Contents

5 - Limit switches

5

Osiswitch® Classic (continued)

Osiswitch® Classic: Applications

Osiswitch® miniature snap switches

Limit switches for safety solutions using Preventa

Osiswitch® limit switches

Limit switches
Osiswitch® Universal, **Osi**concept®

Design		*Miniature **Osi**concept*	*Compact **Osi**concept*		
					
Enclosure		Metal		Plastic, double insulated	
Features		Fixing by the body or by the head			
Osiconcept modularity		Head, body and connection modularity			Head and body modularity
CENELEC conformity		–	EN 50047		EN 50047 compatible
Body dimensions (w x h x d) in mm		30 x 50 x 16	31 x 65 x 30		58 x 51 x 30
Head		Linear movement (plunger) Rotary movement (lever) Rotary movement, multi-directional Same heads for ranges XCM D, XCK D, XCK P and XCK T			
Contact blocks	**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		–
Insulation voltage (Ui) / thermal current (Ithe)		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	–
Degree of protection IP/IK		IP 66, IP 67, IP 68, IK 06	IP 66, IP 67, IK 06	IP 66, IP 67, IK 04	
Connection	**Screw terminals**	–	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)
	Pre-cabled	Yes	–		
	Connector	Integral or remote M12 or remote 7/8" 16UN	Integral M12		–
Type reference		**XCM D**	**XCK D**	**XCK P**	**XCK T**
Page(s)		5/10	5/30 and 5/34	5/36 and 5/40	5/42

Limit switches
Osiswitch® Optimum and Application

Miniature Optimum	Compact Optimum	Compact Optimum: with reset	Compact Application: with manual reset		
					
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)	Linear movement (plunger) Rotary movement (lever) Same heads for ranges XC DR, XC PR and XC TR		
N/C + N/O	**N/C + N/O; N/C + N/C** Other contacts *(1)*: For complete switches with the following 2-pole contacts: N/C + N/C simultaneous, slow break, N/O + N/C make before break, slow break, N/O + N/O simultaneous, slow break. For complete switches with the following 3-pole contacts: N/C + N/O + N/O snap action, N/C + N/C + N/O snap action, N/C + N/C + N/O break before make, slow break, N/C + N/O + N/O break before make, slow break.		**N/C + N/O**		
–			–		
–			–		
–			**N/C + N/O** break before make		
–			–		
–			–		
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 Other cable entries *(1)*: ISO M16 x 1.5 or PF 1/2 (G 1/2)		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	–				
–					
XCM N	**XCK N**	**XCN R**	**XCD R**	**XCP R**	**XCT R**
5/26	5/52	5/58	5/62	5/64	5/66

(1) please consult your Regional Sales Office.

Limit switches
Osiswitch® Classic

Design		*Classic*			
					
Enclosure		Metal			Plastic, double insulated
Features		–		Fixed or plug-in body, - 40 °C or + 120 °C	–
Variable composition switches		Head + Body + Operator			
CENELEC or DIN conformity		–		EN 50041	
Body dimensions (w x h x d) in mm		63 x 64 x 30	52 x 72 x 30	40 x 77 x 44 42.5 x 84 x 36	40 x 72.5 x 36
Head		Linear movement (plunger) Rotary movement (lever) Rotary movement, multi-directional			
Contact blocks	**2 snap action contacts with positive opening operation**	**N/C + N/O; N/C + N/C**	**N/C + N/O**	**N/C + N/O; N/C + N/C**	
	3 snap action contacts with positive opening operation	**N/C + N/C + N/O; N/C + N/O + N/O**			
	C/O snap action contacts	–		**2 C/O**	
	C/O slow break contacts	–			
	2 slow break contacts with positive opening operation	**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/O + N/O** break before make			
Insulation voltage (Ui) / thermal current (Ithe)		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	–
Degree of protection IP/IK		IP 66, IK 06		IP 66, IK 07	IP 65, IK 03
Connection	**Screw terminals (entry for cable gland)**	3 entries for ISO M20 or Pg 11 cable gland or 1/2" NPT	1 entry incorporating cable gland or tapped 1/2" NPT	1 entry for ISO M20 or Pg 13 cable gland or 1/2" NPT	1 entry for ISO M20 or Pg 13 cable gland
	Connector	–	–	Integral M12 or 7/8" 16UN	–
Type reference		**XCK M**	**XCK L**	**XCK J**	**XCK S**
Page(s)		5/68	5/68	5/84	5/112

Limit switches
Osiswitch® Classic, Application and Miniature snap switches

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)*		
			Limit switches	*Coded magnetic switches, pre-cabled or with connector on flying lead*	*Coded magnetic system*
					
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 or EN 50047	–	
72 x 81 x 36	Depending on type	DIN 41635, depending on type	Depending on type	16 x 51 x7 25 x 88 x 13 Ø 30, L 38.5	34 x 100 x 32
Linear movement (plunger) Rotary movement (lever)		Linear movement (plunger)	Linear movement (plunger) Rotary movement (lever) Actuator operated Spindle operated	–	
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)	Self-contained system not requiring use of safety module or non-magnetic slim 2 PNP type Solid-state outputs XCS DM4 : EDM function + 1 alarm output
–					
–	Depending on type	1 single-pole contact			
–	Depending on type	–			
2 x **N/C + N/O** break before make contact blocks	Depending on type	–			
–					
–					
Screw terminal 2 contacts: 500 V/10 A		Depending on type			
–					
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	Pre-cabled: IP 66, IP 67 and IP 69K Connector: IP 67
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	Depending on type: pre-cabled or with M12 connector (A coding)
–					
XCK ML	**XCR, XCK MR, XC1 AC, XC2 J**	**XEP**	**XCS ●**	**XCS DMC XCS DMP XCS DMR**	**XCS DM3 XCS DM4**
5/68	5/122, 5/132 and 5/138	5/156	5/164	5/174 and 5/175	5/184

(1) For further information, please refer to our "Safety solutions using Preventa" catalogue.

