Limit switches
XC Special range

Catalogue

YAGEO GROUP Brings you | Telemecanique Sensors

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Limit switches
XC Special range

Limit switches
XC Standard range

Design/Applications	Miniature format	Miniature format for mobile equipments	Compact format, CENELEC EN 50047
	Metal, pre-cabled	Metal, pre-cabled	Plastic, 1 cable entry
			
Enclosure	Metal	Metal	Plastic, double insulated
Modularity	Head, body and connection modularity	Head and body modularity	Head, body and cable entry modularity
Conformity/Certifications	CE, UL, CSA, CCC, EAC	CE, UL, CSA	CENELEC EN 50047 UL, CSA, CCC, EAC
Body dimensions (w x h x d) in mm	30 x 50 x 16	30 x 50 x 20.5	31 x 65 x 30
Head	Linear movement (plunger) Rotary movement (lever) Rotary movement, multidirectional Same heads for ranges XCMD, XCMV, XCKD, XCKP and XCKT		
Contact blocks			
2 electrically separate contacts			
snap action with positive opening operation	●	●	●
slow break with positive opening operation	●	●	●
2 same polarity contacts			
snap action	–	–	–
slow break	–	–	–
3 electrically separate contacts			
snap action with positive opening operation	●	–	●
slow break with positive opening operation	●	–	●
4 electrically separate contacts			
snap action with positive opening operation	●	–	–
slow break with positive opening operation	–	–	–
4 contacts (2 x 2 same polarity contacts)			
snap action	–	●	–
Degree of protection IP/IK	IP 66, IP 67, IP 68, IK 06	IP 66, IP 67, IP 69, IK 04, IK 06 depending on model	IP 66, IP 67, IK 04,
Operating temperature	- 25 °C... + 70 °C, -40°C depending on heads		
Connection **Screw terminals**	–	–	1 entry for ISO M16 or M20, Pg 11, Pg 13.5 cable gland or 1/2" NPT, PF 1/2
Pre-cabled	Ø 7.5 PvR, CEI, halogen free, depending on model	Ø 6,4 PvR	–
Connector	Integral or remote M12 or remote 7/8"-16UN	M12, Deutsch DT04-4P or AMP Superseal 1.5	M12
Type reference	**XCMD**	**XCMV**	**XCKP**
Catalogue	Catalogue XC Limit switches, standard range		

Limit switches
XC Standard range

Compact format, CENELEC EN 50047		Compact format, with reset	
Plastic, 2 cable entries	**Metal, 1 cable entry**	**Plastic, 1 cable entry**	**Plastic, 2 cable entries**
			
Plastic, double insulated	Metal	Plastic, double insulated	
Head and body modularity	Head, body and connection modularity	–	
CENELEC EN 50047, UL, CSA, CCC, EAC		CE, UL, CSA, EAC	
58 x 51 x 30	31 x 65 x 30	31 x 65 x 30	58 x 51 x 30
Linear movement (plunger) Rotary movement (lever) Rotary movement, multidirectional Same heads for ranges XCMD, XCMV, XCKD, XCKP and XCKT		Linear movement (plunger) Rotary movement (lever)	
•	•	•	•
•	•	•	•
–	–	–	–
–	–	–	–
•	•	–	–
•	•	–	–
–	–	–	–
–	–	–	–
–	–	–	–
IP 66, IP 67, IK 04	IP 66, IP 67, IK 06	IP 66, IP 67, IK 04	
- 25 °C... + 70 °C			
2 entries for ISO M16 or Pg 11 cable gland or 1/2" NPT (using adaptor)	1 entry for ISO M16 or M20, Pg 11, Pg 13.5 cable gland or 1/2" NPT, PF 1/2	1 entry for ISO M20 or Pg 13.5 cable gland or 1/2" NPT	2 entries for ISO M16 or Pg 11 cable gland or 1/2" NPT (using adaptor)
–			
–	M12	–	
XCKT	**XCKD**	**XCPR**	**XCTR**
Catalogue XC Limit switches, standard range			

Limit switches
XC Standard range

Design		"Classic" format		Industrial EN 50041 format	
		Metal, 3 cable entries	**Metal, 1 cable entry**	**Plastic, 1 cable entry**	**Metal, 1 cable entry or connector**
					
Enclosure		Metal		Plastic, double insulated	Metal
Modularity		Head, body and operator modularity			
Conformity/Certifications		CE, UL, CSA, CCC, EAC	CE, UL, CSA, EAC	CENELEC EN 50041 UL, CSA, CCC, EAC	
Body dimensions (w x h x d) in mm		63 x 64 x 30	52 x 72 x 30	40 x 72.5 x 36	40 x 77 x 44 42.5 x 84 x 36
Head		Linear movement (plunger) Rotary movement (lever) Rotary movement, multidirectional			
Contact blocks					
	2 electrically separate contacts snap action with positive opening operation	•	•	•	•
	2 electrically separate contacts slow break with positive opening operation	•	•	•	•
	2 same polarity contacts snap action	–	–	–	•
	2 same polarity contacts slow break	–	–	–	–
	3 electrically separate contacts snap action with positive opening operation	•	•	•	•
	3 electrically separate contacts slow break with positive opening operation	•	•	•	•
	4 electrically separate contacts snap action with positive opening operation	–	–	–	–
	4 electrically separate contacts slow break with positive opening operation	–	–	–	–
	4 contacts (2 x 2 same polarity contacts) snap action	–	–	•	•
Degree of protection IP/IK		IP 66, IK 06		IP 65, IK 03	IP 66, IK 07
Operating temperature		- 25°C... + 70°C			- 25°C... + 70°C - 40°C or + 120°C depending on model
Connection	**Screw terminals (entry for cable gland)**	3 entries for ISO M20, Pg 11 cable gland or 1/2" NPT	1 entry incorporating cable gland or tapped 1/2" NPT	1 entry for ISO M20, Pg 13.5 cable gland or 1/2" NPT	1 entry for ISO M20, Pg 13.5 cable gland or 1/2" NPT
	Pre-cabled	–			
	Connector	–			Integral M12 or 7/8"-16UN
Type reference		**XCKM**	**XCKL**	**XCKS**	**XCKJ**
Catalogue		Catalogue XC Limit switches, standard range			

Miniature format	**Compact format EN 50047**		**Compact format, with reset knob**
Plastic, pre-cabled	**Plastic, 1 cable entry**	**Plastic, 2 cable entries**	**Plastic, 1 cable entry**
			
Plastic, double insulated			
–			
CE, cULus, CCC	CENELEC EN 50047, UL, CSA, CCC, EAC		CE, UL, CSA, CCC, EAC
30 x 50 x 16	31 x 65 x 30	59 x 51 x 30	31 x 65 x 30
Linear movement (plunger) Rotary movement (lever) Rotary movement, multidirectional			
•	•	•	•
–	•	•	•
•	–	–	–
–	–	•	–
–	•	–	•
–	•	–	•
–	–	–	
–	–	–	
–	–	–	
IP 66, IP 67, IK 04			
- 25 °C... + 70 °C			
–	1 entry for ISO M20 or Pg 11 cable gland Other cable entries: ISO M16 x 1.5 or PF 1/2 (G1/2)	2 entries for ISO M16 or Pg 11 cable gland or 1/2" NPT (using adaptor)	1 entry for ISO M20 or Pg 11 cable gland Other cable entries: ISO M16 x 1.5 or PF 1/2 (G1/2)
•	–		
Ø 4.2 mm PvR, lateral or axial cable output, depending on model	–		
XCMH	**XCKN**	**XCNT**	**XCNR**
Catalogue XC Limit switches, standard range			

Limit switches
XC Special range

Design/Applications	Very severe applications
	Metal, 1 cable entry

Enclosure	Metal
Modularity	Head and body modularity
Conformity/Certifications	CE, UL, CSA, EAC
Body dimensions (w x h x d) in mm	40 x 81 x 41
Head	Linear movement (plunger) or rotary movement (lever)
Contact blocks	
2 same polarity contacts snap action	●
4 electrically separate contacts snap action with positive opening operation	–
4 electrically separate contacts slow break with positive opening operation	–
4 contacts (2 x 2 same polarity contacts snap action	●
Degree of protection IP/IK	IP 65, IK 08
Operating temperature	- 25°C... + 70°C; - 40° C or + 120° C (XC2J depending on model)
Connection Screw terminals (entry for cable gland)	1 entry with integral cable gland
Type reference	**XC2J**
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Limit switches
XC Special range

Design/Applications	For hoisting and material handling applications (XCR); for conveyor belt shift monitoring (XCRT)	For hoisting and material handling applications
	Metal or polyester, 1 cable entry	**Metal or plastic, 3 cable entries**
		
Enclosure	Metal or polyester	Metal or plastic
Modularity	–	–
Conformity/Certifications	CE, CSA (XCR) CCC (XCR), EAC	CE, UL, CSA, CCC, EAC
Body dimensions (w x h x d) in mm	85 x 95 x 75	118 x 77 x 59 (metal) 118 x 77 x 67 (plastic)
Head	Rotary movement (lever)	Rotary movement (lever)
Contact blocks		
2 same polarity contacts snap action		
4 electrically separate contacts snap action with positive opening operation	●	–
slow break with positive opening operation	●	●
4 contacts (2 x 2 same polarity contacts) snap action	●	–
Degree of protection IP/IK	IP 54, IK 07 or IP 65, depending on model	IP 66, IK 07 (metal) IP 65, IK 04 (plastic)
Operating temperature	- 25 °C... + 70 °C	- 25 °C... + 70 °C
Connection		
screw terminals (entry for cable gland)	1 tapped entry for Pg 13.5 cable gland	3 tapped entries for Pg 13.5 cable gland or tapped M20 x 1.5, depending on model
Type reference	**XCR, XCRT**	**XCKMR, XCKVR**
Pages	44	54

Safety detection solutions
XCS safety switches

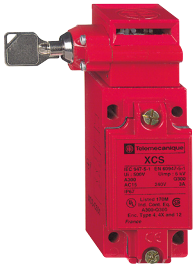
Switch type				
Applications		**XCS safety limit switches** **Protection of operators by stopping the machine when the gate is opened.** **All machines with quick rundown time.**		
Design		**Miniature format**	**Compact format**	
		Pre-cabled	**With 1 cable entry**	
				
Case		Metal	Plastic	Metal
Features		–		
Conformity to standards	Products	EN/IEC 60947-5-1, EN/ISO 13849-1, EN/IEC 62061, UL 508, CSA C22-2 no. 14		
	Machine assemblies	EN/IEC 60204-1, EN/ISO 14119		
Product certifications		UL, CSA, CCC, EAC		
Dimensions (w x h x d) in mm	Switch	30 x 50 x 16	31 x 34 x 89	
	Fixings / Centers	20	20/22	
Head		Plunger or rotary head Head adjustable in 15° steps through 360° Linear (plunger) or rotary (lever) actuation.		
Contact blocks		NC contacts with positive opening operation		
		2 NC + 1 NO break before make, slow break 2 NC + 1 NO and 2 NC + 2 NO snap action	XCSD: 2 NC + 1 NO break before make, slow break or snap action XCSP: 2 NC + 1 NO snap action	
Degree of protection		IP 66, IP 67 and IP 68	IP 66 and IP 67	
Ambient air temperature	For operation	-25…+70 °C		
Connection	Screw terminals (cable entry via cable gland)	–	Tapped entry for Pg 13.5, ISO M20 cable gland or tapped 1/2" NPT	
	Pre-cabled	L = 1, 2 or 5 m	–	
Type reference		**XCSM**	**XCSP**	**XCSD**
Catalogue		Catalogue XCS safety switches		

XCS lever or spindle-operated safety switches		
Protection of operators by stopping the machine when the operating lever (attached to hinged machine guard) is displaced by 5°. All light industrial machines fitted with hinged or rotary protective covers with small opening radius.	**Protection of operators by stopping the machine when the guard hinge rotates through 5°. All light industrial machines fitted with hinged access doors.**	
Compact format		
With 1 or 2 cable entries		
		
Plastic, double insulated		
2 types of lever: straight or elbowed (flush with rear of switch) 3 lever positions: to left, center or to right	2 types of spindle: length 30 mm or 80 mm	
EN/IEC 60947-5-1, EN/ISO 13849-1, EN/IEC 62061, UL 508, CSA C22-2 no.14, JIS C4520		
EN/IEC 60204-1, EN/ISO 14119		
UL, CSA, CCC, EAC		
30 x 87.5 x 30	30 x 96 x 30	52 x 117 x 30
20/22	20/22	20/22 or 40.3
Turret head: 4 positions Rotary actuation (lever)	Turret head: 4 positions Rotary actuation (spindle)	
Slow break safety contacts with positive opening operation NC contacts open when lever or spindle displaced by more than 5°		
1 NC + 1 NO break before make 2 NC 1 NC + 2 NO break before make 2 NC + 1 NO break before make	1 NC + 1 NO break before make 2 NC 1 NC + 2 NO break before make 2 NC + 1 NO break before make	1 NC + 2 NO break before make 2 NC + 1 NO break before make 3 NC
IP 67		
-25…+70 °C		
1 tapped entry for Pg 11, ISO M16 cable gland or tapped 1/2" NPT	1 tapped entry for Pg 11, ISO M16 cable gland or tapped 1/2" NPT	2 tapped entries for Pg 11, ISO M16 cable gland or tapped 1/2" NPT
–	–	–
XCSPL	**XCSPR**	**XCSTR**
Catalogue XCS safety switches		

Safety detection solutions
XCS safety switches

Switch type		XCS key-operated safety switches		
Applications		**Protection of operators by stopping the machine when the actuating key (attached to machine guard) is withdrawn from the head of the switch. All light industrial machines with quick rundown time** *(1)*.		
Design		**Miniature format**	**Compact format**	
		Pre-cabled	**With 1 or 2 cable entries**	
				
Features		Without locking of actuating key.	Without locking of actuating key. Optional accessory: guard retaining device.	
Conformity to standards	Products	EN/IEC 60947-5-1, EN/ISO 13849-1, EN/IEC 62061, UL 508, CSA C22-2 no. 14		
	Machine assemblies	EN/IEC 60204-1, EN/ISO 14119		
Product certifications		cULus	UL, CSA, CCC, EAC	
Dimensions (w x h x d) in mm	Switch	30 x 87 x 15	30 x 93.5 x 30	52 x 114.5 x 30
	Fixings	Centers: 20/22	Centers: 20/22	Centers: 20/22 or 40.3
Head		Fixed head: 2 positions for insertion of actuating key.	Turret head: 8 positions for insertion of actuating key.	
Contact blocks		Safety contacts actuated by the actuating key. Slow break and NC positive opening operation.		
		1 NC + 1 NO break before make 2 NC 2 NC + 1 NO break before make 3 NC	1 NC + 1 NO slow break contacts, break before make or make before break, or snap action 2 NC slow break or snap action 2 NC + 1 NO slow break contacts, break before make, or snap action 1 NC + 2 NO slow break contacts, break before make, or snap action	1 NC + 2 NO break before make 2 NC + 1 NO break before make 3 NC
Degree of protection		IP 67		
Ambient air temperature	For operation	-25…+70 °C		
Connection	Screw terminals (cable entry via cable gland)	–	Tapped entry for Pg 11, ISO M16 cable gland or tapped 1/2" NPT	
	Pre-cabled	L = 2, 5 or 10 m	–	–
Type reference		**XCSMP**	**XCSPA**	**XCSTA**
Catalogue		Catalogue XCS safety switches		

(1) Machine stopping time less than time taken for operator to access hazardous zone.

