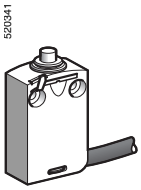
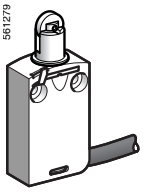
Limit Switches
Selection Guide
Osiswitch® Universal

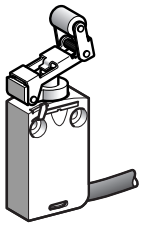
Design		Miniature	Compact		
					
Catalog number		**XCMD**	**XCKD**	**XCKP**	**XCKT**
Enclosure		Metal		Plastic, double insulated	
Features		Mounting by the body or by the head			
Modularity		Head, body and connection modularity			Head and body modularity
CENELEC conformity		—	EN 50047		EN 50047 compatible
Body dimensions (w x h x d), mm (in.)		30 x 50 x 16 (1.18 x 1.97 x 0.63)	31 x 65 x 30 (1.22 x 2.56 x 1.18)		58 x 51 x 30 (2.28 x 2.01 x 1.18)
Head		Linear movement (plunger) Rotary movement (lever) Rotary movement, multi-directional Same heads for ranges XCMD, XCKD, XCKP and XCKT			
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	Integral M12, 5-pin: 60 V/4 A	Integral M12, 4-pin: 250 V/3 A	—
Degree of protection		NEMA Types 1, 2, 4X, 6, 12 IP 66, IP 67, IP 68, IK 06	NEMA Types 1, 2, 4, 6, 12, 13 IP 66, IP 67, IK 06	NEMA Types 1, 2, 4, 6, 6P, 12, 13 IP 66, IP 67, IK 04	NEMA Types 1, 2, 4, 6, 12, 13 IP 66, IP 67, IK 04
Connection	**Screw terminals**	—	1 entry for ISO M16 or M20, PG 11, PG 13 conduit thread or 1/2" NPT, PF 1/2		2 entries for ISO M16 or PG 11 conduit thread or 1/2" NPT (using adapter
	Pre-cabled	Integral: No Remote: Yes	—		
	Connector	Integral or remote M12 or remote 7/8" 16UN	Integral M12		—
Page		44	56 and 60	62 and 66	68

■ XCM D
pre-cabled

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

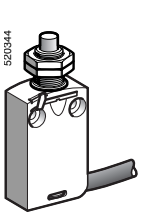


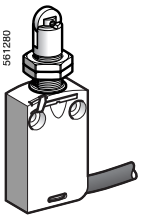




Page 34

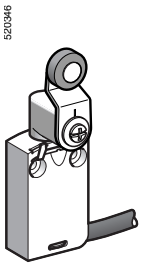
□ With head for linear movement (plunger). Mounting by the head.

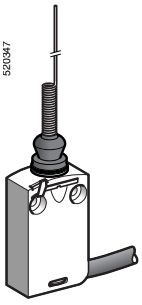




Page 34

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



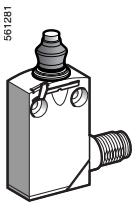


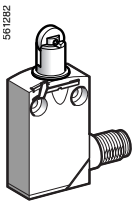
Page 35

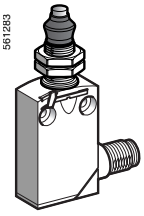
■ XCM D
with integral connector

□ With head for linear movement (plunger)

Mounting by the body **Mounting by the head**

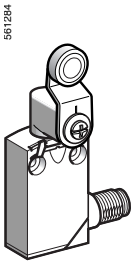


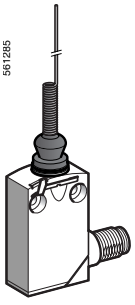




Page 38

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





Page 39

Environmental 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 (-13…+158 °F). Storage: -40…+70 °C (-40…+158 °F)
Vibration resistance		XCMD snap action: 5 gn. XCMD 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		NEMA Types 1, 2, 4, 12, 13 IP 66, IP 67 and IP 68 *(1)* conforming to IEC 60529 IK 06 conforming to EN 50102
Materials		Bodies and heads: Zamak® zinc alloy
Repeat accuracy		0.05 mm on the tripping points, with 1 million operating cycles for head with end plunger

