operation)			
2-pole N/C + N/O break before make slow break (4)		XCS TE5312 ⊖	XCS TE5332 ⊖
2-pole N/C + N/O make before break slow break (4)		XCS TE6312 ⊖	XCS TE6332 ⊖
2-pole N/C + N/C slow break (4)		XCS TE7312 ⊖	XCS TE7332 ⊖
Weight (kg)	0.360	0.360	0.360

Solenoid characteristics			
Load factor	100%		
Rated operational voltage	~ or --- 24 V	~ or --- 120 V	~ or --- 230 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	10 VA max.		

#### References of actuators and guard retaining device



Description	Straight actuator	Actuator with wide fixing (5)	Pivoting actuator	Right-angled actuator	Guard retaining device (6)
For guard switches XCS PA, TA, TE	XCS Z11	XCS Z12	XCS Z15	XCS Z13	XCS Z14
Weight (kg)	0.015	0.015	0.012	0.085	0.025

(1) Head adjustable in 90° steps throughout 360°. Blanking plug for operating head slot included with switch.

(2) For cable entries tapped for n° 11 (Pg 11) cable gland, replace the last number in the reference (2) by 1.

Example: XCS TE5312 becomes **XCS TE5311**.

(3) A special tool included with the guard switch enables the forced opening of the interlocking mechanism, by authorised personnel, allowing withdrawal of the actuator and subsequent opening of the N/C safety contacts.

(4) Schematic diagrams shown represent the contact states whilst the actuator is inserted in the head of the switch.

(5) 2 actuator lengths, XCS Z12: L = 40 mm, XCS Z15: L = 29 mm.

(6) Only for use with guard switches XCS PA and XCS TA used in conjunction with actuators XCS Z12, XCS Z13 or XCS Z15.

# Safety detection solutions

## Safety switches

Plastic, double insulated, turret head (1),  
types XCS PL, XCS TL, XCS PR and XCS TR  
1 or 2 cable entries M16 x 1.5 (2)

Type	Elbowed lever (flush with rear of switch)			Straight lever		Spindle	
Operator	To left	Centred	To right	To right OR to left	Centred	Length 30 mm (3)	
<b>References (⊕ N/C contact with positive opening operation)</b>							
2-pole N/C + N/O break before make slow break		XCS PL592 ⊕	XCS PL582 ⊕	XCS PL572 ⊕	XCS PL562 ⊕	XCS PL552 ⊕	XCS PR552 ⊕
2-pole N/C + N/C slow break		XCS PL792 ⊕	XCS PL782 ⊕	XCS PL772 ⊕	XCS PL762 ⊕	XCS PL752 ⊕	XCS PR752 ⊕
Weight (kg)	0.095	0.095	0.095	0.095	0.095	0.095	0.105

5

Operator	To left	Centred	To right	To right OR to left	Centred	Length 30 mm (3)	
<b>References (⊕ N/C contact with positive opening operation)</b>							
3-pole N/C + N/O + N/O (2 N/O staggered) slow break		XCS TL592 ⊕	XCS TL582 ⊕	XCS TL572 ⊕	XCS TL562 ⊕	XCS TL552 ⊕	XCS TR552 ⊕
3-pole N/C + N/C + N/O (N/O staggered) slow break		XCS TL792 ⊕	XCS TL782 ⊕	XCS TL772 ⊕	XCS TL762 ⊕	XCS TL752 ⊕	XCS TR752 ⊕
3-pole N/C + N/C + N/C slow break		XCS TL892 ⊕	XCS TL882 ⊕	XCS TL872 ⊕	XCS TL862 ⊕	XCS TL852 ⊕	XCS TR852 ⊕
Weight (kg)	0.145	0.145	0.145	0.145	0.145	0.145	0.155

Characteristics	
Lever displacement tripping angle	5°
Mechanical durability	1 million operating cycles
Minimum torque	For tripping: 0.1 N.m; for positive opening: 0.25 N.m (XCS PL and XCS PR), 0.45 N.m (XCS TL and XCS TR)
Cable entry	<b>XCS P●</b> : 1 cable entry tapped M16 x 1.5 for ISO cable gland. Clamping capacity 7 to 10 mm <b>XCS T●</b> : 2 cable entries tapped M16 x 1.5 for ISO cable gland. Clamping capacity 7 to 10 mm (switch supplied with 1 entry fitted with blanking plug)

(1) Head adjustable in 90° steps throughout 360°. Switches supplied with 2 additional self-locking screws for positive fixing of the operating head.

(2) For cable entries tapped for n° 11 (Pg 11) cable gland, replace the last number in the reference (2) by 1.

Example: XCS PL592 becomes **XCS PL591**.

(3) For switches with 80 mm spindle: replace the second number in the reference (5) by 6. Example: **XCS PR562**. The weight increases by 0.032 kg.

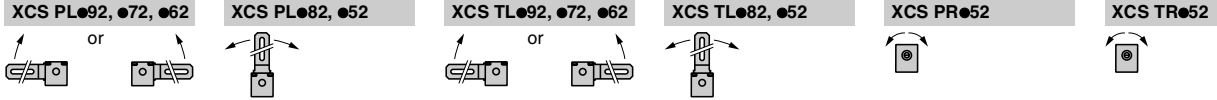
# Safety detection solutions

## Safety switches

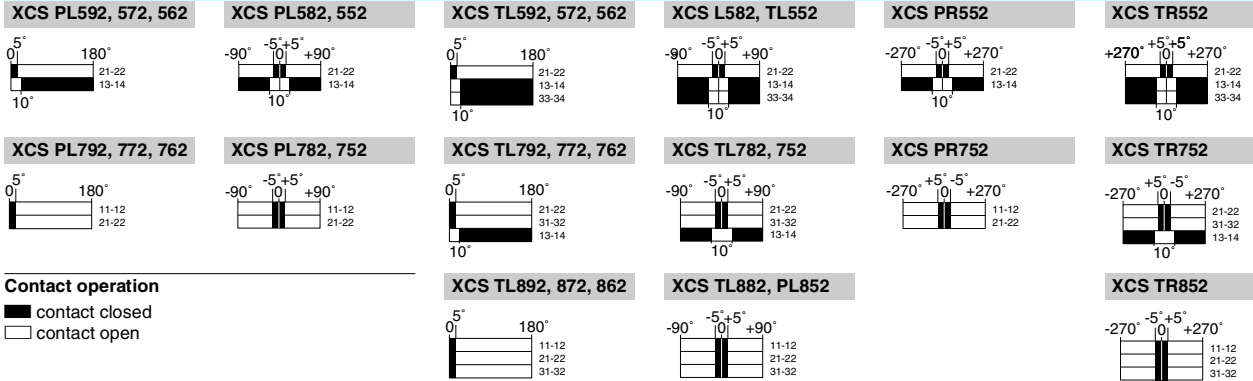
Plastic, double insulated, turret head (1),  
types XCS PL, XCS TL, XCS PR and XCS TR  
1 or 2 cable entries M16 x 1.5 (2)

### Operation

#### Operator displacement



#### Function diagrams

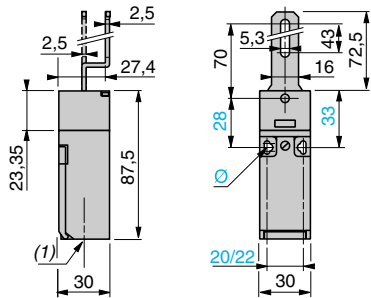


#### Contact operation

■ contact closed  
□ contact open

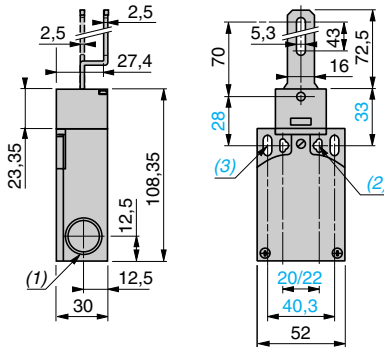
### Dimensions and wiring schemes

#### XCS PL●●2



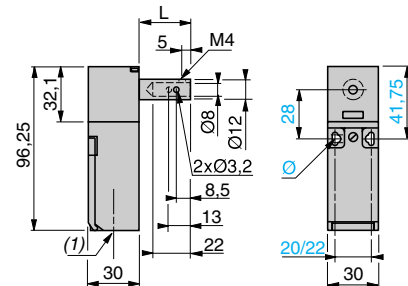
(1) 1 cable entry tapped M16 x 1.5  
Ø: 2 elongated holes Ø 4.3 x 8.3 on 22 mm centres,  
2 holes Ø 4.3 on 20 mm centres

#### XCS TL●●2



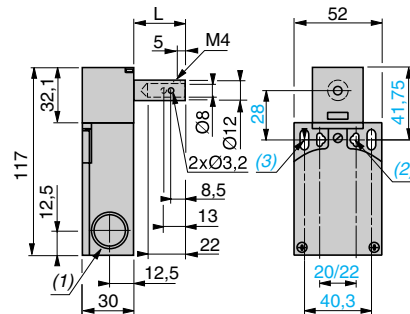
(1) 2 cable entries tapped M16 x 1.5  
(2) 2 elongated holes Ø 4.3 x 8.3 on 22 mm centres,  
2 holes Ø 4.3 on 20 mm centres  
(3) 2 elongated holes Ø 5.3 x 13.3

#### XCS PR●●2



(1) 1 cable entry tapped M16 x 1.5  
Ø: 2 elongated holes Ø 4.3 x 8.3 on 22 mm centres,  
2 holes Ø 4.3 on 20 mm centres  
L = 30 (XCS PR●52) or 80 (XCS PR●62)

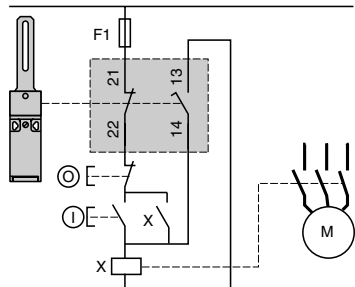
#### XCS TR●●2



(1) 2 cable entries tapped M16 x 1.5  
(2) 2 elongated holes Ø 4.3 x 8.3 on 22 mm centres,  
2 holes Ø 4.3 on 20 mm centres  
(3) 2 elongated holes Ø 5.3 x 13.3  
L = 30 (XCS TR●52) or 80 (XCS TR●62)

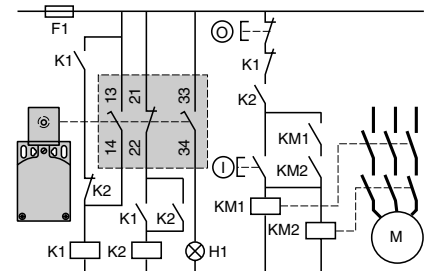
#### Wiring to category 1 conforming to EN 954-1/ISO 13849-1

Example with cable short-circuit protection fuse



#### Wiring to category 3 conforming to EN 954-1/ISO 13849-1

Example with 3-pole N/C + N/O + N/O contact with mixed redundancy of the contacts and the associated control relays.



To activate K1, the lever or the spindle must be rotated when the supply is switched on.  
H1: "lever or spindle displaced from initial position" indicator.

When used in conjunction with an XPS safety module and another safety switch, the rotary lever or spindle operator safety switch can provide a category 3 or 4 control and monitoring system for moving guards conforming to EN 954-1/ISO 13849-1.

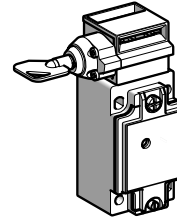
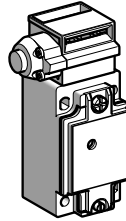
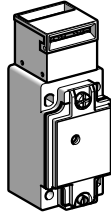
# Safety detection solutions

## Guard switches

Metal, turret head (1), types XCS A, XCS B, XCS C and XCS E

1 or 2 cable entries M20 x 1.5 (2)

Type of switch	Without locking of actuator	With locking of actuator, manual unlocking (3)							
----------------	-----------------------------	--	--	--	--	--	--	--	--



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
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### References of switches without actuator (⊖ N/C contact with positive opening operation)

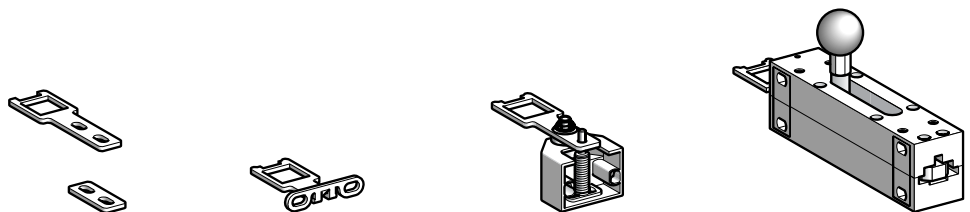
3-pole N/C + N/O + N/O (2 N/O staggered) slow break (4)		XCS A502	XCS A512	XCS A522	XCS B502	XCS B512	XCS B522	XCS C502	XCS C512	XCS C522
3-pole N/C + N/C + N/O (N/O staggered) slow break (4)		XCS A702	XCS A712	XCS A722	XCS B702	XCS B712	XCS B722	XCS C702	XCS C712	XCS C722
3-pole N/C + N/C + N/C slow break (4)		XCS A802	-	-	XCS B802	-	-	XCS C802	-	-
Weight (kg)		0.440	0.440	0.440	0.475	0.475	0.475	0.480	0.480	0.480

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### Characteristics

Actuation speed	Maximum: 0.5 m/s, minimum: 0.01 m/s
Resistance to forcible withdrawal of actuator	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 actuator	≥ 20 N
Cable entry	XCS A, XCS B, XCS C: 1 cable entry. XCS E: 2 cable entries Entries tapped M20 x 1.5 for ISO cable gland. Clamping capacity 7 to 13 mm
Materials	Body: zamak. Head: zamak. Safety screws: 5-lobe torque. Protective plate: steel.

### References of actuators



Description	Straight actuator	Wide actuator	Pivoting actuator	Latch for sliding doors
For guard 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) Head adjustable in 90° steps throughout 360°. Blanking plug for operating head slot included with switch.

(2) For cable entries tapped for n° 13 (Pg 13.5) cable gland, replace the last number in the reference (2) by 1.

Example: XCS A502 becomes XCS A501.

(3) Unlocking by pushbutton for XCS B●●● and by key operated lock for XCS C●●●.

(4) Schematic diagrams shown represent the contact states whilst the actuator is inserted in the head of the switch.

## Safety detection solutions

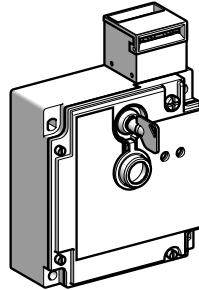
### Guard switches

Metal, turret head (1), types XCS A, XCS B,  
XCS C and XCS E

1 or 2 cable entries M20 x 1.5 (2)

Type of switch

With interlocking, locking by solenoid



Type of interlocking	Locking on de-energisation and unlocking on energisation of solenoid (3). To order a guard switch with locking on energisation and unlocking on de-energisation of the solenoid, replace the 2nd number (3) by 5 in the references shown below. Example: XCS E5312 becomes <b>XCS E5512</b> .				
LED indication	Orange LED: "guard open" signalling. Green LED: "guard closed and locked" signalling.				
Supply voltage of solenoid	~ or --- 24 V (50/60 Hz on ~)	~ or --- 48 V (50/60 Hz on ~)	~ or --- 110/120 V (4) (50/60 Hz on ~)	~ or --- 220/240 V (4) (50/60 Hz on ~)	
Type of contact on solenoid	N/C + N/O	2 N/C	N/C + N/O	N/C + N/O	N/C + N/O

### References of switches without actuator (⊖ N/C contact with positive opening operation)

3-pole N/C + N/O + N/O (2 N/O staggered) slow break (5)		XCS E5312	—	XCS E5322	XCS E5332	XCS E5342
3-pole N/C + N/C + N/O (N/O staggered) slow break (5)		XCS E7312	XCS E73127	XCS E7322	XCS E7332	XCS E7342
3-pole N/C + N/C + N/C slow break (5)		XCS E8312 (6)	XCS E83127 (6)	XCS E8322 (6)	XCS E8332 (6)	XCS E8342 (6)
Weight (kg)		1.140	1.140	1.140	1.140	1.140

### Solenoid characteristics

Load factor	100%				
Rated operational voltage	~ or --- 24 V	~ 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)	~ 95...264 V (including ripple)
Service life	100 000 hours	100 000 hours
Protection against overvoltages	Yes	Yes

(1) Head adjustable in 90° steps throughout 360°. Blanking plug for operating head slot included with switch.

(2) For cable entries tapped for n° 13 (Pg 13.5) cable gland, replace the last number in the reference by 1.

Example: XCS E5312 becomes **XCS E5311**.

(3) A key operated lock enables the forced opening of the interlocking mechanism, by authorised personnel, allowing withdrawal of the actuator and subsequent opening of the N/C safety contacts.

(4) For use on --- 110/120 V or --- 220/240 V, remove the LED indicator module.

(5) Schematic diagrams shown represent the contact states whilst the actuator is inserted in the head of the switch.

(6) Switches supplied with a single green LED.