Limit switches
Osiswitch®
Osiconcept®: **O**ffering **S**implicity through **I**nnovation

Principle

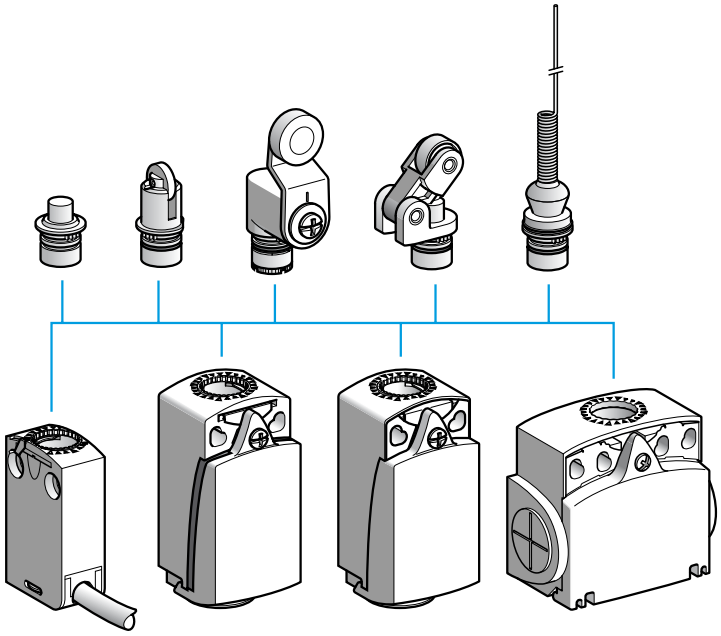
Osiconcept principle: innovation through modularity

■ The Miniature design XCM D and Compact design XCK D, XCK P and XCK T product range family benefits from **Osi**concept: **O**ffering **s**implicity through **i**nnovation.

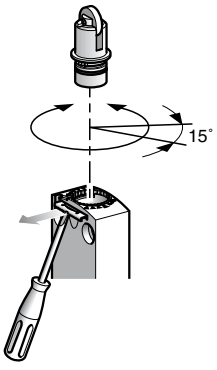
■ A worldwide detection first for improving productivity.
A complete offer for resolving the most commonly encountered detection problems:
□ product selection simplified,
□ product availability simplified,
□ installation and setting-up simplified,
□ maintenance simplified.

Heads

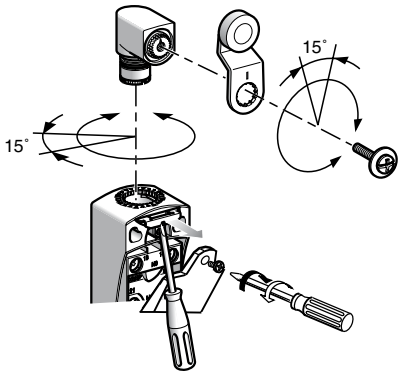
■ A single metal operating head type for the Miniature design XCM D and Compact design XCK D, XCK P and XCK T ranges.
.



■ 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.

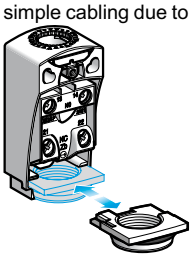
5

Limit switches
Osiswitch®
Osiconcept®: **O**ffering **S**implicity through **I**nnovation

Principle (continued)

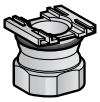
Cable entries

■ 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:

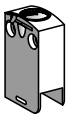
ISO M16 x 1.5
Pg 11

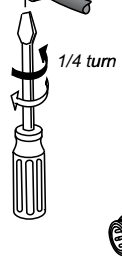


ISO M20 x 1.5
Pg 13
1/2" NPT
PF 1/2 (G 1/2)

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

Connection components

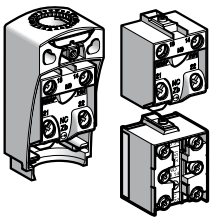




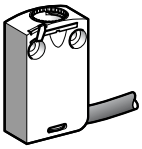
■ The miniature XCM D range allows interchangeability of these pre-cabled connection components:
a 1/4 of a turn is all that is required for removing the connection component on XCM D bodies with 2 and 3 contacts,
6 alternative cable lengths are available as standard.

■ 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.



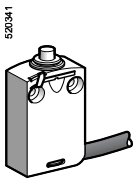
■ For the Miniature design XCM D range, the contacts are an integral part of the body:
2 and 3 snap action and slow break contacts, with positive opening operation, and interchangeable connection component,
4 snap action contacts, with positive opening operation, with monolithic body and connection components.

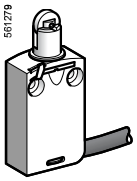
5

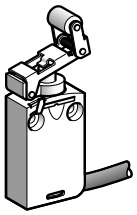
Limit switches
Osiswitch® Universal, **Osi**concept®
Miniature design, metal, type XCM D

■ XCM D
pre-cabled

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

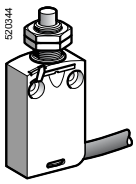


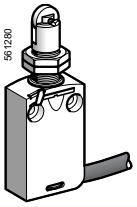




Page 5/10

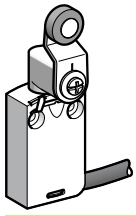
□ With head for linear movement (plunger). Fixing by the head.

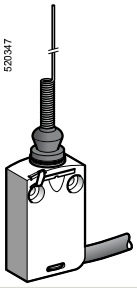




Page 5/10

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



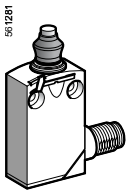


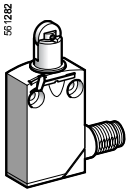
Page 5/11

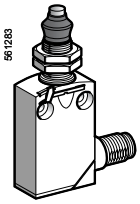
■ XCM D
with integral connector

□ With head for linear movement (plunger)

Fixing by the body | **Fixing by the head**

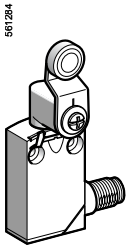


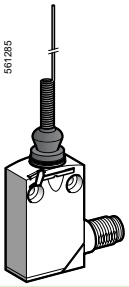




Page 5/14

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





Page 5/15

Limit switches
Osiswitch® Universal, **Osi**concept®
Miniature design, metal, type XCM D

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		**IP 66, IP 67 and IP 68** *(1)* **conforming to IEC 60529; IK 06 conforming to EN 50102**
Materials		Bodies: zamak, heads: zamak
Repeat accuracy		0.05 mm on the tripping points, with 1 million operating cycles for head with end plunger

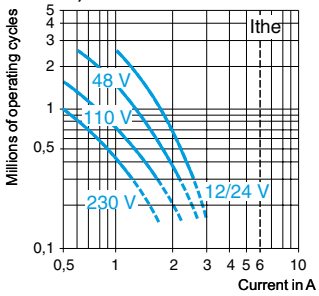
(1) Protection against prolonged immersion: the test conditions are subject to agreement between the manufacturer and the user.