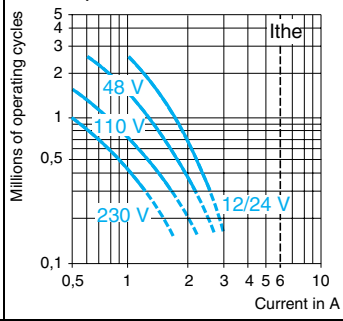
Protection against prolonged immersion: the test conditions are subject to agreement between the manufacturer and the user.

Contact block characteristics

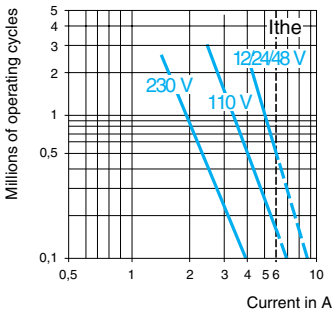
Rated operational characteristics	Switches with 2 contacts	~ AC-15; B300 (Ue = 240 V, Ie = 1.5 A) ⎓ DC-13; R300 (Ue = 250 V, Ie = 0.1 A), conforming to IEC 60947-5-1 Appendix A, EN 60947-5-1
	Switches with 3 and 4 contacts	~ AC-15; C300 (Ue = 240 V, Ie = 0.75 A) ⎓ DC-13; R300 (Ue = 250 V, Ie = 0.1 A), 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 (0.03 ft/minute) Slow break contact: 6 m/minute (19.68 ft/minute)
Electrical durability		• Conforming to IEC 60947-5-1 Appendix C • Utilization 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

XCMD 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)



XCMD slow break (N/C + N/O, N/C + N/C + N/O contacts)



d.c. supply ⎓

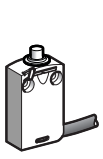
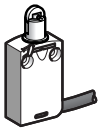
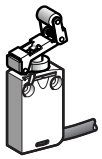
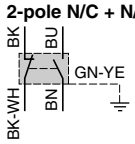
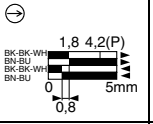
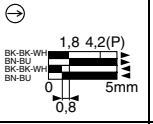
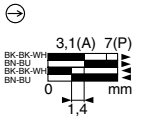
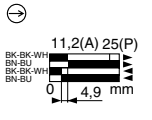
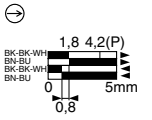
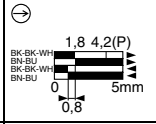
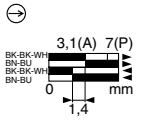
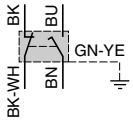
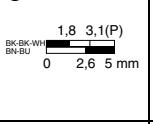
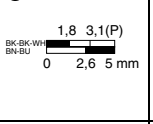
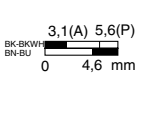
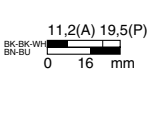
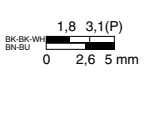
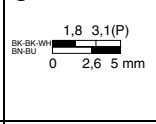
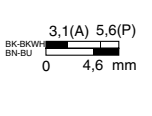
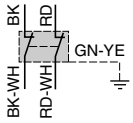
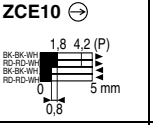
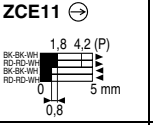
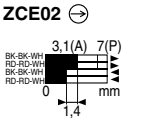
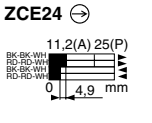
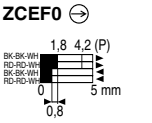
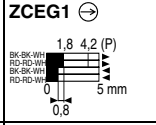
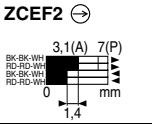
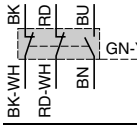
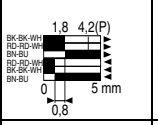
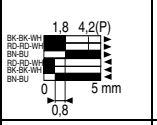
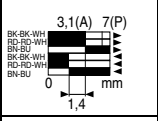
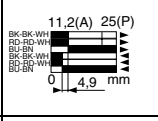
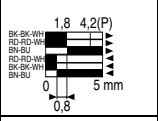
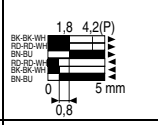
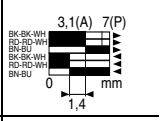
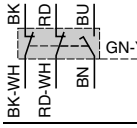
Power switched in W for 5 million operating cycles