# Safety detection solutions

Coded magnetic switches

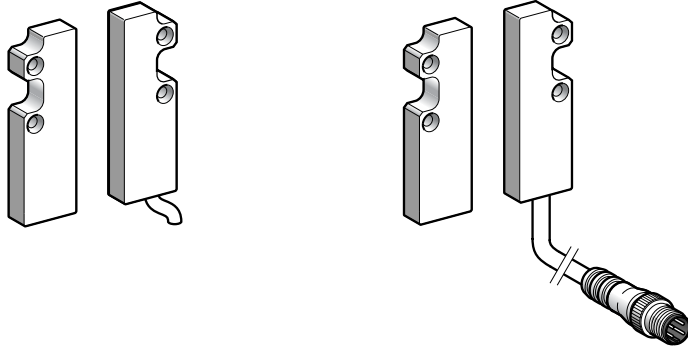
Plastic

## XCS DMC

Rectangular, compact: 51 x 16 x 7

Pre-cabled connection

Connector on flying lead connection



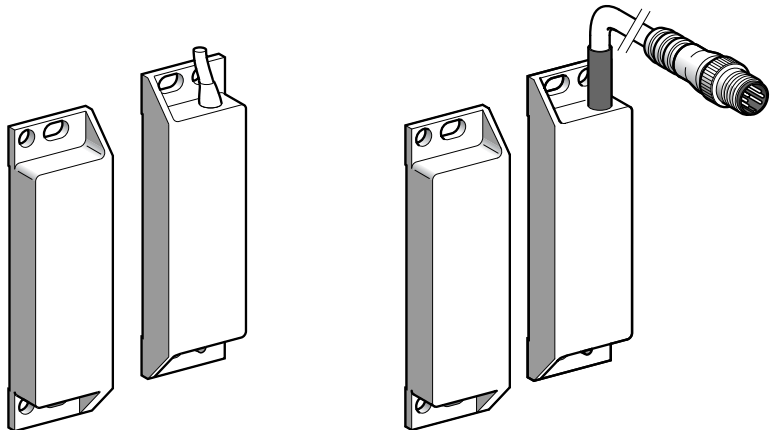
Pages 5/168 and 5/169

## XCS DMP

Rectangular, standard: 88 x 25 x 13

Pre-cabled connection

Connector on flying lead connection



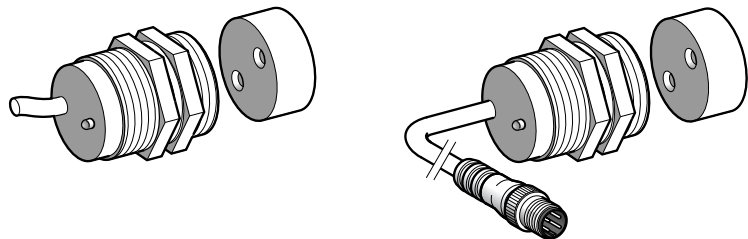
Pages 5/168 and 5/169

## XCS DMR

Cylindrical, diameter: 30, length: 38.5

Pre-cabled connection

Connector on flying lead connection



Pages 5/168 and 5/169

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#### Environment

<b>Conformity to standards</b>	Products		IEC/EN 60947-5-1, UL 508, CSA C22 2 n° 14
	Machine assemblies		IEC/EN 60204-1, EN/ISO 12100, EN 1088/ISO 14119 (XCS DM●5●● only)
<b>Product certifications</b>			UL-CSA, BG
<b>Protective treatment</b>			Standard version: "TH"
<b>Ambient air temperature</b>	For operation	°C	- 25...+ 85
	For storage	°C	- 40...+ 85
<b>Vibration resistance</b>			10 gn (10...150 Hz) conforming to IEC 60068-2-6
<b>Shock resistance</b>			30 gn (11 ms) conforming to IEC 60068-2-7
<b>Sensitivity to magnetic fields</b>		mT	≥ 0.3
<b>Electric shock protection</b>			Class II conforming to IEC 60536
<b>Degree of protection</b>	Conforming to IEC 60529		IP 66 and IP 67 for coded magnetic switches with pre-cabled connection IP 67 for coded magnetic switches with connector on flying lead connection
<b>Materials</b>			Thermoplastic case (PBT) PVC cable (ROHS)

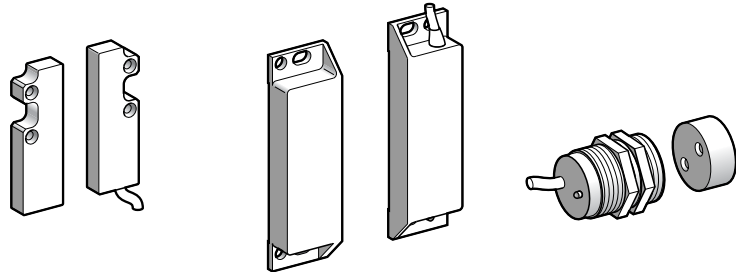
#### Contact block characteristics

<b>Rated operational characteristics</b>			Ue: --- 24 V, Ie: 100 mA max.
<b>Rated insulation voltage (Ui)</b>			Ui: --- 100 V
<b>Rated impulse withstand voltage (U imp)</b>		kV	2.5 conforming to EN/IEC 60947-5-1
<b>Resistance across terminals</b>	Contact with LED	Ω	57
	Contact without LED	Ω	10
<b>Protection (not using safety module)</b>			External cartridge fuse: 500 mA gG (gl)
<b>Connection</b>	XCS DMC 2 contact model		Pre-cabled, 4 x 0.25 mm <sup>2</sup> , length: 2, 5 or 10 m depending on model or M8 connector on 0.15 m flying lead
	XCS DMP 2 contact model		Pre-cabled, 4 x 0.25 mm <sup>2</sup> , length: 2, 5 or 10 m depending on model or M12 connector on 0.15 m flying lead
	3 contact model		Pre-cabled, 6 x 0.25 mm <sup>2</sup> , length: 2, 5 or 10 m depending on model or M12 connector on 0.15 m flying lead
	XCS DMR 2 contact model		Pre-cabled, 4 x 0.25 mm <sup>2</sup> , length: 2, 5 or 10 m depending on model or M12 connector on 0.15 m flying lead
<b>Contact material</b>			Rhodium
<b>Electrical durability</b>			1.2 million operating cycles
<b>Maximum switching voltage</b>		V	--- 100
<b>Switching capacity</b>	Contact with LED	mA	5...100
	Contact without LED	mA	0.1...100
<b>Insulation resistance</b>		MΩ	1000
<b>Maximum breaking capacity</b>	Contact with LED	VA	3
	Contact without LED	VA	10
<b>Maximum switching frequency</b>		Hz	150

# Safety detection solutions

Coded magnetic switches  
Plastic, pre-cabled

Type	Rectangular		Cylindrical
	Compact 51 x 16 x 7	Standard 88 x 25 x 13	Diameter 30 Length 38.5



### References of switches (1) $\Delta$ must be used in conjunction with safety modules XPS, see pages 5/174 to 5/177

Contact states shown are with the magnet positioned in front of the switch

5

2-pole N/C + N/O (N/C staggered)		XCS DMC5902	XCS DMP5902	XCS DMR5902
2-pole N/O + N/O (2) (1 N/O staggered)		XCS DMC7902	XCS DMP7902	XCS DMR7902
3-pole N/C + N/C + N/O (1 N/C staggered)		-	XCS DMP5002	-
3-pole N/C + N/O + N/O (2) (1 N/O staggered)		-	XCS DMP7002	-
2-pole N/C + N/O (N/C staggered)		XCS DMC5912	XCS DMP5912	XCS DMR5912
2-pole N/O + N/O (2) (1 N/O staggered)		XCS DMC7912	XCS DMP7912	XCS DMR7912
3-pole N/C + N/C + N/O (1 N/C staggered)		-	XCS DMP5012	-
3-pole N/C + N/O + N/O (2) (1 N/O staggered)		-	XCS DMP7012	-
Weight (kg)		0.101	0.180	0.146

(1) Magnetic switch + coded magnet (XCS ZC●●●●).

Switch pre-cabled with 2 m long cable. For other cable lengths, replace the last number of the reference (2) by 5 for a 5 m long cable or by 10 for a 10 m long cable.

Example: rectangular, compact switch with N/C + N/O contacts and 10 m cable becomes XCS DMC59010.

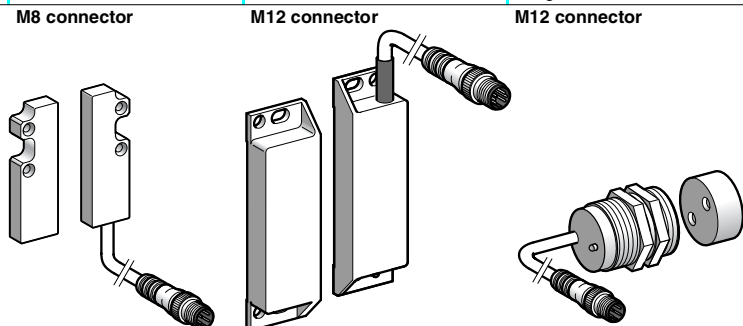
(2) Only to be wired in conjunction with an XPS AF module (see page 5/175).

### Complementary characteristics not shown under General characteristics (page 5/167)

Operating zone	Sao: 5 mm Sar: 15 mm	Sao: 8 mm Sar: 20 mm	Sao: 8 mm Sar: 20 mm
Approach directions	3 directions	3 directions	1 direction

### Accessories (page 5/170)

Type	Rectangular		Cylindrical
	Compact 51 x 16 x 7	Standard 88 x 25 x 13	Diameter 30 Length 38.5



**References of switches** (1)  $\Delta$  must be used in conjunction with safety modules XPS, see pages 5/174 to 5/177

Contact states shown are with the magnet positioned in front of the switch

2-pole N/C + N/O (N/C staggered)		XCS DMC590L01M8	XCS DMP590L01M12	XCS DMR590L01M12
2-pole N/O + N/O (2) (1 N/O staggered)		XCS DMC790L01M8	XCS DMP790L01M12	XCS DMR790L01M12
3-pole N/C + N/C + N/O (1 N/C staggered)		-	XCS DMP500L01M12	-
3-pole N/C + N/O + N/O (2) (1 N/O staggered)		-	XCS DMP700L01M12	-
2-pole N/C + N/O (N/C staggered)		XCS DMC591L01M8	XCS DMP591L01M12	XCS DMR591L01M12
2-pole N/O + N/O (2) (1 N/O staggered)		XCS DMC791L01M8	XCS DMP791L01M12	XCS DMR791L01M12
3-pole N/C + N/C + N/O (1 N/C staggered)		-	XCS DMP501L01M12	-
3-pole N/C + N/O + N/O (2) (1 N/O staggered)		-	XCS DMP701L01M12	-
Weight (kg)		0.101	0.180	0.146

(1) Magnetic switch + coded magnet (XCS ZC●●●●).

(2) Only to be wired in conjunction with an XPS AF module (see page 5/175).

**Complementary characteristics not shown under General characteristics (page 5/167)**

Operating zone	Sao: 5 mm Sar: 15 mm	Sao: 8 mm Sar: 20 mm	Sao: 8 mm Sar: 20 mm
Approach directions	3 directions	3 directions	1 direction

**Accessories (page 5/170)**

## Accessories

Accessories for coded magnetic switches	XCS DMC●●●2 XCS DMC●●●L	XCS DMP●●●2 XCS DMP●●●L	XCS DMR●●●2 XCS DMR●●●L
Fixing clamp	–	–	XSZ B130
Weight (kg)	–	–	0.080
Additional coded magnet	XCS ZC1	XCS ZP1	XCS ZR1
Weight (kg)	0.009	0.050	0.018
Non-magnetic shims	XCS ZCC (lot of 2)	XCS ZCP (lot of 2)	XCS ZCR
Weight (kg)	0.008	0.012	0.002

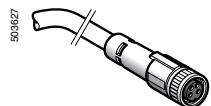
## Pre-wired female connectors for connector version switches

### Pre-wired connector characteristics

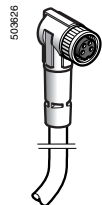
Pre-wired connector type	XZ CP0941L●, XZ CP1041L●	XZ CP29P11L●	XZ CP1141L●, XZ CP1241L●
Type of connection	Screw threaded (metal clamping ring)	Screw threaded (metal clamping ring)	Screw threaded (metal clamping ring)
Number of contacts	4	8	4
Degree of protection	IP 67 (with clamping ring correctly tightened)		
Ambient air temperature	Static	- 35...+ 90 °C	- 35...+ 90 °C
	Dynamic	- 5...+ 90 °C	- 5...+ 90 °C
Cabling	Ø 5.2 mm cable, wire c.s.a.: 4 x 0.34 mm <sup>2</sup>	Ø 5.2 mm cable, wire c.s.a.: 8 x 0.25 mm <sup>2</sup>	Ø 5.2 mm cable, wire c.s.a.: 4 x 0.34 mm <sup>2</sup>
LED signalling	–	–	–
Nominal voltage	~ 60 V, ~ 75 V	~ 250 V, ~ 300 V	~ 250 V, ~ 300 V
Nominal current	4 A	2 A	4 A
Insulation resistance	> 10 <sup>9</sup> Ω	> 10 <sup>9</sup> Ω	> 10 <sup>9</sup> Ω
Contact resistance	≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ

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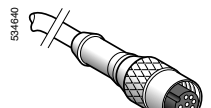
## References of pre-wired connectors



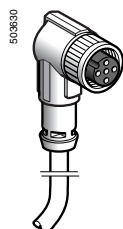
XZ CP0941L●



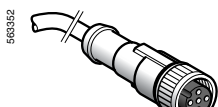
XZ CP1041L●



XZ CP29P11L●



XZ CP1241L●

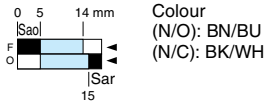


XZ CP1141L●

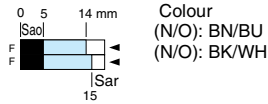
Type of connector	Number of pins	For use with	Type	Cable length m	Reference	Weight kg
Female, M8	4	XCS DMC●●●L	Straight	2	XZ CP0941L2	0.080
				5	XZ CP0941L5	0.180
				10	XZ CP0941L10	0.360
			Elbowed	2	XZ CP1041L2	0.080
				5	XZ CP1041L5	0.180
				10	XZ CP1041L10	0.360
Female, M12	8	XCS DMP●●●L	Straight	2	XZ CP29P11L2	0.100
				5	XZ CP29P11L5	0.290
				10	XZ CP29P11L10	0.470
			Elbowed	2	XZ CP1141L2	0.090
				5	XZ CP1141L5	0.190
				10	XZ CP1141L10	0.370
Female, M12	4	XCS DMR●●●L/ XCS DMP●●●L	Straight	2	XZ CP1141L2	0.090
				5	XZ CP1141L5	0.190
				10	XZ CP1141L10	0.370
			Elbowed	2	XZ CP1241L2	0.090
				5	XZ CP1241L5	0.190
				10	XZ CP1241L10	0.370

### Function diagrams with magnet present (pre-cabled version)

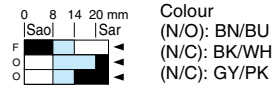
#### XCS DMC59●●



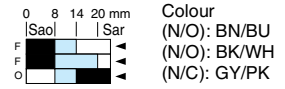
#### XCS DMC79●●



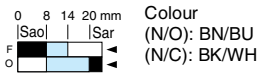
#### XCS DMP50●●



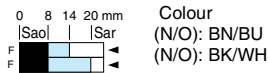
#### XCS DMP70●●



#### XCS DMR59●●/XCS DMP59●●

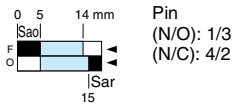


#### XCS DMR79●●/XCS DMP79●●

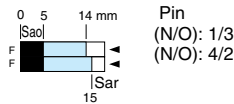


### Function diagrams with magnet present (connector on flying lead version)

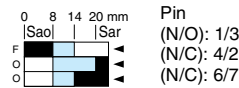
#### XCS DMC59●●



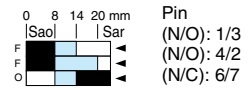
#### XCS DMC79●●



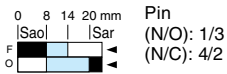
#### XCS DMP50●●



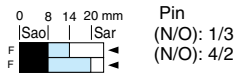
#### XCS DMP70●●



#### XCS DMR59●●/XCS DMP59●●



#### XCS DMR79●●/XCS DMP79●●

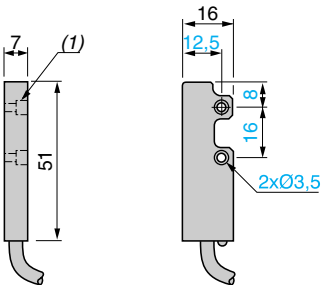


**Sao**: assured operating distance.  
**Sar**: assured tripping distance.  
 Conforming to EN/IEC 60947-5-3.

### Coded magnetic switches

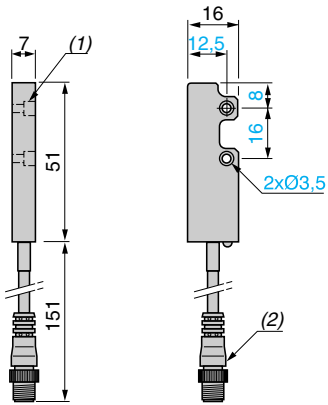
#### XCS DMC

##### Pre-cabled connection



(1) Counterbored:  $\varnothing 6 \times 3.5$  mm.

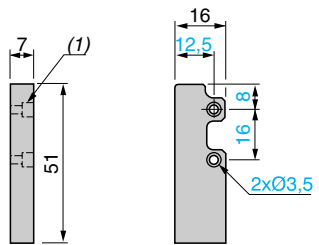
##### Connector on flying lead connection



(1) Counterbored:  $\varnothing 6 \times 3.5$  mm.  
(2) M8 4-pin connector.

#### Coded magnet for XCS DMC

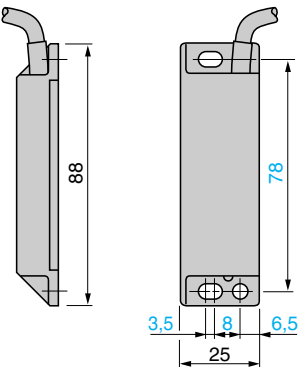
##### XCS ZC1



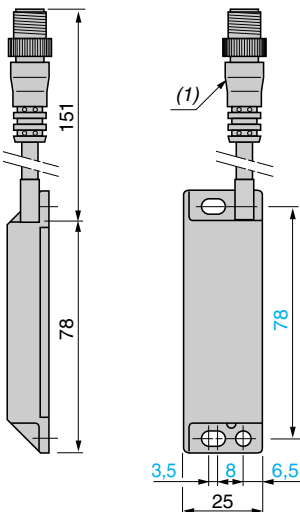
(1) Counterbored:  $\varnothing 6 \times 3.5$  mm.

#### XCS DMP

##### Pre-cabled connection



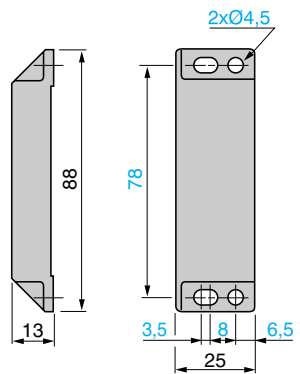
##### Connector on flying lead connection



(1) 4 or 6-pin M12 connector.

#### Coded magnet for XCS DMP

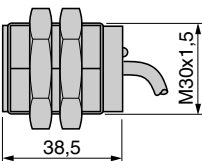
##### XCS ZP1



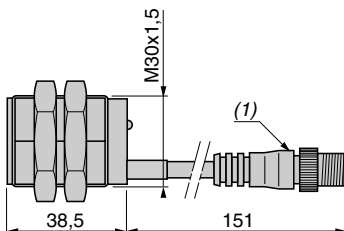
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#### XCS DMR

##### Pre-cabled connection



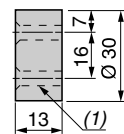
##### Connector on flying lead connection



(1) M12 4-pin connector.

#### Coded magnet for XCS DMR

##### XCS ZR1

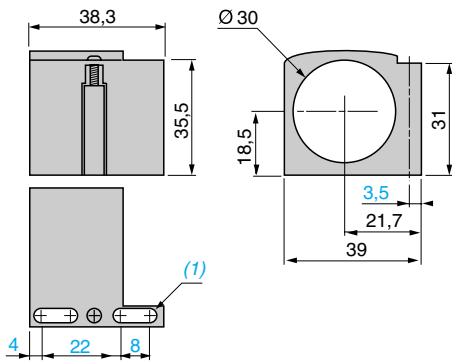


(1) 2 x  $\varnothing 4.3$ , countersunk:  $\varnothing 7.5$  at  $45^\circ$ .

## Accessories

### Fixing clamp

XSZ B130



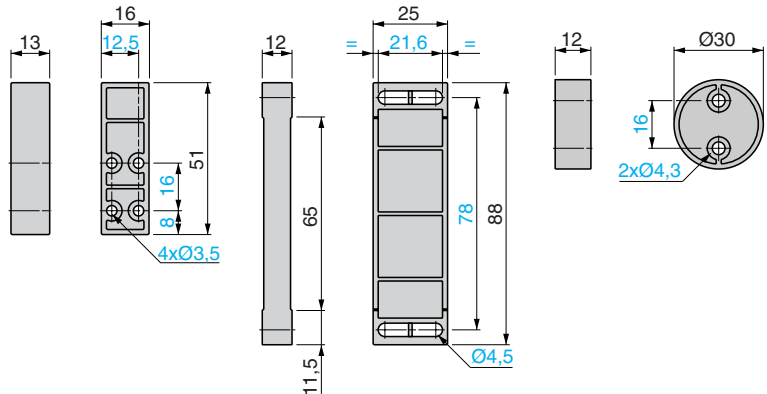
(1) 2 elongated holes Ø4 x 8.