XCS key-operated safety switches		
All heavy industrial machines with quick rundown time *(1)*		
Industrial format with or without locking		
With 1 cable entry, without locking	**With 1 cable entry and manual locking/unlocking**	
		
Without locking of actuating key.	Manual locking and unlocking of actuating key by pushbutton (can be mounted on left or right-hand side of switch head).	Manual locking and unlocking of actuating key by key-operated lock (can be mounted on left or right-hand side of switch head).
EN/IEC 60947-5-1, EN/ISO 13849-1, EN/IEC 62061, UL 508, CSA C22-2 no.14		
EN/IEC 60204-1, EN/ISO 14119		
UL, CSA, CCC, EAC		
40 x 113.5 x 44	52 x 113.5 x 44	
30 x 60	30 x 60	
Turret head: 8 positions for insertion of actuating key.	Turret head: 8 positions for insertion of actuating key.	
Safety contacts actuated by the actuating key. Slow break and NC positive opening operation.	Safety contacts actuated by the actuating key. Slow break and NC positive opening operation.	
1 NC + 2 NO break before make 2 NC + 1 NO break before make 3 NC	1 NC + 2 NO break before make 2 NC + 1 NO break before make 3 NC	
IP 67		
-25…+70 °C		
Screw clamp terminals. Tapped entry for Pg 13.5, ISO M20 cable gland or tapped 1/2" NPT	Screw clamp terminals. Tapped entry for Pg 13.5 cable gland, ISO M20 or tapped 1/2" NPT.	
–	–	
XCSA	**XCSB**	**XCSC**
Catalogue XCS safety switches		

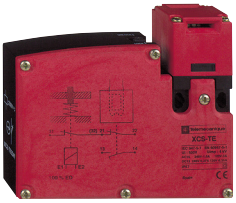
Safety detection solutions
XCS safety switches

Switch type			**XCS key-operated safety switches, locking and unlocking by solenoid**	
Applications			**Protection of operators by stopping the machine when the actuating key (attached to machine guard) is withdrawn from the head of the switch. All industrial machines with long rundown time** *(1)*	
Design			**Slim format**	
			With 3 cable entries	**With 3 cable entries**
				 
Case			Plastic	Metal
Features			Locking and unlocking of actuating key using a solenoid (either on energization or on de-energization). Manual unlocking (auxiliary release using special tool) of actuating key in abnormal conditions.	Locking and unlocking of actuating key by solenoid (either on energization or on de-energization). Manual unlocking (auxiliary release using key lock) of actuating key in abnormal conditions. 1 Emergency release mushroom head pushbutton (only for XCSLF●●●●4●● and XCSLF●●●●6●●).
Conformity to standards	Products		EN/IEC 60947-5-1, EN/ISO 13849-1, EN/IEC 62061, UL 508 and CSA C22-2 no. 14	
	Machine assemblies		EN/IEC 60204-1, EN/ISO 14119	
Product certifications			UL, CSA, CCC, EAC	
Dimensions (w x h x d or Ø) in mm	Switch		51 x 205 x 43.5	
	Fixings	Centers	30 x 153.3	
Head			Turret head: 8 positions for insertion of actuating key.	
Resistance to forcible withdrawal of the actuator	F_{1max}		1400 N	3000 N
	F_{Zh}		1100 N	2300 N
Contact blocks or outputs			Main safety contacts actuated by the actuating key; auxiliary contacts actuated by solenoid. Contact states given with key inserted and solenoid not energized. Slow break and NC positive opening operation	
	Main contacts		1 NC + 1 NO break before make 2 NC 1 NC + 2 NO break before make 2 NC + 1 NO break before make 3 NC	
	Auxiliary contacts		1 NC + 1 NO break before make 2 NC 1 NC + 2 NO break before make 2 NC + 1 NO break before make 3 NC	
Degree of protection			IP 66/IP 67	
Ambient air temperature	For operation		-25…+60 °C	
	For storage		-40...+70 °C	
Connection	Terminals		Spring terminals, 3 cable entries. Tapped entry for ISO M20 cable gland or tapped 1/2" NPT.	
	Connector		M23 (18 + 1 PE)	
Type reference			**XCSLE**	**XCSLF**
Catalogue			Catalogue XCS safety switches	

(1) Machine stopping time greater than time taken for operator to access hazardous zone.

XCS key-operated safety switches, locking and unlocking by solenoid (continued)

Protection of operators by stopping the machine when the actuating key (attached to machine guard) is withdrawn from the head of the switch. All industrial machines with long rundown time *(1)*

Rectangular	
–	**With 2 cable entries**
	
Plastic, double insulated	Metal
Locking and unlocking of actuator by solenoid (either on de-energization or on energization). Manual unlocking (auxiliary release using special tool) of actuating key in abnormal conditions.	Locking and unlocking of actuating key by solenoid (either on energization or on de-energization). Manual unlocking (auxiliary release using key lock) of actuating key in abnormal conditions.
EN/IEC 60947-5-1, EN/ISO 13849-1, UL 508, CSA C22-2 no. 14, EN/IEC 62061, EN/IEC 60947-1	
EN/IEC 60204-1, EN/ISO 14119	
UL, CSA, CCC, EAC	UL, CSA, CCC, EAC
110 x 93.5 x 33	98 x 146 x 44
30 x 153.3	88 x 95
Turret head: 8 positions for insertion of actuating key	
650 N	2600 N
500 N	2000 N
Main safety contacts actuated by the actuating key; auxiliary contacts actuated by solenoid. Slow break and NC positive opening operation	
1 NC + 1 NO break before make 1 NC + 1 NO make before break 2 NC	1 NC + 2 NO break before make 2 NC + 1 NO break before make 3 NC
1 NC	1 NC + 1 NO 2 NC
IP 67	
-25…+60 °C	-25…+40 °C
-40...+70 °C	-40...+70 °C
Tapped entry for Pg 11 ISO M16 cable gland or tapped 1/2" NPT	Screw clamp terminals. 2 tapped entries for Pg 13.5 ISO M20 cable gland or tapped 1/2" NPT.
–	–
XCSTE	**XCSE**
Catalogue XCS safety switches	

Switch type	**XCSR contactless RFID safety switches**			
Applications	**Highly tamper-proof protection of operators by stopping the machine when the gate is opened (transfer lines, assembly lines, automated equipment, machine tools, etc.). All light industrial machines fitted with access gates with imprecise guidance and/or subjected to frequent washing, shocks and vibrations. This safety switch is suitable for machine with low inertia.**			
Design	**Standard rectangular format**			
	M12 connector			
				
Case	Thermoplastic housing (Valox TM)			
Features	Contactless system composed of a microprocessor-controlled switch and a transponder factory-paired with a unique code. Multiposition sensor transponder.			
Assured operating sensing distance (Sao)	15 mm			
Assured release distance (Sar)	35 mm			
Type of switch	Standalone RFID switch	Daisy-chain RFID switch for direct series connection	Single RFID switch for point-to-point connection	
Operating mode	Possible functioning without association with a safety control unit (Integrated External Device Monitoring (EDM) and Start/Restart function)	Functioning in combination with a safety control unit PL=e/Cat4 - SIL 3		
Conformity to standards	Products	EN/IEC 60947-5-2, EN/IEC 60947-5-3, UL 508, CSA C22.2 SIL 3 (IEC 61508), SILCL 3 (IEC 62061), PLe–Cat. 4 (EN ISO 13849-1)		
	Machine assemblies	EN/IEC 60204-1, EN/ISO 14119		
	RFID protocol	Based on ISO 15693		
Product certifications	CE, cULus, TÜV, FCC, EAC, IC, RCM, E2, ECOLAB			
Dimensions (w x h x d or Ø) in mm	Switch	30 x 108.3 x 15	30 x 118.6 x 5	30 x 108.3 x 15
	Transponder	50 x 15 x 15		
	Fixings – Centers	–		
	Fixings – Reader	74…78		
	Fixings – Transponder	30…34		
Contact blocks or outputs	Safety output	2 OSSDs (Safety outputs PNP NO). OSSDs are in the ON state when the gate is closed		
		Maximum current 400mA	Maximum current 200 mA	
Degree of protection	Conforming to EN/IEC 60529	IP 65, IP 66, IP 67		
	Conforming to DIN 40050	IP 69K		
Ambient air temperature	For operation	-25...+70 °C		
	For storage	-40...+85 °C		
Connection	Pre-cabled	–		
	Connector	1 M12 8-pin connector (A coding)	2 M12 5-pin connector (A coding)	1 M12 5-pin connector (A coding)
	Pigtail	–		
Type reference	**XCSRC●1●M12**	**XCSRC●2M12**	**XCSRC●0M12**	
Catalogue	Catalogue XCS safety switches			

XCSRM contactless RFID safety switches

Highly tamper-proof protection of operators by stopping the machine when the gate is opened (transfer lines, assembly lines, automated equipment, machine tools, etc.).
All light industrial machines fitted with access gates with imprecise guidance and/or subjected to frequent washing, shocks and vibrations. This safety switch is suitable for machine with low inertia.

Miniature rectangular format

Single model	**Advanced model**
	
Polyketone	
Contactless system composed of a microprocessor-controlled switch and a transponder factory-paired with a unique code, also available with a generic code. Multiposition sensor transponder.	
10	
25	
Single RFID switch for point-to-point connection	Suitable for both Standalone by EDM and Daisy-chain connection
Automatic start/restart	Automatic start/restart Manual start/restart Built-in EDM function Daisy-chain connection Diagnostic
EN/IEC 60947-5-2, EN/IEC 60947-5-3, EN ISO 13849-1, IEC 61508, EN IEC 62061, UL 508, CSA C22.2	
EN ISO 14119,	
Low Frequency according to ISO/IEC 18000-2	
CE, cULus, TÜV, FCC, IC, UKCA, ECOLAB	
28.5 x 42 x 18 (pre-cabled or pigtail) 28.5 x 57 x 18 (M12 connector)	
28.5 x 42 x 18	
–	
22	
22	
2 OSSDs : PNP safety outputs	2 OSSDs : 2 PNP safety outputs
Maximum current 300mA	Maximum current 300mA
IP65 and IP67	
IP69K	
-25...+70 °C	
-25...+70 °C	
2, 5, or 10 m cable with 5 flying wires	–
M12 5-pin male connector	M12 8-pin male connector
0.1 m cable with M12 5-pin male connector	0.1 m cable with M12 8-pin male connector
XCSRCM●0●●●	**XCSRCM●3●●●**
Catalogue XCS safety switches	

Safety detection solutions
XCS safety switches

Switch type			**XCS safety coded magnetic safety switches for detection without contact**	
Applications			**Protection of operators by stopping the machine when the gate is opened All light industrial machines fitted with access gates with imprecise guidance and/or subjected to frequent washing This Safety sensor is suitable for machine with low inertia.**	
Design			**Miniature rectangular format**	**Compact rectangular format**
			Pre-cabled or M8 connector on flying lead	**Pre-cabled or M12 connector on flying lead**
				
Case			Plastic	
Features			3 approach directions	
	Assured operating sensing distance (Sao)		5 mm	8 mm
	Assured release distance (Sar)		15 mm	20 mm
	Type of switch		–	
	Operating mode		–	
Conformity to standards	Products		EN/IEC 60947-5-1, EN/ISO 13849-1, EN/IEC 62061, UL 508 and CSA C22-2 no. 14	
	Machine assemblies		EN/IEC 60204-1, EN/ISO 14119	
	RFID protocol		–	
Product certifications			UL, CSA, EAC, ECOLAB	
Dimensions (w x h x d or Ø) in mm	Switch		16 x 51 x 7	25 x 88 x 13
	Transponder		–	
	Fixings	Centers	16	78
		Reader	–	
		Transponder	–	
Contact blocks or outputs	Safety output		–	
	Contact states given in presence of magnet		1 NC + 1 NO staggered 2 NC staggered Independent Reed-type contacts operated by coded magnet.	1 NC + 1 NO staggered 2 NC staggered 2 NC + 1 NO (NC staggered) 1 NC + 2 NO (NO staggered)
			To be used with safety control units.	
Degree of protection			IP 66 and IP 67 for pre-cabled version, IP 67 for connector on flying lead version	
	Conforming to EN/IEC 60529		–	
	Conforming to DIN 40050		–	
Ambient air temperature	For operation		-25…+85 °C	
	For storage		–	
Connection	Pre-cabled		L = 2, 5 or 10 m	
	Connector		M8, on 0.15 m flying lead	M12, on 0.15 m flying lead
	Conforming to EN/IEC 60947-5-2-A3 and EN/IEC 61076		–	–
Type reference			**XCSDMC**	**XCSDMP**
Catalogue			Catalogue XCS safety switches	

Protection of operators by stopping the machine when the gate is opened
All light industrial machines fitted with access gates with imprecise guidance and/or subjected to frequent washing
This Safety sensor is suitable for machine with low inertia.

Cylindrical format

Pre-cabled or M12 connector on flying lead

Plastic
1 approach direction
8 mm
20 mm
–
–
EN/IEC 60947-5-1, EN/ISO 13849-1, EN/IEC 62061, UL 508 and CSA C22-2 no. 14
EN/IEC 60204-1, EN/ISO 14119
–
UL, CSA, EAC, ECOLAB
Ø 30, L 38.5
–
–
–
–
–
1 NC + 1 NO staggered 2 NC staggered
To be used with safety control units.
IP 66 and IP 67 for pre-cabled version, IP 67 for connector on flying lead version
-25…+85 °C
–
L = 2, 5 or 10 m
M12, on 0.15 m flying lead
–

XCSDMR

Catalogue XCS safety switches

Presentation

Electromechanical detection

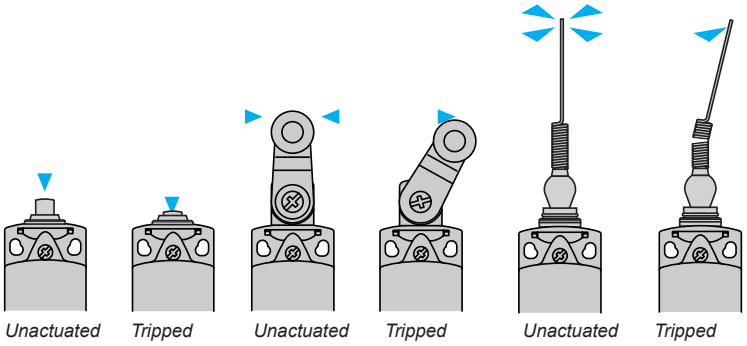
Limit switches are used in all automated installations and also in a wide variety of applications, due to the numerous advantages inherent to their technology.
They transmit data to the logic processing system regarding:
- presence/absence,
- passing,
- positioning,
- end of travel.

Simplicity of installation, advantages

- **From an electrical viewpoint**
- galvanic separation of circuits,
- models suitable for low power switching combined with good electrical durability,
- very good short-circuit withstand in coordination with appropriate fuses,
- total immunity to electromagnetic interference,
- high rated operational voltage.
- **From a mechanical viewpoint**
- NC contacts with positive opening operation,
- high resistance to the different ambient conditions encountered in industry (standard tests and specific tests under laboratory conditions),
- high repeat accuracy, up to 0.01 mm on the tripping points.

Detection movements

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



Terminology

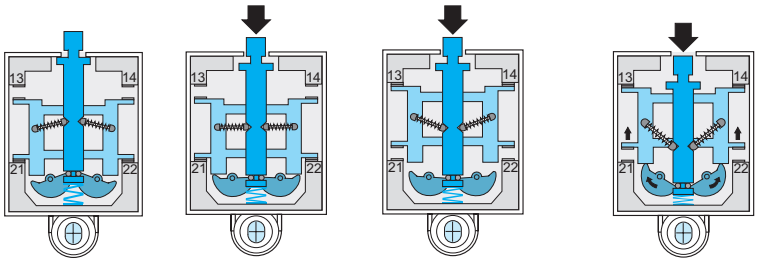
Rated value of a quantity	■ This replaces the term “nominal value”. ■ It is the fixed value for a specific function.
Utilisation categories:	■ AC-15 replaces AC-11: control of an electromagnet on AC, test 10 Ie/Ie. ■ AC-12: control of a resistive load on AC or static load isolated by opto-coupler. ■ DC-13 replaces DC-11: control of an electromagnet on DC, test Ie/Ie.
Positive opening travel	■ Minimum travel from the initial movement of contact actuator to the position required to accomplish positive opening operation.
Positive opening force	■ The force required on the contact actuator to accomplish positive opening operation.
Switching capacity	■ Ithe is no longer a rated value but a conventional current used for heating tests. **Example:** for category A300 the corresponding operational current, Ie maximum, is 6 A-120 V or 3 A-240 V, the equivalent Ithe being 10 A.
Positive opening operation	■ A limit switch complies to this specification when all the closed contact elements of the switch can be changed, with certainty, to the open position (no flexible link between the moving contacts and the operator of the switch, to which an actuating force is applied). ■ All limit switches incorporating either a slow break contact block or a snap action NC + NO (form Zb), NC + NO + NO, NC + NC + NO, NC + NC + NO + NO contact block are positive opening operation, in complete conformity with standard IEC 60947-5-1 Appendix K.

Limit switches
XC range
General

Contact blocks

Snap action contacts

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

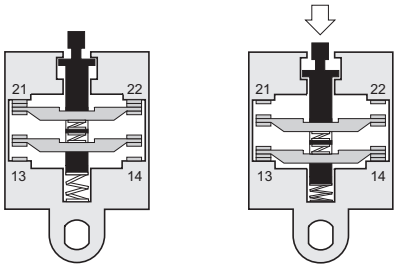


Unactuated state *Approach travel* *Contact change of state* *Positive opening*

Slow break contacts

- Slow break contacts are characterised by identical tripping and resetting points.
- The displacement speed of the moving contacts is equal, or proportional, to the speed of the operator (which must not be less than 0.1 m/s = 6 m/minute).

The opening distance is also dependent on the distance travelled by the operator.



Electrical durability for normal loads

- Normally, for inductive loads, the current value is less than 0.1 A (sealed), i.e. values of 3 to 40 VA sealed and 30 to 1000 VA inrush, depending on the voltage.
  For this type of application the electrical durability will exceed 10 million operating cycles.

Application example: XCKJ161 + LC1D12●●●● (7 VA sealed, 70 VA inrush).
Electrical durability = 10 million operating cycles.

Switching capacity

1 Normal industrial PLC input type 1 (PLC: industrial programmable logic controllers)
2 Normal industrial PLC input type 2
3 Switching capacity conforming to IEC 60947-5-5, utilisation category AC-15, DC-13

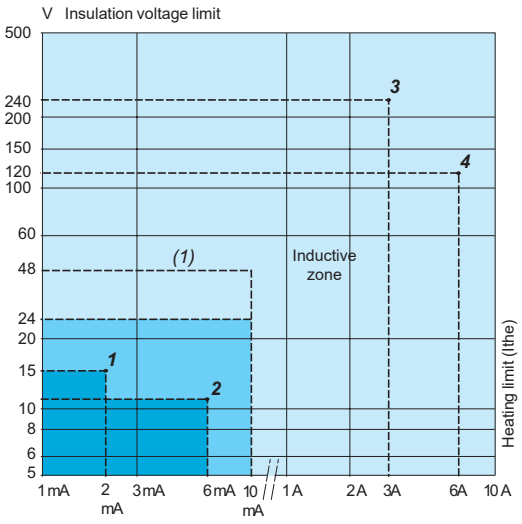
A300	240 V	3 A	B300	240 V	1.5 A
Q300	250 V	0.27 A	R300	250 V	0.13 A

4 Switching capacity conforming to IEC 60947-5-1, utilisation category AC-15, DC-13

A300	120 V	6 A	B300	120 V	3 A
Q300	125 V	0.55 A	R300	125 V	0.27 A

Electrical durability for small loads

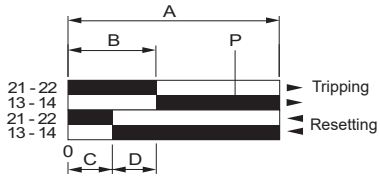
- The use of limit switches with programmable controllers is becoming more common.
- With small loads, limit switches offer the following levels of reliability:
  - failure rate of less than 1 for 100 million operating cycles using snap action contacts (contacts XE2SP),
  - failure rate of less than 1 for 20 million operating cycles using slow break contacts (contacts XE●NP and XE3SP).
  - failure rate of less than 1 for 5 million operating cycles using contacts XCMD.