Contact block characteristics

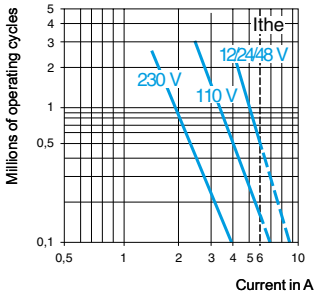
Rated operational characteristics	Switches with 2 contacts	**~ AC-15; B300 (Ue = 240 V, Ie = 1.5 A)** **⎓ DC-13; R300 (Ue = 250 V, Ie = 0.1 A), conforming to IEC 60947-5-1 Appendix A, EN 60947-5-1**
	Switches with 3 and 4 contacts	**~ AC-15; C300 (Ue = 240 V, Ie = 0.75 A)** **⎓ DC-13; R300 (Ue = 250 V, Ie = 0.1 A), conforming to IEC 60947-5-1 Appendix A, EN 60947-5-1**
	Pre-cabled switches	**Ithe = 6 A for 2 contacts, 4 A for 3 contacts, 3 A for 4 contacts**
	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		≤ 25 mΩ 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		■ Conforming to IEC 60947-5-1 Appendix C ■ Utilisation categories AC-15 and DC-13 ■ Maximum operating rate: 3600 operating cycles/hour ■ Load factor: 0.5

a.c. supply
~ 50/60 Hz
⎓ 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 ⎓

Power broken in W for 5 million operating cycles

Voltage	V	24	48	120
⎓	W	3	2	1

Power broken in W for 5 million operating cycles

Voltage	V	24	48	120
⎓	W	4	3	3

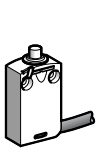
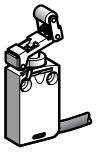
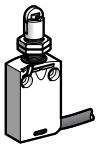
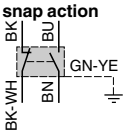
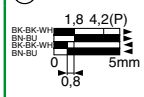
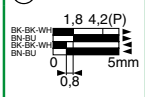
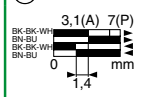
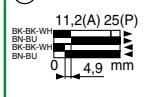
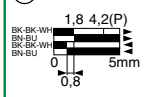
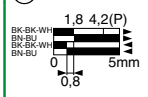
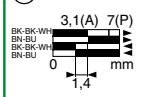
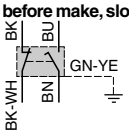
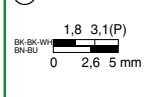
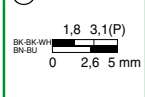
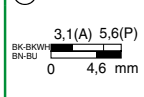
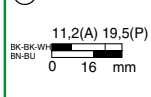
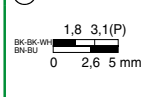
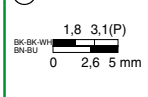
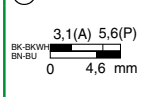
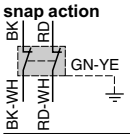
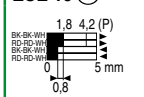
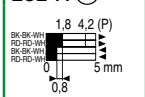
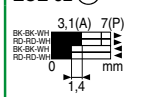
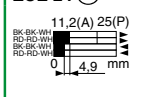
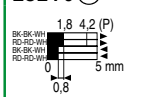
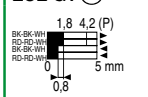
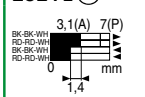
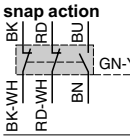
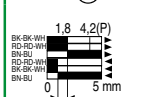
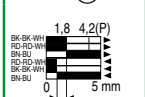
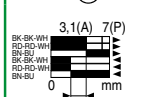
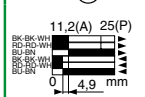
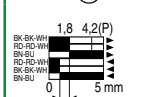
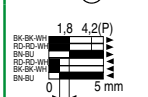
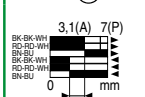
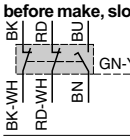
5

Limit switches

Osiswitch® Universal, **Osi**concept®

Miniature design, metal, type XCM D

Pre-cabled

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

Characteristics

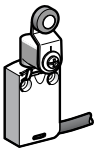
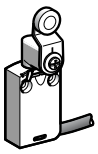
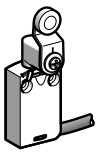
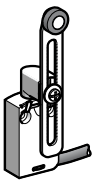
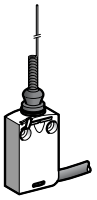
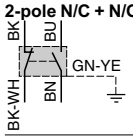
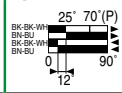
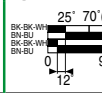
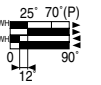
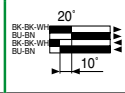
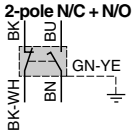
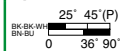
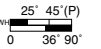
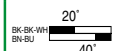
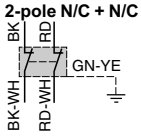
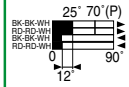
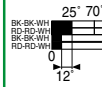
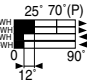
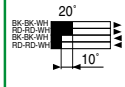
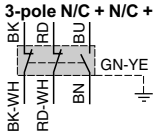
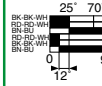
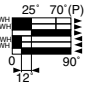
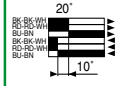
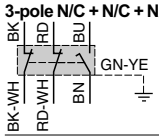
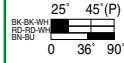
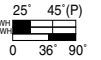
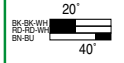
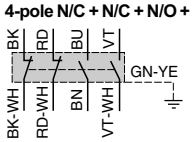
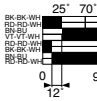
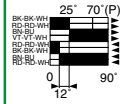
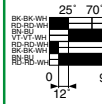
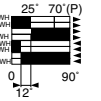
Switch actuation		On end	By 30° cam		On end		By 30° cam
Type of actuation							
Maximum actuation speed		0.5 m/s					0.1m/s
Mechanical durability		10 million operating cycles					
Minimum force or torque	For tripping	8.5 N	7 N	2.5 N	8.5 N		7 N
	For positive opening	42.5 N	35 N	12.5 N	42.5 N		35 N
Cabling		PvR cable; 5 x 0.75 mm², length 1 metre for 2-pole contact versions, 7 x 0.5 mm², length 1 metre for 3-pole contact versions, 9 x 0.34 mm², length 1 metre for 4-pole contact versions. For other cable lengths, see page 5/22.					