### Non-magnetic shims

XCS ZCC

XCS ZCP

XCS ZCR



### Pre-wired female connectors

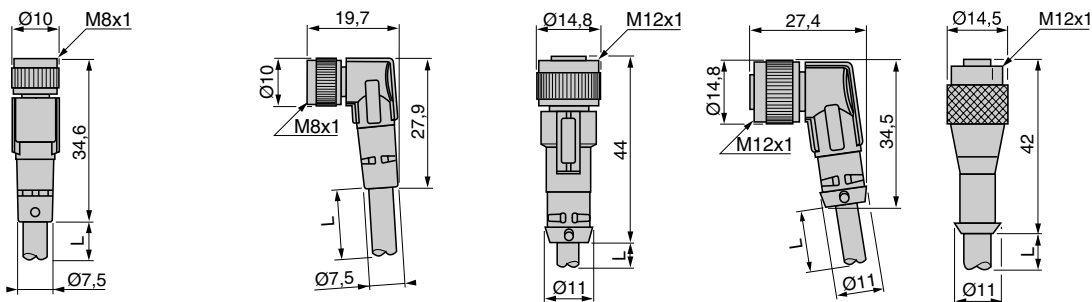
XZ CP0941L●

XZ CP1041L●

XZ CP1141L●

XZ CP1241L●

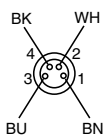
XZ CP29P11L●



## Schemes

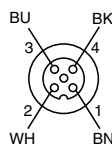
### M8 pre-wired female connector

XZ CP0941L●

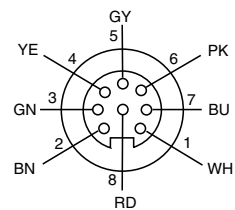


### M12 pre-wired female connector

XZ CP1141L●, XZ CP1241L●



XZ CP29P11L●

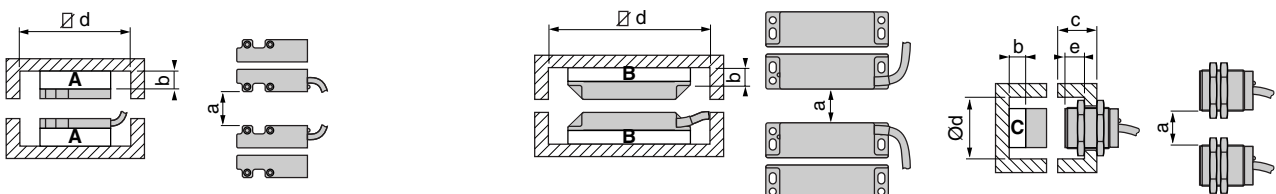


## Mounting

XCS DMC

XCS DMP

XCS DMR



XCS	a	b	c	d	e
DMC	40	13 min.	-	81 x 55	-
DMP	100	10 min.	-	118 x 55	-
DMR	40	12 min.	> 10	Ø 45	20
		-	> 10	Ø 45	13
		12 min.	< 10	-	20
		-	< 10	-	17

### Non-magnetic shims

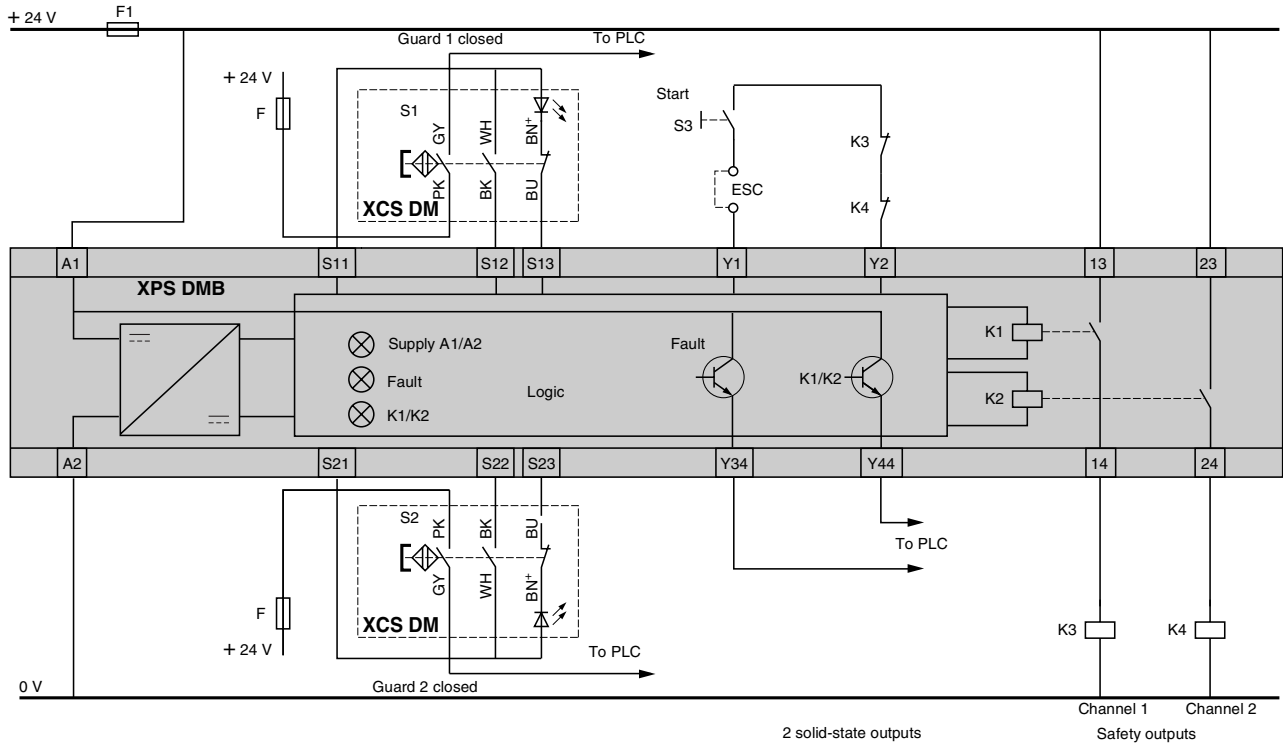
A	XCS ZCC
B	XCS ZCP
C	XCS ZCR

# Safety detection solutions

Coded magnetic switches  
Plastic, pre-cabled

## XCS DMP5 with XPS DMB

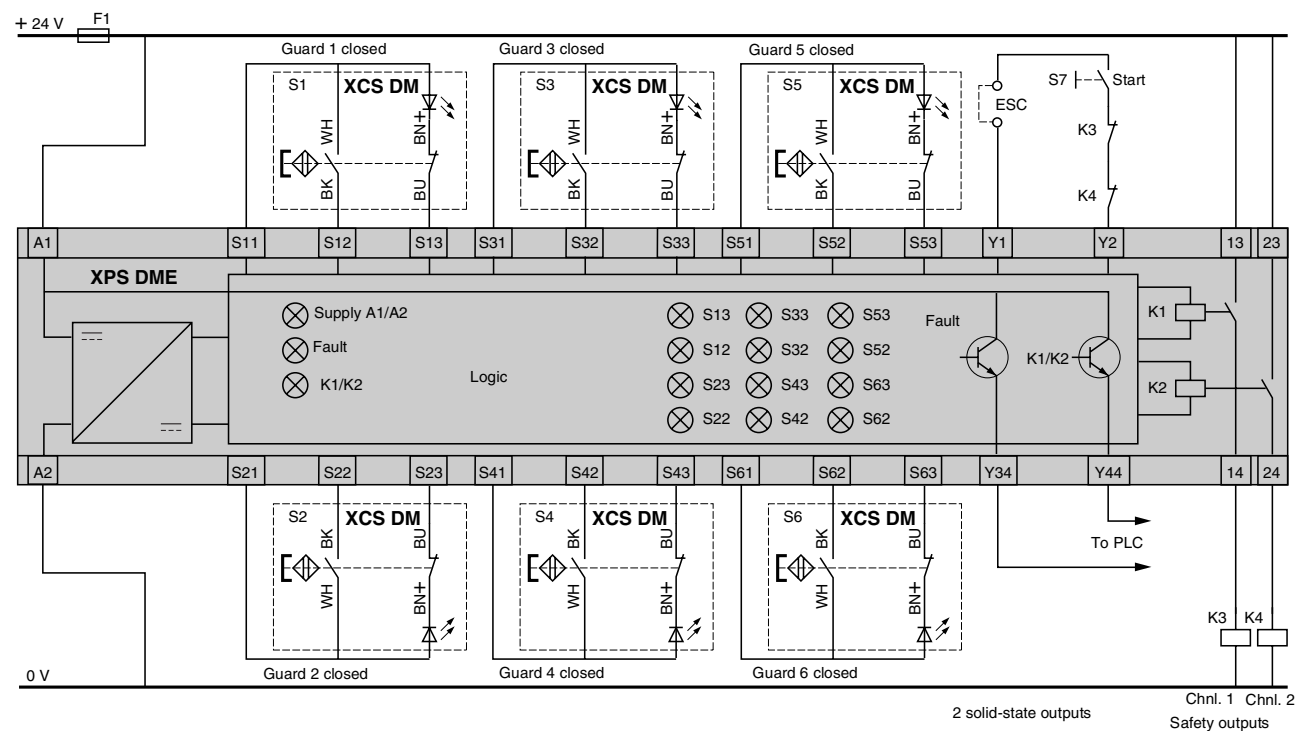
Wiring to category 4 conforming to EN 954-1/ISO 13849-1. Example with 3-pole N/C + N/C + N/O (1 N/C staggered) contact.



ESC: External start conditions.

## XCS DMC5, XCS DMP5, XCS DMR5 with XPS DME

Wiring to category 4 conforming to EN 954-1/ISO 13849-1. Example with 2-pole N/C + N/O (N/C staggered) contact.



ESC: External start conditions.

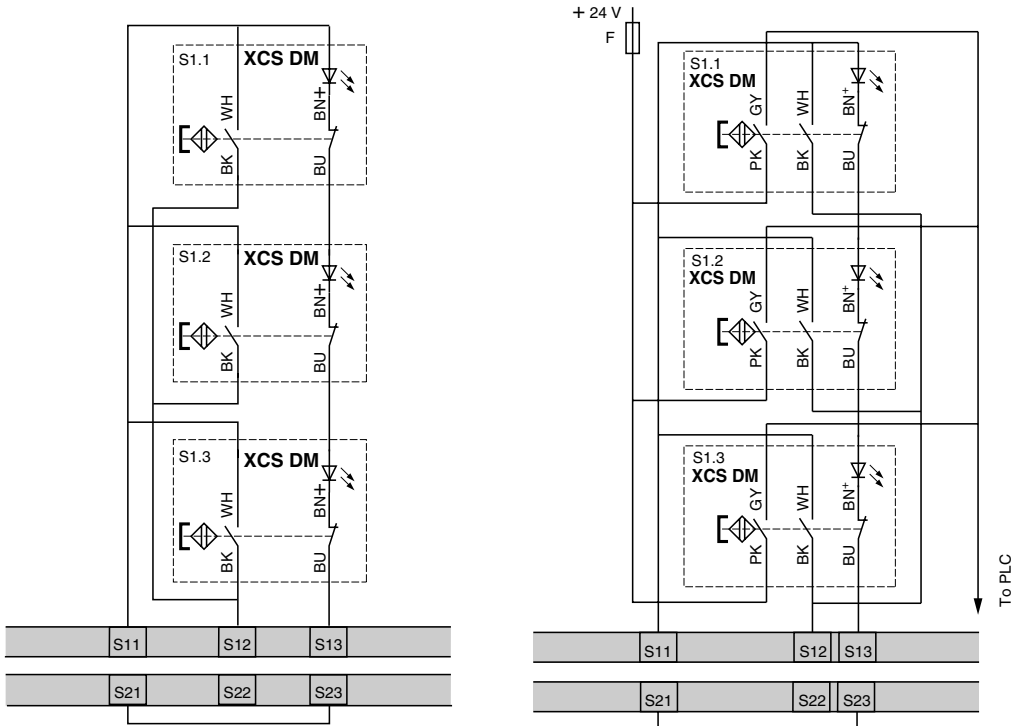


**Connection of up to 3 magnetic switches, with an LED on one input, with XPS DM● (1)**

**Wiring to category 3 conforming to EN 954-1/ISO 13849-1**

Example with 2-pole N/C + N/O contact

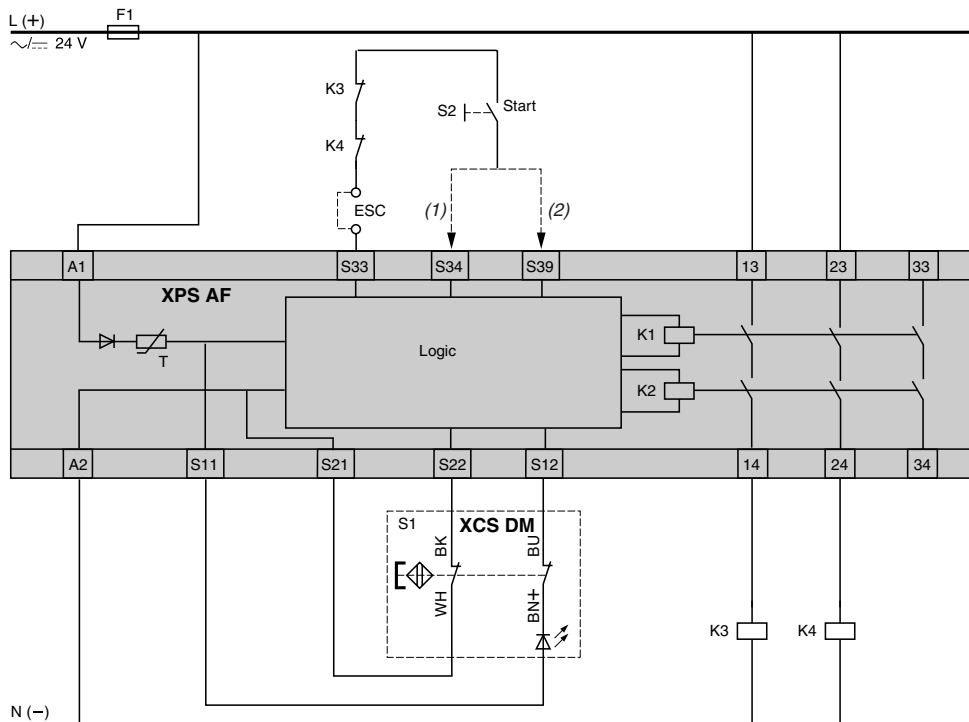
Example with 3-pole N/C + N/C + N/O contact



(1) Input: S11, S12, S13 or S21, S22, S23.

**XCS DM●7●●● with XPS AF**

**Wiring to category 4 conforming to EN 954-1/ISO 13849-1.** Example with 2-pole N/C + N/C contact (not conforming to standard EN 1088/ISO 14119)



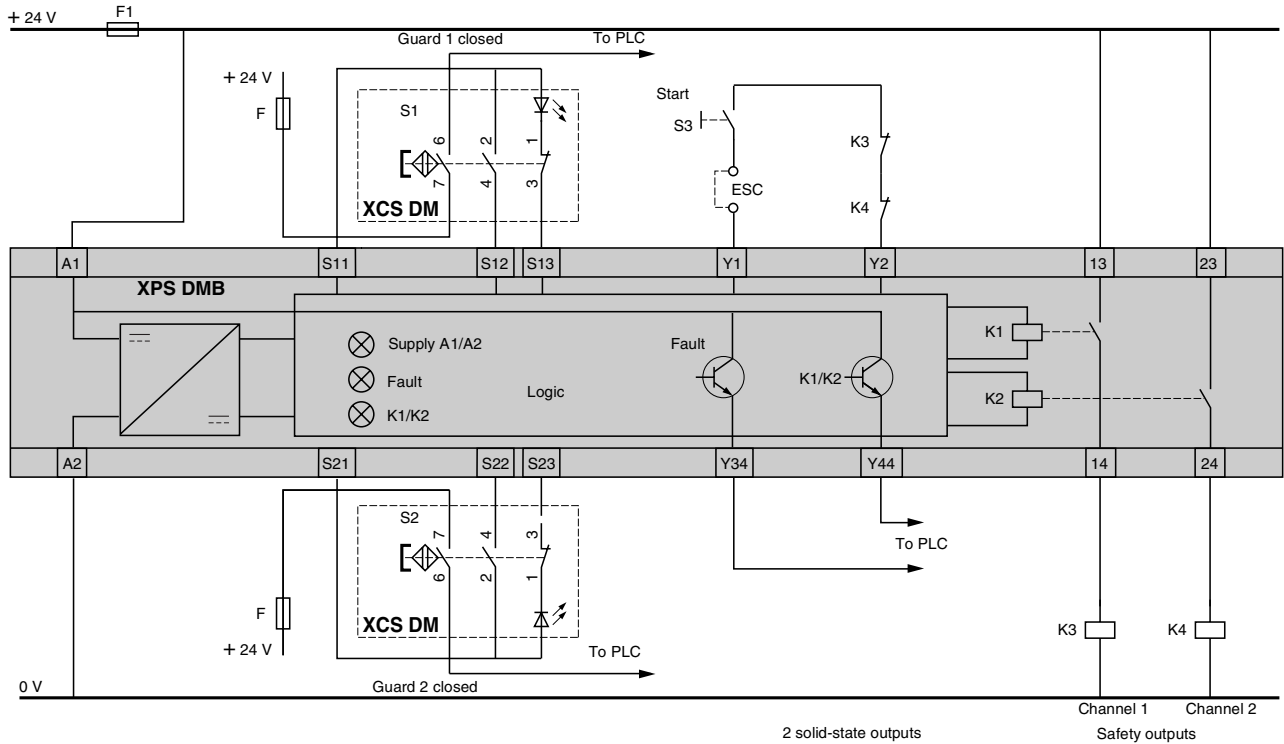
(1) With start button monitoring.  
(2) Without start button monitoring.  
ESC: External start conditions.

# Safety detection solutions

Coded magnetic switches  
Plastic, connector on flying lead

## XCS DMP5 with XPS DMB

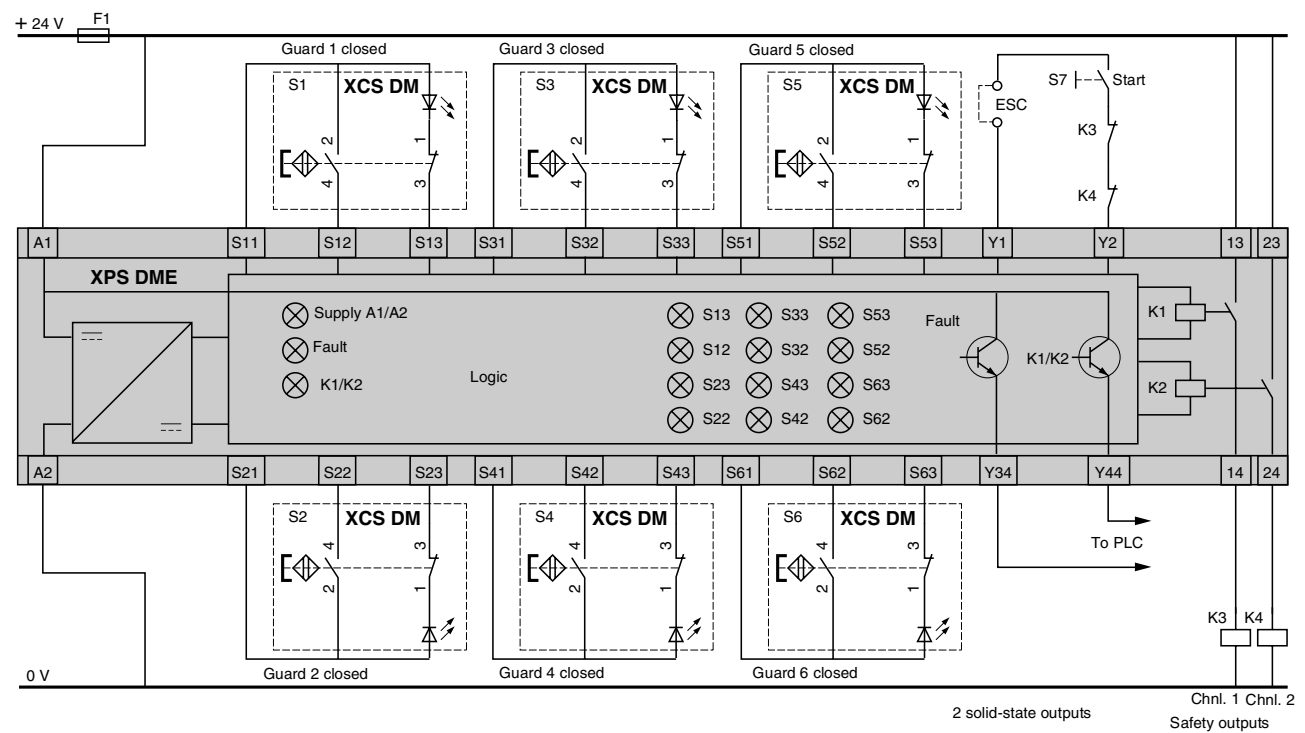
Wiring to category 4 conforming to EN 954-1/ISO 13849-1. Example with 3-pole N/C + N/C + N/O (1 N/C staggered) contact.