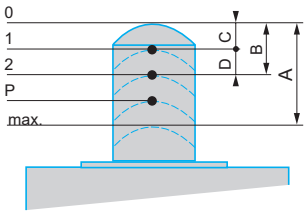


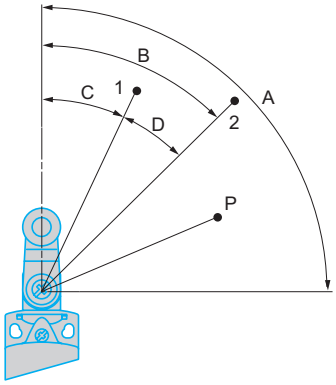
		Range of use
Standard contacts Continuous service (frequent switching)	XE2SP2151, P3151	
	XE2NP●●●●	
	Contacts of XCMD XE3●P●●●●	
Gold flashed contacts on resistive load	Occasional service Infrequent switching, ≤ 1 operating cycle/ day, and/or corrosive atmosphere	(1)

(1) Usable up to 48 V/10 mA.

Contact blocks (continued)







Functional diagrams of snap action contacts

■ **Example: NC + NO**

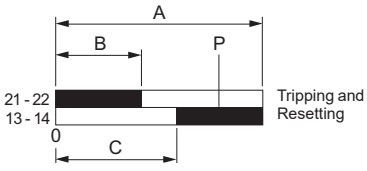
A - Maximum travel of operator in millimetres or degrees.
B - Tripping travel of contact.
C - Resetting travel of contact.
D - Differential travel = B - C.
P - Point from which positive opening is assured.

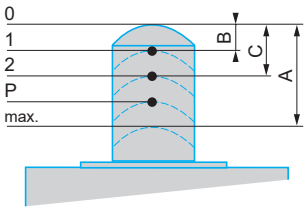
□ Linear movement (plunger)

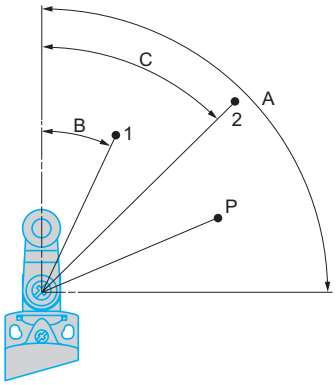
1 - Resetting point of contact.
2 - Tripping point of contact.
A - Maximum travel of operator in millimetres.
B - Tripping travel of contact.
C - Resetting travel of contact.
D - Differential travel = B - C.
P - Point from which positive opening is assured.

□ Rotary movement (lever)

1 - Resetting point of contact.
2 - Tripping point of contact.
A - Maximum travel of operator in degrees.
B - Tripping travel of contact.
C - Resetting travel of contact.
D - Differential travel = B - C.
P - Point from which positive opening is assured.







Functional diagrams of slow break contacts

■ **Example: NC + NO break before make**

A - Maximum travel of operator in millimetres or degrees.
B - Tripping and resetting travel of contact 21-22.
C - Tripping and resetting travel of contact 13-14.
P - Point from which positive opening is assured.

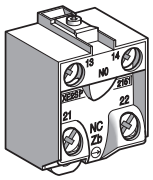
□ Linear movement (plunger)

1 - Tripping and resetting points of contact 21-22.
2 - Tripping and resetting points of contact 13-14.
A - Maximum travel of operator in millimetres.
B - Tripping and resetting travel of contact 21-22.
C - Tripping and resetting travel of contact 13-14.
P - Positive opening point.

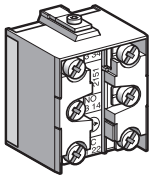
□ Rotary movement (lever)

1 - Tripping and resetting points of contact 21-22.
2 - Tripping and resetting points of contact 13-14.
A - Maximum travel of operator in degrees.
B - Tripping and resetting travel of contact 21-22.
C - Tripping and resetting travel of contact 13-14.
P - Positive opening point.

Contact blocks (continued)



XE2●P screw clamp terminal connections

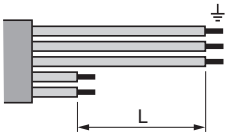


XE3●P screw clamp terminal connections

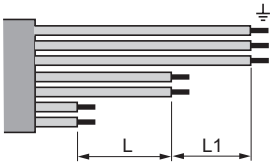
Mounting

Contact connections

- ■ Tightening torque:
  - □ minimum tightening torque ensuring the nominal characteristics of the contact: 0.8 N.m,
  - □ maximum tightening torque without damage to the terminals: 1.2 N.m for **XE2●P**, 1 N.m for **XE3●P**.
- ■ Connecting cable: cable preparation lengths:
  - □ for **XE2●P**, L = 22 mm,
  - □ for **XE2●P3●●●**, L = 45 mm,

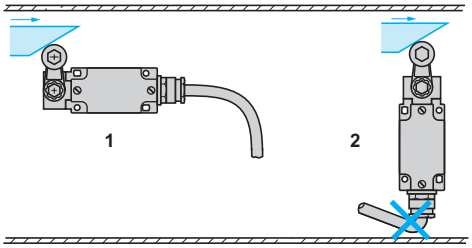


- □ for **XE3●P**, L = 14 mm, L1 = 11 mm.



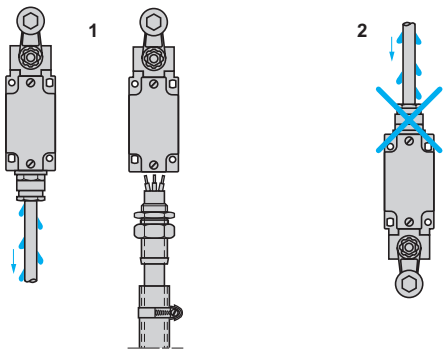
Sweep of connecting cable

1 *Recommended*
2 *To be avoided*



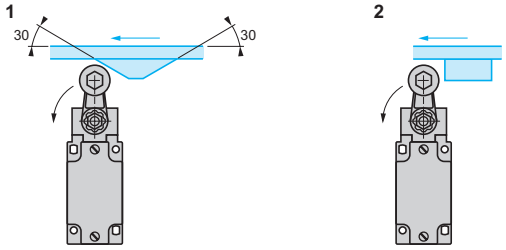
Position of cable gland

1 *Recommended*
2 *To be avoided*



Type of cam

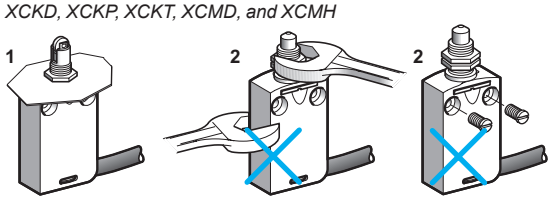
1 *Recommended*
2 *To be avoided*



Mounting and fixing limit switches by the head

1 *Recommended*
2 *Forbidden*

XCKD, XCKP, XCKT, XCMD, and XCMH



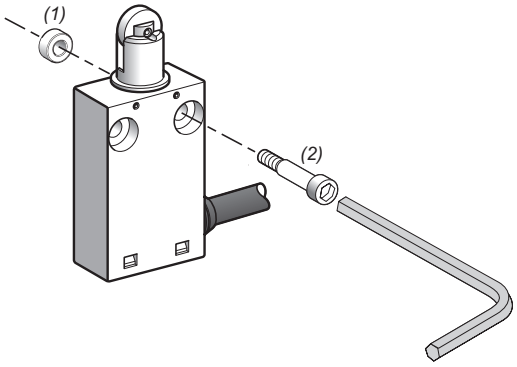
Setting-up

Tightening torque

- The minimum torque is that required to ensure correct operation of the switch.
- The maximum torque is the value which, if exceeded, will damage the switch.

Range	Item	Torque (N.m)		Torque (lb-in)	
		Min.	Max.	Min.	Max.
Compact design XCKD, XCKP, XCKT	Cover	0.8	1.2	*7.08*	*10.62*
	Fixing screw for lever on rotary head	1	1.5	*8.85*	*13.27*
Miniature design XCMD, XCMH, XCMV	Fixing screw for the product	1	1.5	*8.85*	*13.27*
	Fixing screw for lever on rotary head	1	1.5	*8.85*	*13.27*
Compact design XCKN	Cover	0.8	1.2	*7.08*	*10.62*
	Fixing screw for lever on rotary head	1	1.5	*8.85*	*13.27*
Classic design XCKJ	Cover	1	1.5	*8.85*	*13.27*
	Fixing nut for lever on rotary head	1	1.5	*8.85*	*13.27*
Classic design XCKS	Cover	0.8	1.2	*7.08*	*10.62*
	Fixing nut for lever on rotary head ZCKD	1	1.5	*8.85*	*13.27*
	Fixing nut for lever on rotary head XCKS	0.8	1.2	*7.08*	*10.62*
	Fixing head on body	0.8	1.2	*7.08*	*10.62*
Classic design XCKM, XCKML, XCKL	Cover	0.8	1.2	*7.08*	*10.62*
	Fixing nut for lever on rotary head	1	1.5	*8.85*	*13.27*

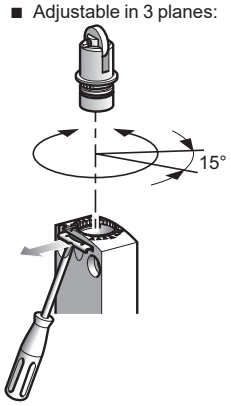
XCMH



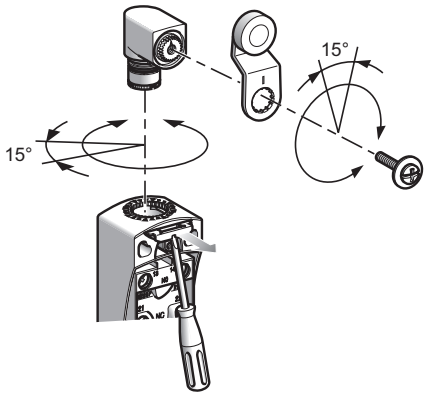
(1) 2 spacers supplied with the switch.
(2) 2 screws Ø 4mm (not included).

XCKD, XCKP, XCKT, XCMD, XCMV

- Adjustable in 3 planes:



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

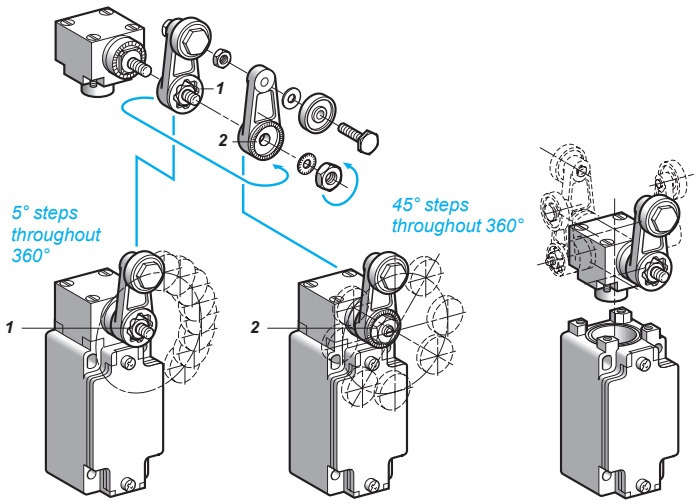


All the levers can be adjusted in 15° steps throughout 360°, in relation to the horizontal axis of the head.

XCKJ

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

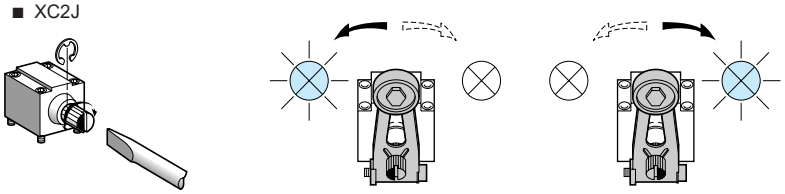
1 *Reversed* α = 5°
2 *Forward* α = 45°



Setting-up (continued)

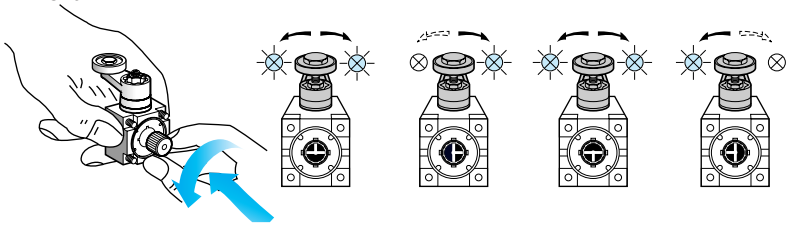
Direction of actuation programming

■ XC2J



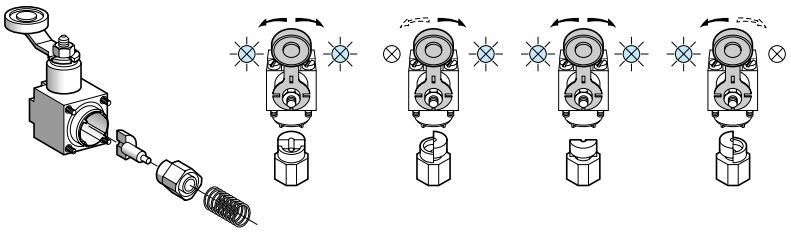
Head ZC2JE05

■ XCKJ



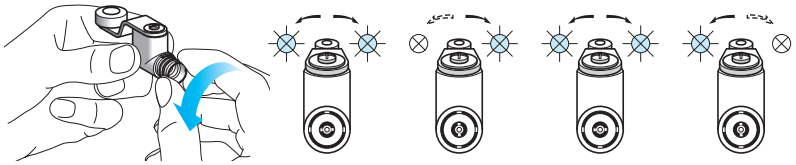
Head ZCKE05

■ XCKS



Head ZCKD05

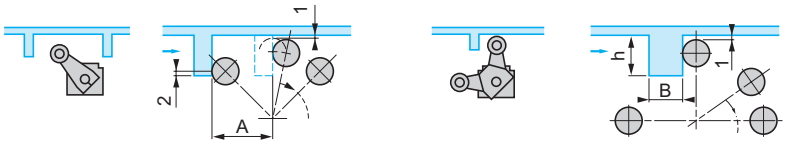
■ XCKD, XCKP, XCKT and XCMD



Head ZCE05

Specific cams for heads ZCKE09 and ZC2JE09

1 *0.5 mm min.*
2 *2 mm min.*



A = length of lever + 11 mm
ZCKE09*: 13 < h < 18 mm and B = 12 mm max.*
ZC2JE09*: 14 < h < 24 mm and B = 6 mm max.*

Reminder of the standards

The majority of Telemecanique Sensors products comply to national standards (for example French NF C standards, German DIN standards), European standards (for example CENELEC) or international standards (for example IEC). These standards rigidly stipulate the characteristic requirements of the designated products (for example IEC 60947 relating to low voltage switchgear and control gear).
These products, when correctly used, enable the production of control equipment assemblies, machine control equipment or installations conforming to their own specific standards (for example IEC 60204 for the electrical equipment of industrial machines).

IEC 60947-5-1

Insulation coordination (and dielectric strength)	■ The standard IEC 60664 defines 4 categories of prospective transient overvoltages. It is important for the user to select control circuit components which are able to withstand these overvoltages. To these ends, the manufacturer states the rated impulse withstand voltage (U imp) applicable to the product.
Terminal connections	■ The cabling capacity, mechanical robustness and durability of the terminals, as well as the ability to resist loosening, are verified by standardised tests. ■ Terminal reference marking conforms to standard IEC 60947-5-1 Appendix M .
Switching capacity	■ With maximum electrical load. A single designation (A300 for example) enables indication of the contact block characteristics related to its utilisation category.
Positive opening operation (IEC 60947-5-1 Appendix K)	■ For contacts used in safety applications (end of travel, emergency stop device, etc.) the assurance of positive opening is required (see IEC 60204, EN 60204) after each test, the opening of the contact being verified by testing with an impulse voltage (2500 V).
Electrical symbols for contacts	 ■ Form Za, the 2 contacts (NO + NC) are the same polarity.  ■ Form Zb, the 2 contacts (NO + NC) are electrically separate.
Symbol for positive opening	 ■ Simplified version  ■ Complete symbol

CENELEC EN 50047

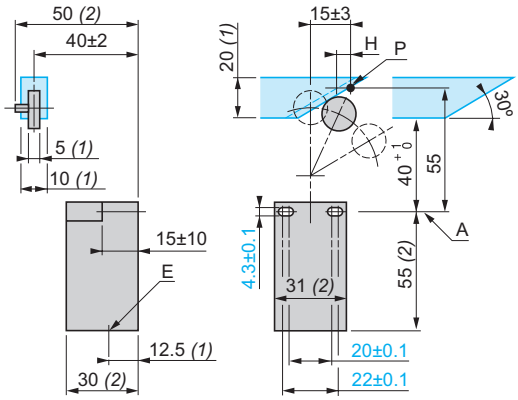
The European standards organisation CENELEC, which has 14 member countries, has defined in this standard the first type of limit switch.