Voltage	V	24	48	120
⌒	W	3	2	1

Power switched in W for 5 million operating cycles

Voltage	V	24	48	120
⌒	W	4	3	3

Limit Switches
Osiswitch® Miniature, Metal
Universal, XCMD, Pre-Cabled

Type of head	Plunger (mounting by the body)				Plunger (mounting 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
Catalog numbers							
2-pole N/C + N/O snap action 	**XCMD2110L1** 	**XCMD2111L1** 	**XCMD2102L1** 	**XCMD2124L1** 	**XCMD21F0L1** 	**XCMD21G1L1** 	**XCMD21F2L1** 
2-pole N/C + N/O break before make, slow break 	**XCMD2510L1** 	**XCMD2511L1** 	**XCMD2502L1** 	**XCMD2524L1** 	**XCMD25F0L1** 	**XCMD25G1L1** 	**XCMD25F2L1** 
2-pole N/C + N/C snap action 	**ZCMD29L1 + ZCE10** 	**ZCMD29L1 + ZCE11** 	**ZCMD29L1 + ZCE02** 	**ZCMD29L1 + ZCE24** 	**ZCMD29L1 + ZCEF0** 	**ZCMD29L1 + ZCEG1** 	**ZCMD29L1 + ZCEF2** 
3-pole N/C + N/C + N/O snap action 	**ZCMD39L1 + ZCE10** 	**ZCMD39L1 + ZCE11** 	**ZCMD39L1 + ZCE02** 	**ZCMD39L1 + ZCE24** 	**ZCMD39L1 + ZCEF0** 	**ZCMD39L1 + ZCEG1** 	**ZCMD39L1 + ZCEF2** 
3-pole N/C + N/C + N/O break before make, slow break 	**ZCMD37L1 + ZCE10**	**ZCMD37L1 + ZCE11**	**ZCMD37L1 + ZCE02**	**ZCMD37L1 + ZCE24**	**ZCMD37L1 + ZCEF0**	**ZCMD37L1 + ZCEG1**	**ZCMD37L1 + ZCEF2**
Weight, kg (lb)	0.180 (0.397)	0.180 (0.397)	0.185 (0.408)	0.200 (0.441)	0.195 (0.430)	0.220 (0.485)	0.205 (0.452)
4-pole N/C + N/C + N/O + N/O snap action	**ZCMD41L1 + ZCE10**	**ZCMD41L1 + ZCE11**	**ZCMD41L1 + ZCE02**	**ZCMD41L1 + ZCE24**	**ZCMD41L1 + ZCEF0**	**ZCMD41L1 + ZCEG1**	**ZCMD41L1 + ZCEF2**
Weight, kg (lb)	0.160 (0.353)	0.160 (0.353)	0.165 (0.364)	0.180 (0.397)	0.175 (0.386)	0.200 (0.441)	0.185 (0.408)
Contact operation	■ contact closed □ contact open		(A) = cam displacement (P) = positive opening point		⊖ N/C contact with positive opening operation, when properly mounted and using a conforming operator		
Characteristics							
Switch actuation	On end		By 30° cam		On end		By 30° cam
Type of actuation							
Maximum actuation speed	0.5 m/s (1.64 ft/s)						0.1 m/s (0.33 ft/s)
Minimum force or torque — For tripping	8.5 N (1.91 lb)		7 N (1.57 lb)	2.5 N (0.56 lb)	8.5 N (1.91 lb)		7 N (1.57 lb)
Minimum force or torque — For positive opening	42.5 N (9.55 lb)		35 N (7.87 lb)	12.5 N (2.81 lb)	42.5 N (9.55 lb)		35 N (7.87 lb)
Cabling	PvR cable, 1 m (3.3 ft) long: 5 x 0.75 mm^2 for 2-pole contact versions; 7 x 0.5 mm^2 for 3-pole contact versions; 9 x 0.34 mm^2 for 4-pole contact versions. For other cable lengths, see page 44.						