ESC: External start conditions.

## XCS DMC5, XCS DMP5, XCS DMR5 with XPS DME

Wiring to category 4 conforming to EN 954-1/ISO 13849-1. Example with 2-pole N/C + N/O (N/C staggered) contact.



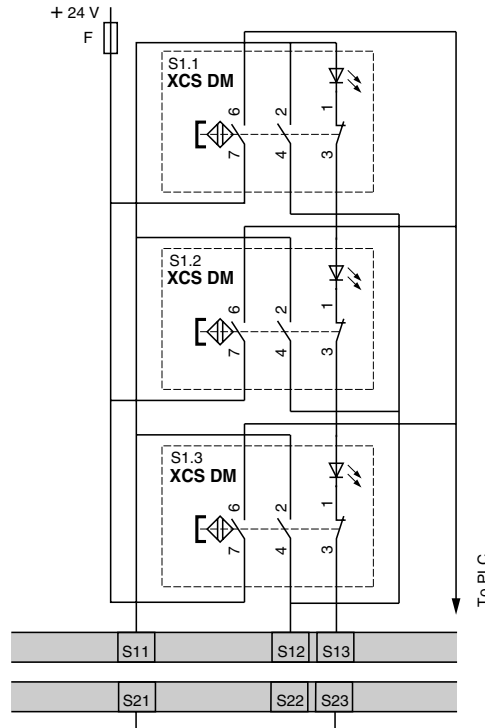
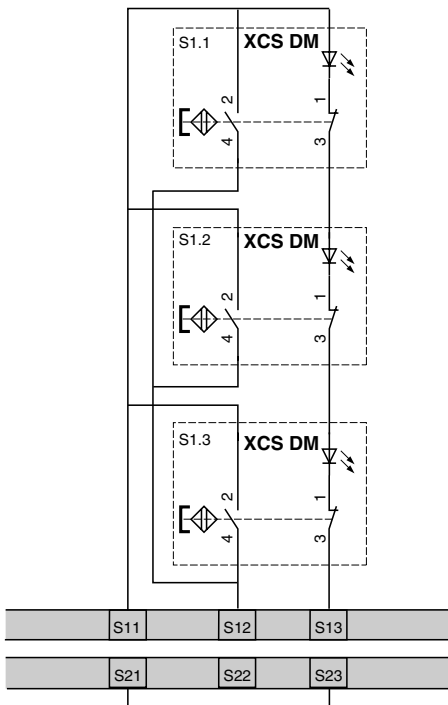
ESC: External start conditions.

**Connection of up to 3 magnetic switches, with an LED on one input, with XPS DM● (1)**

Wiring to category 3 conforming to EN 954-1/ISO 13849-1

Example with 2-pole N/C + N/O contact

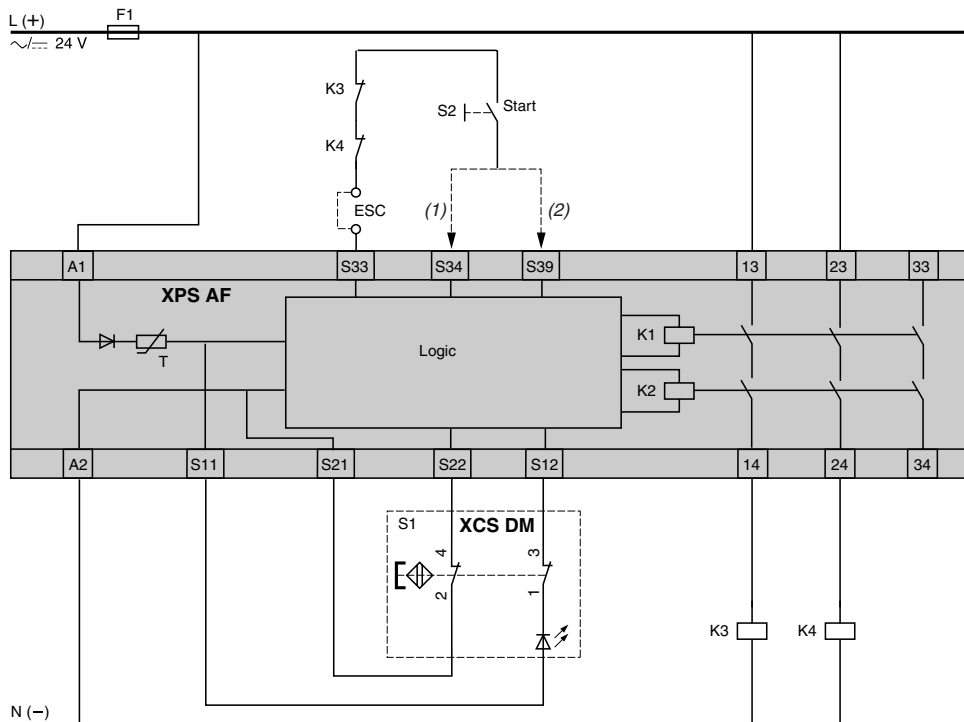
Example with 3-pole N/C + N/C + N/O contact



(1) Input: S11, S12, S13 or S21, S22, S23.

**XCS DM●7●●● with XPS AF**

Wiring to category 4 conforming to EN 954-1/ISO 13849-1. Example with 2-pole N/C + N/C contact (not conforming to standard EN 1088/ISO 14119)



(1) With start button monitoring.  
(2) Without start button monitoring.  
ESC: External start conditions.

## Presentation

### Electromechanical detection

Limit switches are used in all automated installations and also in a wide variety of applications, due to the numerous advantages inherent to their technology.

They transmit data to the logic processing system regarding:

- presence/absence,
- passing,
- positioning,
- end of travel.

### Simplicity of installation, advantages

#### ■ From an electrical viewpoint

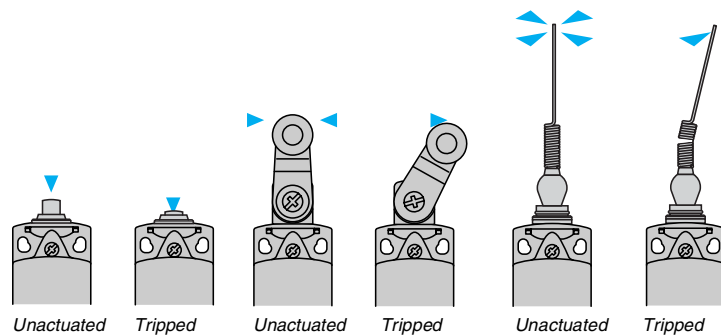
- galvanic separation of circuits,
- models suitable for low power switching, combined with good electrical durability,
- very good short-circuit withstand in coordination with appropriate fuses,
- total immunity to electromagnetic interference,
- high rated operational voltage.

#### ■ From a mechanical viewpoint

- N/C contacts with positive opening operation,
- high resistance to the different ambient conditions encountered in industry (standard tests and specific tests under laboratory conditions),
- high repeat accuracy, up to 0.01 mm on the tripping points.

### Detection movements

- Linear movement (plunger)
- Rotary movement (lever)
- Multi-directional movement



## Terminology

### Rated value of a quantity

- This replaces the term "nominal value".
- It is the fixed value for a specific function.

### Utilisation categories

- AC-15 replaces AC-11: control of an electromagnet on a.c., test 10 le/le.
- AC-12: control of a resistive load on a.c. or static load isolated by opto-coupler.
- DC-13 replaces DC-11: control of an electromagnet on d.c., test le/le.

### Positive opening travel

- Minimum travel from the initial movement of contact actuator to the position required to accomplish positive opening operation.

### Positive opening force

- The force required on the contact actuator to accomplish positive opening operation.

### Switching capacity

- I<sub>th</sub> is no longer a rated value but a conventional current used for heating tests.

**Example:** for category A300 the corresponding operational current, I<sub>e</sub> maximum, is 6 A-120 V or 3 A-240 V, the equivalent I<sub>th</sub> being 10 A.

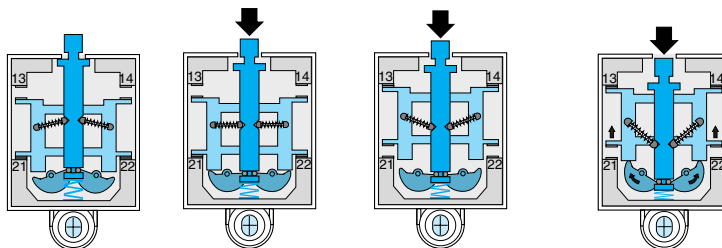
### Positive opening operation

- A limit switch complies to this specification when all the closed contact elements of the switch can be changed, with certainty, to the open position (no flexible link between the moving contacts and the operator of the switch, to which an actuating force is applied).
- All limit switches incorporating either a slow break contact block or a snap action N/C + N/O (form Zb), N/C + N/O + N/O, N/C + N/C + N/O, N/C + N/C + N/O + N/O contact block are positive opening operation, in complete conformity with standard IEC 60947-5-1 Appendix K.

## Contact blocks

### Snap action contacts

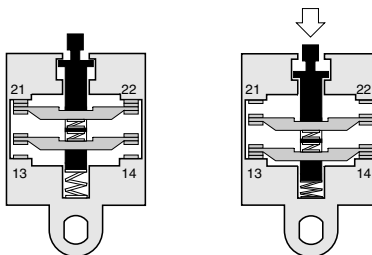
- Snap action contacts are characterised by different tripping and reset points (differential travel).
- The displacement speed of the moving contacts is not related to the speed of the operator.
- This feature ensures satisfactory electrical performance in applications involving low speed actuators.



Unactuated state    Approach travel    Contact change of state    Positive opening

### Slow break contacts

- Slow break contacts are characterised by identical tripping and resetting points.
  - The displacement speed of the moving contacts is equal, or proportional, to the speed of the operator (which must not be less than 1 m/s = 6 m/minute).
- The opening distance is also dependent on the distance travelled by the operator.



### Electrical durability for normal loads

- Normally, for inductive loads, the current value is less than 0.1 A (sealed), i.e. values of 3 to 40 VA sealed and 30 to 1000 VA inrush, depending on the voltage.

For this type of application the electrical durability will exceed 10 million operating cycles.

**Application example:** XCK J161 + LC1 D12●●●● (7 VA sealed, 70 VA inrush).  
Electrical durability = 10 million operating cycles.

### Switching capacity

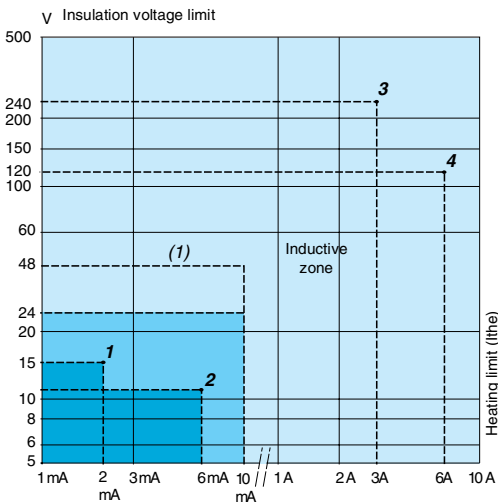
- 1 Normal industrial PLC input type 1
- 2 Normal industrial PLC input type 2
- 3 Switching capacity conforming to IEC 60947-5-5, utilisation category AC-15, DC-13
 

A300	240 V	3 A	B300	240 V	1.5 A
Q300	250 V	0.27 A	R300	250 V	0.13 A
- 4 Switching capacity conforming to IEC 60947-5-1, utilisation category AC-15, DC-13
 

A300	120 V	6 A	B300	120 V	3 A
Q300	125 V	0.55 A	R300	125 V	0.27 A

### Electrical durability for small loads

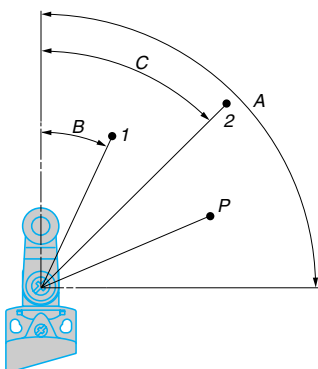
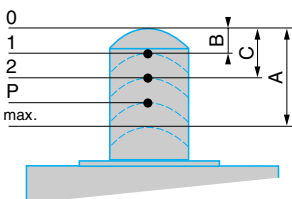
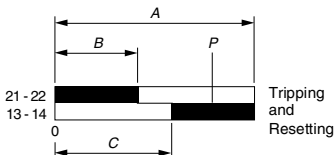
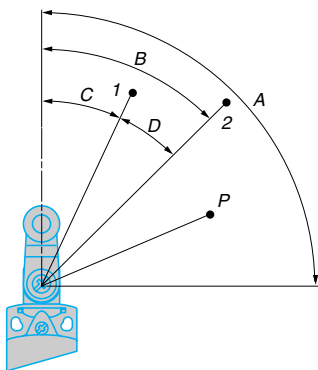
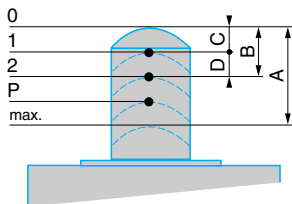
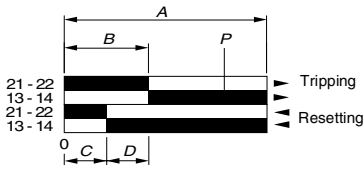
- The use of limit switches with programmable controllers is becoming more common.
- With small loads, limit switches offer the following levels of reliability:
  - failure rate of less than 1 for 100 million operating cycles using snap action contacts (contacts XE2 S P).
  - failure rate of less than 1 for 20 million operating cycles using slow break contacts (contacts XE●N P and XE3 S P).
  - failure rate of less than 1 for 5 million operating cycles using contacts XCM D.



		Range of use	
<b>Standard contacts</b>	XE2S P2151, P3151		
	Continuous service (frequent switching)	XE2N P●●●●	
<b>Gold flashed contacts</b>	Occasional service		(1)
	on resistive load	Infrequent switching, ≤ 1 operating cycle/day and/or corrosive atmosphere	

(1) Usable up to 48 V/10 mA.

## Contact blocks (continued)



## Functional diagrams of snap action contacts

### ■ Example: N/C + N/O

- A - Maximum travel of the operator in millimetres or degrees.
- B - Tripping travel of contact.
- C - Resetting travel of contact.
- D - Differential travel = B - C.
- P - Point from which positive opening is assured.

### □ Linear movement (plunger)

- 1 - Resetting point of contact.
- 2 - Tripping point of contact.
- A - Maximum travel of the operator in millimetres.
- B - Tripping travel of contact.
- C - Resetting travel of contact.
- D - Differential travel = B - C.
- P - Point from which positive opening is assured.

### □ Rotary movement (lever)

- 1 - Resetting point of contact.
- 2 - Tripping point of contact.
- A - Maximum travel of the operator in degrees.
- B - Tripping travel of contact.
- C - Resetting travel of contact.
- D - Differential travel = B - C.
- P - Point from which positive opening is assured.

## Functional diagrams of slow break contacts

### ■ Example: N/C + N/O break before make

- A - Maximum travel of the operator in millimetres or degrees.
- B - Tripping and resetting travel of contact 21-22.
- C - Tripping and resetting travel of contact 13-14.
- P - Point from which positive opening is assured.

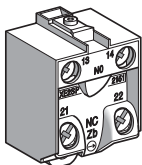
### □ Linear movement (plunger)

- 1 - Tripping and resetting points of contact 21-22.
- 2 - Tripping and resetting points of contact 13-14.
- A - Maximum travel of the operator in millimetres.
- B - Tripping and resetting travel of contact 21-22.
- C - Tripping and resetting travel of contact 13-14.
- P - Positive opening point.

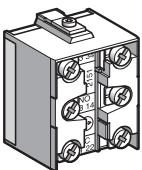
### □ Rotary movement (lever)

- 1 - Tripping and resetting points of contact 21-22.
- 2 - Tripping and resetting points of contact 13-14.
- A - Maximum travel of the operator in degrees.
- B - Tripping and resetting travel of contact 21-22.
- C - Tripping and resetting travel of contact 13-14.
- P - Positive opening point.

## Contact blocks (continued)



XE2 P screw clamp terminal connections

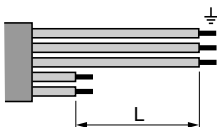


XE3 P screw clamp terminal connections

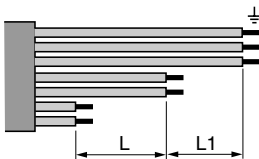
## Mounting

## Contact connections

- Tightening torque:
  - minimum tightening torque ensuring the nominal characteristics of the contact: 0.8 N.m,
  - maximum tightening torque without damage to the terminals: 1.2 N.m for XE2 P, 1 N.m for XE3 P.
- Connecting cable: cable preparation lengths:
  - for XE2 P, L = 22 mm,
  - for XE2 P3, L = 45 mm.

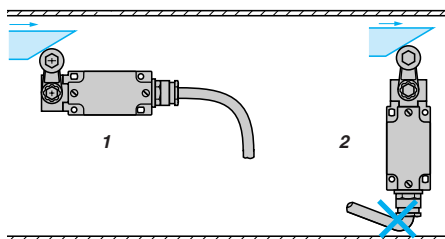


- for XE3 P, L = 14 mm, L1 = 11 mm.



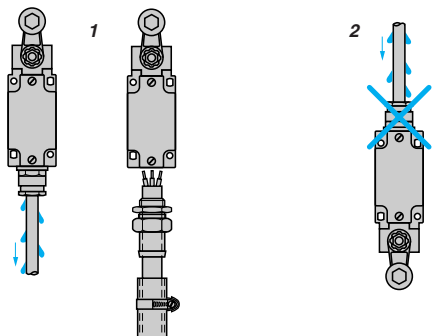
## Sweep of connecting cable

- 1 Recommended
- 2 To be avoided



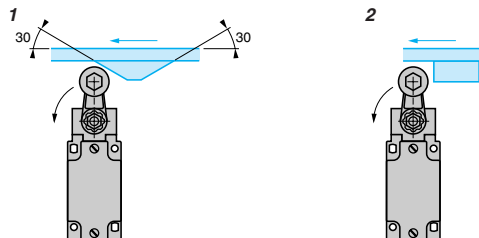
## Position of cable gland

- 1 Recommended
- 2 To be avoided



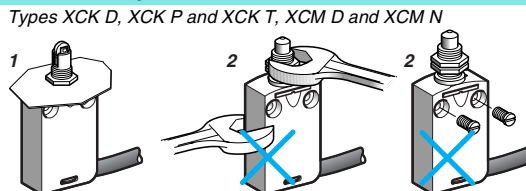
## Type of cam

- 1 Recommended
- 2 To be avoided



## Mounting and fixing limit switches by the head

- 1 Recommended
- 2 Forbidden



Types XCK D, XCK P and XCK T, XCM D and XCM N

# Limit switches

Osiswitch®  
General

## Setting-up

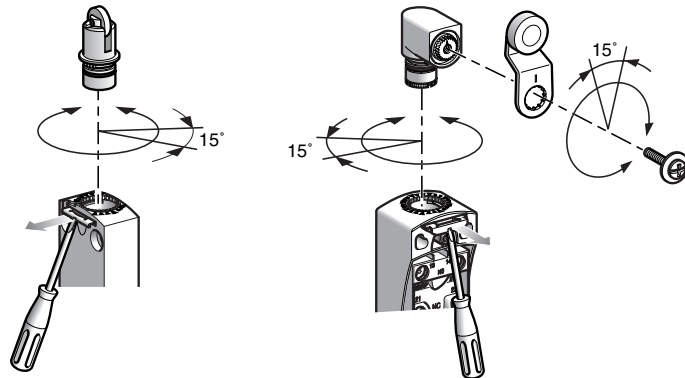
### Tightening torque

- The minimum torque is that required to ensure correct operation of the switch.
- The maximum torque is the value which, if exceeded, will damage the switch.