Limit switches

Osiswitch® Universal, **Osi**concept®

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

Contact operation

 contact closed

 contact open

(A) = cam displacement

(P) = positive opening point

 N/C contact with positive opening operation

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

Characteristics

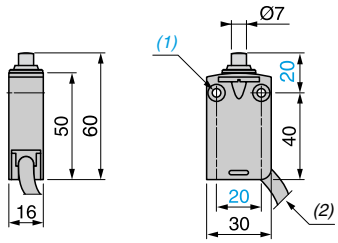
Switch actuation		By 30° cam		By any moving part
Type of actuation				
Maximum actuation speed		1.5 m/s		1 m/s
Mechanical durability		10 million operating cycles		5
Minimum force or torque	For tripping	0.1 N.m		
	For positive opening	0.5 N.m		–
Cabling		PvR cable; 5 x 0.75 mm², length 1 metre for 2-pole contact versions, 7 x 0.5 mm², length 1 metre for 3-pole contact versions, 9 x 0.34 mm², length 1 metre for 4-pole contact versions. For other cable lengths, see page 5/22.		

Limit switches

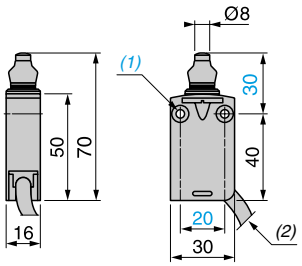
Osiswitch® Universal, **Osi**concept®

Miniature design, metal, type XCM D
Pre-cabled

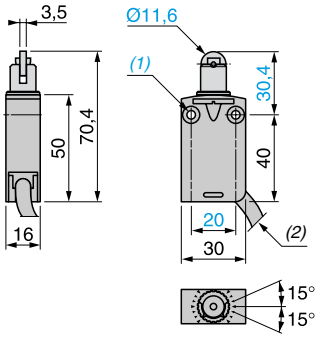
XCM D2●10L1



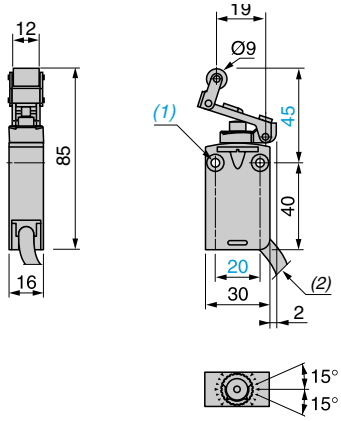
XCM D2●11L1



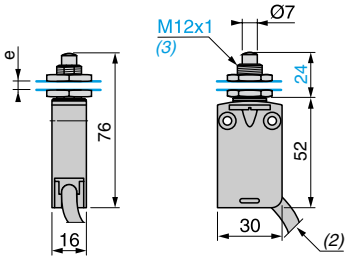
XCM D2●02L1



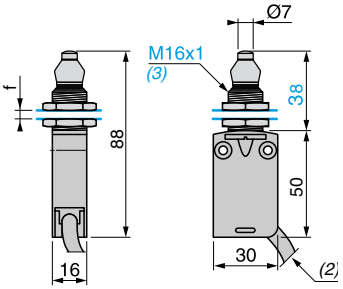
XCM D2●24L1



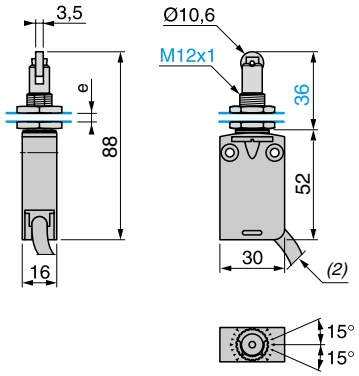
XCM D2●F0L1



XCM D2●G1L1



XCM D2●F2L1

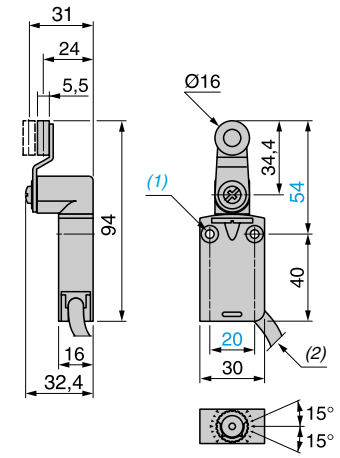


(1) 2 fixing holes Ø 4.2 mm, counterbored Ø 8 mm by 4 mm deep.
(2) Overall diameter of cable 7.5 mm.
(3) Fixing nut thickness 3.5 mm.
e: 8 mm max, panel cut-out Ø 12.5 mm.
f: 8 mm max, panel cut-out Ø 16.5 mm.