It defines 4 variants of devices (forms A, B, C, E). Limit switches XCKP, XCKD and XCKT conform to standard EN 50047.

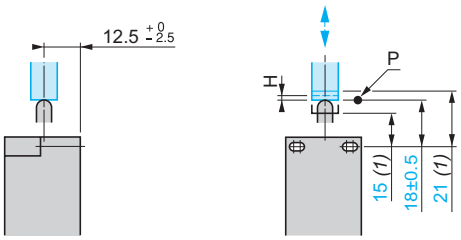
(1) Minimum value
(2) Maximum value

A: reference axis
H: differential travel
P: tripping point
E: cable entry

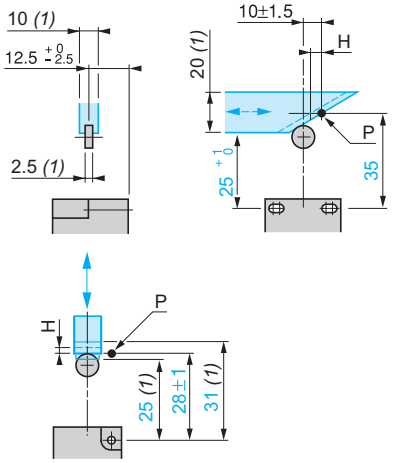
Form A, with roller lever



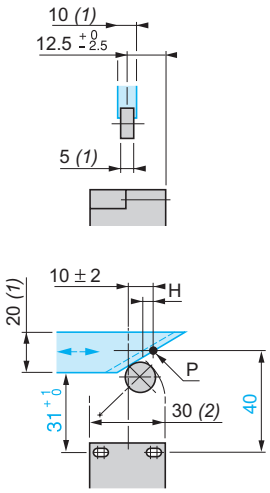
Form B, with end plunger (rounded)



Form C, with end roller plunger



Form E, with roller lever for 1 direction of actuation



Reminder of the standards (continued)

CENELEC EN 50041

The European standards organisation CENELEC, which has 14 member countries, has defined in this standard the second type of limit switch.

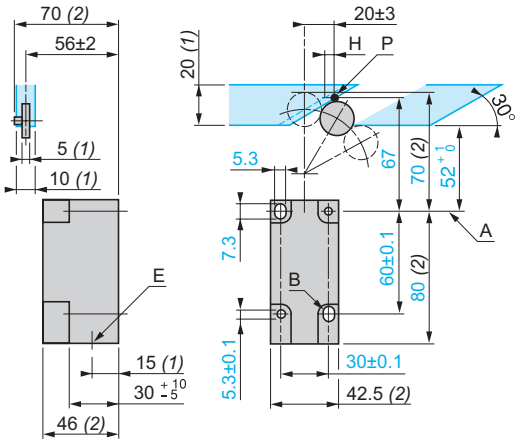
It defines 6 variants of devices (forms A, B, C, D, F, G). Limit switches XCKJ and XCKS conform to standard EN 50041.

(1) Minimum value
(2) Maximum value

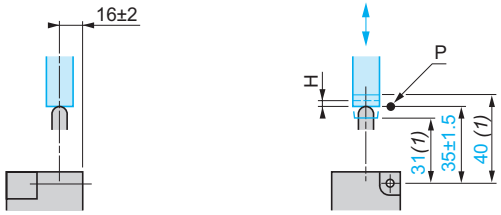
A: reference axis
B: optional elongated holes
H: differential travel
P: tripping point
E: cable entry

Za: tripping zone
Sa: tripping threshold

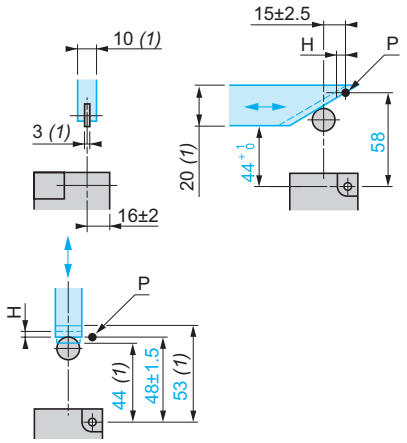
Form A, with roller lever



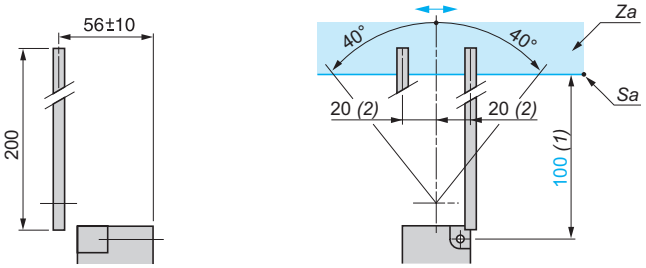
Form B, with end plunger (rounded)



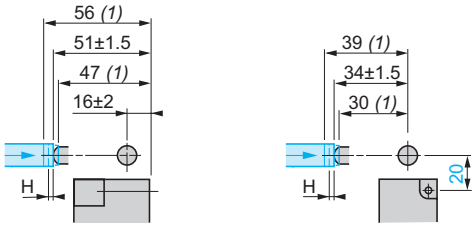
Form C, with end roller plunger



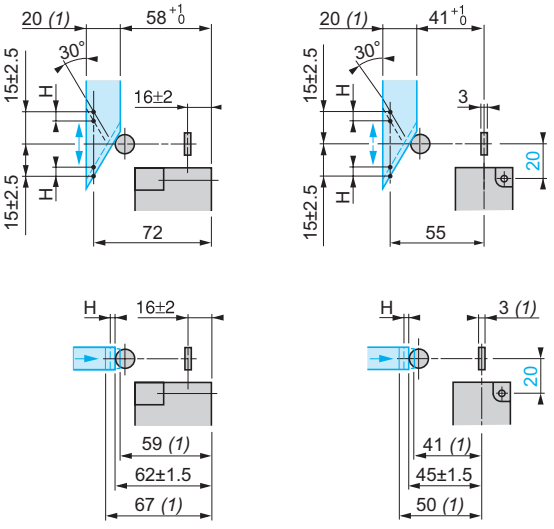
Form D, with rod lever



Form F, with side plunger (rounded)



Form G, with side roller plunger



Limit switches
XC Special range
For very severe applications, XC2J

■ XC2J
with 1 cable entry

□ With head for linear movement (plunger)



Page 28

□ With head for rotary movement (lever)



Page 28

Limit switches
XC Special range
For very severe applications, XC2J

Environment characteristics

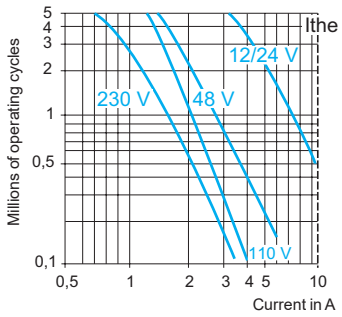
Conformity to standards	Products	IEC/EN 60947-5-1, IEC 60337-1, VDE 0660-200, UL 508, CSA C22-2 n° 14
	Machine assemblies	IEC/EN 60204-1, NF C 79-130
Product certifications	Standard version	CSA 300 V ⎓ HD, 60 W ∿
	Special version	UL 250 V ∿ HD Listed, CSA 300 V ∿ HD, 60 W with 1/2" NPT tapped cable entry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

Contact block characteristics

Rated operational characteristics		**∿ AC-15; A300 (Ue = 240 V, Ie = 3 A)** **⎓ DC-13; Q300 (Ue = 250 V, Ie = 0.27 A), conforming to IEC 60947-5-1 Appendix A, EN 60947-5-1**
Rated insulation voltage		500 V conforming to IEC 60947-5-1, group C conforming to NF C 20-040, 300 V conforming to CSA C22-2 n° 14
Resistance across terminals		≤ 25 mΩ conforming to NF C 93-050 method A or IEC 60255-7 category 3
Short-circuit protection		10 A cartridge fuse type gG (gl)
Connection	Screw clamp terminals	**XCKZ01**: clamping capacity, min: 1 x 0.5 mm², max: 2 x 2.5 mm² **XESP10●1**: clamping capacity, min: 1 x 0.75 mm², max: 2 x 1.5 mm²
Minimum actuation speed		0.001 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

XCKZ01, XESP1021, XESP1031

AC supply
50/60 Hz ∿
⌒⌒ inductive circuit



DC supply ⎓

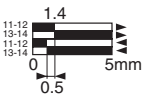
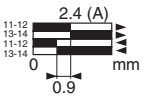
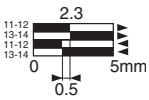
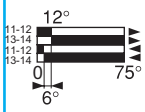
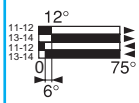
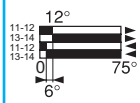
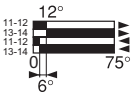
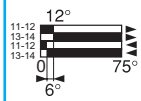
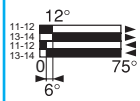
Voltage **V**	**24**	**48**	**120**
Power broken in **W** for 5 million operating cycles ⌒⌒	10	7	4

Limit switches
XC Special range
For very severe applications, XC2J
Complete switches, fixed body,
1 cable entry incorporating cable gland

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

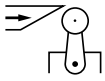
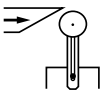
(1) Adjustable throughout 360°.

References

Single-pole CO snap action XCKZ01 						
	ZC2JC1 + ZC2JE61 	**ZC2JC1 + ZC2JE62** 	**ZC2JC1 + ZC2JE63** 	**Actuation from left AND right** **ZC2JC1 + ZC2JE01 + ZC2JY11** 	**ZC2JC1 + ZC2JE01 + ZC2JY31** 	**ZC2JC1 + ZC2JE01 + ZC2JY51** 
				Actuation from left OR right **ZC2JC1 + ZC2JE05 + ZC2JY11** 	**ZC2JC1 + ZC2JE05 + ZC2JY31** 	**ZC2JC1 + ZC2JE05 + ZC2JY51** 
Weight (kg)	0.555	0.560	0.600	0.605	0.620	0.605

Contact operation ■ *closed* □ *open* — *(A) = cam displacement*

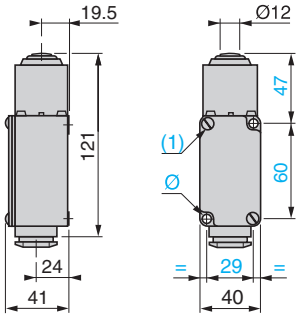
Complementary characteristics not shown under general characteristics (page 27)

Switch actuation	On end	By 30° cam	On end	By 30° cam		By any moving part
Type of actuation						
Maximum actuation speed	0.5 m/s			1.5 m/s		
Mechanical durability (in millions of operating cycles)	**30**	**25**	**30**			
Minimum tripping force or torque	18 N		26 N	**With head ZC2JE01**: 0.30 N.m **With head ZC2JE05**: 0.20 N.m		
Cable entry	1 tapped entry incorporating metal cable gland. Clamping capacity 6 to 13.5 mm					

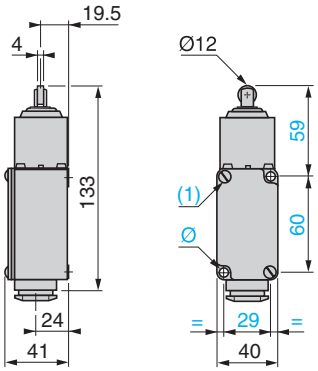
Other versions Switches with gold flashed contacts. Special protective treatments.
Please consult our Customer Care Centre.

Limit switches
XC Special range
For very severe applications, XC2J
Complete switches, fixed body,
1 cable entry incorporating cable gland

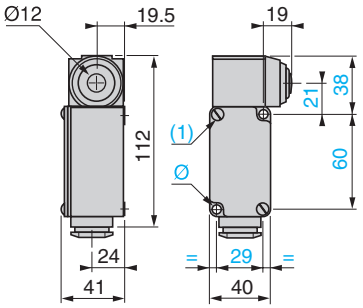
ZC2JC1 + ZC2JE61



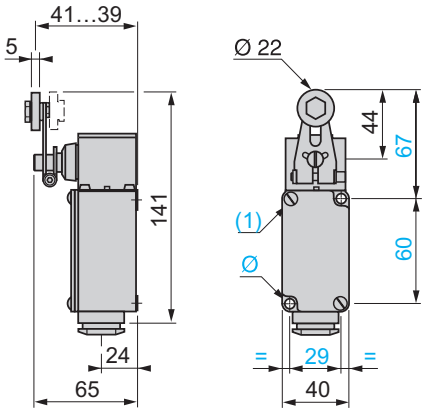
ZC2JC1 + ZC2JE62



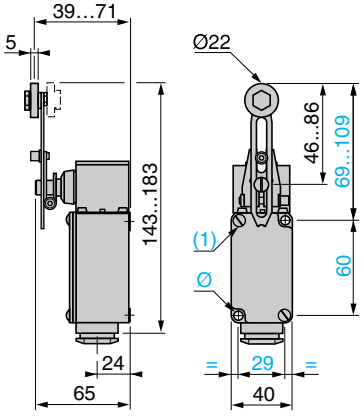
ZC2JC1 + ZC2JE63



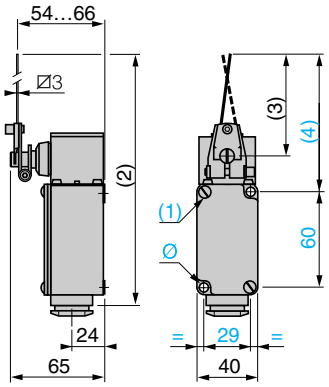
ZC2JC1 + ZC2JE0● + ZC2JY11



ZC2JC1 + ZC2JE0● + ZC2JY31



ZC2JC1 + ZC2JE0● + ZC2JY51

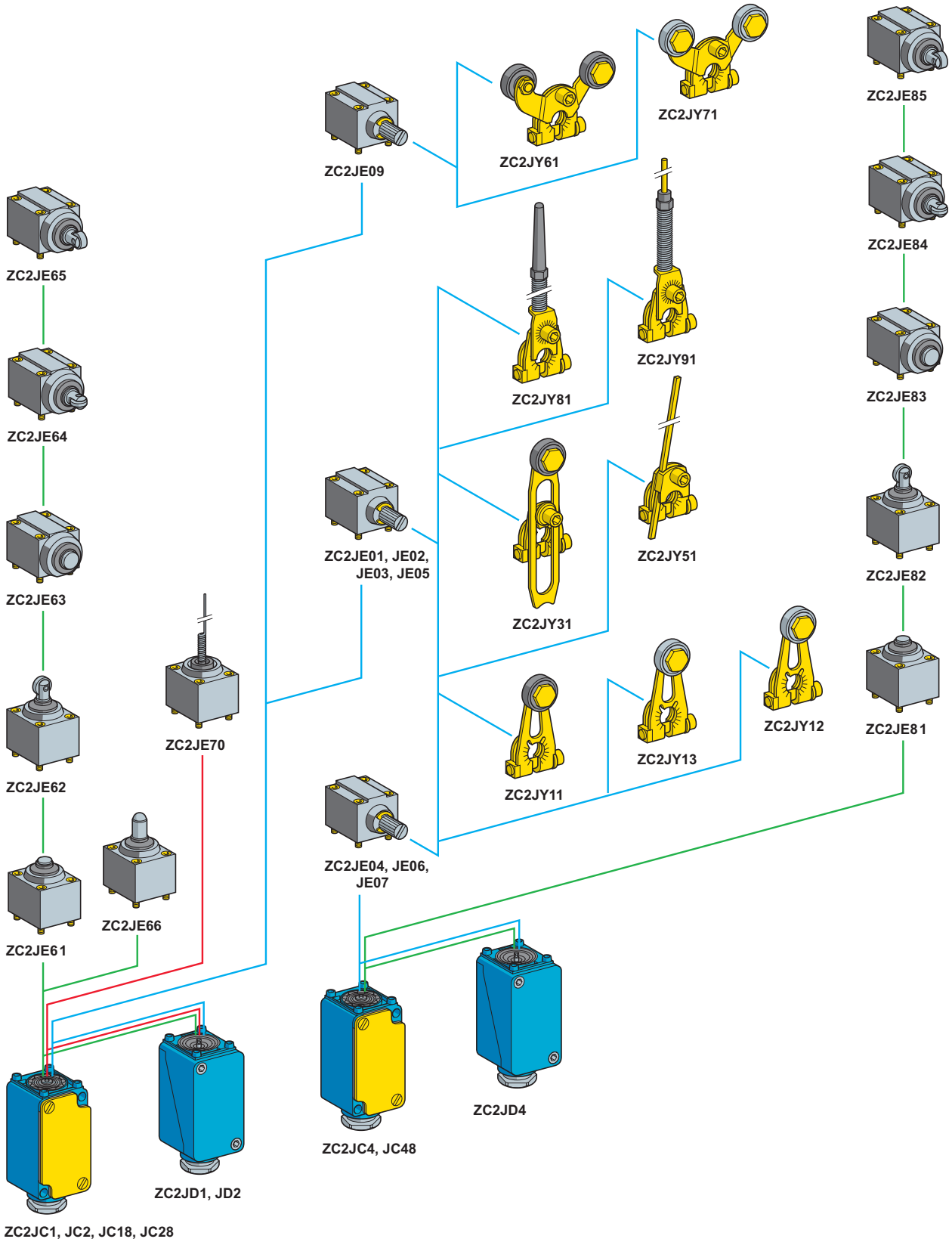


(1) Fixing from the rear: by 2 M5 screws.
Depth of thread on switch: 10 mm.
(2) 222 max.
(3) 125 max.
(4) 148 max.
Ø: Fixing from the front via 2 holes Ø 5.5.
Cable gland incorporated (all XC2JC models).