Range	Item	Torque (N.m)	
		Min.	Max.
Compact design XCK D, XCK P, XCK T	Cover	0.8	1.2
	Fixing screw for lever on rotary head	1	1.5
Miniature design XCM D, XCM N	–	–	–
	Fixing screw for lever on rotary head	1	1.5
Compact design XCK N	Cover	0.8	1.2
	Fixing screw for lever on rotary head	1	1.5
Classic design XCK J	Cover	1	1.5
	Fixing nut for lever on rotary head	1	1.5
Classic design XCK S	Cover	0.8	1.2
	Fixing nut for lever on rotary head	1	1.5
Classic design XCK M, XCK ML, XCK L	Cover	0.8	1.2
	Fixing nut for lever on rotary head	1	1.5

### Types XCK D, XCK P, XCK T, XCM D

- Adjustable in 3 planes:

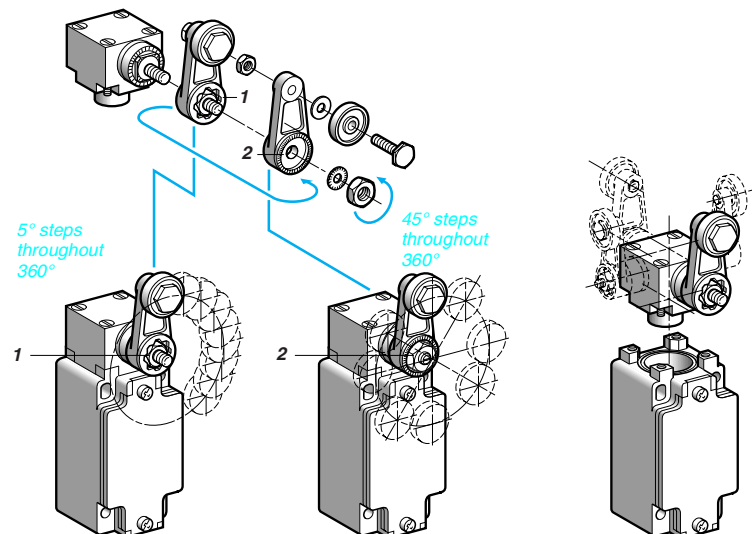


All the heads can be adjusted in 15° steps throughout 360°, in relation to the body.

All the levers can be adjusted in 15° steps throughout 360°, in relation to the horizontal axis of the head.

### Type XCK J

- Adjustable throughout 360° in 5° steps, or in 45° steps by reversing the lever or its mounting.
- 1 Reversed  $\alpha = 5^\circ$
  - 2 Forward  $\alpha = 45^\circ$

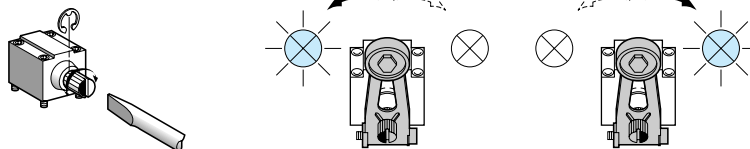




Setting-up (continued)

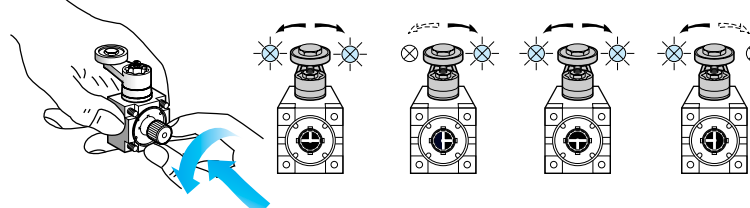
Direction of actuation programming

■ XC2 J



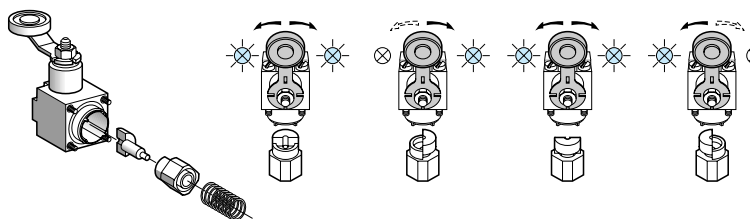
Head ZC2 JE05

■ XCK J



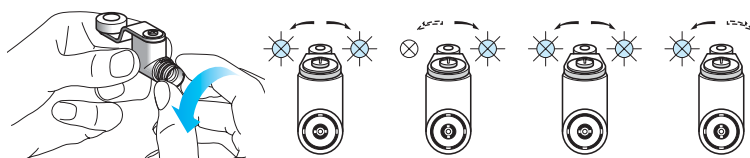
Head ZCK E05

■ XCK S



Head ZCK D05

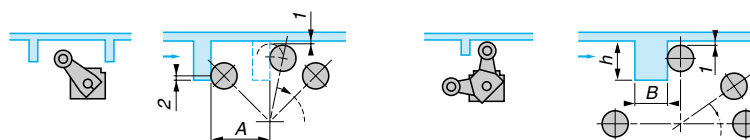
■ XCK D, XCK P, XCK T and XCM D



Head ZCE 05

Specific cams for heads ZCK E09 and ZC2 J09

- 1 0.5 mm min.
- 2 2 mm min.



A = length of lever + 11 mm  
**ZCK E09:**  $13 < h < 18$  mm and  $B = 12$  mm max.  
**ZCK JE09:**  $14 < h < 24$  mm and  $B = 6$  mm max.

## Reminder of the standards

The majority of Telemecanique products comply to national standards (for example French NF C standards, German DIN standards), European standards (for example CENELEC) or international standards (for example IEC). These standards rigidly stipulate the characteristic requirements of the designated products (for example IEC 60947 relating to low voltage switchgear and controlgear). These products, when correctly used, enable the production of control equipment assemblies, machine control equipment or installations conforming to their own specific standards (for example IEC 60204 for the electrical equipment of industrial machines).

### IEC 60947-5-1

#### Insulation coordination (and dielectric strength)

- The standard IEC 60664 defines 4 categories of prospective transient overvoltages. It is important for the user to select control circuit components which are able to withstand these overvoltages. To these ends, the manufacturer states the rated impulse withstand voltage ( $U_{imp}$ ) applicable to the product.

#### Terminal connections

- The cabling capacity, mechanical robustness and durability of the terminals, as well as the ability to resist loosening, are verified by standardised tests.
- Terminal reference marking conforms to standard EN 50013.

#### Switching capacity

- With maximum electrical load. A single designation (A300 for example) enables indication of the contact block characteristics related to its utilisation category.

#### Positive opening operation (IEC 60947-5-1 Appendix K)

- For contacts used in safety applications (end of travel, emergency stop device, etc.) the assurance of positive opening is required (see IEC 60204, EN 60204) after each test, the opening of the contact being verified by testing with an impulse voltage (2500 V).

#### Electrical symbols for contacts



- Form Za, the 2 contacts are the same polarity.



- Form Zb, the 2 contacts are electrically separate.

#### Symbol for positive opening



- Simplified version



- Complete symbol

### CENELEC EN 50047

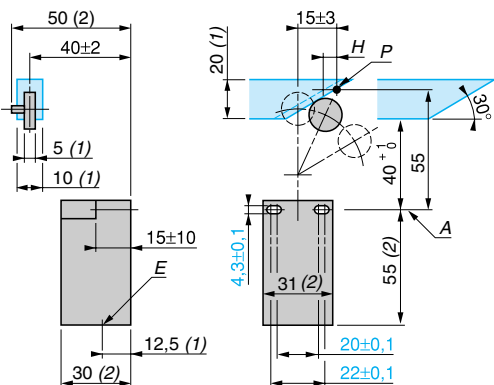
The European standards organisation CENELEC, which has 14 member countries, has defined in this standard the first type of limit switch.

It defines 4 variants of devices (forms A, B, C, E).  
Limit switches XCK P, XCK D and XCK T conform to standard EN 50047.

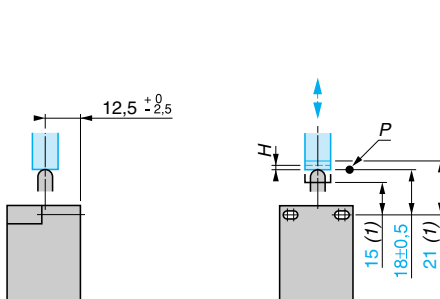
(1) Minimum value  
(2) Maximum value

A: reference axis  
H: differential travel  
P: tripping point  
E: cable entry

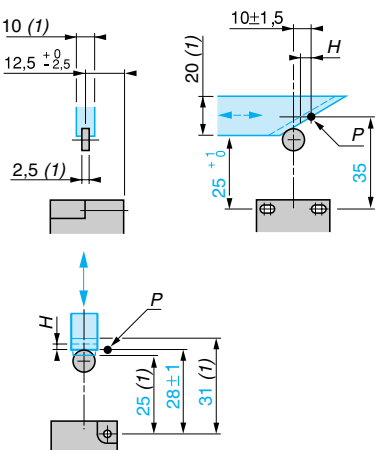
#### Form A, with roller lever



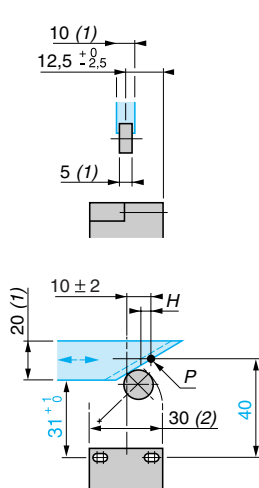
#### Form B, with end plunger (rounded)



#### Form C, with end roller plunger



#### Form E, with roller lever for 1 direction of actuation



Reminder of the standards (continued)

**CENELEC EN 50041**

The European standards organisation CENELEC, which has 14 member countries, has defined in this standard the second type of limit switch.

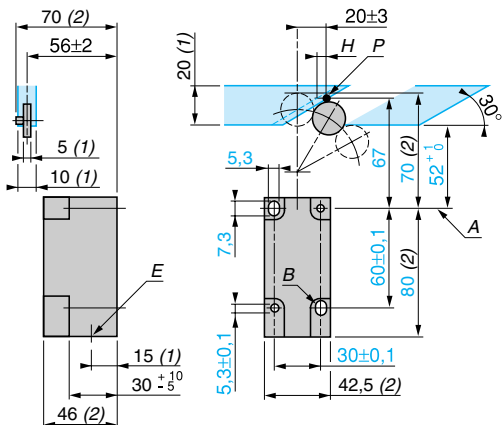
It defines 6 variants of devices (forms A, B, C, D, F, G).  
Limit switches XCK J and XCK S conform to standard EN 50041.

(1) Minimum value  
(2) Maximum value

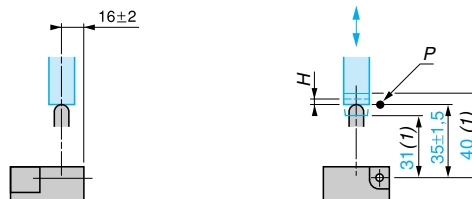
A: reference axis  
B: optional elongated holes  
H: differential travel  
P: tripping point  
E: cable entry

Za: tripping zone  
Sa: tripping threshold

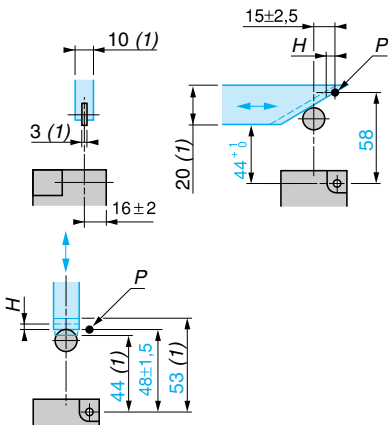
Form A, with roller lever



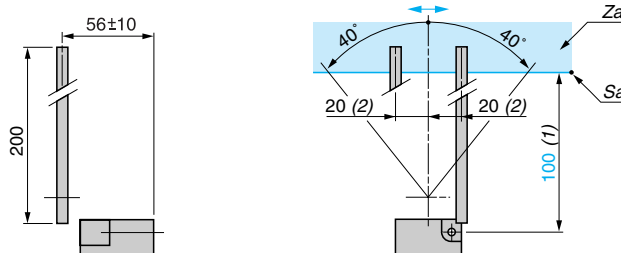
Form B, with end plunger (rounded)



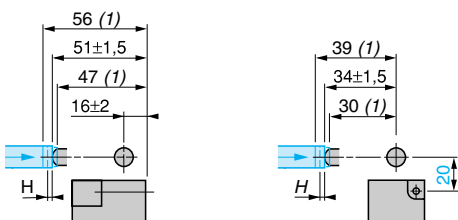
Form C, with end roller plunger



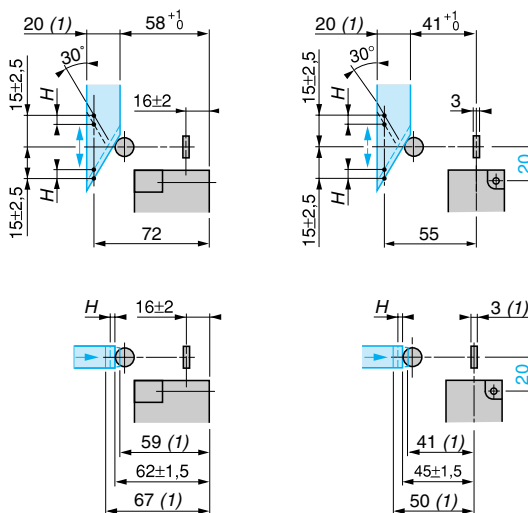
Form D, with rod lever



Form F, with side plunger (rounded)



Form G, with side roller plunger



# Substitution table

Sensors with closest functionalities

# Limit switches

Old design	New Osiswitch design	Old design	New Osiswitch design	Old design	New Osiswitch design
<b>Miniature design</b>					
XCMA102	XCMD2102L1	XCMA1035E	ZCE02 + ZCMD21 + ZCMC21E5	XCMA115	XCMD2115L1
XCMA1020	ZCE02 + ZCMC21L10 + ZCMD21	XCMA1036	ZCE02 + ZCMC21L7 + ZCMD21	XCMA1150	ZCE01 + ZCY15 + ZCMC21L10 + ZCMD21
XCMA1022	ZCE02 + ZCMD21L2	XCMA1037	ZCE02 + ZCMC21L7 + ZCMD21	XCMA1152	ZCE01 + ZCY15 + ZCMD21L2
XCMA1022AE	ZCE02 + ZCMD61 + ZCMC21E2	XCMA1038	ZCE02 + ZCMC21L10 + ZCMD21	XCMA1153	ZCE01 + ZCY15 + ZCMC21L3 + ZCMD21
XCMA1022E	ZCE02 + ZCMD21 + ZCMC21E2	XCMA1039	ZCE02 + ZCMC21L10 + ZCMD21	XCMA1154	ZCE01 + ZCY15 + ZCMC21L3 + ZCMD21
XCMA1023	ZCE02 + ZCMC21L3 + ZCMD21	XCMA103AE	ZCE02 + ZCMD61 + ZCMC21E1	XCMA1155	ZCE01 + ZCY15 + ZCMD21L5
XCMA1023AE	ZCE02 + ZCMD61 + ZCMC21E3	XCMA103E	ZCE02 + ZCMD21 + ZCMC21E1	XCMA1156	ZCE01 + ZCY15 + ZCMC21L7 + ZCMD21
XCMA1023E	ZCE02 + ZCMD21 + ZCMC21E3	XCMA103L0120	ZCE02 + ZCMD21L08R12	XCMA115L0120	ZCE01 + ZCY15 + ZCMD21L08R12
XCMA1024	ZCE02 + ZCMD21L5	XCMA103M1020	ZCE02 + ZCMD21L08U78	XCMA115M1020	ZCE01 + ZCY15 + ZCMD21L08U78
XCMA1024AE	ZCE02 + ZCMD61 + ZCMC21E5	XCMA103T200	XCMD2102C12	XCMA115T200	XCMD2115C12
XCMA1024E	ZCE02 + ZCMD21 + ZCMC21E5	XCMA103T300	XCMD2102M12	XCMA115T300	XCMD2115M12
XCMA1025	ZCE02 + ZCMD21L5	XCMA110	XCMD2110L1	XCMA116	XCMD2116L1
XCMA1025AE	ZCE02 + ZCMD61 + ZCMC21E5	XCMA1100	ZCE10 + ZCMC21L10 + ZCMD21	XCMA1160	ZCE01 + ZCY16 + ZCMC21L10 + ZCMD21
XCMA1025E	ZCE02 + ZCMD21 + ZCMC21E5	XCMA1102	ZCE10 + ZCMD21L2	XCMA1162	ZCE01 + ZCY16 + ZCMD21L2
XCMA1026	ZCE02 + ZCMC21L7 + ZCMD21	XCMA1102AE	ZCE10 + ZCMD61 + ZCMC21E2	XCMA1162AE	ZCE01 + ZCY16 + ZCMD61 + ZCMC21E2
XCMA1027	ZCE02 + ZCMC21L7 + ZCMD21	XCMA1102E	ZCE10 + ZCMD21 + ZCMC21E2	XCMA1162E	ZCE01 + ZCY16 + ZCMD21 + ZCMC21E2
XCMA1028	ZCE02 + ZCMC21L10 + ZCMD21	XCMA1103	ZCE10 + ZCMC21L3 + ZCMD21	XCMA1163	ZCE01 + ZCY16 + ZCMC21L3 + ZCMD21
XCMA1029	ZCE02 + ZCMC21L10 + ZCMD21	XCMA1103AE	ZCE10 + ZCMD61 + ZCMC21E3	XCMA1163AE	ZCE01 + ZCY16 + ZCMD61 + ZCMC21E3
XCMA102AE	ZCE02 + ZCMD61 + ZCMC21E1	XCMA1103E	ZCE10 + ZCMD21 + ZCMC21E3	XCMA1163E	ZCE01 + ZCY16 + ZCMD21 + ZCMC21E3
XCMA102E	ZCE02 + ZCMD21 + ZCMC21E1	XCMA1104	ZCE10 + ZCMD21L5	XCMA1164	ZCE01 + ZCY16 + ZCMD21L5
XCMA102L0120	ZCE02 + ZCMD21L08R12	XCMA1104AE	ZCE10 + ZCMD61 + ZCMC21E5	XCMA1164AE	ZCE01 + ZCY16 + ZCMD61 + ZCMC21E5
XCMA102M1020	ZCE02 + ZCMD21L08U78	XCMA1104E	ZCE10 + ZCMD21 + ZCMC21E5	XCMA1164E	ZCE01 + ZCY16 + ZCMD21 + ZCMC21E5
XCMA102T200	XCMD2102C12	XCMA1105	ZCE10 + ZCMD21L5	XCMA1165	ZCE01 + ZCY16 + ZCMD21L5
XCMA102T300	XCMD2102M12	XCMA1105AE	ZCE10 + ZCMD61 + ZCMC21E5	XCMA1165AE	ZCE01 + ZCY16 + ZCMD61 + ZCMC21E5
XCMA103	XCMD2102L1	XCMA1105E	ZCE10 + ZCMD21 + ZCMC21E5	XCMA1165E	ZCE01 + ZCY16 + ZCMD21 + ZCMC21E5
XCMA1030	ZCE02 + ZCMC21L10 + ZCMD21	XCMA1106	ZCE10 + ZCMC21L7 + ZCMD21	XCMA1166	ZCE01 + ZCY16 + ZCMC21L7 + ZCMD21
XCMA1032	ZCE02 + ZCMD21L2	XCMA110AE	ZCE10 + ZCMD61 + ZCMC21E1	XCMA116AE	ZCE01 + ZCY16 + ZCMD61 + ZCMC21E1
XCMA1032AE	ZCE02 + ZCMD61 + ZCMC21E2	XCMA110E	ZCE10 + ZCMD21 + ZCMC21E1	XCMA116E	ZCE01 + ZCY16 + ZCMD21 + ZCMC21E1
XCMA1032E	ZCE02 + ZCMD21 + ZCMC21E2	XCMA110L0120	ZCE10 + ZCMD21L08R12	XCMA116L0120	ZCE01 + ZCY16 + ZCMD21L08R12
XCMA1033	ZCE02 + ZCMC21L3 + ZCMD21	XCMA110M1020	ZCE10 + ZCMD21L08U78	XCMA116M1020	ZCE01 + ZCY16 + ZCMD21L08U78
XCMA1033AE	ZCE02 + ZCMD61 + ZCMC21E3	XCMA110T200	XCMD2110C12	XCMA116T200	XCMD2116C12
XCMA1033E	ZCE02 + ZCMD21 + ZCMC21E3	XCMA110T300	XCMD2110M12	XCMA116T300	XCMD2116M12
XCMA1034	ZCE02 + ZCMD21L5	XCMA111	XCMD2111L1	XCMA117	XCMD2117L1
XCMA1034AE	ZCE02 + ZCMD61 + ZCMC21E5	XCMA1110	ZCE11 + ZCMC21L10 + ZCMD21	XCMA1170	ZCE01 + ZCY17 + ZCMC21L10 + ZCMD21
XCMA1034E	ZCE02 + ZCMD21 + ZCMC21E5	XCMA1112	ZCE11 + ZCMD21L2	XCMA1172	ZCE01 + ZCY17 + ZCMD21L2
XCMA1035	ZCE02 + ZCMD21L5	XCMA1113	ZCE11 + ZCMC21L3 + ZCMD21	XCMA1173	ZCE01 + ZCY17 + ZCMC21L3 + ZCMD21
XCMA1035AE	ZCE02 + ZCMD61 + ZCMC21E5	XCMA1114	ZCE11 + ZCMD21L5	XCMA1174	ZCE01 + ZCY17 + ZCMD21L5
		XCMA1115	ZCE11 + ZCMD21L5	XCMA1175	ZCE01 + ZCY17 + ZCMD21L5
		XCMA1116	ZCE11 + ZCMC21L7 + ZCMD21		