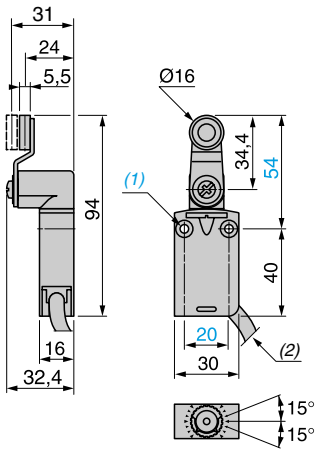
5

Limit switches
Osiswitch® Universal, **Osi**concept®
Miniature design, metal, type XCM D
Pre-cabled

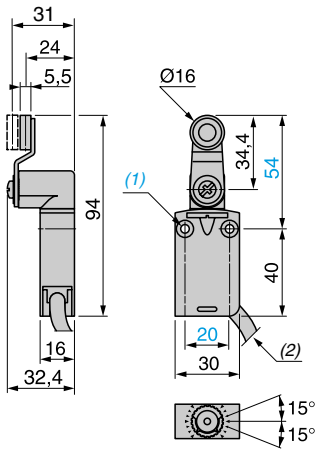
XCM D2●15L1



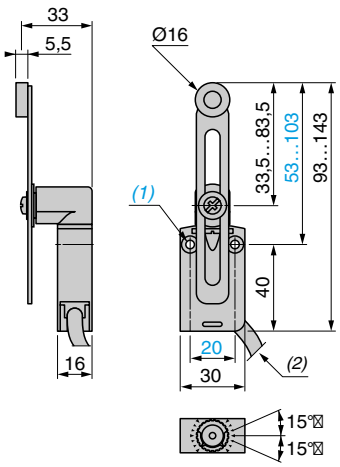
XCM D2●16L1



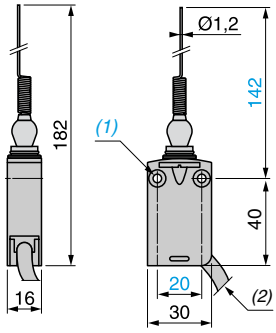
XCM D2●17L1



XCM D2●45L1



XCM D2●06L1



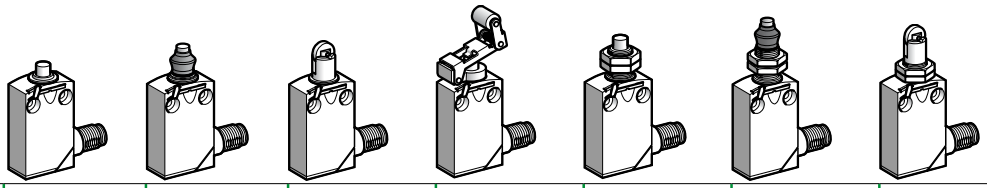
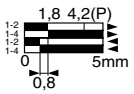
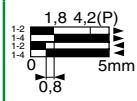
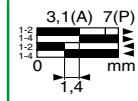
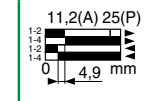
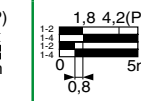
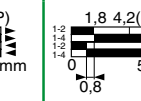
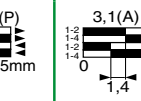
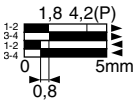
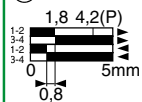
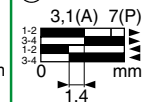
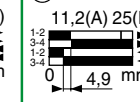
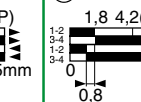
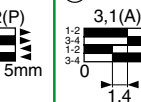
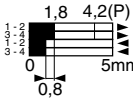
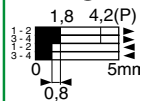
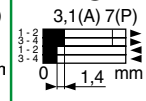
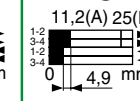
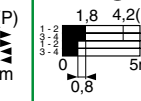
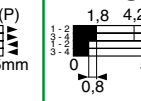
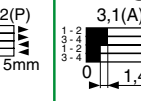
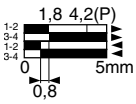
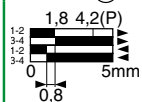
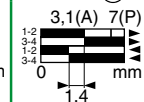
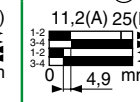
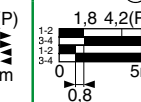
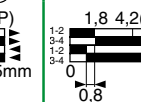
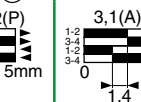
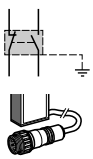
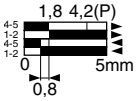
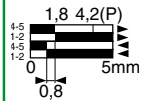
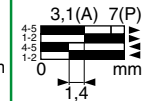
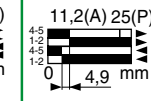
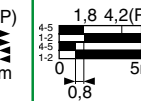
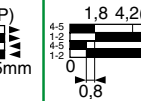
(1) 2 fixing holes Ø 4.2 mm, counterbored Ø 8 mm by 4 mm deep.
(2) Overall diameter of cable 7.5 mm.
e: 8 mm max, panel cut-out Ø 12.5 mm.
f: 8 mm max, panel cut-out Ø 16.5 mm.

5

Limit switches

Osiswitch® Universal, **Osi**concept®

Miniature design, metal, type XCM D
Integral or remote connector

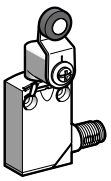
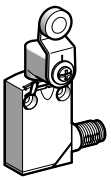
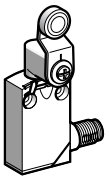
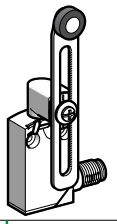
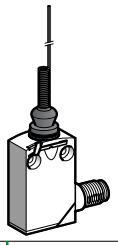
Type of head	Plunger (fixing by the body)				Plunger (fixing by the head)		
							
Type of operator	Metal end plunger	Metal end plunger with elastomer boot	Steel roller plunger	Retractable steel roller lever plunger	M12 with metal end plunger	M16 with metal end plunger with elastomer boot	M12 with steel roller plunger
References							
 **Single-pole C/O snap action + integral M12 4-pin connector**	**XCM D2110M12** 	**XCM D2111M12** 	**XCM D2102M12** 	**XCM D2124M12** 	**XCM D21F0M12** 	**XCM D21G1M12** 	**XCM D21F2M12** 
 **2-pole N/C + N/O snap action + integral M12 5-pin connector**	**XCM D2110C12** 	**XCM D2111C12** 	**XCM D2102C12** 	**XCM D2124C12** 	**XCM D21F0C12** 	**XCM D21G1C12** 	**XCM D21F2C12** 
 **2-pole N/C + N/C snap action + integral M12 5-pin connector**	**ZCM D29C12 + ZCE 10** 	**ZCM D29C12 + ZCE 11** 	**ZCM D29C12 + ZCE 02** 	**ZCM D29C12 + ZCE 24** 	**ZCM D29C12 + ZCE F0** 	**ZCM D29C12 + ZCE G1** 	**ZCM D29C12 + ZCE F2** 
Weight (kg)	0.085	0.085	0.090	0.105	0.100	0.125	0.110
 **2-pole N/C + N/O snap action + M12 5-pin connector on 0.8 m flying lead**	**ZCM D21L08R12 + ZCE 10** 	**ZCM D21L08R12 + ZCE 11** 	**ZCM D21L08R12 + ZCE 02** 	**ZCM D21L08R12 + ZCE 24** 	**ZCM D21L08R12 + ZCE F0** 	**ZCM D21L08R12 + ZCE G1** 	**ZCM D21L08R12 + ZCE F2** 
 **2-pole N/C + N/O snap action + 7/8" 16UN 5-pin connector on 0.8 m flying lead**	**ZCM D21L08U78 + ZCE 10** 	**ZCM D21L08U78 + ZCE 11** 	**ZCM D21L08U78 + ZCE 02** 	**ZCM D21L08U78 + ZCE 24** 	**ZCM D21L08U78 + ZCE F0** 	**ZCM D21L08U78 + ZCE G1** 	**ZCM D21L08U78 + ZCE F2**
Weight (kg)	0.150	0.150	0.155	0.170	0.165	0.190	0.175
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		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		7 N	2.5 N	8.5 N		7 N
Minimum force or torque — For positive opening	42.5 N		35 N	12.5 N	42.5 N		35 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 ⊖ symbol because they are single-pole C/O.						