NOTE: For more information, consult pages 40–42.

Special Features and Catalog Number Explanation

Interpretation of the Catalog Number

XCM | **D** | **21** | **02 ▲** | **L1**

XCM—Assembled unit
ZCM—Body, contacts and base

Body (or base)
D—Metal Modular
N—Plastic (not modular)
C—Plug-in Base (with ZCM only)

Contact Description
21—1 N.O. + 1 N.C. Snap Action Silver
25—1 N.O. + 1 N.C. Slow Make/Break Silver
29—1 N.C. + 1 N.C. Snap Action Silver
37—1 N.O. + 2 N.C. Slow Make/Break Silver
39—1 N.O. + 2 N.C. Snap Action Silver
41—2 N.O. + 2 N.C. Snap Action Silver
61—1 N.O. + 1 N.C. Snap Action Gold
65—1 N.O. + 1 N.C. Slow Make/Break Gold
69—1 N.C. + 1 N.C. Snap Action Gold
77—1 N.O. + 2 N.C. Slow Make/Break Gold
79—1 N.O. + 2 N.C. Snap Action Gold
81—2 N.O. + 2 N.C. Snap Action Gold

Head Assembly ●
01—Rotary Head without Lever Arm
02—Steel Roller Plunger
05—Rotary Head without lever arm / Programmable ♦
06—Cat Whisker
07—Spring Rod with Plastic End ■
08—Spring Rod ■
09—Maint. Rotary without Arm ■
10—Top Push Rod Plunger
11—Booted Top Push Rod Pl.
13—Top Ball Bearing Plunger ■
14—Adjustable Top Plunger ■
21—One-way Horiz. Plastic Roller
24—Retractable Steel Roller, 9 mm (0.35 in.)
27—One-way Vert. Plastic Roller
28—One-way Horiz. or Vert. Roller
29—Booted Top Roller Plunger ■
62—Adjust. Side Push Rod Pl. ■
63—Side Push Rod Plunger ■
64—Horiz. Side Roller Plunger ■
65—Vertical Side Roller Plunger ■
66—Side Ball Bearing Plunger ■
67—Horizontal Cat Whisker ■
F0—M12 Threaded Plunger Head ■
F2—M12 Threaded Roller Pl. Hd. ■
G1—M16 Threaded Booted Pl. Hd. ■
H0—M18 Threaded Plunger Head ■
H2—M18 Threaded Roller Pl. Hd. ■

Cable Length
L1—1 m (3.3 ft)
L2—2 m (6.6 ft)
L3—3 m (9.8 ft)
L5—5 m (16.4 ft)
L7—7 m (23.0 ft)
L10—10 m (32.8 ft)

Important Note:
Use this chart for interpretation only. Some possibilities are not shown and some combinations of components are not available. Some switches are not modular. Refer to the additional information in this catalog.
For interpretation of catalog numbers for heads and levers, see page 40.

■ Consult your local field sales office for availability.
▲ Last two digits of lever catalog number occupy this position when rotary heads with levers are required.
● See page 40 for levers.
♦ See page 45 for available levers, specifically allowed for the ZCE05 programmable head.