Limit switches

XC Special range

For very severe applications, XC2J
Fixed or plug-in body
Variable composition



Plunger head
Rotary head
Multi-directional head

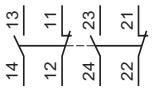
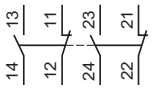
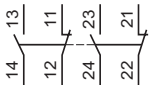
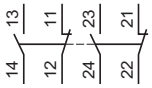
Limit switches
XC Special range
For very severe applications, XC2J
Fixed or plug-in body
Adaptable sub-assemblies

ZC2JC●

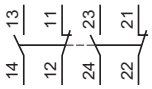
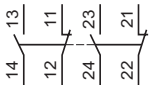
ZC2JD●

ZC2JC●8

Bodies with contacts for plunger or rotary head

Type	With contact block	Scheme	Reference	Weight kg
Fixed bodies (see operation page 36)				
1 step	Single-pole 1 CO snap action (XCKZ01)		**ZC2JC1**	0.355
	Double-pole 2 CO simultaneous, snap action (XESP1021)		**ZC2JC2**	0.355
2 step	Double-pole 2 CO staggered, snap action (XESP1031)		**ZC2JC4**	0.355
Plug-in bodies (see operation page 36)				
1 step	Single-pole CO snap action		**ZC2JD1**	0.380
	Double-pole 2 CO simultaneous, snap action		**ZC2JD2**	0.380
2 step	Double-pole 2 CO staggered, snap action		**ZC2JD4**	0.380

Bodies incorporating gold flashed contacts, for plunger or rotary head

Type	With contact block	Scheme	Reference	Weight kg
Fixed bodies (see operation page 36)				
1 step	Double-pole 2 CO simultaneous, snap action (XESP1028)		**ZC2JC28**	0.360
2 step	Double-pole 2 CO staggered, snap action (XESP1038)		**ZC2JC48**	0.360

Operation:
page 36

Dimensions:
pages 36 and 37

Limit switches
XC Special range
For very severe applications, XC2J
Fixed or plug-in body
Adaptable sub-assemblies

ZC2JE●1


ZC2JE●3

ZC2JE62


ZC2JE●4

Plunger heads

Type of operator	Compatible bodies	Maximum actuation speed	Reference	Weight kg
For actuation on end				
End plunger metal	ZC2J●1 ZC2J●2	0.5 m/s	**ZC2JE61**	0.195
	ZC2J●4	0.5 m/s	**ZC2JE81**	0.195
Side plunger metal	ZC2J●1 ZC2J●2	0.5 m/s	**ZC2JE63**	0.240
	ZC2J●4	0.5 m/s	**ZC2JE83**	0.240
For actuation by 30° cam				
End ball bearing plunger	ZC2J●1 ZC2J●2	0.1 m/s	**ZC2JE66**	0.205
End roller plunger steel	ZC2J●1 ZC2J●2	1 m/s	**ZC2JE62**	0.200
	ZC2J●4	1 m/s	**ZC2JE82**	0.200
Side plunger with horizontal roller steel	ZC2J●1 ZC2J●2	0.6 m/s	**ZC2JE64**	0.245
	ZC2J●4	0.6 m/s	**ZC2JE84**	0.245
Side plunger with vertical roller steel	ZC2J●1 ZC2J●2	0.6 m/s	**ZC2JE65**	0.245
	ZC2J●4	0.6 m/s	**ZC2JE85**	0.245

Operation: page 36
Dimensions: pages 36 and 37

Limit switches
XC Special range
For very severe applications, XC2J
Fixed or plug-in body
Adaptable sub-assemblies

ZC2JE0●

Rotary heads (without operating lever)

Type	Compatible bodies	Maximum actuation speed	Reference	Weight kg
Spring return (see operation page 36)				
Actuation from left **AND** right	ZC2J●1 ZC2J●2	1.5 m/s	**ZC2JE01**	0.210
	ZC2J●4	1.5 m/s	**ZC2JE04**	0.210
Actuation from left	ZC2J●1 ZC2J●2	1.5 m/s	**ZC2JE02**	0.210
	ZC2J●4	1.5 m/s	**ZC2JE06**	0.210
Actuation from right	ZC2J●1 ZC2J●2	1.5 m/s	**ZC2JE03**	0.210
	ZC2J●4	1.5 m/s	**ZC2JE07**	0.210
Actuation from left **OR** right (see page 24)	ZC2J●1 ZC2J●2	1.5 m/s	**ZC2JE05**	0.210
Stay put (see page 24)				
Actuation from left **AND** right	ZC2J●1 ZC2J●2	1.5 m/s	**ZC2JE09**	0.210

ZC2JE70

Multi-directional head (with operator)

Type of operator	Compatible bodies	Maximum actuation speed	Reference	Weight kg
For actuation by any moving part (see operation page 36)				
"Cat's whisker"	ZC2J●1 ZC2J●2	1 m/s in any direction	**ZC2JE70**	0.190

Operation: page 36
Dimensions: pages 36 and 37

Limit switches
XC Special range
For very severe applications, XC2J
Fixed or plug-in body
Adaptable sub-assemblies


ZC2JY1●


ZC2JY31


ZC2JY51


ZC2JY81


ZC2JY71


ZC2JY61

Operating levers for rotary heads

Description		Reference	Weight kg
For actuation by 30° cam			
Roller lever *(1)*	Thermoplastic	**ZC2JY11**	0.030
	Steel	**ZC2JY13**	0.040
	Steel, ball bearing mounted	**ZC2JY12**	0.040
Variable length roller lever *(1)*	Thermoplastic	**ZC2JY31**	0.045
For actuation by any moving part			
Rigid rod lever	Steel ⍁ 3 mm, L = 125 mm (1)	**ZC2JY51**	0.035
Spring lever *(1)*		**ZC2JY81**	0.040
Spring-rod lever *(1)*		**ZC2JY91**	0.040
For actuation by specific cam **(only for operation with head ZC2 JE09, see page 24)**			
Forked arm with rollers thermoplastic *(1)*	1 track	**ZC2JY71**	0.055
	2 track	**ZC2JY61**	0.055

(1) Adjustable throughout 360°

Other versions Other operating levers for rotary heads.
Please consult our Customer Care Centre.

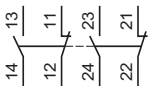
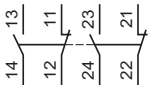
Operation: page 36
Dimensions: pages 36 and 37

Limit switches
XC Special range
For very severe applications, XC2J
Fixed or plug-in body
Adaptable sub-assemblies

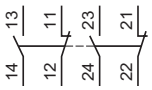
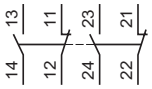
XCKZ01

XESP10●1

Contact blocks

Type of contact	Scheme	For body	Reference	Weight kg
Single-pole 1 CO snap action		ZC2JC1	**XCKZ01**	0.050
Double-pole 2 CO simultaneous, snap action		ZC2JC2	**XESP1021**	0.045
Double-pole 2 CO staggered, snap action		ZC2JC4	**XESP1031**	0.045

Contact blocks with gold flashed contacts

Type of contact	Scheme	For body	Reference	Weight kg
Double-pole 2 CO simultaneous, snap action		ZC2JC28	**XESP1028**	0.055
Double-pole 2 CO staggered, snap action		ZC2JC48	**XESP1038**	0.055

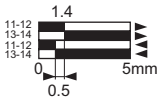
Operation: page 36
Dimensions: pages 36 and 37

Limit switches
XC Special range
For very severe applications, XC2J
Fixed or plug-in body
Adaptable sub-assemblies

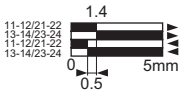
Operation (function diagrams)

Heads ZC2JE61, ZC2JE66 with body

ZC2J•1

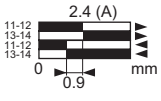


ZC2J•2

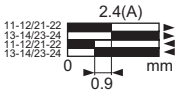


Head ZC2JE62 with body

ZC2J•1

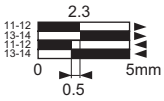


ZC2J•2

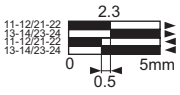


Head ZC2JE63 with body

ZC2J•1

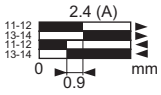


ZC2J•2

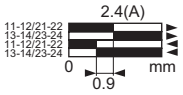


Heads ZC2JE64, ZC2JE65 with body

ZC2J•1

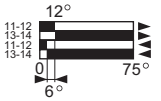


ZC2J•2

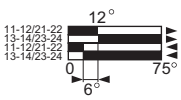


Heads ZC2JE01, ZC2JE02, ZC2JE03, ZC2JE05 with body

ZC2J•1

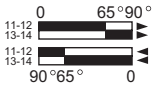


ZC2J•2

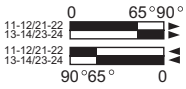


Head ZC2JE09 with body

ZC2J•1

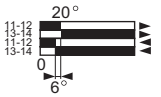


ZC2J•2

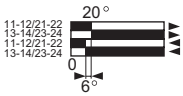


Head ZC2JE70 with body

ZC2J•1

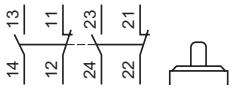
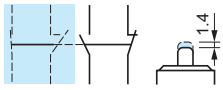


ZC2J•2

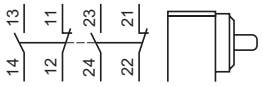


Contact operation — closed — open — (A) = cam displacement

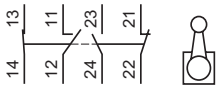
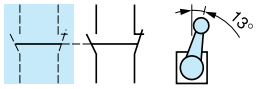
Heads ZC2JE81, ZC2JE82 with body ZC2J•4

Unactuated	1st step	2nd step
		

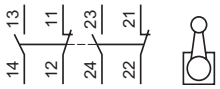
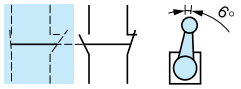
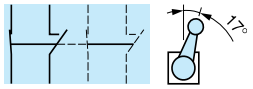
Heads ZC2JE83, ZC2JE84, ZC2JE85 with body ZC2J•4

Unactuated	1st step	2nd step
		

Heads ZC2JE04 with body ZC2J•4

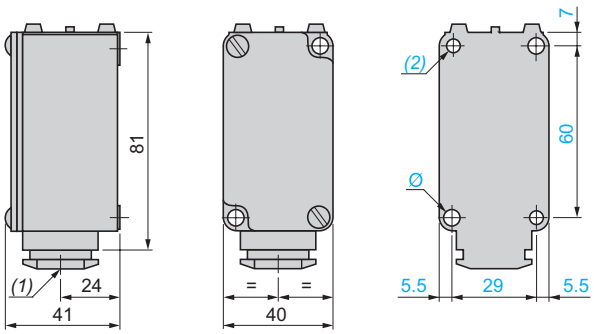
Unactuated	Actuated from left	Actuated from right
		

Heads ZC2JE06, ZC2JE07 with body ZC2J•4

Unactuated	1st step	2nd step
		

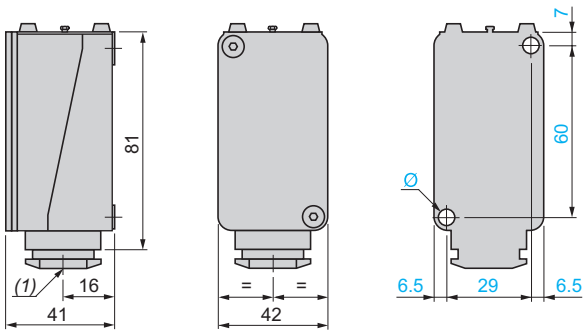
Dimensions

Fixed bodies
ZC2JC1, ZC2JC2, ZC2JC4



(1) Incorporated cable gland
(2) Fixing from the rear by 2 M5 screws, depth of thread on switch: 10 mm
Ø: Fixing from the front via 2 holes Ø 5.5

Plug-in bodies
ZC2JD1, ZC2JD2, ZC2JD4



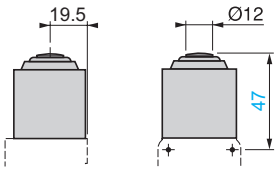
(1) Incorporated cable gland
Ø: Fixing from the rear by 2 M6 screws
Fixing from the front via 2 holes Ø 5.5 (remove front part of switch for access)

References:
pages 31 to 35

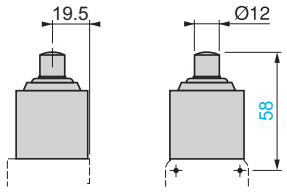
Limit switches
XC Special range
For very severe applications, XC2J
Fixed or plug-in body
Adaptable sub-assemblies

Plunger heads

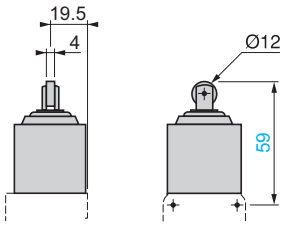
ZC2JE61, ZC2JE81



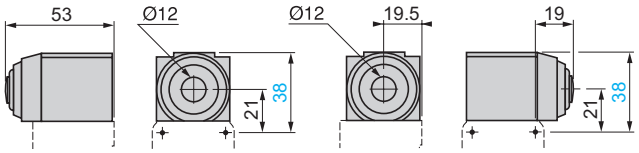
ZC2JE66



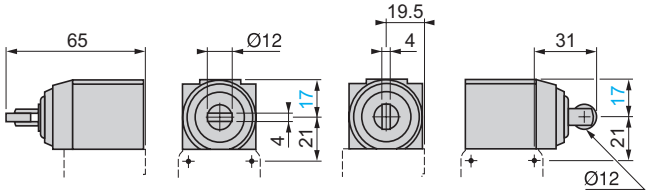
ZC2JE62, ZC2JE82



ZC2JE63, ZC2JE83 (2 position)

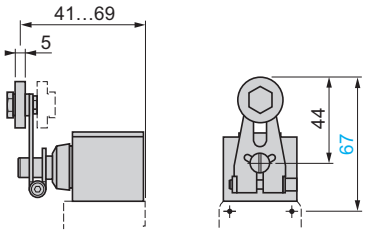


ZC2JE64, ZC2JE84, ZC2JE65, ZC2JE85 (2 position)

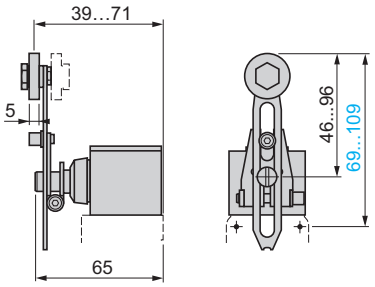


Rotary heads (ZC2JE01 to ZC2JE07) with operating lever

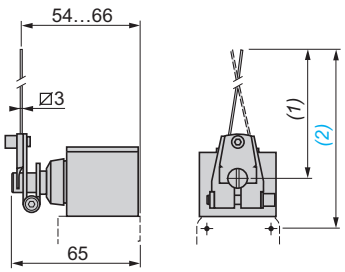
ZC2JY11, ZC2JY12, ZC2JY13



ZC2JY31

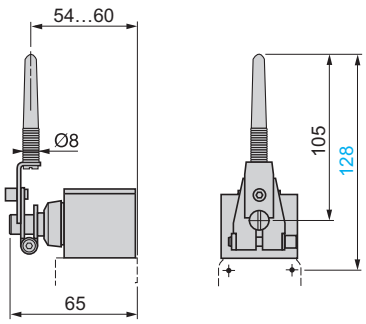


ZC2JY51

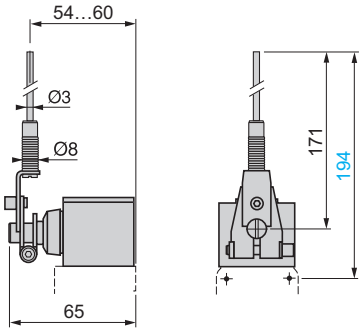


(1) 125 max. *(2) 148 max.*

ZC2JY81

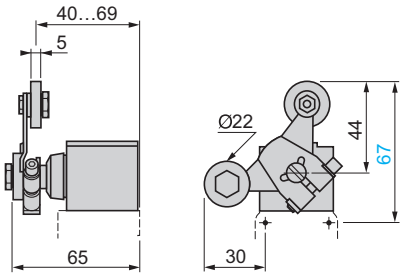


ZC2JY91

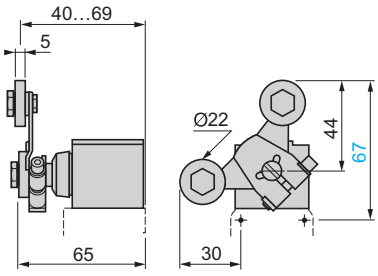


Rotary heads (ZC2JE09) with operating lever

ZC2JY61

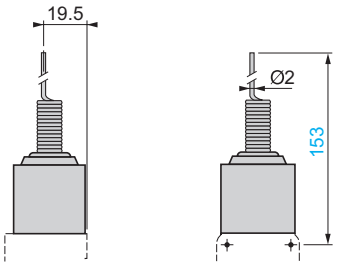


ZC2JY71



Multi-directional heads

ZC2JE70



References:
pages 31 to 35

Operation:
page 36

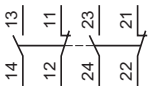
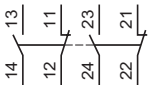
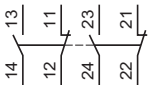
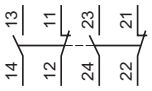
Limit switches
XC Special range
For very severe applications, XC2J
Fixed or plug-in body, adaptable sub-assemblies for low temperature applications (- 40°C)