5

Limit switches

Osiswitch® Universal, **Osi**concept®

Miniature design, metal, type XCM D
Integral or remote connector

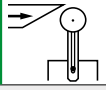
Type of head	Rotary (fixing by the body)				Multi-directional
					
Type of operator	Thermoplastic roller lever	Steel roller lever	Roller lever with ball bearing mounted roller	Variable length thermoplastic roller lever	"Cat's whisker" *(1)*
References					
Single-pole C/O snap action With integral M12 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**
Weight (kg)	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**
Weight (kg)	0.200	0.205	0.200	0.210	0.160

Contact operation

■ *contact closed*
□ *contact open*
(A) = cam displacement
(P) = positive opening point
⊖ *N/C contact with positive opening operation*

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

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			–
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.			

5

Limit switches
Osiswitch® Universal, **Osi**concept®
Miniature design, metal, type XCM D
Connector cabling accessories

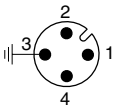
References of suitable pre-wired female connectors

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

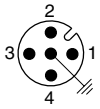
XCM D with connector

4-pin, M12



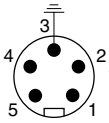
3 A - 250 V
1 = common
2 = N/C
3 = ⏚
4 = N/O

5-pin, M12



4 A - 60 V
XCM D21●● or ZCM D21●●
1 - 2 = N/C
3 - 4 = N/O
5 = ⏚
XCM D29●● or ZCM D29●●
1 - 2 = N/C
3 - 4 = N/C
5 = ⏚

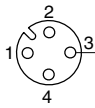
5-pin, 7/8" 16 UN



6 A - 250 V
1 - 2 = N/C
4 - 5 = N/O
3 = ⏚

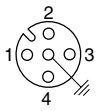
Pre-wired female connectors XZ CP

4-pin, M12



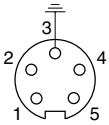
1 = brown
2 = blue
3 = yellow/green ⏚
4 = black

5-pin, M12



1 = brown
2 = white
3 = blue
4 = black ⏚ = yellow/green

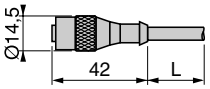
5-pin, 7/8" 16 UN



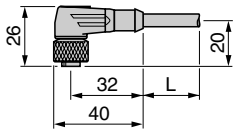
1 = black
2 = blue
3 = yellow/green ⏚
4 = brown
5 = white

Dimensions

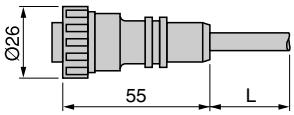
XZ CP116●L●



XZ CP1264L●



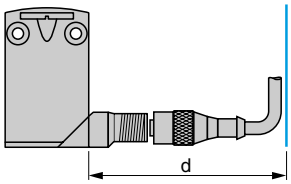
XZ CP1771L●



L: *cable length 2, 5 or 10 m.*

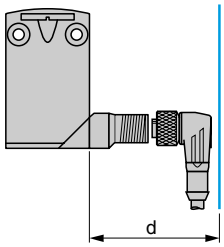
Distances required for plug-in connectors