# Substitution table

Sensors with closest functionalities

# Limit switches

Old design	New Osiswitch design	Old design	New Osiswitch design	Old design	New Osiswitch design
<b>Miniature design (continued)</b>					
XCMA1176	ZCE01 + ZCY17 + ZCMC21L7 + ZCMD21	XCMA1270	ZCE01 + ZCY23 + ZCMC21L10 + ZCMD21	XCMB5153	ZCE01 + ZCY15 + ZCMC25L3 + ZCMD25
XCMA117L0120	ZCE01 + ZCY17 + ZCMD21L08R12	XCMA1272	ZCE01 + ZCY23 + ZCMC21L2 + ZCMD21	XCMB5154	ZCE01 + ZCY15 + ZCMD25L5
XCMA117M1020	ZCE01 + ZCY17 + ZCMD21L08U78	XCMA1273	ZCE01 + ZCY23 + ZCMC21L3 + ZCMD21	XCMB5155	ZCE01 + ZCY15 + ZCMD25L5
XCMA117T200	ZCE01 + ZCY17 + ZCMD21L08U78	XCMA1274	ZCE01 + ZCY23 + ZCMC21L5 + ZCMD21	XCMB5156	ZCE01 + ZCY15 + ZCMC25L7 + ZCMD25
XCMA117T300	ZCE01 + ZCY17 + ZCMD21L08U78	XCMA1275	ZCE01 + ZCY23 + ZCMC21L5 + ZCMD21	XCMB5160	ZCE01 + ZCY16 + ZCMC25L10 + ZCMD25
XCMA125	ZCE01 + ZCY25 + ZCMC21L1 + ZCMD21	XCMA1276	ZCE01 + ZCY23 + ZCMC21L7 + ZCMD21	XCMB5162	ZCE01 + ZCY16 + ZCMD25L2
XCMA1250	ZCE01 + ZCY25 + ZCMC21L10 + ZCMD21	XCMA1277	ZCE01 + ZCY23 + ZCMC21L7 + ZCMD21	XCMB5163	ZCE01 + ZCY16 + ZCMC25L3 + ZCMD25
XCMA1252	ZCE01 + ZCY25 + ZCMC21L2 + ZCMD21	XCMA1278	ZCE01 + ZCY23 + ZCMC21L10 + ZCMD21	XCMB5164	ZCE01 + ZCY16 + ZCMD25L5
XCMA1252AE	ZCE01 + ZCY25 + ZCMC21E2 + ZCMD61	XCMA1279	ZCE01 + ZCY23 + ZCMC21L10 + ZCMD21	XCMB5165	ZCE01 + ZCY16 + ZCMD25L5
XCMA1252E	ZCE01 + ZCY25 + ZCMC21E2 + ZCMD21	XCMB502	XCMD2502L1	XCMB5166	ZCE01 + ZCY16 + ZCMC25L7 + ZCMD25
XCMA1253	ZCE01 + ZCY25 + ZCMC21L3 + ZCMD21	XCMB5020	ZCE02 + ZCMC25L10 + ZCMD25	XCMB517	XCMD2517L1
XCMA1253AE	ZCE01 + ZCY25 + ZCMC21E3 + ZCMD61	XCMB5022	ZCE02 + ZCMD25L2	XCMB5170	ZCE01 + ZCY17 + ZCMC25L10 + ZCMD25
XCMA1253E	ZCE01 + ZCY25 + ZCMC21E3 + ZCMD21	XCMB5023	ZCE02 + ZCMC25L3 + ZCMD25	XCMB5172	ZCE01 + ZCY17 + ZCMD25L2
XCMA1254	ZCE01 + ZCY25 + ZCMC21L5 + ZCMD21	XCMB5024	ZCE02 + ZCMD25L5	XCMB5173	ZCE01 + ZCY17 + ZCMC25L3 + ZCMD25
XCMA1254AE	ZCE01 + ZCY25 + ZCMC21E5 + ZCMD61	XCMB5025	ZCE02 + ZCMD25L5	XCMB5174	ZCE01 + ZCY17 + ZCMD25L5
XCMA1254E	ZCE01 + ZCY25 + ZCMC21E5 + ZCMD21	XCMB5026	ZCE02 + ZCMC25L7 + ZCMD25	XCMB5175	ZCE01 + ZCY17 + ZCMD25L5
XCMA1255	ZCE01 + ZCY25 + ZCMC21L5 + ZCMD21	XCMB503	XCMD2502L1	XCMB5176	ZCE01 + ZCY17 + ZCMC25L7 + ZCMD25
XCMA1255AE	ZCE01 + ZCY25 + ZCMC21E5 + ZCMD61	XCMB5030	ZCE02 + ZCMC25L10 + ZCMD25	XCMB525	ZCE01 + ZCY25 + ZCMC25L1 + ZCMD25
XCMA1255E	ZCE01 + ZCY25 + ZCMC21E5 + ZCMD21	XCMB5032	ZCE02 + ZCMD25L2	XCMB5250	ZCE01 + ZCY25 + ZCMC25L10 + ZCMD25
XCMA1256	ZCE01 + ZCY25 + ZCMC21L7 + ZCMD21	XCMB5033	ZCE02 + ZCMC25L3 + ZCMD25	XCMB5252	ZCE01 + ZCY25 + ZCMC25L2 + ZCMD25
XCMA1256AE	ZCE01 + ZCY25 + ZCMC21E5 + ZCMD61	XCMB5034	ZCE02 + ZCMD25L5	XCMB5253	ZCE01 + ZCY25 + ZCMC25L3 + ZCMD25
XCMA1256E	ZCE01 + ZCY25 + ZCMC21E5 + ZCMD21	XCMB5035	ZCE02 + ZCMD25L5	XCMB5254	ZCE01 + ZCY25 + ZCMC25L5 + ZCMD25
XCMA1257	ZCE01 + ZCY26 + ZCMC21L1 + ZCMD21	XCMB5036	ZCE02 + ZCMC25L7 + ZCMD25	XCMB5255	ZCE01 + ZCY25 + ZCMC25L5 + ZCMD25
XCMA1260	ZCE01 + ZCY26 + ZCMC21L10 + ZCMD21	XCMB510	XCMD2510L1	XCMB5256	ZCE01 + ZCY25 + ZCMC25L7 + ZCMD25
XCMA1262	ZCE01 + ZCY26 + ZCMC21L2 + ZCMD21	XCMB5100	ZCE10 + ZCMC25L10 + ZCMD25	XCMB526	ZCE01 + ZCY26 + ZCMC25L1 + ZCMD25
XCMA1263	ZCE01 + ZCY26 + ZCMC21L3 + ZCMD21	XCMB5102	ZCE10 + ZCMD25L2	XCMB5260	ZCE01 + ZCY26 + ZCMC25L10 + ZCMD25
XCMA1264	ZCE01 + ZCY26 + ZCMC21L5 + ZCMD21	XCMB5103	ZCE10 + ZCMC25L3 + ZCMD25	XCMB5262	ZCE01 + ZCY26 + ZCMC25L2 + ZCMD25
XCMA1265	ZCE01 + ZCY26 + ZCMC21L5 + ZCMD21	XCMB5104	ZCE10 + ZCMD25L5	XCMB5263	ZCE01 + ZCY26 + ZCMC25L3 + ZCMD25
XCMA1266	ZCE01 + ZCY26 + ZCMC21L7 + ZCMD21	XCMB5105	ZCE10 + ZCMD25L5	XCMB5264	ZCE01 + ZCY26 + ZCMC25L5 + ZCMD25
XCMA1267	ZCE01 + ZCY26 + ZCMC21L7 + ZCMD21	XCMB5106	ZCE10 + ZCMC25L7 + ZCMD25	XCMB5265	ZCE01 + ZCY26 + ZCMC25L5 + ZCMD25
XCMA1268	ZCE01 + ZCY26 + ZCMC21L10 + ZCMD21	XCMB511	XCMD2511L1	XCMB5266	ZCE01 + ZCY26 + ZCMC25L7 + ZCMD25
XCMA1269	ZCE01 + ZCY26 + ZCMC21L10 + ZCMD21	XCMB5110	ZCE11 + ZCMC25L10 + ZCMD25	XCMB5267	ZCE01 + ZCY26 + ZCMC25L7 + ZCMD25
XCMA127	ZCE01 + ZCY23 + ZCMC21L1 + ZCMD21	XCMB5112	ZCE11 + ZCMD25L2	XCMB5268	ZCE01 + ZCY26 + ZCMC25L10 + ZCMD25
		XCMB5113	ZCE11 + ZCMC25L3 + ZCMD25	XCMB5269	ZCE01 + ZCY26 + ZCMC25L10 + ZCMD25
		XCMB5114	ZCE11 + ZCMD25L5	XCMB527	ZCE01 + ZCY23 + ZCMC25L1 + ZCMD25
		XCMB5115	ZCE11 + ZCMD25L5	XCMB5270	ZCE01 + ZCY23 + ZCMC25L10 + ZCMD25
		XCMB5116	ZCE11 + ZCMC25L7 + ZCMD25		
		XCMB515	XCMD2515L1		
		XCMB5150	ZCE01 + ZCY15 + ZCMC25L10 + ZCMD25		
		XCMB5152	ZCE01 + ZCY15 + ZCMD25L2		

# Substitution table

Sensors with closest functionalities

# Limit switches

Old design	New Osiswitch design	Old design	New Osiswitch design	Old design	New Osiswitch design
<b>Miniature design (continued)</b>					
XCMB5272	ZCE01 + ZCY23 + ZCMC25L2 + ZCMD25	XCMF1033E	ZCEF2 + ZCMD21 + ZCMC21E3	XCMF1114	ZCEG1 + ZCMD21L5
XCMB5273	ZCE01 + ZCY23 + ZCMC25L3 + ZCMD25	XCMF1034	ZCEF2 + ZCMD21L5	XCMF1115	ZCEG1 + ZCMD21L5
XCMB5274	ZCE01 + ZCY23 + ZCMC25L5 + ZCMD25	XCMF1034AE	ZCEF2 + ZCMD61 + ZCMC21E5	XCMF1116	ZCEG1 + ZCMC21L7 + ZCMD21
XCMB5275	ZCE01 + ZCY23 + ZCMC25L5 + ZCMD25	XCMF1034E	ZCEF2 + ZCMD21 + ZCMC21E5	XCMF1117	ZCEG1 + ZCMC21L7 + ZCMD21
XCMB5276	ZCE01 + ZCY23 + ZCMC25L7 + ZCMD25	XCMF1035	ZCEF2 + ZCMD21L5	XCMF1118	ZCEG1 + ZCMC21L10 + ZCMD21
XCMB5277	ZCE01 + ZCY23 + ZCMC25L7 + ZCMD25	XCMF1035AE	ZCEF2 + ZCMD61 + ZCMC21E5	XCMF1119	ZCEG1 + ZCMC21L10 + ZCMD21
XCMB5278	ZCE01 + ZCY23 + ZCMC25L10 + ZCMD25	XCMF1035E	ZCEF2 + ZCMD21 + ZCMC21E5	XCMG502	XCMD25F2L1
XCMB5279	ZCE01 + ZCY23 + ZCMC25L10 + ZCMD25	XCMF1036	ZCEF2 + ZCMC21L7 + ZCMD21	XCMG5020	ZCEF2 + ZCMC25L10 + ZCMD25
XCMF102	XCMD21F2L1	XCMF1037	ZCEF2 + ZCMC21L7 + ZCMD21	XCMG5022	ZCEF2 + ZCMD25L2
XCMF1020	ZCEF2 + ZCMC21L10 + ZCMD21	XCMF1038	ZCEF2 + ZCMC21L10 + ZCMD21	XCMG5023	ZCEF2 + ZCMC25L3 + ZCMD25
XCMF1022	ZCEF2 + ZCMD21L2	XCMF1038	ZCEF2 + ZCMC21L10 + ZCMD21	XCMG5024	ZCEF2 + ZCMD25L5
XCMF1022AE	ZCEF2 + ZCMD61 + ZCMC21E2	XCMF1039	ZCEF2 + ZCMC21L10 + ZCMD21	XCMG5025	ZCEF2 + ZCMD25L5
XCMF1022E	ZCEF2 + ZCMD21 + ZCMC21E2	XCMF103AE	ZCEF2 + ZCMD61 + ZCMC21E1	XCMG5026	ZCEF2 + ZCMC25L7 + ZCMD25
XCMF1023	ZCEF2 + ZCMC21L3 + ZCMD21	XCMF103E	ZCEF2 + ZCMD21 + ZCMC21E1	XCMG5027	ZCEF2 + ZCMC25L7 + ZCMD25
XCMF1023AE	ZCEF2 + ZCMD61 + ZCMC21E3	XCMF110	XCMD21F0L1	XCMG5028	ZCEF2 + ZCMC25L10 + ZCMD25
XCMF1023E	ZCEF2 + ZCMD21 + ZCMC21E3	XCMF1100	ZCEF0 + ZCMC21L10 + ZCMD21	XCMG5029	ZCEF2 + ZCMC25L10 + ZCMD25
XCMF1024	ZCEF2 + ZCMD21L5	XCMF1102	ZCEF0 + ZCMD21L2	XCMG503	XCMD25F2L1
XCMF1024AE	ZCEF2 + ZCMD61 + ZCMC21E5	XCMF1102AE	ZCEF0 + ZCMD61 + ZCMC21E2	XCMG5030	ZCEF2 + ZCMC25L10 + ZCMD25
XCMF1024E	ZCEF2 + ZCMD21 + ZCMC21E5	XCMF1102E	ZCEF0 + ZCMD21 + ZCMC21E2	XCMG5032	ZCEF2 + ZCMD25L2
XCMF1025	ZCEF2 + ZCMD21L5	XCMF1103	ZCEF0 + ZCMC21L3 + ZCMD21	XCMG5033	ZCEF2 + ZCMC25L3 + ZCMD25
XCMF1025AE	ZCEF2 + ZCMD61 + ZCMC21E5	XCMF1103AE	ZCEF0 + ZCMD61 + ZCMC21E3	XCMG5034	ZCEF2 + ZCMD25L5
XCMF1025E	ZCEF2 + ZCMD21 + ZCMC21E5	XCMF1103E	ZCEF0 + ZCMD21 + ZCMC21E3	XCMG5035	ZCEF2 + ZCMD25L5
XCMF1026	ZCEF2 + ZCMC21L7 + ZCMD21	XCMF1104	ZCEF0 + ZCMD21L5	XCMG5036	ZCEF2 + ZCMC25L7 + ZCMD25
XCMF1027	ZCEF2 + ZCMC21L7 + ZCMD21	XCMF1104E	ZCEF0 + ZCMD21 + ZCMC21E5	XCMG5037	ZCEF2 + ZCMC25L7 + ZCMD25
XCMF1028	ZCEF2 + ZCMC21L10 + ZCMD21	XCMF1105	ZCEF0 + ZCMD21L5	XCMG5038	ZCEF2 + ZCMC25L10 + ZCMD25
XCMF1029	ZCEF2 + ZCMC21L10 + ZCMD21	XCMF1105AE	ZCEF0 + ZCMD61 + ZCMC21E5	XCMG5039	ZCEF2 + ZCMC25L10 + ZCMD25
XCMF102AE	ZCEF2 + ZCMD61 + ZCMC21E1	XCMF1105E	ZCEF0 + ZCMD21 + ZCMC21E5	XCMG510	XCMD25F0L1
XCMF102E	ZCEF2 + ZCMD21 + ZCMC21E1	XCMF1106	ZCEF0 + ZCMC21L7 + ZCMD21	XCMG5100	ZCEF0 + ZCMC25L10 + ZCMD25
XCMF103	XCMD21F2L1	XCMF1107	ZCEF0 + ZCMC21L7 + ZCMD21	XCMG5102	ZCEF0 + ZCMD25L2
XCMF1030	ZCEF2 + ZCMC21L10 + ZCMD21	XCMF1108	ZCEF0 + ZCMC21L7 + ZCMD21	XCMG5103	ZCEF0 + ZCMC25L3 + ZCMD25
XCMF1032	ZCEF2 + ZCMD21L2	XCMF1108	ZCEF0 + ZCMC21L10 + ZCMD21	XCMG5104	ZCEF0 + ZCMD25L5
XCMF1032AE	ZCEF2 + ZCMD61 + ZCMC21E2	XCMF1109	ZCEF0 + ZCMC21L10 + ZCMD21	XCMG5105	ZCEF0 + ZCMD25L5
XCMF1032E	ZCEF2 + ZCMD21 + ZCMC21E2	XCMF1109	ZCEF0 + ZCMC21L10 + ZCMD21	XCMG5106	ZCEF0 + ZCMC25L7 + ZCMD25
XCMF1033	ZCEF2 + ZCMC21L3 + ZCMD21	XCMF110AE	ZCEF0 + ZCMD61 + ZCMC21E1	XCMG5107	ZCEF0 + ZCMC25L7 + ZCMD25
XCMF1033AE	ZCEF2 + ZCMD61 + ZCMC21E3	XCMF110E	ZCEF0 + ZCMD21 + ZCMC21E1	XCMG5108	ZCEF0 + ZCMC25L10 + ZCMD25
		XCMF111	XCMD21G1L1	XCMG5109	ZCEF0 + ZCMC25L10 + ZCMD25
		XCMF1110	ZCEG1 + ZCMC21L10 + ZCMD21	XCMG511	XCMD25G1L1
		XCMF1112	ZCEG1 + ZCMD21L2	XCMG5110	ZCEG1 + ZCMC25L10 + ZCMD25
		XCMF1113	ZCEG1 + ZCMC21L3 + ZCMD21	XCMG5112	ZCEG1 + ZCMD25L2