ZC2JC●6

ZC2JD●6


ZC2JE62

Bodies with contacts for plunger or rotary head

Type	With contact block	Scheme	Reference	Weight kg
Fixed bodies				
1 step	Single-pole 1 CO snap action (XCK Z01)		**ZC2JC16**	0.355
	Double-pole 2 CO simultaneous, snap action (XES P1021)		**ZC2JC26**	0.355
2 step	Double-pole 2 CO staggered, snap action (XES P1031)		**ZC2JC46**	0.355
Plug-in bodies				
1 step	Single-pole CO snap action		**ZC2JD16**	0.380
	Double-pole 2 CO simultaneous, snap action		**ZC2JD26**	0.380
2 step	Double-pole 2 CO staggered, snap action		**ZC2JD46**	0.380

Plunger heads

Type of operator	Compatible bodies	Maximum actuation speed	Reference	Weight kg
For actuation on end				
Side plunger metal	ZC2J●16 ZC2J●26	0.5 m/s	**ZC2JE636**	0.240
	ZC2J●46	0.5 m/s	**ZC2JE836**	0.240
For actuation by 30° cam				
End roller plunger steel	ZC2J●16 ZC2J●26	1 m/s	**ZC2JE626**	0.200
Side plunger with horizontal roller steel	ZC2J●16 ZC2J●26	0.6 m/s	**ZC2JE646**	0.245
Side plunger with vertical roller steel	ZC2J●16 ZC2J●26	0.6 m/s	**ZC2JE656**	0.245

Operation: page 36
Dimensions: pages 36 and 37

Limit switches
XC Special range
For very severe applications, XC2J
Fixed or plug-in body, adaptable sub-assemblies for low temperature applications (- 40°C)

ZC2JE0●

Rotary heads (without operating lever)

Type	Compatible bodies	Maximum actuation speed	Reference	Weight kg
Spring return				
Actuation from left **AND** right	ZC2J●16 ZC2J●26	1.5 m/s	**ZC2JE016**	0.210
	ZC2J●46	1.5 m/s	**ZC2JE046**	0.210
Actuation from left	ZC2J●16 ZC2J●26	1.5 m/s	**ZC2JE026**	0.210
	ZC2J●46	1.5 m/s	**ZC2JE066**	0.210
Actuation from right	ZC2J●46	1.5 m/s	**ZC2JE076**	0.210
Actuation from left **OR** right (see page 24)	ZC2J●16 ZC2J●26	1.5 m/s	**ZC2JE056**	0.210
Stay put (see page 24)				
Actuation from left **AND** right	ZC2J●16 ZC2J●26	1.5 m/s	**ZC2JE096**	0.210

ZC2JE706

Multi-directional head (with operator)

Type of operator	Compatible bodies	Maximum actuation speed	Reference	Weight kg
For actuation by any moving part				
"Cat's whisker"	ZC2J●16 ZC2J●26	1 m/s in any direction	**ZC2JE706**	0.190

Operation: page 36
Dimensions: pages 36 and 37

Limit switches

XC Special range

For very severe applications, XC2J

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

ZC2JY1●

ZC2JY31

ZC2JY51

ZC2JY81

ZC2JY71

ZC2JY61

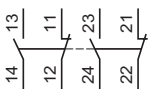
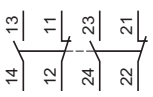
XCKZ01

XESP10●1

Operating levers for rotary heads

Description		Reference	Weight kg
For actuation by 30° cam			
Roller lever *(1)*	Thermoplastic	**ZC2JY11**	0.030
	Steel	**ZC2JY13**	0.040
	Steel, ball bearing mounted	**ZC2JY12**	0.040
Variable length roller lever *(1)*	Thermoplastic	**ZC2JY31**	0.045
For actuation by any moving part			
Rigid rod lever	Steel ⌀ 3 mm, L = 125 mm *(1)*	**ZC2JY51**	0.035
Spring lever *(1)*		**ZC2JY81**	0.040
Spring-rod lever *(1)*		**ZC2JY91**	0.040
For actuation by specific cam (only for operation with head ZC2 JE096, see page 24)			
Forked arm with rollers thermoplastic *(1)*	1 track	**ZC2JY71**	0.055
	2 track	**ZC2JY61**	0.055

Contact blocks

Type of contact	Scheme	For body	Reference	Weight kg
Single-pole 1 CO snap action		ZC2JC16	**XCKZ01**	0.050
Double-pole 2 CO simultaneous, snap action		ZC2JC26	**XESP1021**	0.045
Double-pole 2 CO staggered, snap action		ZC2JC46	**XESP1031**	0.045

(1) Adjustable throughout 360°

Other versions Other operating levers for rotary heads.
Please consult our Customer Care Centre.

Operation: page 36

Dimensions: pages 36 and 37

Limit switches

XC Special range

For very severe applications, XC2J
Fixed body, adaptable sub-assemblies for high temperature applications (+ 120°C)

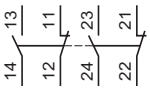
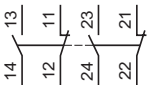
ZC2JC●6

ZC2JE●●5

ZC2JE●●5

ZC2JE●●5

Bodies with contacts for plunger or rotary head

Type	With contact block	Scheme	Reference	Weight kg
Fixed bodies				
1 step	Single-pole 1 CO snap action (XCK Z015)		**ZC2JC15**	0.355
	Double-pole 2 CO simultaneous, snap action (XES P10215)		**ZC2JC25**	0.355
2 step	Double-pole 2 CO staggered, snap action (XES P10315)		**ZC2JC45**	0.355

Plunger heads

Type of operator	Compatible bodies	Maximum actuation speed	Reference	Weight kg
For actuation on end				
End plunger metal	ZC2JC15 ZC2JC25	0.5 m/s	**ZC2JE615**	0.195
Side plunger metal	ZC2JC15 ZC2JC25	0.5 m/s	**ZC2JE635**	0.240
For actuation by 30° cam				
End ball bearing plunger	ZC2JC15 ZC2JC25	0.1 m/s	**ZC2JE665**	0.205
End roller plunger steel	ZC2JC15 ZC2JC25	1 m/s	**ZC2JE625**	0.200
Side plunger with horizontal roller steel	ZC2JC15 ZC2JC25	0.6 m/s	**ZC2JE645**	0.245
Side plunger with vertical roller steel	ZC2JC15 ZC2JC25	0.6 m/s	**ZC2JE655**	0.245

Operation: page 36
Dimensions: pages 36 and 37

Limit switches
XC Special range
For very severe applications, XC2J
Fixed body, adaptable sub-assemblies for high temperature applications (+ 120°C)

ZC2JE●5

ZC2JE705

Rotary heads (without operating lever)

Type	Compatible bodies	Maximum actuation speed	Reference	Weight kg
Spring return				
Actuation from left **AND** right	ZC2JC15 ZC2JC25	1.5 m/s	**ZC2JE015**	0.210
	ZC2JC45	1.5 m/s	**ZC2JE045**	0.210
Actuation from left	ZC2JC15 ZC2JC25	1.5 m/s	**ZC2JE025**	0.210
Actuation from right	ZC2JC15 ZC2JC25	1.5 m/s	**ZC2JE035**	0.210
Stay put (see page 24)				
Actuation from left **AND** right	ZC2JC15 ZC2JC25	1.5 m/s	**ZC2JE095**	0.210

Multi-directional head (with operator)

Type of operator	Compatible bodies	Maximum actuation speed	Reference	Weight kg
For actuation by any moving part				
"Cat's whisker"	ZC2JC15 ZC2JC25	1 m/s in any direction	**ZC2JE705**	0.190

Operation: page 36
Dimensions: pages 36 and 37

Limit switches
XC Special range
For very severe applications, XC2J
Fixed body, adaptable sub-assemblies for high temperature applications (+ 120°C)


ZC2JY1●


ZC2JY31


ZC2JY51


ZC2JY81


ZC2JY71


ZC2JY61

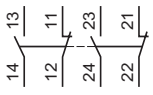
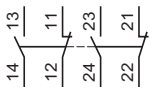

XCKZ01


XESP10●1

Operating levers for rotary heads

Description		Reference	Weight kg
For actuation by 30° cam			
Roller lever *(1)*	Thermoplastic	**ZC2JY115**	0.030
	Steel	**ZC2JY13**	0.040
	Steel, ball bearing mounted	**ZC2JY12**	0.040
Variable length roller lever *(1)*	Thermoplastic	**ZC2JY315**	0.035
Variable length offset roller lever *(1)*	Thermoplastic	**ZC2JY415**	0.040
For actuation by any moving part			
Rigid rod lever	Steel ⌀ 3 mm, L = 125 mm *(1)*	**ZC2JY51**	0.035
Spring lever *(1)*		**ZC2JY815**	0.040
Spring-rod lever *(1)*		**ZC2JY915**	0.040
For actuation by specific cam **(only for operation with head ZC2JE095, see page 24)**			
Forked arm with rollers thermoplastic *(1)*	1 track	**ZC2JY715**	0.055
	2 track	**ZC2JY615**	0.055

Contact blocks

Type of contact	Scheme	For body	Reference	Weight kg
Single-pole 1 CO snap action		ZC2JC15	**XCKZ015**	0.050
Double-pole 2 CO simultaneous, snap action		ZC2JC25	**XESP10215**	0.045
Double-pole 2 CO staggered, snap action		ZC2JC45	**XESP10315**	0.045

(1) Adjustable throughout 360°

Other versions Other operating levers for rotary heads.
Please consult our Customer Care Centre.

Operation: page 36
Dimensions: pages 36 and 37

Limit switches
XC Special range
For hoisting and material handling applications, XCR

■ XCR

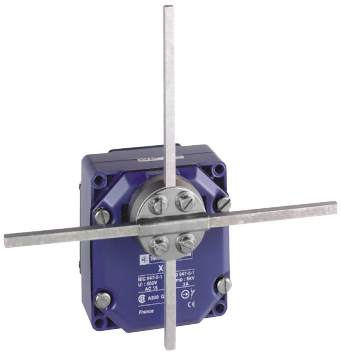
□ With head for rotary movement operators, spring return to off position

1 contact actuation position per direction

Page 48

□ With head for rotary movement operators, stay put

1 contact actuation position per direction



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Limit switches

XC Special range

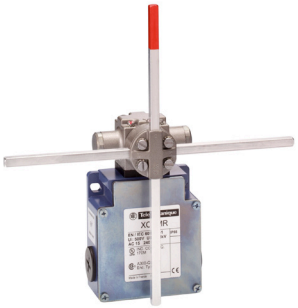
For hoisting and material handling applications, XCKMR and XCKVR

For conveyor belt shift monitoring applications, XCRT

■ XCKMR (metal)

□ With head for rotary movement operators, stay put

4 mechanical actuation positions of 4 contacts
From 2 to 5 electrical positions depending on model



Page 54

■ XCKVR (plastic)

□ With head for rotary movement operators, stay put

4 mechanical actuation positions of 4 contacts
From 2 to 5 electrical positions depending on model

Page 54

■ XCRT

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

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

Page 50

Limit switches

XC Special range

For hoisting and material handling applications, XCR, XCKMR and XCKVR

For conveyor belt shift monitoring applications, XCRT

Environment characteristics

Limit switches		XCR and XCRT	XCKMR (metal)	XCKVR (plastic)
Conformity to standards	Products	EN/IEC 60947-5-1, CSA C22-2 n° 14, CCC	EN/IEC 60947-5-1, CSA C22-2 n° 14, UL 508, CCC	
	Machine assemblies	EN/IEC 60204-1		
Product certifications		**XCRA, B, E, F**: CE, CSA, UL CCC, EAC	CE, UL, CSA, CCC, EAC	
Protective treatment	Standard version	"TC"		
Ambient air temperature	For operation	- 25…+ 70 °C	- 25…+ 70 °C	- 25…+ 70 °C
	For storage	- 40…+ 70 °C	- 40…+ 85 °C	- 40…+ 70 °C
Vibration resistance	Conforming to EN/IEC 60068-2-6	9 gn (10…500 Hz)	25 gn (10…500 Hz)	25 gn (10…500 Hz)
Shock resistance	Conforming to EN/IEC 60068-2-27	**XCRA, B, E, F:** 68 gn, **XCRT:** 30 gn (18 ms)	50 gn	50 gn
Electric shock protection		Class I conforming to IEC 60536		Class II conforming to IEC 60536
Degree of protection	Conforming to EN/IEC 60529	**XCRA, B, E, F**: IP 65 **XCRT**: IP 65	IP 66	IP 65
Degree of protection against mechanical impacts	Conforming to IEC 62262	IK 07	IK 07	IK 04
Materials	Enclosure	Metal (except **XCRT315**: polyester)	Zamak ZP3	(PBT + PC) - GF 30 FR (Valox)
	Cover	Metal (except **XCRT315**: polyester)	DC03 steel	(PBT + PC) - GF 30 FR (Valox)
	Head	Metal	Zamak ZP3	(PBT + PC) - GF 30 FR (Valox)
Cable entry		1 tapped entry for Pg 13.5 cable gland	3 tapped entries for Pg 13.5 cable gland or tapped M20 x 1.5	1 tapped entry M20 x 1.5. 2 breakout holes for ISO M20 cable gland

Contact block characteristics

Rated operational characteristics	Conforming to EN/IEC 60947-5-1 Appendix A	**XCRA, B, E, F:** ~ AC-15; A300 (Ue = 240 V, Ie = 3 A), Ithe = 10 A ⎓ DC-13 ; Q300 (Ue = 250 V, Ie = 0.27 A) **XCRT:** ~ AC-15; B300 (Ue = 240 V, Ie = 1.5 A/ Ue = 120 V, Ie = 3 A) ⎓ DC-13 ; R300 (Ue = 250 V, Ie = 0.1 A)	~ AC-15 ; A300 (Ue = 240 V, Ie = 3 A), Ithe = 10 A ⎓ DC-13 ; Q150 (Ue = 125 V, Ie = 0.55 A)
Rated insulation voltage		Ui = 500 V degree of pollution 3 conforming to EN/IEC 60947-1 Ui = 300 V conforming to UL 508, CSA C22-2 n° 14	
Rated impulse withstand voltage		U imp = 6 kV conforming to EN/IEC 60947-1, IEC 60664	
Positive operation (depending on model)		NC contacts with positive opening operation conforming to EN/IEC 60947-5-1 Section 3 (except XCRT)	NC contacts with positive opening operation conforming to EN/IEC 60947-5-1 Section 3 (contacts 21-22)
Resistance across terminals		≤ 25 m Ω conforming to NF C 93-050 method A or IEC 60255-7 category 3	
Short-circuit protection		10 A cartridge fuse type gG (gl)	
Connection	Screw clamp terminals	Clamping capacity **XE2N P2151** ou **XCRT**: min: 1 x 0.5 mm^2, max: 2 x 2.5 mm^2 **XE2S P2151**: min: 1 x 0.34 mm^2, max: 2 x 1.5 mm^2	Clamping capacity min: 1 x 0.5 mm^2 max: 2 x 2.5 mm^2
Minimum actuation speed		**XE2SP2151** or **XCRT**: 0.01 m/mn	**XE2NP2151** or **XCKMR and XCKVR** : 6 m/mn

Limit switches
XC Special range
For hoisting and material handling applications, XCR, XCKMR and XCKVR
For conveyor belt shift monitoring applications, XCRT

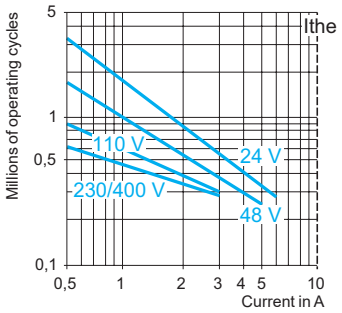
Contact block characteristics (continued)

Electrical durability

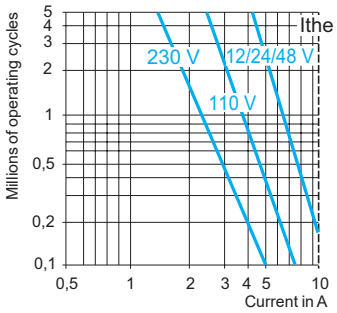
- Conforming to EN/IEC 60947-5-1 Appendix C
- Utilisation categories AC-15 and DC-13
- Maximum operating rate: 3600 operating cycles/hour
- Load factor: 0.5

AC supply
~ 50/60 Hz
inductive circuit

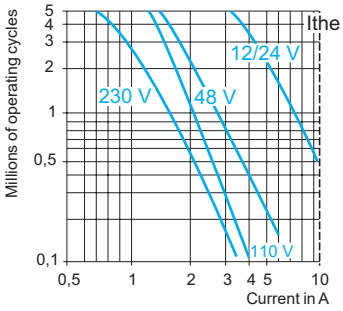
XE2SP2151



XE2NP2151



XCRT contacts



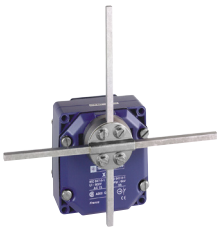
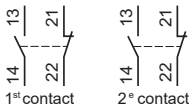
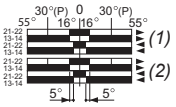
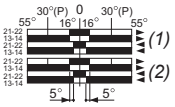
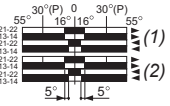
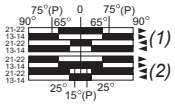
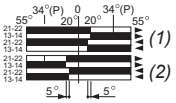
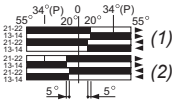
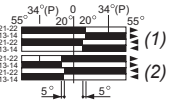
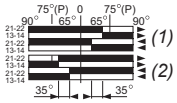
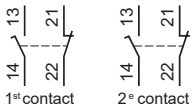
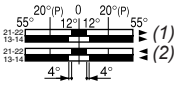
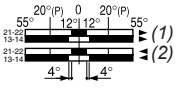
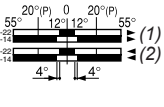
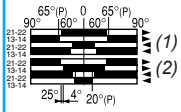
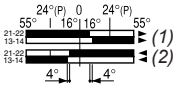
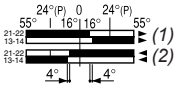
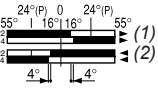
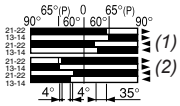
DC supply ⎓

Power broken in **W** for 5 million operating cycles

Voltage V	24	48	120
XE2SP2151	10	7	4
XE2NP2151	13	9	7
XCRT contacts	10	7	4

For XE2SP2151 on ~ or ⎓ NC and NO contacts simultaneously loaded to the values shown with reverse polarity.

