Limit switches
XC Standard range
Miniature design, metal, XCMV for mobile equipment

The range of XCMV limit switches is an offer dedicated to mobile equipment:
- special connectors
- a metal body for robustness
- compact dimensions (among the smallest on the market)
- IP 69 degree of protection, for high-pressure cleaning
- for outdoor use at -25 °…+70 °C

Complete units
with Deutsch DT04-4P connector

□ With head for linear (plunger) and rotary (lever) movement

Page 53

Complete units
with AMP Superseal 1.5 connector

□ With head for linear (plunger) and rotary (lever) movement

Page 54

Complete units
with M12 connector

□ With head for linear (plunger) and rotary (lever) movement

Page 55

Limit switches
XC Standard range
Miniature design, metal, XCMV for mobile equipment

Modular units
Body with Deutsch DT04-4P connector

□ **With head for linear (plunger) and rotary (lever) movement**

Pages 56 and 57

Modular units
Body with AMP Superseal 1.5 connector

□ **With head for linear (plunger) and rotary (lever) movement**

Pages 58 and 59

Modular units
Body with M12 connector

□ **With head for linear (plunger) and rotary (lever) movement**

Pages 60 and 61

Modular units
Pre-cabled body

□ **With head for linear (plunger) and rotary (lever) movement**

Pages 62 and 63

Limit switches
XC Standard range
Miniature design, metal, XCMV for mobile equipment

Environmental characteristics

Product certifications		CE, cURus
Conformity to standards	Products	EN/IEC 60947-5-1, UL 508, CSA C22-2 n°14, GB/T 14048.5
	Machine assemblies	EN/IEC 60204-1
Protective treatment		Standard version: "TC"
Ambient air temperature	For operation	- 25…+ 70 °C (- 40…+ 70 °C with ZCE106, ZCE026 and ZCE016 heads)
	For storage	- 40…+ 70 °C
Vibration resistance		± 1.76 mm (10…60 Hz), 25 gn (61…500 Hz) conforming to IEC 60068-2-6
Shock resistance		40 gn (11 ms) conforming to IEC 60068-2-27
Protection against electric shock		Class III conforming to IEC 61140, class 2 conforming to UL 508
Degree of protection	Switches with 4-pin M12 connector	IP 66, IP 67 and IP 69 conforming to EN/IEC 60529 ; IK 04 conforming to EN 62262
	Switches with 4-pin Deutsch DT04-4P or AMP Superseal 1.5 connector	IP 66, IP 67 and IP 69 conforming to EN/IEC 60529 ; IK 06 conforming to EN 62262
	Pre-cabled swiches	IP 66 and IP 67 conforming to EN/IEC 60529
Materials		Body: Zamak, heads: Zamak, connectors: thermoplastic, cable: PvR
Repeat accuracy		0.1 mm on the tripping points, with 1 million operating cycles for head with end plunger

Contact block characteristics

Rated operational characteristics	Switches with 4-pin M12 connector	∼ AC-14; Ue = 24 V, Ie = 3 A, Ith = 4 A ⎓ DC-13; Ue = 24 V, Ie = 1 A, conforming to IEC 60947-5-1, EN 60947-5-1
	Pre-cabled swiches or switches with 4-pin Deutsch DT04-4P or AMP Superseal 1.5 connector	∼ AC-14; Ue = 24 V, Ie = 3 A, Ith = 6 A ⎓ DC-13; Ue = 24 V, Ie = 1 A, conforming to IEC 60947-5-1, EN 60947-5-1
Rated insulation voltage		Ui = 36 V degree of pollution 3 conforming to IEC 60947-5-1 Ui = 36 V conforming to UL 508, CSA C22-2 no. 14
Rated impulse withstand voltage		U imp = 0.8 kV conforming to IEC 60947-1, IEC 60664
Positive operation (depending on model)		NC contacts with positive opening operation conforming to IEC 60947-5-1
Resistance across terminals		≤ 25 mΩ conforming to IEC 60255-7 category 3
Short-circuit protection.		6 A cartridge fuse type gG (gl)
Minimum actuation speed (for head with end plunger)		Snap-action contact: 0.01 m/minute, slow-break contact: 6 m/minute

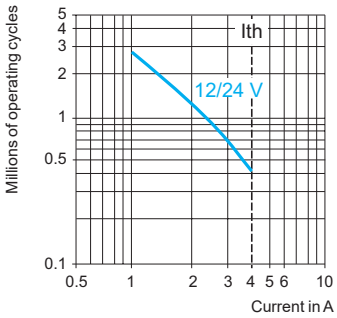
Electrical durability

- Conforming to IEC 60947-5-1 Appendix C
- Utilisation categories AC-14 and DC-13
- Maximum operating rate: 3600 operating cycles/hour
- Load factor: 0.5

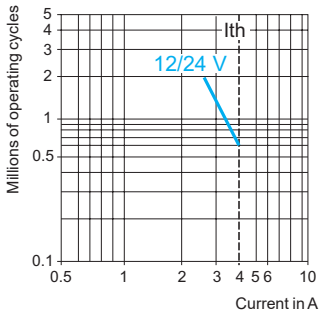
AC supply
∼ 50/60 Hz
inductive circuit

XCMV snap-action (NC+NO contact)

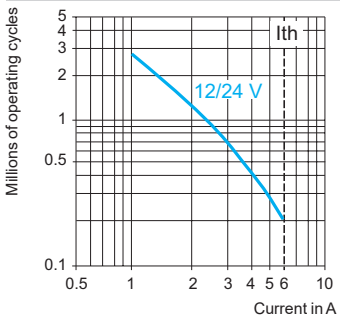
Switches with M12 connector

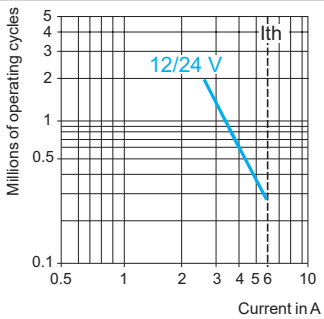


XCMV slow-break (NC+NO contact)