## Substitution table

Sensors with closest functionalities

# Limit switches

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Old design                      New Osiswitch design

**Miniature design (continued)**

XCMG5113	ZCEG1 + ZCMC25L3 + ZCMD25
XCMG5114	ZCEG1 + ZCMD25L5
XCMG5115	ZCEG1 + ZCMD25L5
XCMG5116	ZCEG1 + ZCMC25L7 + ZCMD25
XCMG5117	ZCEG1 + ZCMC25L7 + ZCMD25
XCMG5118	ZCEG1 + ZCMC25L10 + ZCMD25
XCMG5119	ZCEG1 + ZCMC25L10 + ZCMD25

# Substitution table

Sensors with closest functionalities

# Limit switches

Old design	New Osiswitch design	Old design	New Osiswitch design	Old design	New Osiswitch design
<b>Design compact</b>					
<b>Compact design plastic type XCKP</b>					
ZCKY45 + XCKP601	ZCP26 + ZCE01 + ZCY45 + ZCPEG11	XCKP111H29 (1)	XCKP2111P16	XCKP1558	ZCP61 + ZCE01 + ZCY55 + ZCPEG11
ZCKY45 + XCKP601H29	ZCP26 + ZCE01 + ZCY45 + ZCPEP16	XCKP111H44 (1)	ZCP21 + ZCE11 + ZCPEG13	XCKP155H29	ZCP21 + ZCE01 + ZCY55 + ZCPEP16
ZCKY54 + XCKP601	ZCP26 + ZCE01 + ZCY54 + ZCPEG11	XCKP111H7 (1)	ZCP21 + ZCE11 + ZCPEN12	XCKP155H44	ZCP21 + ZCE01 + ZCY55 + ZCPEG13
ZCKY54 + XCKP601H29	ZCP26 + ZCE01 + ZCY54 + ZCPEP16	XCKP118	XCKP2118G11	XCKP155H7	ZCP21 + ZCE01 + ZCY55 + ZCPEN12
ZCKY55 + XCKP601	ZCP26 + ZCE01 + ZCY55 + ZCPEG11	XCKP118H29	XCKP2118P16	XCKP501	XCKP2501G11
ZCKY55 + XCKP601H29	ZCP26 + ZCE01 + ZCY55 + ZCPEP16	XCKP118H44	ZCP21 + ZCE01 + ZCY18 + ZCPEG13	XCKP501H29	XCKP2501P16
ZCKY18 + XCKP701	ZCP27 + ZCE01 + ZCY18 + ZCPEG11	XCKP118H7	ZCP21 + ZCE01 + ZCY18 + ZCPEN12	XCKP502	XCKP2502G11
ZCKY18 + XCKP701H29	ZCP27 + ZCE01 + ZCY18 + ZCPEP16	XCKP119	ZCP21 + ZCE01 + ZCY19 + ZCPEG11	XCKP5029	XCP2502G13
ZCKY45 + XCKP701	ZCP27 + ZCE01 + ZCY45 + ZCPEG11	XCKP119H29	ZCP61 + ZCE01 + ZCY19 + ZCPEG11	XCKP5029H29	XCP2502P20
ZCKY45 + XCKP701H29	ZCP27 + ZCE01 + ZCY45 + ZCPEP16	XCKP119H7	ZCP21 + ZCE01 + ZCY19 + ZCPEP16	XCKP5029H7	XCP2502N12
ZCKY54 + XCKP701	ZCP27 + ZCE01 + ZCY54 + ZCPEG11	XCKP121	ZCP21 + ZCE01 + ZCY19 + ZCPEN12	XCKP502H29	XCKP2502P16
ZCKY54 + XCKP701H29	ZCP27 + ZCE01 + ZCY54 + ZCPEP16	XCKP121H29	XCKP2121G11	XCKP502H44	ZCP25 + ZCE02 + ZCPEG13
ZCKY55 + XCKP701	ZCP27 + ZCE01 + ZCY55 + ZCPEG11	XCKP121H44	ZCP61 + ZCE21 + ZCPEG11	XCKP502H7	ZCP25 + ZCE02 + ZCPEN12
ZCKY55 + XCKP701H29	ZCP27 + ZCE01 + ZCY55 + ZCPEP16	XCKP121H7	XCKP2121P16	XCKP506	XCKP2506G11
ZCKY18 + XCKP801	ZCP28 + ZCE01 + ZCY18 + ZCPEG11	XCKP127	ZCP21 + ZCE21 + ZCPEG13	XCKP506H29	XCKP2506P16
ZCKY18 + XCKP801H29	ZCP28 + ZCE01 + ZCY18 + ZCPEP16	XCKP127H29	XCKP21 + ZCE21 + ZCPEN12	XCKP506H44	ZCP25 + ZCE06 + ZCPEG13
ZCKY45 + XCKP801	ZCP28 + ZCE01 + ZCY45 + ZCPEG11	XCKP127H44	XCKP2127G11	XCKP506H7	ZCP25 + ZCE06 + ZCPEN12
ZCKY45 + XCKP801H29	ZCP28 + ZCE01 + ZCY45 + ZCPEP16	XCKP127H7	ZCP61 + ZCE27 + ZCPEG11	XCKP510	XCKP2510G11
ZCKY54 + XCKP801	ZCP28 + ZCE01 + ZCY54 + ZCPEG11	XCKP128	XCKP2127P16	XCKP5109	XCP2510G13
ZCKY54 + XCKP801H29	ZCP28 + ZCE01 + ZCY54 + ZCPEP16	XCKP128H29	ZCP21 + ZCE27 + ZCPEG13	XCKP5109H29	XCP2510P20
ZCKY55 + XCKP801	ZCP28 + ZCE01 + ZCY55 + ZCPEG11	XCKP128H44	ZCP21 + ZCE27 + ZCPEN12	XCKP5109H7	XCP2510N12
ZCKY55 + XCKP801H29	ZCP28 + ZCE01 + ZCY55 + ZCPEP16	XCKP128H7	XCKP2128G11	XCKP510H29	XCKP2510P16
XCKP101H29	XCKP2101P16	XCKP128	ZCP61 + ZCE28 + ZCPEG11	XCKP510H44	ZCP25 + ZCE10 + ZCPEG13
XCKP101H44	ZCP21 + ZCE01 + ZCPEG13	XCKP128H29	XCKP2128P16	XCKP510H7	ZCP25 + ZCE10 + ZCPEN12
XCKP102	XCKP2102G11	XCKP128H44	ZCP21 + ZCE28 + ZCPEG13	XCKP511 (1)	XCKP2511G11
XCKP102H29	XCKP2102P16	XCKP128H7	ZCP21 + ZCE28 + ZCPEN12	XCKP511H29 (1)	XCKP2511P16
XCKP102H44	ZCP21 + ZCE02 + ZCPEG13	XCKP145	XCKP2145G11	XCKP511H44 (1)	ZCP25 + ZCE11 + ZCPEG13
XCKP102H7	ZCP21 + ZCE02 + ZCPEN12	XCKP145H29	ZCP61 + ZCE01 + ZCY45 + ZCPEG11	XCKP511H7 (1)	ZCP25 + ZCE11 + ZCPEN12
XCKP106	XCKP2106G11	XCKP145H44	XCKP2145P16	XCKP518	XCKP2518G11
XCKP106H29	XCKP2106P16	XCKP145H7	ZCP21 + ZCE01 + ZCY45 + ZCPEG13	XCKP5189	XCP2518G13
XCKP106H44	ZCP21 + ZCE06 + ZCPEG13	XCKP146	ZCP21 + ZCE01 + ZCY45 + ZCPEN12	XCKP5189H29	XCP2518P20
XCKP106H7	ZCP21 + ZCE06 + ZCPEN12	XCKP146H29	ZCP21 + ZCE01 + ZCY45 + ZCPEG11	XCKP5189H7	XCP2518N12
XCKP110	XCKP2110G11	XCKP146H7	ZCP21 + ZCE01 + ZCY46 + ZCPEG11	XCKP518H29	XCKP2518P16
XCKP1108	ZCP61 + ZCE10 + ZCPEG11	XCKP154	ZCP21 + ZCE01 + ZCY46 + ZCPEN12	XCKP518H44	ZCP25 + ZCE01 + ZCY18 + ZCPEG13
XCKP110H29	XCKP2110P16	XCKP154H29	ZCP21 + ZCE01 + ZCY46 + ZCPEP16	XCKP518H7	ZCP25 + ZCE01 + ZCY18 + ZCPEN12
XCKP110H44	ZCP21 + ZCE10 + ZCPEG13	XCKP154H44	ZCP21 + ZCE01 + ZCY46 + ZCPEN12	XCKP519	ZCP25 + ZCE01 + ZCY19 + ZCPEG11
XCKP110H7	ZCP21 + ZCE10 + ZCPEN12	XCKP154H7	ZCP21 + ZCE01 + ZCY54 + ZCPEG11	XCKP519H29	ZCP25 + ZCE01 + ZCY19 + ZCPEP16
XCKP111 (1)	XCKP2111G11	XCKP154	ZCP61 + ZCE01 + ZCY54 + ZCPEG11	XCKP519H7	ZCP25 + ZCE01 + ZCY19 + ZCPEN12
		XCKP154H29	ZCP21 + ZCE01 + ZCY54 + ZCPEP16	XCKP521	XCKP2521G11
		XCKP154H44	ZCP21 + ZCE01 + ZCY54 + ZCPEG13	XCKP5219	XCP2521G13
		XCKP154H7	ZCP21 + ZCE01 + ZCY54 + ZCPEN12	XCKP5219H29	XCP2521P20
		XCKP155	ZCP21 + ZCE01 + ZCY55 + ZCPEG11	XCKP5219H7	XCP2521N12
				XCKP521H29	XCKP2521P16
				XCKP521H44	ZCP25 + ZCE21 + ZCPEG13
				XCKP521H7	ZCP25 + ZCE21 + ZCPEN12
				XCKP527	XCKP2527G11
				XCKP5279	XCP2527G13
				XCKP5279H29	XCP2527P20

(1) Functional substitution, mounting offset by 10 mm.



# Substitution table

Sensors with closest functionalities

# Limit switches

Old design	New Osiswitch design	Old design	New Osiswitch design	Old design	New Osiswitch design
<b>Design compact</b>					
<b>Compact design plastic type XCKP (continued)</b>					
XCKP5279H7	XCP2527N12	XCKP619	ZCP26 + ZCE01 + ZCY19 + ZCPEG11	XCKP721	ZCP27 + ZCE21 + ZCPEG11
XCKP527H29	XCKP2527P16	XCKP621	ZCP26 + ZCE21 + ZCPEG11	XCKP721H29	ZCP27 + ZCE21 + ZCPEP16
XCKP527H44	ZCP25 + ZCE27 + ZCPEG13	XCKP621H29	ZCP26 + ZCE21 + ZCPEP16	XCKP721H44	ZCP27 + ZCE21 + ZCPEG13
XCKP527H7	ZCP25 + ZCE27 + ZCPEN12	XCKP621H44	ZCP26 + ZCE21 + ZCPEG13	XCKP727	ZCP27 + ZCE27 + ZCPEG11
XCKP528	XCKP2528G11	XCKP627	ZCP26 + ZCE27 + ZCPEG11	XCKP727H29	ZCP27 + ZCE27 + ZCPEP16
XCKP528H29	XCKP2528P16	XCKP627H29	ZCP26 + ZCE27 + ZCPEP16	XCKP727H44	ZCP27 + ZCE27 + ZCPEG13
XCKP528H44	ZCP25 + ZCE28 + ZCPEG13	XCKP627H44	ZCP26 + ZCE27 + ZCPEG13	XCKP728	ZCP27 + ZCE28 + ZCPEG11
XCKP528H7	ZCP25 + ZCE28 + ZCPEN12	XCKP628	ZCP26 + ZCE28 + ZCPEG11	XCKP728H29	ZCP27 + ZCE28 + ZCPEP16
XCKP539	XCKP2539G11	XCKP628H29	ZCP26 + ZCE28 + ZCPEP16	XCKP728H44	ZCP27 + ZCE28 + ZCPEG13
XCKP545	XCKP2545G11	XCKP628H44	ZCP26 + ZCE28 + ZCPEG13	XCKP745	ZCP27 + ZCE01 + ZCY45 + ZCPEG11
XCKP545H29	XCKP2545P16	XCKP639	ZCP26 + ZCE01 + ZCY39 + ZCPEG11	XCKP745H29	ZCP27 + ZCE01 + ZCY45 + ZCPEP16
XCKP545H44	ZCP25 + ZCE01 + ZCY45 + ZCPEG13	XCKP645	ZCP26 + ZCE01 + ZCY45 + ZCPEG11	XCKP745H44	ZCP27 + ZCE01 + ZCY45 + ZCPEG13
XCKP545H7	ZCP25 + ZCE01 + ZCY45 + ZCPEN12	XCKP645H29	ZCP26 + ZCE01 + ZCY45 + ZCPEP16	XCKP746	ZCP27 + ZCE01 + ZCY46 + ZCPEG11
XCKP546	ZCP25 + ZCE01 + ZCY46 + ZCPEG11	XCKP645H44	ZCP26 + ZCE01 + ZCY45 + ZCPEG13	XCKP746H29	ZCP27 + ZCE01 + ZCY46 + ZCPEP16
XCKP546H29	ZCP25 + ZCE01 + ZCY46 + ZCPEP16	XCKP646	ZCP26 + ZCE01 + ZCY46 + ZCPEG11	XCKP754	ZCP27 + ZCE01 + ZCY54 + ZCPEG11
XCKP546H7	ZCP25 + ZCE01 + ZCY46 + ZCPEN12	XCKP646H29	ZCP26 + ZCE01 + ZCY46 + ZCPEP16	XCKP754H29	ZCP27 + ZCE01 + ZCY54 + ZCPEP16
XCKP554	ZCP25 + ZCE01 + ZCY54 + ZCPEG11	XCKP654	ZCP26 + ZCE01 + ZCY54 + ZCPEG11	XCKP754H44	ZCP27 + ZCE01 + ZCY54 + ZCPEG13
XCKP554H29	ZCP25 + ZCE01 + ZCY54 + ZCPEP16	XCKP654H29	ZCP26 + ZCE01 + ZCY54 + ZCPEP16	XCKP755	ZCP27 + ZCE01 + ZCY55 + ZCPEG11
XCKP554H44	ZCP25 + ZCE01 + ZCY54 + ZCPEG13	XCKP654H44	ZCP26 + ZCE01 + ZCY54 + ZCPEG13	XCKP755H29	ZCP27 + ZCE01 + ZCY55 + ZCPEP16
XCKP554H7	ZCP25 + ZCE01 + ZCY54 + ZCPEN12	XCKP655	ZCP26 + ZCE01 + ZCY55 + ZCPEG11	XCKP755H44	ZCP27 + ZCE01 + ZCY55 + ZCPEG13
XCKP555	ZCP25 + ZCE01 + ZCY55 + ZCPEG11	XCKP655H29	ZCP26 + ZCE01 + ZCY55 + ZCPEP16	XCKP801	ZCP28 + ZCE01 + ZCPEG11
XCKP555H29	ZCP25 + ZCE01 + ZCY55 + ZCPEP16	XCKP655H44	ZCP26 + ZCE01 + ZCY55 + ZCPEG13	XCKP801H29	ZCP28 + ZCE01 + ZCPEP16
XCKP555H44	ZCP25 + ZCE01 + ZCY55 + ZCPEG13	XCKP701	ZCP27 + ZCE01 + ZCPEG11	XCKP802	ZCP28 + ZCE02 + ZCPEG11
XCKP555H7	ZCP25 + ZCE01 + ZCY55 + ZCPEN12	XCKP701H29	ZCP27 + ZCE01 + ZCPEP16	XCKP802H29	ZCP28 + ZCE02 + ZCPEP16
XCKP601	ZCP26 + ZCE01 + ZCPEG11	XCKP702	ZCP27 + ZCE02 + ZCPEG11	XCKP802H44	ZCP28 + ZCE02 + ZCPEG13
XCKP601H29	ZCP26 + ZCE01 + ZCPEP16	XCKP702H29	ZCP27 + ZCE02 + ZCPEP16	XCKP806	ZCP28 + ZCE06 + ZCPEG11
XCKP602	ZCP26 + ZCE02 + ZCPEG11	XCKP702H44	ZCP27 + ZCE02 + ZCPEG13	XCKP806H29	ZCP28 + ZCE06 + ZCPEP16
XCKP602H29	ZCP26 + ZCE02 + ZCPEP16	XCKP706	ZCP27 + ZCE06 + ZCPEG11	XCKP806H44	ZCP28 + ZCE06 + ZCPEG13
XCKP602H44	ZCP26 + ZCE02 + ZCPEG13	XCKP706H29	ZCP27 + ZCE06 + ZCPEP16	XCKP810	ZCP28 + ZCE10 + ZCPEG11
XCKP606	ZCP26 + ZCE06 + ZCPEG11	XCKP706H44	ZCP27 + ZCE06 + ZCPEG13	XCKP810H29	ZCP28 + ZCE10 + ZCPEP16
XCKP606H29	ZCP26 + ZCE06 + ZCPEP16	XCKP710	ZCP27 + ZCE10 + ZCPEG11	XCKP810H44	ZCP28 + ZCE10 + ZCPEG13
XCKP606H44	ZCP26 + ZCE06 + ZCPEG13	XCKP710H29	ZCP27 + ZCE10 + ZCPEP16	XCKP810H7	ZCP28 + ZCE10 + ZCPEN12
XCKP610	ZCP26 + ZCE10 + ZCPEG11	XCKP711 (1)	ZCP27 + ZCE11 + ZCPEG11	XCKP811 (1)	ZCP28 + ZCE11 + ZCPEG11
XCKP610H29	ZCP26 + ZCE10 + ZCPEP16	XCKP711H29 (1)	ZCP27 + ZCE11 + ZCPEP16	XCKP811H29 (1)	ZCP28 + ZCE11 + ZCPEP16
XCKP610H44	ZCP26 + ZCE10 + ZCPEG13	XCKP711H44 (1)	ZCP27 + ZCE11 + ZCPEG13	XCKP811H44 (1)	ZCP28 + ZCE11 + ZCPEG13
XCKP611 (1)	ZCP26 + ZCE11 + ZCPEG11	XCKP718	ZCP27 + ZCE11 + ZCPEP16	XCKP818	ZCP28 + ZCE01 + ZCY18 + ZCPEG11
XCKP611H29 (1)	ZCP26 + ZCE11 + ZCPEP16	XCKP718H29	ZCP27 + ZCE01 + ZCY18 + ZCPEG11	XCKP818H29	ZCP28 + ZCE01 + ZCY18 + ZCPEP16
XCKP611H44 (1)	ZCP26 + ZCE11 + ZCPEG13	XCKP718H44	ZCP27 + ZCE01 + ZCY18 + ZCPEP16	XCKP818H44	ZCP28 + ZCE01 + ZCY18 + ZCPEG13
XCKP618	ZCP26 + ZCE01 + ZCY18 + ZCPEG11	XCKP719	ZCP27 + ZCE01 + ZCY19 + ZCPEG11	XCKP819	ZCP28 + ZCE01 + ZCY19 + ZCPEG11
XCKP618H29	ZCP26 + ZCE01 + ZCY18 + ZCPEP16	XCKP719H29	ZCP27 + ZCE01 + ZCY19 + ZCPEP16	XCKP821	ZCP28 + ZCE21 + ZCPEG11
XCKP618H44	ZCP26 + ZCE01 + ZCY18 + ZCPEG13			XCKP821H29	ZCP28 + ZCE21 + ZCPEP16
				XCKP821H44	ZCP28 + ZCE21 + ZCPEG13
				XCKP827	ZCP28 + ZCE27 + ZCPEG11
				XCKP827H29	ZCP28 + ZCE27 + ZCPEP16

(1) Functional substitution, mounting offset by 10 mm.