Limit switches
XC Special range
For hoisting and material handling applications, XCR
Complete switches with 1 cable entry

Type of head Maximum displacement		Rotary with spring return to off position 55° in each direction			Stay put 90° in each direction
					
Type of operator		Metal rod, Ø 6 mm	Thermoplastic roller lever	Large thermoplastic roller lever	Metal rods, Ø 6 mm, crossed rods for XCRE●8, "T" rods for XCRF●7
Rod length		1 rod of 200 mm	–	–	**XCRE●●**: 2 rods of 200 mm **XCRF●●**: 1 rod of 200 mm and 1 rod of 300 mm
References of complete switches (⊖ NC contact with positive opening operation)					
Two 2-pole NC + NO snap action XE2SP2151  1st contact 2e contact	Both contacts operate in each direction	**XCRA11** ⊖ *(3)* 	**XCRA12** ⊖ *(3)* 	**XCRA15** ⊖ *(3)* 	**XCRE18** ⊖ *(3) (4)* 
	1 contact operates in each direction	**XCRB11** ⊖ *(3)* 	**XCRB12** ⊖ *(3)* 	**XCRB15** ⊖ *(3)* 	**XCRF17** ⊖ *(3)* 
Two 2-pole NC + NO break before make, slow break XE2NP2151  1st contact 2e contact	Both contacts operate in each direction	**XCRA51** ⊖ *(3)* 	**XCRA52** ⊖ *(3)* 	**XCRA55** ⊖ *(3)* 	**XCRE58** ⊖ *(3) (4)* 
	1 contact operates in each direction	**XCRB51** ⊖ *(3)* 	**XCRB52** ⊖ *(3)* 	**XCRB55** ⊖ *(3)* 	**XCRF57** ⊖ *(3)* 
Weight (kg)		1.110	1.145	1.155	1.135
Contact operation		■ *closed* □ *open*	*(P) = positive opening point* *(1) 1st contact* *(2) 2nd contact*		

Complementary characteristics

Lever maximum actuation speed		1.5 m/s	
Mechanical durability		10 million operating cycles	
Minimum torque	For tripping	0.45 N.m	0.60 N.m
	For positive opening	0.75 N.m	0.70 N.m
Cable entry		1 entry tapped for Pg 13.5 cable gland conforming to NF C 68-300 (DIN Pg 13.5) Clamping capacity 9 to 12 mm	

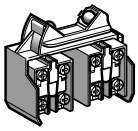
*(3) For a limit switch with watertight reinforced seal (IP 65), add **1** to the end of the reference.*
*Example: **XCRF17** becomes **XCRF171**.*
*(4) For **XCRE18** and **XCRE58**, the rotation is not limited.*

Dimensions:
page 52

Limit switches
XC Special range
For hoisting and material handling applications, XCR

XCRZ03

XCRZ05



XCRZ1●

Separate components

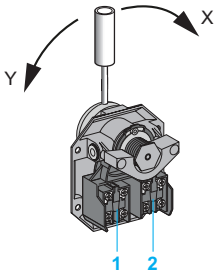
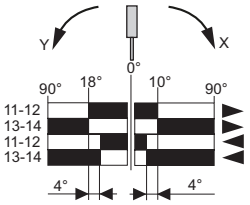
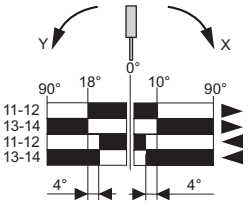
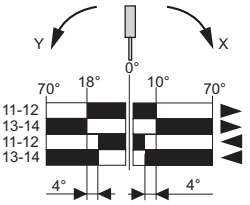
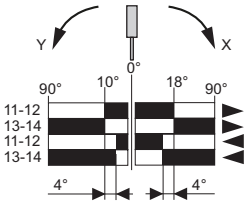
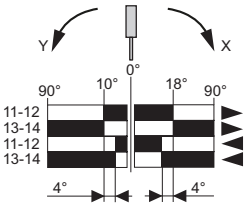
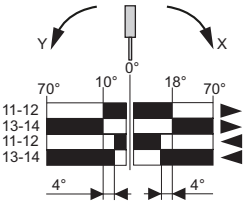
Description	For switches	Type	Reference	Weight kg
Rod, ⌀ **6 mm**	XCRA XCRB XCRE XCRF	L = 200 mm	**XCRZ03**	0.020
	XCRF	L = 300 mm	**XCRZ04**	0.030
Roller lever thermoplastic roller	XCRA XCRB	–	**XCRZ02**	0.050
Large roller lever thermoplastic roller	XCRA XCRB	–	**XCRZ05**	0.090
Contact block (2 contacts) with mounting plate	XCRA, XCRB XCRE, XCRF	2-pole NC + NO snap action	**XCRZ12**	0.135
		2-pole NC + NO break before make, snap action	**XCRZ15**	0.135

Dimensions:
page 52

Limit switches
XC Special range
For conveyor belt shift monitoring applications, XCRT
Complete switches with 1 cable entry

Type of switch	Standard	For corrosive atmospheres	
			
Features	Zinc alloy enclosure Colour: industrial blue Zinc plated steel lever, spring return to off position Cam angles: 10° and 18° Maximum displacement: 90°	Zinc alloy enclosure Colour: blue Stainless steel lever, spring return to off position Cam angles: 10° and 18° Maximum displacement: 90°	Glass reinforced polyester enclosure Colour: grey Stainless steel lever, spring return to off position Cam angles: 10° and 18° Maximum displacement: 70°

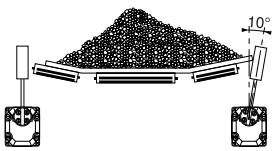
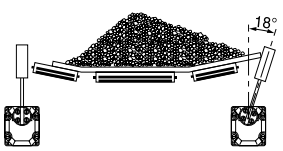
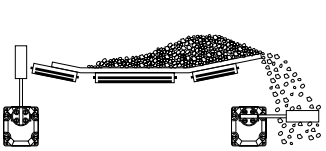
References of complete switches

2 single-pole CO snap action	XCRT115	XCRT215	XCRT315
  1: 1st contact			
 2: 2nd contact			
Weight (kg)	1.170	1.170	1.520
Contact operation	*closed* *open*		

Complementary characteristics

Lever maximum actuation speed	1.5 m/s
Belt maximum speed	4 m/s
Machnical durability	0.3 million operating cycles
Minimum tripping torque	1.7 N.m
Cable entry	1 entry tapped for Pg 13.5 cable gland conforming to NF C 68-300 (DIN Pg 13.5) Clamping capacity 9 to 12 mm

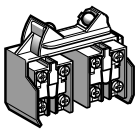
Switch operation

Normal position	Fault signalling	Stopping of the conveyor belt	Maximum rotation
			

Dimensions:
page 53

Limit switches
XC Special range
For conveyor belt shift monitoring applications, XCRT

XCRZ9●●



XCRZ42

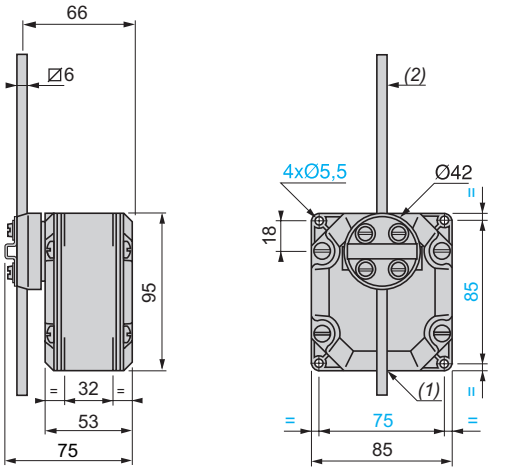
Separate components

Description	Type	For switches	Reference	Weight kg
Roller with lever	Zinc plated steel	XCRT115 XCRT215	**XCRZ901**	0.230
	Stainless steel	XCRT115 XCRT215	**XCRZ902**	0.230
		XCRT315	**XCRZ903**	0.230
Contact block (2 contacts) with mounting plate	Single-pole CO snap action	XCRT●15	**XCRZ42**	0.135

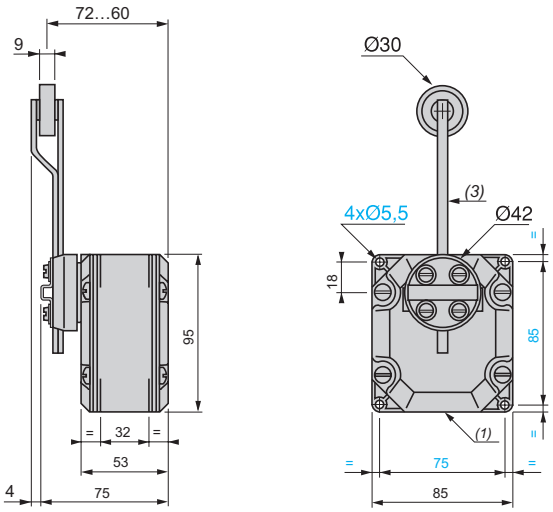
Dimensions:
page 53

Limit switches
XC Special range
For hoisting and material handling applications, XCR

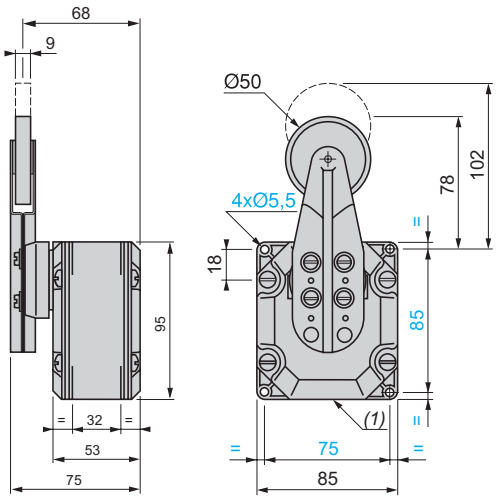
XCRA11, XCRB11, XCRA51, XCRB51



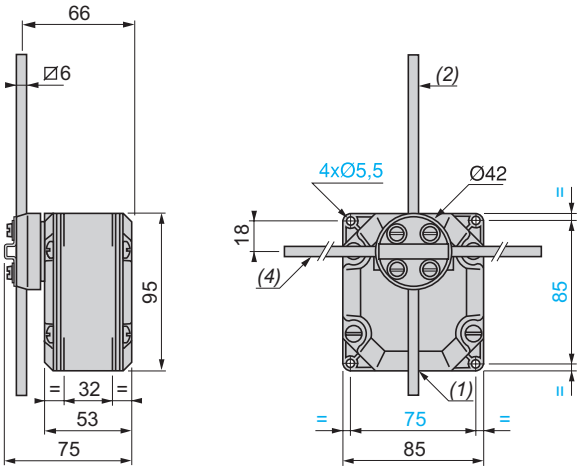
XCRA12, XCRB12, XCRA52, XCRB52



XCRA15, XCRB15, XCRA55, XCRB55



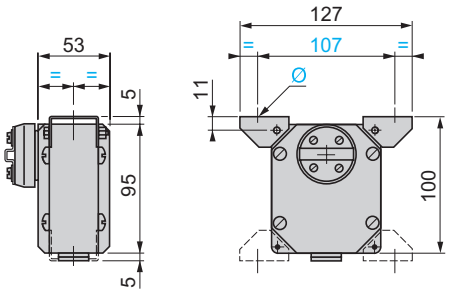
XCRE18, XCRE58, XCRF17, XCRF57



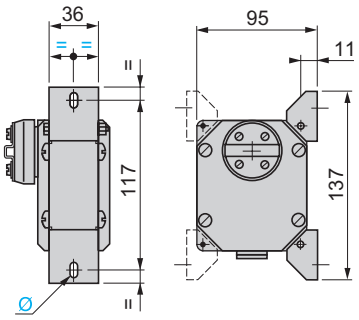
(1) 1 tapped entry for Pg 13.5 cable gland.
(2) Rod length: 200 mm.
(3) Rod + roller length: 160 mm.
(4) Rod length: 300 mm for XCRF17 and XCRF57, 200 mm for XCRE18 and XCRE58.

Supplementary fixing using 2 adjustable lugs (included with switch)

Horizontally positioned



Vertically positioned



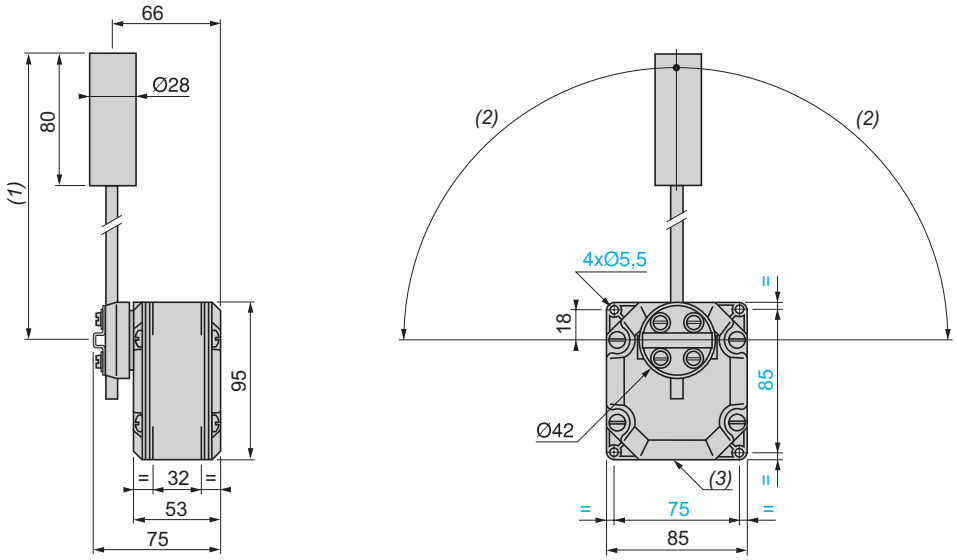
Ø: 1 elongated hole Ø 6 x 8.

Characteristics:
pages 46 to 48

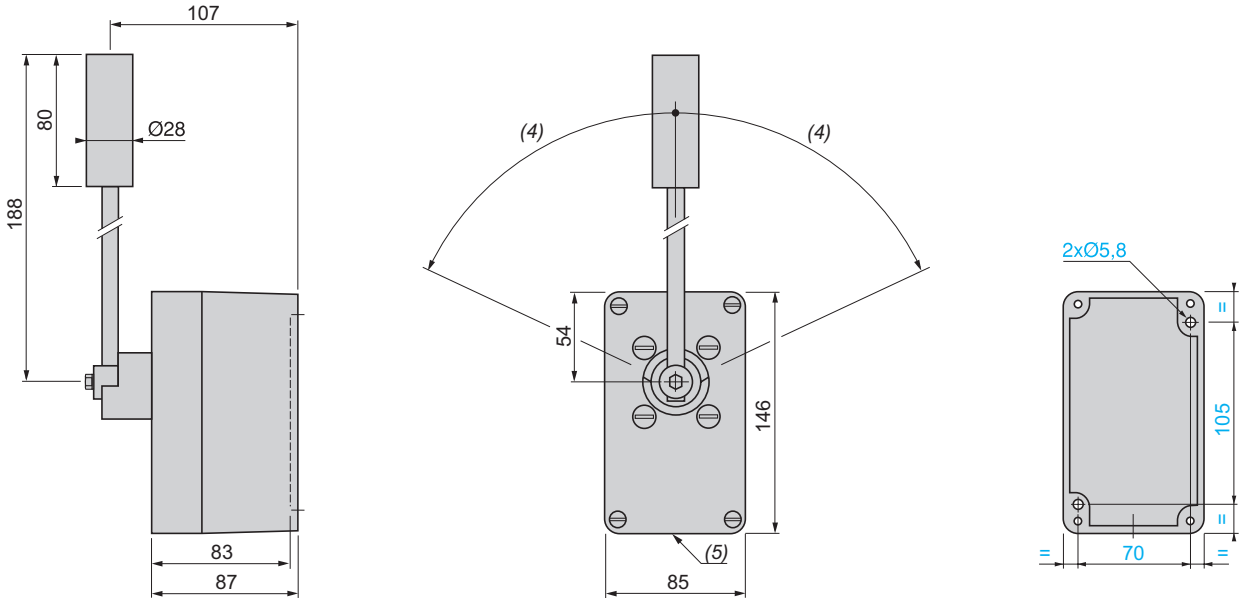
References:
page 48

Limit switches
XC Special range
For conveyor belt shift monitoring applications, XCRT

XCRT115, XCRT215



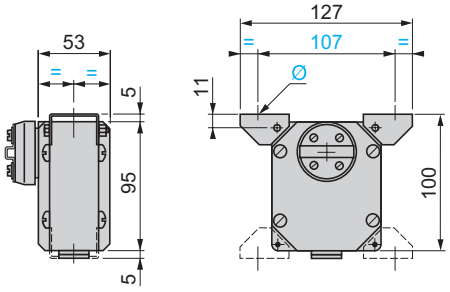
XCRT315



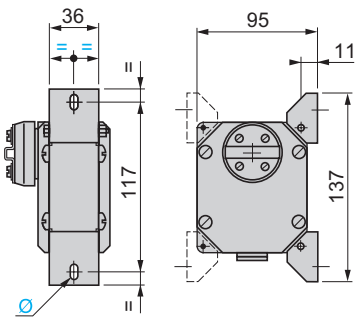
(1) 200 max., 104 min.
(2) 90° max.
(3) 1 tapped entry for Pg 13.5 cable gland.
(4) 70° max.
(5) 1 plain entry for Pg 13.5 cable gland.