Pre-cabled switches or switches with Deutsch DT04-4P or AMP Superseal 1.5 connector



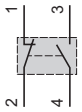
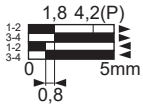
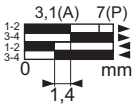
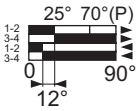
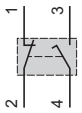
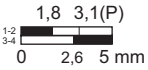
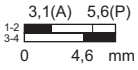
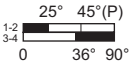


DC supply ⎓

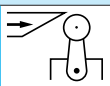
Power broken in W for 0.1 million operating cycles		
Voltage	**V**	**24**
	A	2

Power broken in W for 1.3 million operating cycles		
Voltage	**V**	**24**
	A	0.5

Limit switches
XC Standard range
Miniature design, metal, XCMV
Complete units for mobile equipment

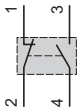
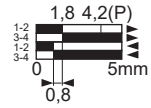
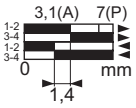
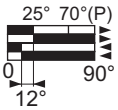
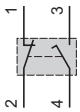
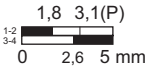
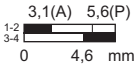
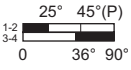
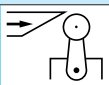
Type of head	Plunger (fixing by the body)		Rotary (fixing by the body)
			
Form conforming to EN 50047	B	C	A
Type of operator	Metal end plunger	Steel roller plunger	Thermoplastic roller lever *(1)*
Positive operation	⊖	⊖	⊖
References of complete units with male Deutsch DT04-4P connector			
2-pole NC + NO snap action 	**XCMV2110D44** 	**XCMV2102D44** 	**XCMV2115D44** 
2-pole NC + NO break before make, slow break 	**XCMV2510D44** 	**XCMV2502D44** 	**XCMV2515D44** 
Weight (kg)	0.090	0.090	0.130
Contact operation	*closed* / *open*		*(A) = cam displacement* *(P) = positive opening point*

Complementary characteristics not shown under general characteristics (see page 51)

Switch actuation		On end	By 30° cam	
Type of actuation				
Maximum actuation speed		0.5 m/s	0.5 m/s	1.5 m/s
Mechanical durability (in millions of operating cycles)		10		
Minimum force or torque	For tripping	8.5 N	7 N	0.1 N.m
	For positive opening	42.5 N	35 N	0.5 N.m

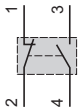
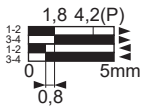
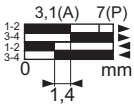
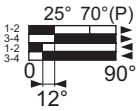
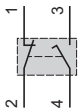
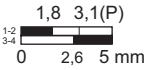
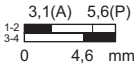
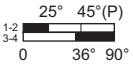
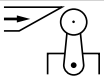
(1) Can be adjusted throughout 360° in 15° steps.

Limit switches
XC Standard range
Miniature design, metal, XCMV
Complete units for mobile equipment

Type of head	Plunger (fixing by the body)		Rotary (fixing by the body)
			
Form conforming to EN 50047	B	C	A
Type of operator	Metal end plunger	Steel roller plunger	Thermoplastic roller lever *(1)*
Positive operation	⊖	⊖	⊖
References of complete units with male AMP Superseal 1.5 connector			
2-pole NC + NO snap action 	**XCMD2110AM4** 	**XCMD2102AM4** 	**XCMD2115AM4** 
2-pole NC + NO break before make, slow break 	**XCMD2510AM4** 	**XCMD2502AM4** 	**XCMD2515AM4** 
Weight (kg)	0.090	0.090	0.130
Contact operation	■ *closed* □ *open*		*(A) = cam displacement* *(P) = positive opening point*
Characteristics			
Switch actuation	On end	By 30° cam	
Type of actuation			
Maximum actuation speed	0.5 m/s	0.5 m/s	1.5 m/s
Mechanical durability (in millions of operating cycles)	10		
Minimum force or torque For tripping	8.5 N	7 N	0.1 N.m
For positive opening	42.5 N	35 N	0.5 N.m

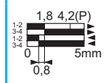
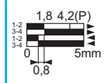
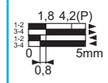
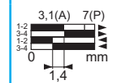
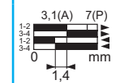
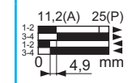
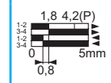
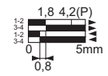
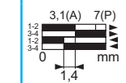
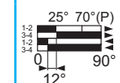
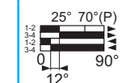
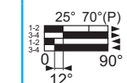
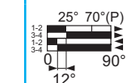
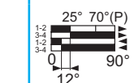
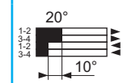
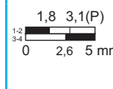
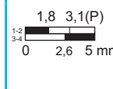
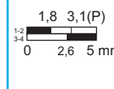
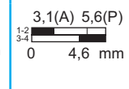
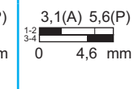
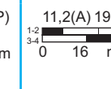
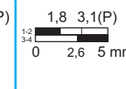
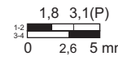
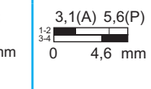
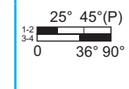
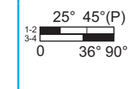
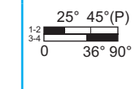
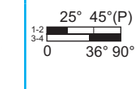
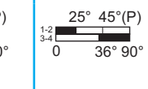
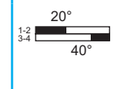
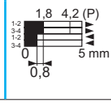
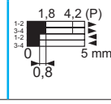
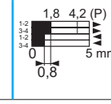
(1) Can be adjusted throughout 360° in 15° steps.