# Substitution table

Sensors with closest functionalities

# Limit switches

Old design	New Osiswitch design	Old design	New Osiswitch design	Old design	New Osiswitch design
<b>Design compact (continued)</b>		<b>Compact design plastic type XCKT</b>		<i>XCKT1218</i>	ZCE21 + ZCT61G11
<b>Compact design plastic type XCKP (continued)</b>		<i>ZCKY18 + XCKT601</i>	ZCE01 + ZCY18 + ZCT26G11	<i>XCKT121H29</i>	XCKT2121P16
<i>XCKP827H44</i>	ZCP28 + ZCE27 + ZCPEG13	<i>ZCKY18 + XCKT601H29</i>	ZCE01 + ZCY18 + ZCT26P16	<i>XCKT121H7</i>	ZCE21 + ZCT21N12
<i>XCKP828</i>	ZCP28 + ZCE28 + ZCPEG11	<i>ZCKY45 + XCKT601</i>	ZCE01 + ZCY45 + ZCT26G11	<i>XCKT128</i>	ZCE28 + ZCT21G11
<i>XCKP828H29</i>	ZCP28 + ZCE28 + ZCPEP16	<i>ZCKY45 + XCKT601H29</i>	ZCE01 + ZCY45 + ZCT26P16	<i>XCKT128H29</i>	XCKT2128P16
<i>XCKP828H44</i>	ZCP28 + ZCE28 + ZCPEG13	<i>ZCKY54 + XCKT601</i>	ZCE01 + ZCY54 + ZCT26G11	<i>XCKT139</i>	XCKT2139G11
<i>XCKP845</i>	ZCP28 + ZCE01 + ZCY45 + ZCPEG11	<i>ZCKY54 + XCKT601H29</i>	ZCE01 + ZCY54 + ZCT26P16	<i>XCKT1398</i>	ZCE01 + ZCY39 + ZCT61G11
<i>XCKP845H29</i>	ZCP28 + ZCE01 + ZCY45 + ZCPEP16	<i>ZCKY55 + XCKT601</i>	ZCE01 + ZCY55 + ZCT26G11	<i>XCKT145</i>	XCKT2145G11
<i>XCKP845H44</i>	ZCP28 + ZCE01 + ZCY45 + ZCPEG13	<i>ZCKY55 + XCKT601H29</i>	ZCE01 + ZCY55 + ZCT26P16	<i>XCKT1458</i>	ZCE01 + ZCY45 + ZCT61G11
<i>XCKP846</i>	ZCP28 + ZCE01 + ZCY46 + ZCPEG11	<i>ZCKY18 + XCKT701</i>	ZCE01 + ZCY18 + ZCT27G11	<i>XCKT145H29</i>	XCKT2145P16
<i>XCKP846H29</i>	ZCP28 + ZCE01 + ZCY46 + ZCPEP16	<i>ZCKY18 + XCKT701H29</i>	ZCE01 + ZCY18 + ZCT27P16	<i>XCKT145H7</i>	ZCE01 + ZCY45 + ZCT21N12
<i>XCKP854</i>	ZCP28 + ZCE01 + ZCY54 + ZCPEG11	<i>ZCKY45 + XCKT701</i>	ZCE01 + ZCY45 + ZCT27G11	<i>XCKT146</i>	ZCE01 + ZCY46 + ZCT21G11
<i>XCKP854H29</i>	ZCP28 + ZCE01 + ZCY46 + ZCPEP16	<i>ZCKY45 + XCKT701H29</i>	ZCE01 + ZCY45 + ZCT27P16	<i>XCKT1468</i>	ZCE01 + ZCY46 + ZCT61G11
<i>XCKP854</i>	ZCP28 + ZCE01 + ZCY54 + ZCPEG11	<i>ZCKY54 + XCKT701H29</i>	ZCE01 + ZCY54 + ZCT27G11	<i>XCKT146H29</i>	ZCE01 + ZCY46 + ZCT21P16
<i>XCKP854H29</i>	ZCP28 + ZCE01 + ZCY54 + ZCPEP16	<i>ZCKY54 + XCKT701H29</i>	ZCE01 + ZCY54 + ZCT27P16	<i>XCKT146H7</i>	ZCE01 + ZCY46 + ZCT21N12
<i>XCKP854H44</i>	ZCP28 + ZCE01 + ZCY54 + ZCPEG13	<i>ZCKY55 + XCKT701</i>	ZCE01 + ZCY55 + ZCT27G11	<i>XCKT154</i>	ZCE01 + ZCY54 + ZCT21G11
<i>XCKP855</i>	ZCP28 + ZCE01 + ZCY55 + ZCPEG11	<i>ZCKY55 + XCKT701H29</i>	ZCE01 + ZCY55 + ZCT27P16	<i>XCKT1548</i>	ZCE01 + ZCY54 + ZCT61G11
<i>XCKP855H29</i>	ZCP28 + ZCE01 + ZCY55 + ZCPEP16	<i>ZCKY18 + XCKT801</i>	ZCE01 + ZCY18 + ZCT28G11	<i>XCKT154H29</i>	ZCE01 + ZCY54 + ZCT21P16
<i>XCKP855H44</i>	ZCP28 + ZCE01 + ZCY55 + ZCPEG13	<i>ZCKY18 + XCKT801H29</i>	ZCE01 + ZCY18 + ZCT28P16	<i>XCKT154H7</i>	ZCE01 + ZCY54 + ZCT21N12
<i>XCKP901</i>	ZCP29 + ZCE01 + ZCPEG11	<i>ZCKY45 + XCKT801</i>	ZCE01 + ZCY45 + ZCT28G11	<i>XCKT155</i>	ZCE01 + ZCY55 + ZCT21G11
<i>XCKP901H44</i>	ZCP29 + ZCE01 + ZCPEG13	<i>ZCKY45 + XCKT801H29</i>	ZCE01 + ZCY45 + ZCT28P16	<i>XCKT1558</i>	ZCE01 + ZCY55 + ZCT61G11
<i>XCKP902</i>	ZCP29 + ZCE02 + ZCPEG11	<i>ZCKY54 + XCKT801H29</i>	ZCE01 + ZCY54 + ZCT28G11	<i>XCKT155H29</i>	ZCE01 + ZCY55 + ZCT21P16
<i>XCKP902H44</i>	ZCP29 + ZCE02 + ZCPEG13	<i>ZCKY54 + XCKT801H29</i>	ZCE01 + ZCY54 + ZCT28P16	<i>XCKT155H7</i>	ZCE01 + ZCY55 + ZCT21N12
<i>XCKP902H7</i>	ZCP29 + ZCE02 + ZCPEN12	<i>ZCKY55 + XCKT801</i>	ZCE01 + ZCY55 + ZCT28G11	<i>XCKT501</i>	ZCE01 + ZCT25G11
<i>XCKP910</i>	ZCP29 + ZCE10 + ZCPEG11	<i>ZCKY55 + XCKT801H29</i>	ZCE01 + ZCY55 + ZCT28P16	<i>XCKT501H29</i>	ZCE01 + ZCT25P16
<i>XCKP910H44</i>	ZCP29 + ZCE10 + ZCPEG13	<i>XCKT101</i>	XCKT2101G11	<i>XCKT502</i>	ZCE02 + ZCT25G11
<i>XCKP910H7</i>	ZCP29 + ZCE10 + ZCPEN12	<i>XCKT1018</i>	ZCE01 + ZCT61G11	<i>XCKT5029</i>	XCTR2502G11
<i>XCKP911 (1)</i>	ZCP29 + ZCE11 + ZCPEG11	<i>XCKT101H29</i>	XCKT2101P16	<i>XCKT5029H29</i>	XCTR2502P16
<i>XCKP911H44 (1)</i>	ZCP29 + ZCE11 + ZCPEG13	<i>XCKT102</i>	XCKT2102G11	<i>XCKT5029H7</i>	XCTR2502N12
<i>XCKP921</i>	ZCP29 + ZCE21 + ZCPEG11	<i>XCKT1028</i>	ZCE02 + ZCT61G11	<i>XCKT502H29</i>	ZCE02 + ZCT25P16
<i>XCKP921H44</i>	ZCP29 + ZCE21 + ZCPEG13	<i>XCKT102H29</i>	XCKT2102P16	<i>XCKT502H7</i>	ZCE02 + ZCT25N12
<i>XCKP927</i>	ZCP29 + ZCE27 + ZCPEG11	<i>XCKT102H7</i>	ZCE02 + ZCT21N12	<i>XCKT506</i>	ZCE06 + ZCT25G11
<i>XCKP927H44</i>	ZCP29 + ZCE27 + ZCPEG13	<i>XCKT106</i>	XCKT2106G11	<i>XCKT506H29</i>	ZCE06 + ZCT25P16
<i>XCKP928</i>	ZCP29 + ZCE28 + ZCPEG11	<i>XCKT1068</i>	ZCE06 + ZCT61G11	<i>XCKT506H7</i>	ZCE06 + ZCT25N12
<i>XCKP928H44</i>	ZCP29 + ZCE28 + ZCPEG13	<i>XCKT106H29</i>	XCKT2106P16	<i>XCKT510</i>	ZCE10 + ZCT25G11
<i>XCKP939</i>	ZCP29 + ZCE01 + ZCY39 + ZCPEG11	<i>XCKT106H7</i>	ZCE06 + ZCT21N12	<i>XCKT5109</i>	XCTR2510G11
		<i>XCKT110</i>	XCKT2110G11	<i>XCKT5109H29</i>	XCTR2510P16
		<i>XCKT1108</i>	ZCE10 + ZCT61G11	<i>XCKT5109H7</i>	XCTR2510N12
		<i>XCKT110H29</i>	XCKT2110P16	<i>XCKT510H29</i>	ZCE10 + ZCT25P16
		<i>XCKT110H7</i>	ZCE10 + ZCT21N12	<i>XCKT510H7</i>	ZCE10 + ZCT25N12
		<i>XCKT111 (1)</i>	XCKT2111G11	<i>XCKT511 (1)</i>	ZCE11 + ZCT25G11
		<i>XCKT111H29 (1)</i>	XCKT2111P16	<i>XCKT511H29 (1)</i>	ZCE11 + ZCT25P16
		<i>XCKT111H7 (1)</i>	ZCE11 + ZCT21N12	<i>XCKT511H7 (1)</i>	ZCE11 + ZCT25N12
		<i>XCKT118</i>	XCKT2118G11	<i>XCKT518</i>	ZCE01 + ZCY18 + ZCT25G11
		<i>XCKT1188</i>	ZCE01 + ZCY18 + ZCT61G11	<i>XCKT5189</i>	XCTR2518G11
		<i>XCKT118H29</i>	XCKT2118P16	<i>XCKT5189H29</i>	XCTR2518P16
		<i>XCKT118H7</i>	ZCE01 + ZCY18 + ZCT21N12	<i>XCKT5189H7</i>	XCTR2518N12
		<i>XCKT119</i>	ZCE01 + ZCY19 + ZCT21G11	<i>XCKT518H29</i>	ZCE01 + ZCY18 + ZCT25P16
		<i>XCKT1198</i>	ZCE01 + ZCY19 + ZCT61G11	<i>XCKT518H7</i>	ZCE01 + ZCY18 + ZCT25N12
		<i>XCKT119H29</i>	ZCT21P16 + ZCE01 + ZCY19	<i>XCKT519</i>	ZCE01 + ZCY19 + ZCT25G11
		<i>XCKT119H7</i>	ZCE01 + ZCY19 + ZCT21N12	<i>XCKT519H29</i>	ZCE01 + ZCY19 + ZCT25P16
		<i>XCKT121</i>	XCKT2121G11	<i>XCKT519H7</i>	ZCE01 + ZCY19 + ZCT25N12

(1) Functional substitution, mounting offset by 10 mm.

# Substitution table

Sensors with closest functionalities

# Limit switches

Old design	New Osiswitch design	Old design	New Osiswitch design	Old design	New Osiswitch design
<b>Design compact (continued)</b>				<b>Compact design plastic type XCKN</b>	
<b>Compact design plastic type XCKT (continued)</b>		XCKT706H29	ZCE06 + ZCT27P16	XCKA110	XCKN2110G11
		XCKT710	ZCE10 + ZCT27G11	XCKA102	XCKN2102G11
XCKT521	ZCE21 + ZCT25G11	XCKT710H29	ZCE10 + ZCT27P16	XCKA121	XCKN2121G11
XCKT5219	XCTR2521G11	XCKT711 (1)	ZCE11 + ZCT27G11	XCKA118	XCKN2118G11
XCKT5219H29	XCTR2521P16	XCKT711H29 (1)	ZCE11 + ZCT27P16		
XCKT5219H7	XCTR2521N12	XCKT718	ZCE01 + ZCY18 + ZCT27G11		
XCKT521H29	ZCE21 + ZCT25P16	XCKT718H29	ZCE01 + ZCY18 + ZCT27P16		
XCKT521H7	ZCE21 + ZCT25N12	XCKT719	ZCE01 + ZCY19 + ZCT27G11		
XCKT528	ZCE28 + ZCT25G11	XCKT719H29	ZCE01 + ZCY19 + ZCT27P16		
XCKT528H29	ZCE28 + ZCT25P16	XCKT721	ZCE21 + ZCT27G11		
XCKT539	ZCE01 + ZCY39 + ZCT25G11	XCKT721H29	ZCE21 + ZCT27P16		
XCKT545	ZCE01 + ZCY45 + ZCT25G11	XCKT739	ZCE01 + ZCY39 + ZCT27G11		
XCKT545H29	ZCE01 + ZCY45 + ZCT25P16	XCKT745	ZCE01 + ZCY45 + ZCT27G11		
XCKT545H7	ZCE01 + ZCY45 + ZCT25N12	XCKT745H29	ZCE01 + ZCY45 + ZCT27P16		
XCKT546	ZCE01 + ZCY46 + ZCT25G11	XCKT746	ZCE01 + ZCY46 + ZCT27G11		
XCKT546H29	ZCE01 + ZCY46 + ZCT25P16	XCKT746H29	ZCE01 + ZCY46 + ZCT27P16		
XCKT546H7	ZCE01 + ZCY46 + ZCT25N12	XCKT754	ZCE01 + ZCY54 + ZCT27G11		
XCKT554	ZCE01 + ZCY54 + ZCT25G11	XCKT754H29	ZCE01 + ZCY54 + ZCT27P16		
XCKT554H29	ZCE01 + ZCY54 + ZCT25P16	XCKT755	ZCE01 + ZCY55 + ZCT27G11		
XCKT554H7	ZCE01 + ZCY54 + ZCT25N12	XCKT755H29	ZCE01 + ZCY55 + ZCT27P16		
XCKT555	ZCE01 + ZCY55 + ZCT25G11	XCKT801	ZCE01 + ZCT28G11		
XCKT555H29	ZCE01 + ZCY55 + ZCT25P16	XCKT801H29	ZCE01 + ZCT28P16		
XCKT555H7	ZCE01 + ZCY55 + ZCT25N12	XCKT802	ZCE02 + ZCT28G11		
XCKT601	ZCE01 + ZCT26G11	XCKT802H29	ZCE02 + ZCT28P16		
XCKT601H29	ZCE01 + ZCT26P16	XCKT806	ZCE06 + ZCT28G11		
XCKT602	ZCE02 + ZCT26G11	XCKT806H29	ZCE06 + ZCT28P16		
XCKT602H29	ZCE02 + ZCT26P16	XCKT810	ZCE10 + ZCT28G11		
XCKT606	ZCE06 + ZCT26G11	XCKT810H29	ZCE10 + ZCT28P16		
XCKT606H29	ZCE06 + ZCT26P16	XCKT811 (1)	ZCE11 + ZCT28G11		
XCKT610	ZCE10 + ZCT26G11	XCKT811H29 (1)	ZCE11 + ZCT28P16		
XCKT610H29	ZCE10 + ZCT26P16	XCKT818	ZCE01 + ZCY18 + ZCT28G11		
XCKT611 (1)	ZCE11 + ZCT26G11	XCKT818H29	ZCE01 + ZCY18 + ZCT28P16		
XCKT611H29 (1)	ZCE11 + ZCT26P16	XCKT819	ZCE01 + ZCY19 + ZCT28G11		
XCKT618	ZCE01 + ZCY18 + ZCT26G11	XCKT819H29	ZCE01 + ZCY19 + ZCT28P16		
XCKT618H29	ZCE01 + ZCY18 + ZCT26P16	XCKT821	ZCE21 + ZCT28G11		
XCKT619	ZCE01 + ZCY19 + ZCT26G11	XCKT821H29	ZCE21 + ZCT28P16		
XCKT619H29	ZCE01 + ZCY19 + ZCT26P16	XCKT839	ZCE01 + ZCY39 + ZCT28G11		
XCKT621	ZCE21 + ZCT26G11	XCKT845	ZCE01 + ZCY45 + ZCT28G11		
XCKT621H29	ZCE21 + ZCT26P16	XCKT845H29	ZCE01 + ZCY45 + ZCT28P16		
XCKT639	ZCE01 + ZCY39 + ZCT26G11	XCKT846	ZCE01 + ZCY46 + ZCT28G11		
XCKT645	ZCE01 + ZCY45 + ZCT26G11	XCKT846H29	ZCE01 + ZCY46 + ZCT28P16		
XCKT645H29	ZCE01 + ZCY45 + ZCT26P16	XCKT854	ZCE01 + ZCY54 + ZCT28G11		
XCKT646	ZCE01 + ZCY46 + ZCT26G11	XCKT854H29	ZCE01 + ZCY54 + ZCT28P16		
XCKT646H29	ZCE01 + ZCY46 + ZCT26P16	XCKT855	ZCE01 + ZCY55 + ZCT28G11		
XCKT654	ZCE01 + ZCY54 + ZCT26G11	XCKT855H29	ZCE01 + ZCY55 + ZCT28P16		
XCKT654H29	ZCE01 + ZCY54 + ZCT26P16	XCKT910H7	ZCE10 + ZCT29N12		
XCKT655	ZCE01 + ZCY55 + ZCT26G11				
XCKT655H29	ZCE01 + ZCY55 + ZCT26P16				
XCKT701	ZCE01 + ZCT27G11				
XCKT701H29	ZCE01 + ZCT27P16				
XCKT702	ZCE02 + ZCT27G11				
XCKT702H29	ZCE02 + ZCT27P16				
XCKT706	ZCE06 + ZCT27G11				

(1) Functional substitution, mounting offset by 10 mm.