Supplementary fixing using 2 adjustable lugs (included with XCRT115 and XCRT215)

Horizontally positioned



Vertically positioned



Ø: 1 elongated hole Ø 6 x 8.

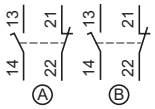
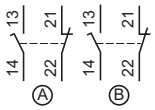
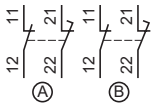
Characteristics: pages 46 to 50
References: page 50
Operation: page 50

Limit switches

XC Special range

For hoisting and material handling applications, XCKMR and XCKVR

Complete switches with 3 cable entries

Type of operating head	Rotary			
				
Material	Metal		Plastic	
Type of operator	With cruciform metal rods	With cruciform metal rods, reversed head	With cruciform metal rods	With cruciform metal rods, reversed head
References				
"By pass" switches				
 **2 x 2-pole NC+NO break before make, slow break (XE2NP2151)**	**XCKMR24SR1H29**	**–**	**XCKVR24SR1H29**	**–**
"Single speed" switches				
 **2 x 2-pole NC+NO break before make, slow break (XE2NP2151)**	**XCKMR44D1H29**	**XCKMR44D2H29**	**XCKVR44D1H29**	**XCKVR44D2H29**
"Double speed" switches (⊖ NC contact with positive opening operation on contacts 21-22)				
 **2 x 2-pole NC+NC break before make, slow break (non interchangeable contacts)**	**XCKMR54D1H29** *(1)*	**XCKMR54D2H29** *(1)*	**XCKVR54D1H29**	**XCKVR54D2H29**
Weight (kg)	0.684	0.684	0.320	0.320

Complementary characteristics

Switch actuation	Horizontal	Horizontal	
Permissible actuation area on the rods	Between 65 and 95 mm from the axis of the fixing screws on the body		
Minimum actuation speed	6 m/mn	6 m/mn	
Maximum actuation speed *(2)*	1.5 m/s	1.5 m/s	
Minimum force or torque For tripping	0.5 N.m	0.5 N.m	
For positive opening	0.75 N.m	0.75 N.m	
Mechanical durability	2 million operating cycles	1 million operating cycles	
Setting up	Rods included with the switch: for customer assembly		

References of separate components

XCRZ03

XCRZ03R

DE9PEM20010

Description	Reference	Weight kg
Rod Ø 6 mm, L = 200 mm	**XCRZ03**	0.020
Rod Ø 6 mm, L = 200 mm with red mark	**XCRZ03R**	0.020
Plastic cable gland ISO M20	**DE9PEM20010**	0.010

*(1) For complete switches with entry for Pg 13.5 cable gland, delete H29 from the end of the reference. Example: **XCKMR54D1H29** becomes **XCKMR54D1**.*

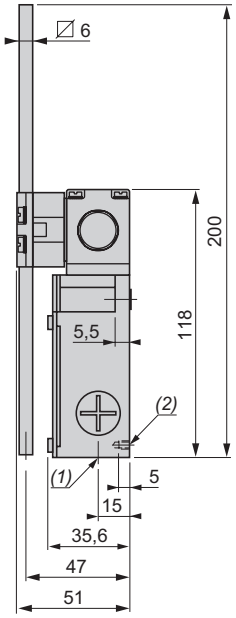
(2) For an actuation point on the rod between 65 and 95 mm from the axis of the fixing screws on the body.

Limit switches
XC Special range
For hoisting and material handling applications, XCKMR and XCKVR
Complete switches with 3 cable entries

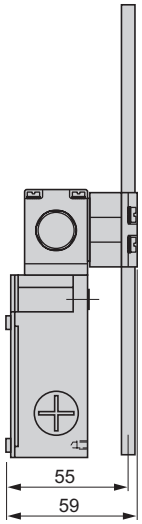
Dimensions

Metal limit switches

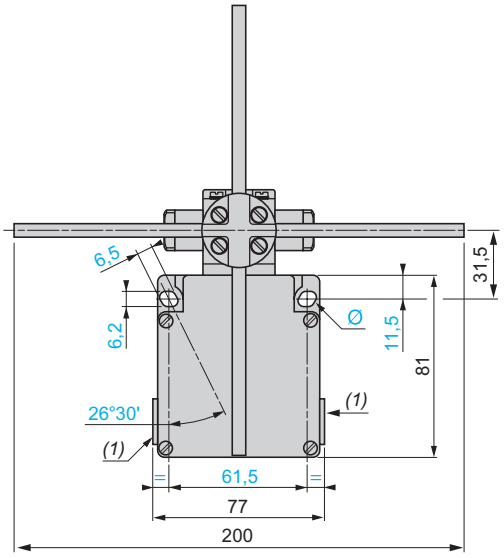
XCKMR24SR1H29, XCKMR44D1H29 and **XCKMR54D1H29**



XCKMR44D2H29 and **XCKMR54D2H29**



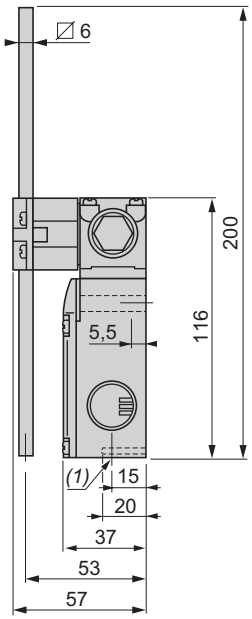
Same front view



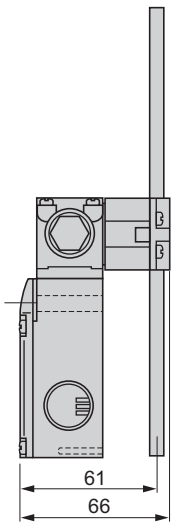
(1) XCKMR●●●●H29 = 3 tapped entries ISO M20 x 1.5.
XCKMR●●● = 3 tapped entries for Pg 13.5 cable gland.
(2) 2 centring holes Ø 3.9 ± 0.2, for cover fixing holes alignment.
Ø: 2 elongated holes 6.2 x 6.5, inclined at 26°30' to the vertical axis, for M5 screws.

Plastic limit switches

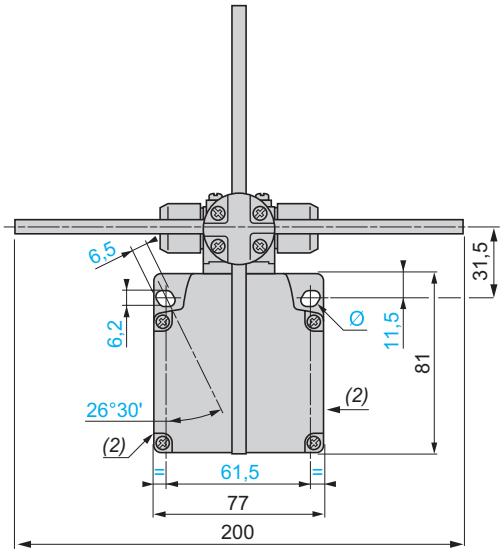
XCKVR24SR1H29, XCKVR44D1H29 and **XCKVR54D1H29**



XCKVR44D2H29 and **XCKVR54D2H29**



Same front view

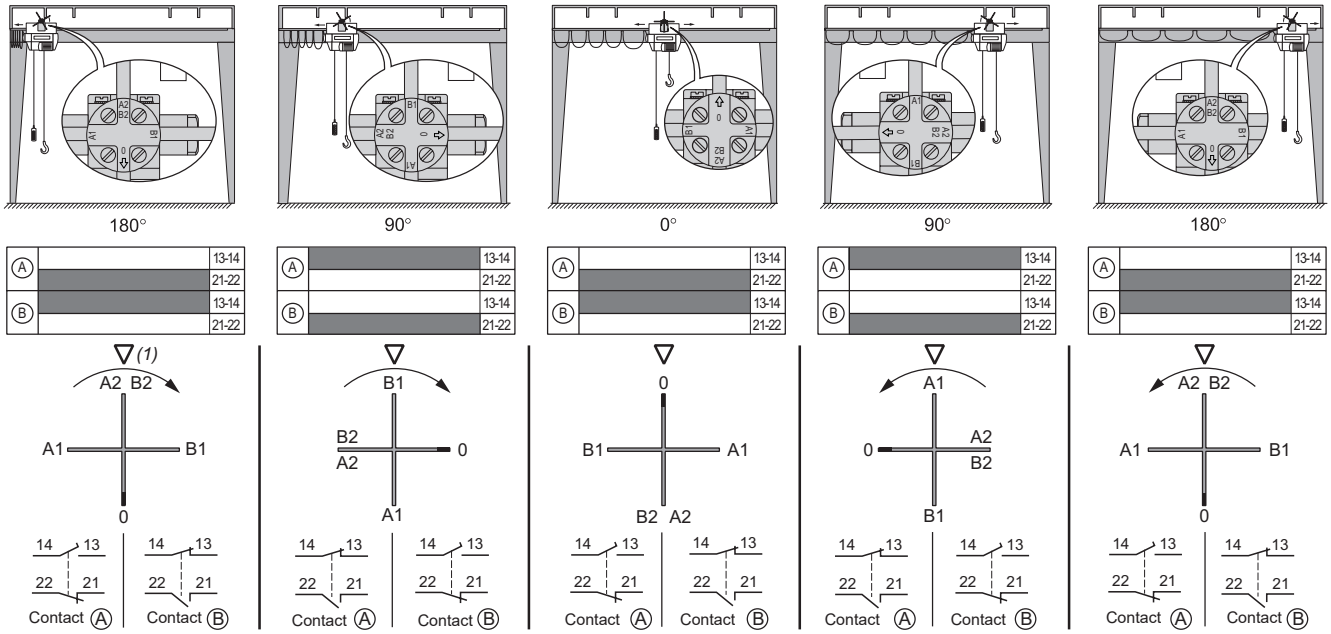


(1) 1 tapped entry ISO M20 x 1.5.
*(2) 2 knock-out holes for ISO M20 cable gland (reference: **DE9PEM20010**).*
Ø: 2 elongated holes 6.2 x 6.5, inclined at 26°30' to the vertical axis, for M5 screws.

Limit switches
XC Special range
For hoisting and material handling applications, XCKMR and XCKVR
Complete switches with 3 cable entries

Operation

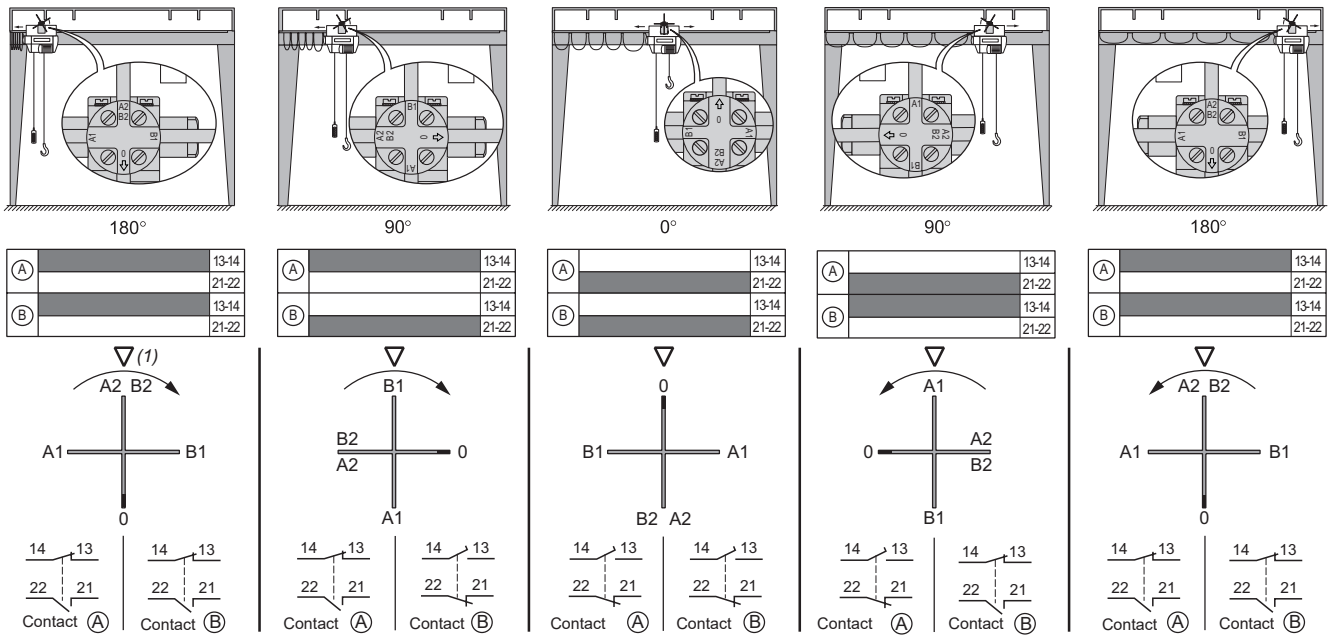
Limit switches XCK●R24SR1H29: “By pass”



(1) Triangle symbol marked on top of head.

or : direction of rotation.

Limit switches XCK●R44D●H29: “Single speed”

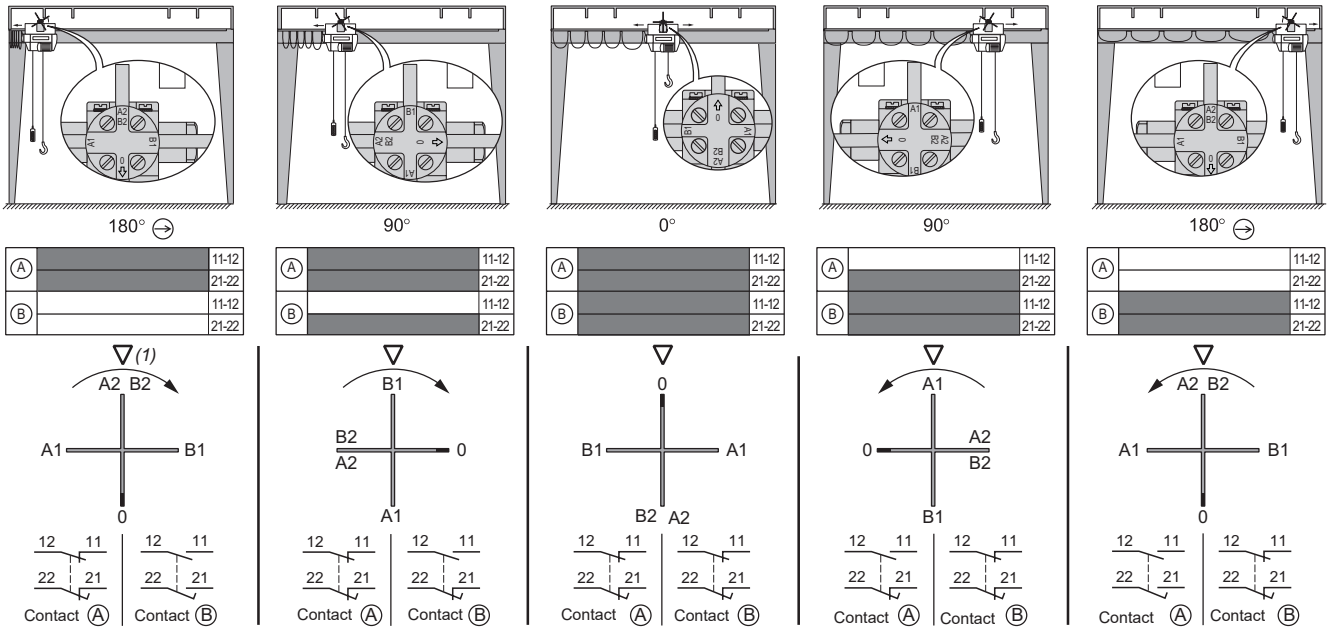


(1) Triangle symbol marked on top of head.

or : direction of rotation.

Limit switches
XC Special range
For hoisting and material handling applications, XCKMR and XCKVR
Complete switches with 3 cable entries

Operation (continued)
Limit switches XCK●R54D●●●●: "Double speed"



(1) Triangle symbol marked on top of head.

or : direction of rotation.

Index of references

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January 2025 - V2.0

TESEBRO000036EN