Limit switches
XC Standard range
Miniature design, metal, XCMV
Complete units for mobile equipment

Type of head	Plunger (fixing by the body)		Rotary (fixing by the body)
			
Form conforming to EN 50047	B	C	A
Type of operator	Metal end plunger	Steel roller plunger	Thermoplastic roller lever *(1)*
Positive operation	⊖	⊖	⊖
References of complete units with M12 connector			
2-pole NC + NO snap action 	**XCMV2110M12** 	**XCMV2102M12** 	**XCMV2115M12** 
2-pole NC + NO break before make, slow break 	**XCMV2510M12** 	**XCMV2502M12** 	**XCMV2515M12** 
Weight (kg)	0.090	0.090	0.130
Contact operation	■ *closed* □ *open*		*(A) = cam displacement* *(P) = positive opening point*
Complementary characteristics not shown under general characteristics (see page 51)			
Switch actuation	On end	By 30° cam	
Type of actuation			
Maximum actuation speed	0.5 m/s	0.5 m/s	1.5 m/s
Mechanical durability (in millions of operating cycles)	10		
Minimum force or torque For tripping	8.5 N	7 N	0.1 N.m
For positive opening	42.5 N	35 N	0.5 N.m

(1) Can be adjusted throughout 360° in 15° steps.

Limit switches
XC Standard range
Miniature design, metal, XCMV
Modular units for mobile equipment

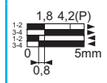
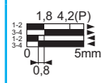
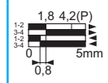
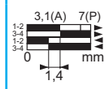
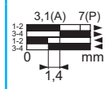
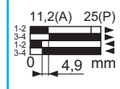
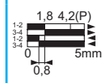
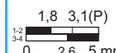
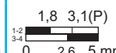
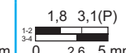
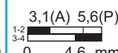
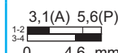
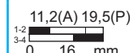
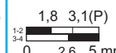
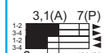
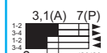
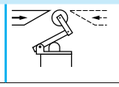
Type of head	Plunger (fixing by the body)						Plunger (fixing by the head)	Plunger (fixing by the head)	Rotary (fixing by the body)					Multi-directional
														
Type of operator	Metal end plunger	Metal end plunger - 40 °C *(1)*	Metal end plunger with elastomer boot *(2)*	Steel roller plunger	Steel roller plunger - 40 °C *(1)*	Retractable steel roller lever plunger	M12 with metal end plunger	M16 with metal end plunger with elastomer boot	M12 with steel roller plunger	Thermoplastic roller lever	Thermoplastic roller lever -40 °C *(1)*	Steel roller lever	Roller lever with ball bearing mounted roller	Variable length thermoplastic roller lever	"Cat's whisker" *(3)*
References of modular units (body with male Deutsch DT04-4P connector and removable terminal block)															
2-pole NC + NO snap action 	**ZCMV21D44 + ZCE10** 	**ZCMV21D44 + ZCE106** 	**ZCMV21D44 + ZCE11** 	**ZCMV21D44 + ZCE02** 	**ZCMV21D44 + ZCE026** 	**ZCMV21D44 + ZCE24** 	**ZCMV21D44 + ZCEF0** 	**ZCMV21D44 + ZCEG1** 	**ZCMV21D44 + ZCEF2** 	**ZCMV21D44 + ZCE01 + ZCY15** 	**ZCMV21D44 + ZCE016 + ZCY15** 	**ZCMV21D44 + ZCE01 + ZCY16** 	**ZCMV21D44 + ZCE01 + ZCY17** 	**ZCMV21D44 + ZCE01 + ZCY45** 	**ZCMV21D44 + ZCE06** 
2-pole NC + NO break before make, slow break 	**ZCMV25D44 + ZCE10** 	**ZCMV25D44 + ZCE106** 	**ZCMV25D44 + ZCE11** 	**ZCMV25D44 + ZCE02** 	**ZCMV25D44 + ZCE026** 	**ZCMV25D44 + ZCE24** 	**ZCMV25D44 + ZCEF0** 	**ZCMV25D44 + ZCEG1** 	**ZCMV25D44 + ZCEF2** 	**ZCMV25D44 + ZCE01 + ZCY15** 	**ZCMV25D44 + ZCE016 + ZCY15** 	**ZCMV25D44 + ZCE01 + ZCY16** 	**ZCMV25D44 + ZCE01 + ZCY17** 	**ZCMV25D44 + ZCE01 + ZCY45** 	**ZCMV25D44 + ZCE06** 
2-pole NC + NC snap action 	**ZCMV29D44 + ZCE10** 	**ZCMV29D44 + ZCE106** 	**ZCMV29D44 + ZCE11** 	**ZCMV29D44 + ZCE02**	**ZCMV29D44 + ZCE026**	**ZCMV29D44 + ZCE24**	**ZCMV29D44 + ZCEF0**	**ZCMV29D44 + ZCEG1**	**ZCMV29D44 + ZCEF2**	**ZCMV29D44 + ZCE01 + ZCY15**	**ZCMV29D44 + ZCE016 + ZCY15**	**ZCMV29D44 + ZCE01 + ZCY16**	**ZCMV29D44 + ZCE01 + ZCY17**	**ZCMV29D44 + ZCE01 + ZCY45**	**ZCMV29D44 + ZCE06**
Contact operation	*(A) = cam displacement* *(P) = positive opening point*				*NC contact with positive opening operation*			*closed* *open*	*(A) = cam displacement* *(P) = positive opening point*				*NC contact with positive opening operation*		