M12 straight connector



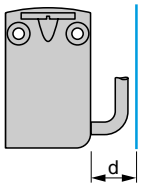
d: *min. 65 mm, recommended 69 mm.*

M12 elbowed connector



d: *min. 42 mm, recommended 45 mm.*

Connector on flying lead



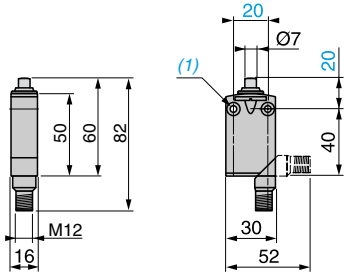
d: *min. 20 mm.*

Limit switches

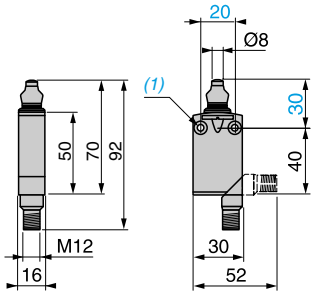
Osiswitch® Universal, **Osi**concept®

Miniature design, metal, type XCM D
Integral or remote connector

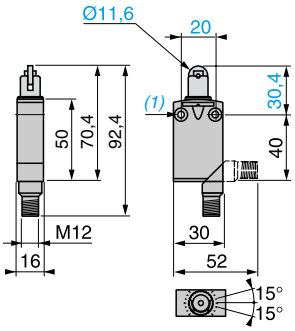
XCM D2●10M12



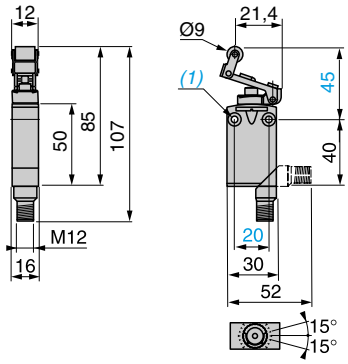
XCM D2●11M12



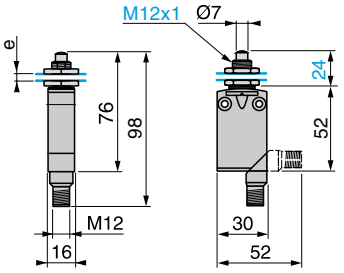
XCM D2●02M12



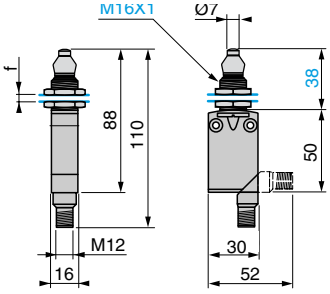
XCM D2●24M12



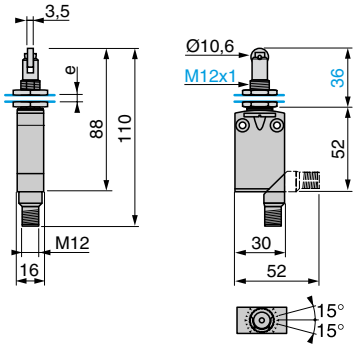
XCM D2●F0M12



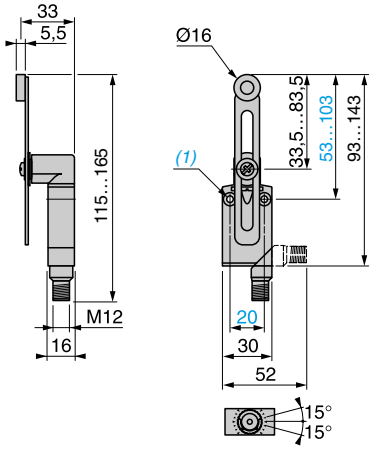
XCM D2●G1M12



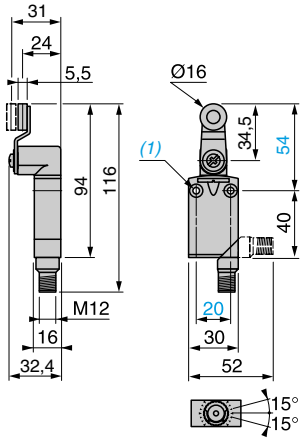
XCM D2●F2M12



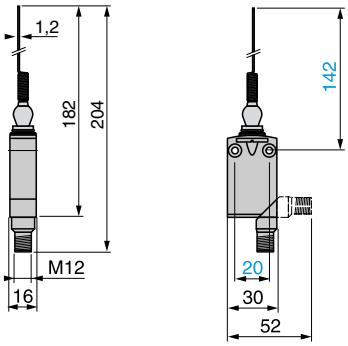
XCM D2●45M12



XCM D2●15M12 /●16M12 /●17M12



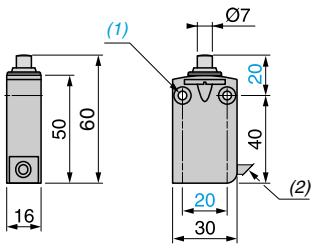
XCM D2●06M12



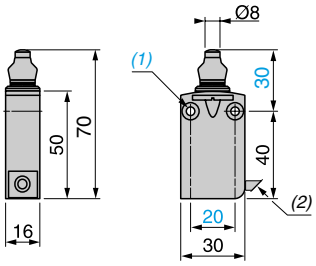
(1) 2 fixing holes Ø 4.2 mm, counterbored Ø 8 mm by 4 mm deep.
e: 8 mm max., panel cut-out Ø 12.5 mm, fixing nut thickness 3.5 mm.
f: 8 mm max., panel cut-out Ø 16.5 mm, fixing nut thickness 3.5 mm.

Limit switches
Osiswitch® Universal, **Osi**concept®
Miniature design, metal, type XCM D
Integral or remote connector

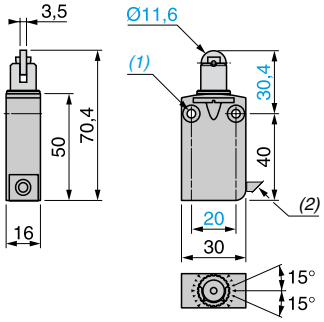
ZCM D21L08●●● + ZCE 10



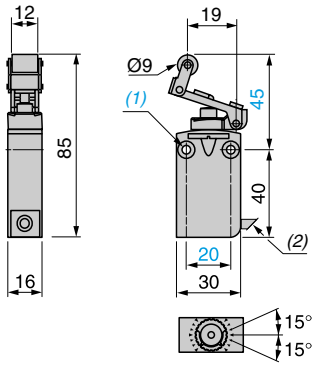
ZCM D21L08●●● + ZCE 11



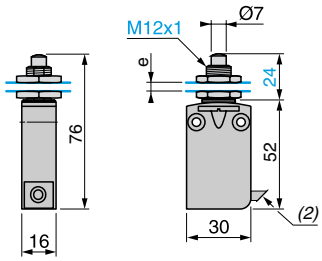
ZCM D21L08●●● + ZCE 02



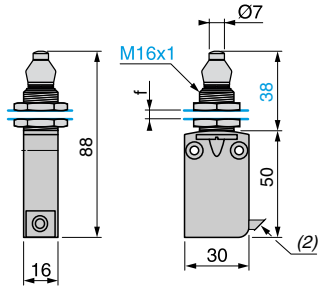
ZCM D21L08●●● + ZCE 24



ZCM D21L08●●● + ZCE F0

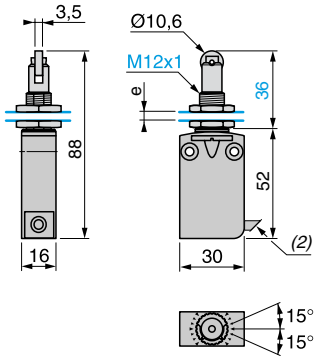


ZCM D21L08●●● + ZCE G1

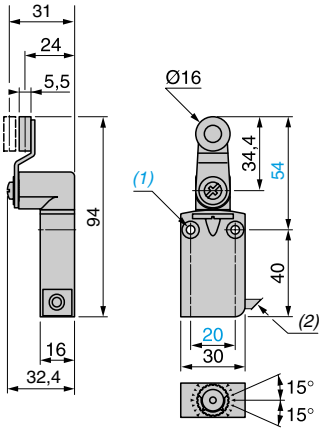


(1) 2 fixing holes Ø 4.2 mm, counterbored Ø 8 mm by 4 mm deep.
(2) Overall diameter 7.5 mm.
e: 8 mm max., panel cut-out Ø 12.5 mm, fixing nut thickness 3.5 mm.
f: 8 mm max., panel cut-out Ø 16.5 mm, fixing nut thickness 3.5 mm.