Complementary characteristics not shown under general characteristics (see page 51)

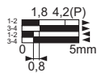
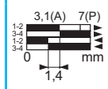
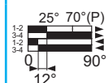
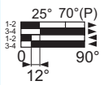
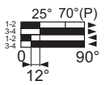
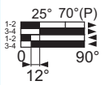
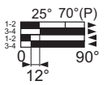
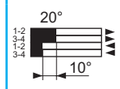
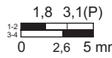
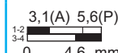
Switch actuation		On end	By 30° cam		On end	On end	By 30° cam			By any moving part
Type of actuation										
Maximum actuation speed		0.5 m/s				0.5 m/s	0.1 m/s	1.5 m/s	1.5 m/s	1 m/s
Mechanical durability		10 million operating cycles				10 million operating cycles			10 million	5 million
Nominal force or torque	For tripping	8.5 N	7 N	2.5 N	8.5 N	8.5 N	7 N.m	0.1 N.m	0.1 N.m	0.1 N.m
	For positive opening	42.5 N	35 N	12.5 N	42.5 N	42.5 N	35 N.m	0.5 N.m	0.5 N.m	–
Connection		Deutsch DT04-4P connector				Deutsch DT04-4P connector				

(1) For use at -40 °C.
(2) Nitrile for indoor use.
(3) Value taken with actuation by moving part at 100 mm from the fixing.

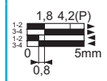
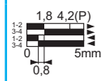
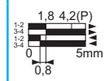
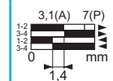
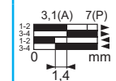
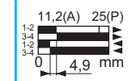
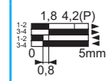
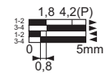
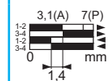
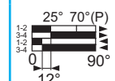
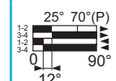
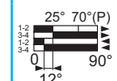
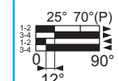
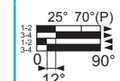
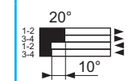
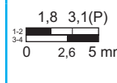
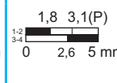
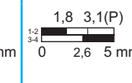
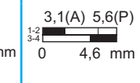
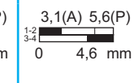
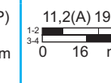
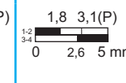
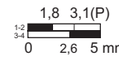
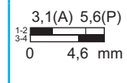
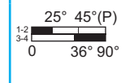
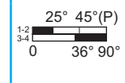
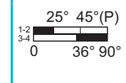
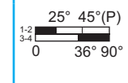
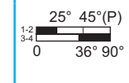
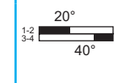
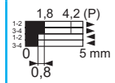
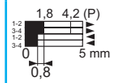
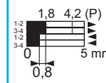
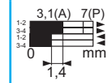
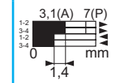
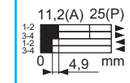
Limit switches
XC Standard range
Miniature design, metal, XCMV
Modular units for mobile equipment

Type of head	Plunger (fixing by the body)						Plunger (fixing by the head)
							
Type of operator	Metal end plunger	Metal end plunger - 40 °C *(1)*	Metal end plunger with elastomer boot *(2)*	Steel roller plunger	Steel roller plunger - 40 °C *(1)*	Retractable steel roller lever plunger	M12 with metal end plunger
References of modular units (body with male AMP Superseal 1.5 connector and removable terminal block)							
2-pole "NC + NO" snap action 	**ZCMD21AM4 + ZCE10** 	**ZCMD21AM4 + ZCE106** 	**ZCMD21AM4 + ZCE11** 	**ZCMD21AM4 + ZCE02** 	**ZCMD21AM4 + ZCE026** 	**ZCMD21AM4 + ZCE24** 	**ZCMD21AM4 + ZCEF0** 
2-pole NC + NO break before make, slow break 	**ZCMD25AM4 + ZCE10** 	**ZCMD25AM4 + ZCE106** 	**ZCMD25AM4 + ZCE11** 	**ZCMD25AM4 + ZCE02** 	**ZCMD25AM4 + ZCE026** 	**ZCMD25AM4 + ZCE24** 	**ZCMD25AM4 + ZCEF0** 
2-pole NC + NC snap action 	**ZCMD29AM4 + ZCE10** 	**ZCMD29AM4 + ZCE106** 	**ZCMD29AM4 + ZCE11** 	**ZCMD29AM4 + ZCE02** 	**ZCMD29AM4 + ZCE026** 	**ZCMD29AM4 + ZCE24** 	**ZCMD29AM4 + ZCEF0** 
Contact operation	■ closed □ open		(A) = cam displacement (P) = positive opening point		⊖ NC contact with positive opening operation		
Complementary characteristics not shown under general characteristics (see page 51)							
Switch actuation	On end		By 30° cam				On end
Type of actuation							
Maximum actuation speed	0.5 m/s						
Mechanical durability	10 million operating cycles						
Nominal force or torque For tripping	8.5 N		7 N		2.5 N		8.5 N
Nominal force or torque For positive opening	42.5 N		35 N		12.5 N		42.5 N
Connection	Male AMP Superseal 1.5 connector						

(1) For use at -40 °C.
(2) Nitrile for indoor use.
(3) Value taken with actuation by moving part at 100 mm from the fixing.

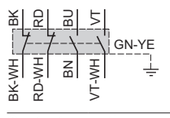
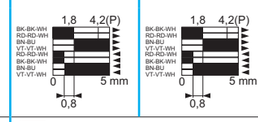
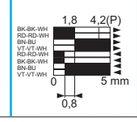
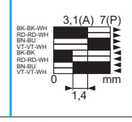
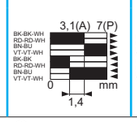
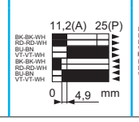
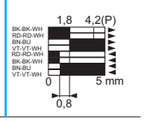
Type of head	Plunger (fixing by the head)		Rotary (fixing by the body)					Multi-directional
								
Type of operator	M16 with metal end plunger with elastomer boot	M12 with steel roller plunger	Thermoplastic roller lever	Thermoplastic roller lever -40 °C *(1)*	Steel roller lever	Roller lever with ball bearing mounted roller	Variable length thermoplastic roller lever	"Cat's whisker" *(3)*
References of modular units (body with male AMP Superseal 1.5 connector and removable terminal block)								
2-pole "NC + NO" snap action	**ZCMD21AM4 + ZCEG1** 	**ZCMD21AM4 + ZCEF2** 	**ZCMD21AM4 + ZCE01 + ZCY15** 	**ZCMD21AM4 + ZCE016 + ZCY15** 	**ZCMD21AM4 + ZCE01 + ZCY16** 	**ZCMD21AM4 + ZCE01 + ZCY17** 	**ZCMD21AM4 + ZCE01 + ZCY45** 	**ZCMD21AM4 + ZCE06** 
2-pole NC + NO break before make, slow break	**ZCMD25AM4 + ZCEG1** 	**ZCMD25AM4 + ZCEF2** 	**ZCMD25AM4 + ZCE01 + ZCY15**	**ZCMD25AM4 + ZCE016 + ZCY15**	**ZCMD25AM4 + ZCE01 + ZCY16**	**ZCMD25AM4 + ZCE01 + ZCY17**	**ZCMD25AM4 + ZCE01 + ZCY45**	**ZCMD25AM4 + ZCE06**
2-pole NC + NC snap action	**ZCMD29AM4 + ZCEG1**	**ZCMD29AM4 + ZCEF2**	**ZCMD29AM4 + ZCE01 + ZCY15**	**ZCMD29AM4 + ZCE016 + ZCY15**	**ZCMD29AM4 + ZCE01 + ZCY16**	**ZCMD29AM4 + ZCE01 + ZCY17**	**ZCMD29AM4 + ZCE01 + ZCY45**	**ZCMD29AM4 + ZCE06**
Contact operation	■ closed □ open		(A) = cam displacement (P) = positive opening point			⊖ NC contact with positive opening operation		
Complementary characteristics not shown under general characteristics (see page 51)								
Switch actuation	On end	By 30° cam						By any moving part
Type of actuation								
Maximum actuation speed	0.5 m/s	0.1 m/s	1.5 m/s				1.5 m/s	1 m/s
Mechanical durability	10 million operating cycles						10 million	5 million
Nominal force or torque For tripping	8.5 N	7 N.m	0.1 N.m				0.1 N.m	0.1 N.m
Nominal force or torque For positive opening	42.5 N	35 N.m	0.5 N.m				0.5 N.m	–
Connection	Male AMP Superseal 1.5 connector							

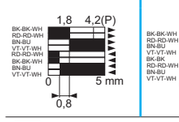
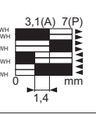
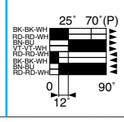
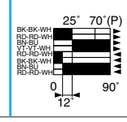
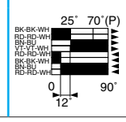
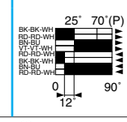
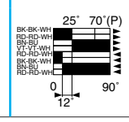
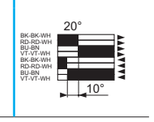
Limit switches
XC Standard range
Miniature design, metal, XCMV
Modular units for mobile equipment

Type of head	Plunger (fixing by the body)						Plunger (fixing by the head)	Plunger (fixing by the head)	Rotary (fixing by the body)					Multi-directional
														