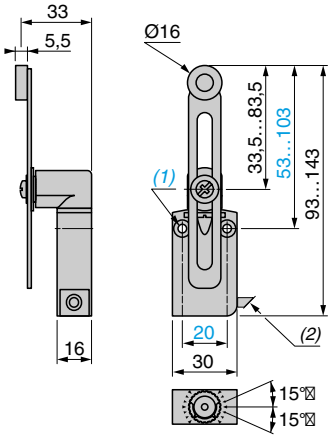
ZCM D21L08●●● + ZCE F2



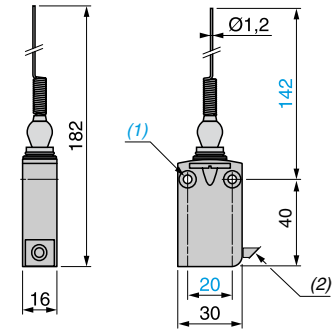
ZCM D21L08●●● + ZCE 01 + ZCY 15/16/17



ZCM D21L08●●● + ZCE 01 + ZCY 45



ZCM D21L08●●● + ZCE 06



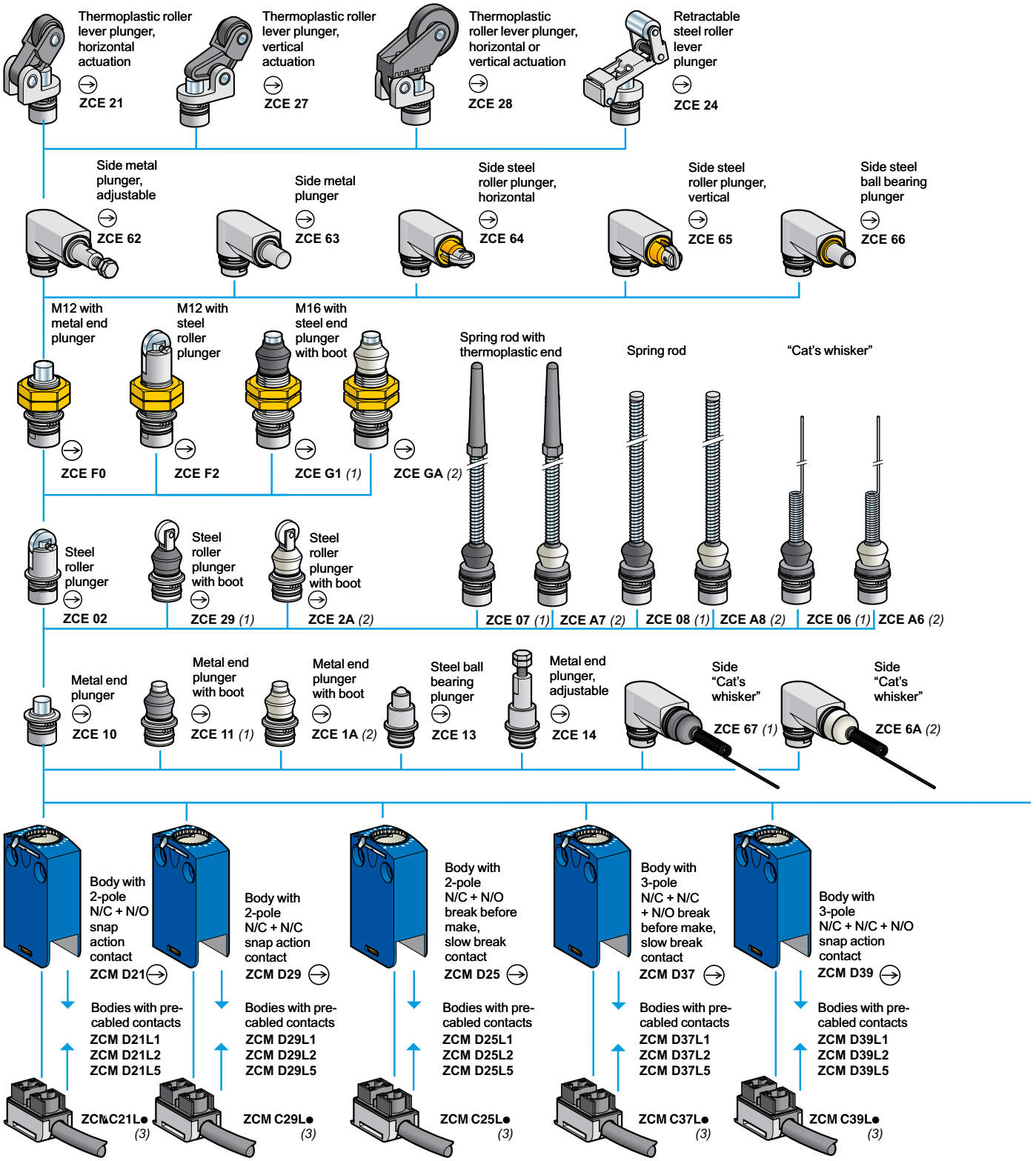
(1) 2 fixing holes Ø 4.2 mm, counterbored Ø 8 mm by 4 mm deep.
(2) Overall diameter 7.5 mm.
e: 8 mm max., panel cut-out Ø 12.5 mm, fixing nut thickness 3.5 mm.
f: 8 mm max., panel cut-out Ø 16.5 mm, fixing nut thickness 3.5 mm.

Limit switches

Osiswitch® Universel, **Osi**concept®

Miniature design, metal, type XCM D

Variable composition



(1) Nitrile boot for indoor use.

(2) Silicone boot for outdoor use.

(3) 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 C21L● 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 C37L● and ZCM C39L●.

```
ERROR: rangecheck
OFFENDING COMMAND: .buildshading2

STACK:

-dictionary-
-dictionary-
-savelevel-
```