Type of operator	Metal end plunger	Metal end plunger - 40 °C *(1)*	Metal end plunger with elastomer boot *(2)*	Steel roller plunger	Steel roller plunger - 40 °C *(1)*	Retractable steel roller lever plunger	M12 with metal end plunger	M16 with metal end plunger with elastomer boot	M12 with steel roller plunger	Thermoplastic roller lever	Thermoplastic roller lever -40 °C *(1)*	Steel roller lever	Roller lever with ball bearing mounted roller	Variable length thermoplastic roller lever	"Cat's whisker" *(3)*
References of modular units (body with male M12 connector and removable terminal block)															
2-pole "NC + NO" snap action 	**ZCMV21M12 + ZCE10** 	**ZCMV21M12 + ZCE106** 	**ZCMV21M12 + ZCE11** 	**ZCMV21M12 + ZCE02** 	**ZCMV21M12 + ZCE026** 	**ZCMV21M12 + ZCE24** 	**ZCMV21M12 + ZCEF0** 	**ZCMV21M12 + ZCEG1** 	**ZCMV21v + ZCEF2** 	**ZCMV21M12 + ZCE01 + ZCY15** 	**ZCMV21M12 + ZCE016 + ZCY15** 	**ZCMV21M12 + ZCE01 + ZCY16** 	**ZCMV21M12 + ZCE01 + ZCY17** 	**ZCMV21M12 + ZCE01 + ZCY45** 	**ZCMV21M12 + ZCE06** 
2-pole NC + NO break before make, slow break 	**ZCMV25M12 + ZCE10** 	**ZCMV25M12 + ZCE106** 	**ZCMV25M12 + ZCE11** 	**ZCMV25M12 + ZCE02** 	**ZCMV25M12 + ZCE026** 	**ZCMV25M12 + ZCE24** 	**ZCMV25M12 + ZCEF0** 	**ZCMV25M12 + ZCEG1** 	**ZCMV25M12 + ZCEF2** 	**ZCMV25M12 + ZCE01 + ZCY15** 	**ZCMV25M12 + ZCE016 + ZCY15** 	**ZCMV25M12 + ZCE01 + ZCY16** 	**ZCMV25M12 + ZCE01 + ZCY17** 	**ZCMV25M12 + ZCE01 + ZCY45** 	**ZCMV25M12 + ZCE06** 
2-pole NC + NC snap action 	**ZCMV29M12 + ZCE10** 	**ZCMV29M12 + ZCE106** 	**ZCMV29M12 + ZCE11** 	**ZCMV29M12 + ZCE02** 	**ZCMV29M12 + ZCE026** 	**ZCMV29M12 + ZCE24** 	**ZCMV29M12 + ZCEF0**	**ZCMV29M12 + ZCEG1**	**ZCMV29M12 + ZCEF2**	**ZCMV29M12 + ZCE01 + ZCY15**	**ZCMV29M12 + ZCE016 + ZCY15**	**ZCMV29M12 + ZCE01 + ZCY16**	**ZCMV29M12 + ZCE01 + ZCY17**	**ZCMV29M12 + ZCE01 + ZCY45**	**ZCMV29M12 + ZCE06**
Contact operation	■ *closed* □ *open*		*(A) = cam displacement* *(P) = positive opening point*		⊖ *NC contact with positive opening operation*			■ *closed* □ *open*		*(A) = cam displacement* *(P) = positive opening point*			⊖ *NC contact with positive opening operation*		
Complementary characteristics not shown under general characteristics (see page 51)															
Switch actuation	On end			By 30° cam			On end	On end	By 30° cam						By any moving part
Type of actuation															
Maximum actuation speed	0.5 m/s							0.5 m/s	0.1 m/s	1.5 m/s				1.5 m/s	1 m/s
Mechanical durability	10 million operating cycles							10 million operating cycles						10 million	5 million
Nominal force or torque For tripping	8.5 N			7 N		2.5 N	8.5 N	8.5 N	7 N.m	0.1 N.m				0.1 N.m	0.1 N.m
Nominal force or torque For positive opening	42.5 N			35 N		12.5 N	42.5 N	42.5 N	35 N.m	0.5 N.m				0.5 N.m	–
Connection	M12 connector							M12 connector							

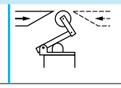
(1) For use at -40 °C.
(2) Nitrile for indoor use.
(3) Value taken with actuation by moving part at 100 mm from the fixing.

Limit switches
XC Standard range
Miniature design, metal, XCMV
Modular units for mobile equipment

Type of head	Plunger (fixing by the body)						Plunger (fixing by the head)
							
Type of operator	Metal end plunger	Metal end plunger - 40 °C *(1)*	Metal end plunger with elastomer boot *(2)*	Steel roller plunger	Steel roller plunger - 40 °C *(1)*	Retractable steel roller lever plunger	M12 with metal end plunger
References of modular units (pre-cabled body and removable terminal block)							
4-pole 2 NC + 2 NO snap action	**ZCMV41L03 + ZCE10**	**ZCMV41L03 + ZCE106**	**ZCMV41L03 + ZCE11**	**ZCMV41L03 + ZCE02**	**ZCMV41L03 + ZCE026**	**ZCMV41L03 + ZCE24**	**ZCMV41L03 + ZCEF0**
							
Contact operation	closed / open	(A) = cam displacement (P) = positive opening point			NC contact with positive opening operation		

Type of head	Plunger (fixing by the head)		Rotary (fixing by the body)					Multi-directional
								
Type of operator	M16 with metal end plunger with elastomer boot	M12 with steel roller plunger	Thermoplastic roller lever	Thermoplastic roller lever -40 °C *(1)*	Steel roller lever	Roller lever with ball bearing mounted roller	Variable length thermoplastic roller lever	"Cat's whisker" *(3)*
References of modular units (pre-cabled body and removable terminal block)								
4-pole 2 NC + 2 NO snap action	**ZCMV41L03 + ZCEG1**	**ZCMV41L03 + ZCEF2**	**ZCMV41L03 + ZCE01 + ZCY15**	**ZCMV41L03 + ZCE016 + ZCY15**	**ZCMV41L03 + ZCE01 + ZCY16**	**ZCMV41L03 + ZCE01 + ZCY17**	**ZCMV41L03 + ZCE01 + ZCY45**	**ZCMV41L03 + ZCE06**
								
Contact operation	closed / open		(A) = cam displacement (P) = positive opening point			NC contact with positive opening operation		

Complementary characteristics not shown under general characteristics (see page 52)

Switch actuation		On end	By 30° cam		On end
Type of actuation					
Maximum actuation speed		0.5 m/s			
Mechanical durability		10 million operating cycles			
Nominal force or torque	For tripping	8.5 N	7 N	2.5 N	8.5 N
	For positive opening	42.5 N	35 N	12.5 N	42.5 N
Connection		PvR cable, length 30 cm			

On end	By 30° cam			By any moving part
				
0.5 m/s	0.1 m/s	1.5 m/s	1.5 m/s	1 m/s
10 million operating cycles			10 million	5 million
8.5 N	7 N.m	0.1 N.m	0.1 N.m	0.1 N.m
42.5 N	35 N.m	0.5 N.m	0.5 N.m	–
PvR cable, length 30 cm				

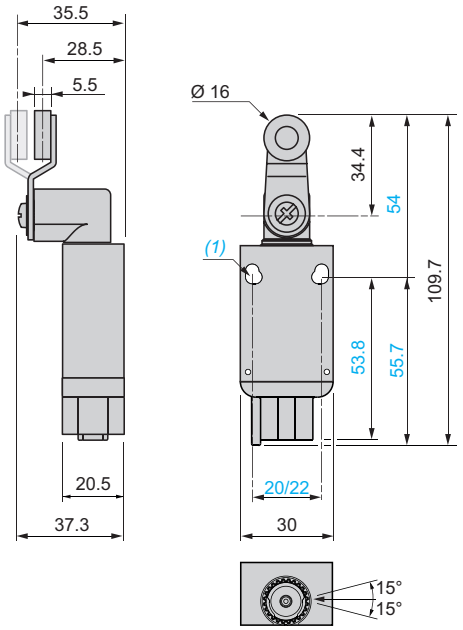
(1) For use at -40 °C.
(2) Nitrile for indoor use.
(3) Value taken with actuation by moving part at 100 mm from the fixing.

Limit switches
XC Standard range
Miniature design, metal, XCMV
Complete units for mobile equipment

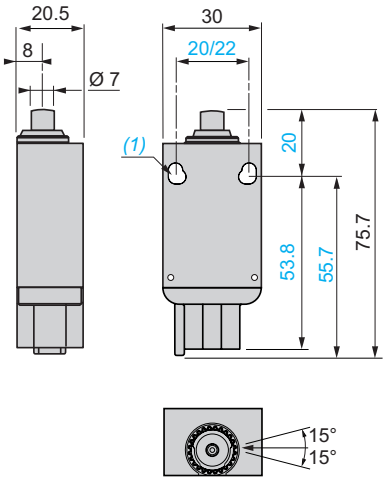
Dimensions

Switches with Deutsch DT04-4P connector

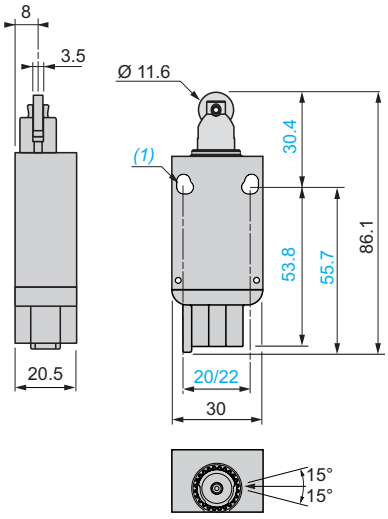
XCMV2115D44, XCMV2515D44



XCMV2110D44, XCMV2510D44

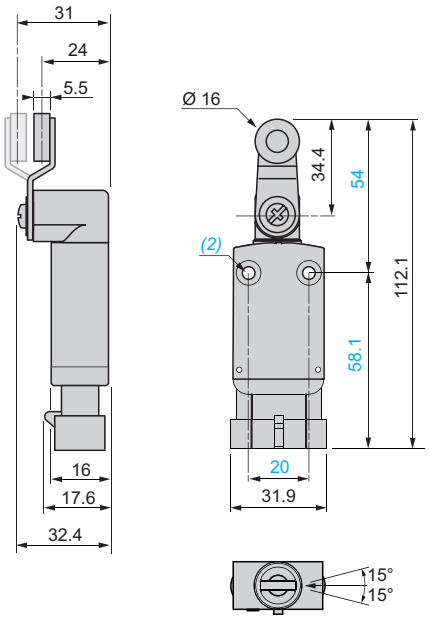


XCMV2102D44, XCMV2502D44

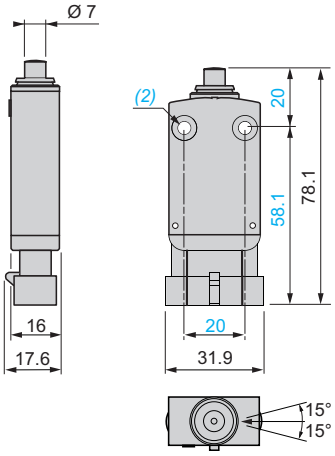


Switches with AMP Superseal 1.5 connector

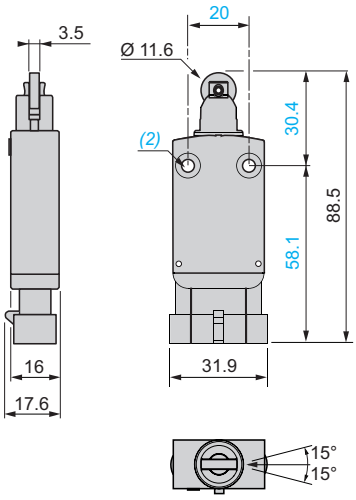
XCMD2115AM4, XCMD2515AM4



XCMD2110AM4, XCMD2510AM4



XCMD2102AM4, XCMD2502AM4

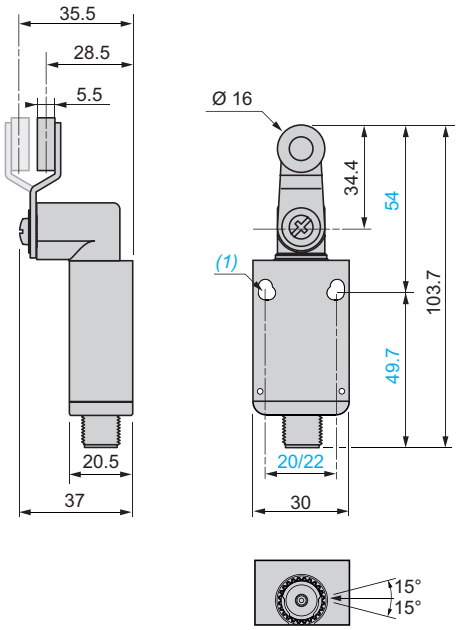


(1) 2 elongated fixing holes Ø 4.3 x 6.3 mm on 22 mm centres, 2 elongated fixing holes Ø 4.3 on 20 mm centres.
(2) 2 fixing holes Ø 4.2 mm, counterbored Ø 8 mm by 4 mm deep.

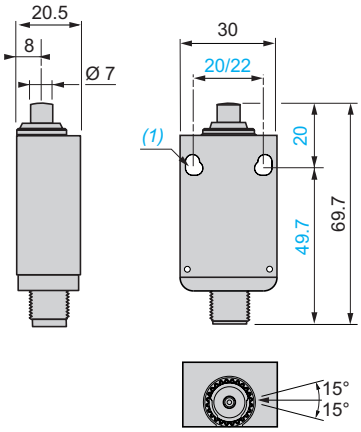
Dimensions *(continued)*

Switches with M12 connector

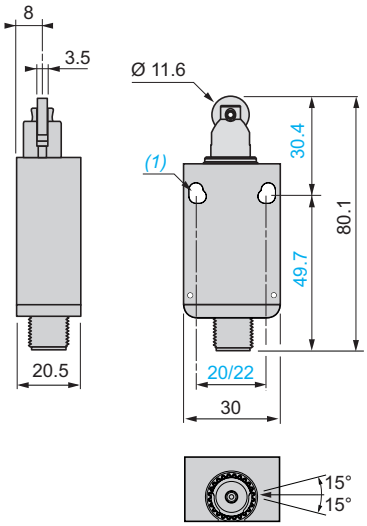
XCMV2115M12, **XCMV2515M12**



XCMV2110M12, **XCMV2510M12**



XCMV2102M12, **XCMV2502M12**

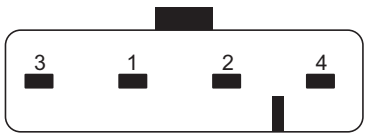


(1) 2 elongated fixing holes Ø 4.3 x 6.3 mm on 22 mm centres, 2 elongated fixing holes Ø 4.3 on 20 mm centres.

Connections

Male AMP Superseal 1.5 connector

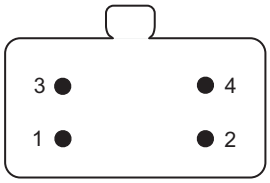
XCMV2●●●AM4



1 - 2 = NC
3 - 4 = NO

Male Deutsch DT04-4P connector

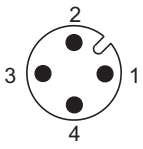
XCMV2●●●D44



1 - 2 = NC
3 - 4 = NO

Male M12 connector

XCMV2●●●M12

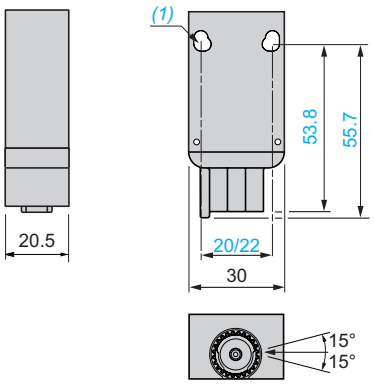


1 - 2 = NC
3 - 4 = NO

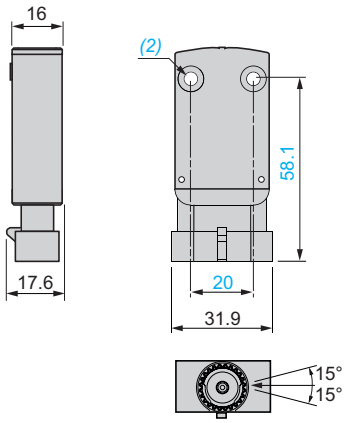
Limit switches
XC Standard range
Miniature design, metal, XCMV
Modular units for mobile equipment

Dimensions of bodies

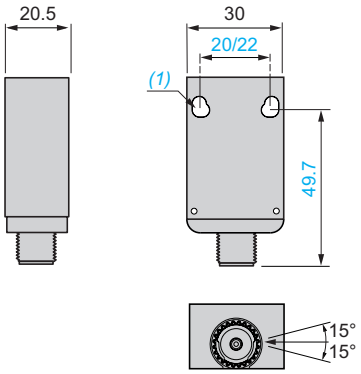
ZCMV2●D44



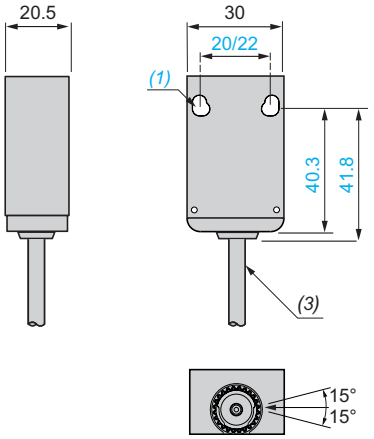
ZCMD2●AM4



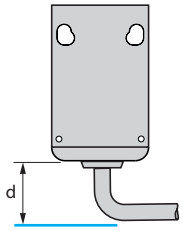
ZCMV2●M12



ZCMV41L03



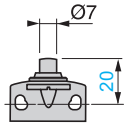
Mounting: distance required for connection



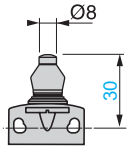
d: min. 20 mm

Dimensions of heads

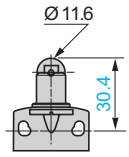
ZCE106, ZCE10



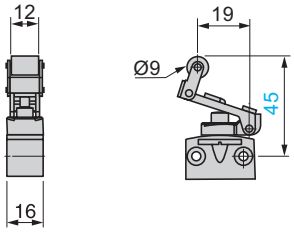
ZCE11



ZCE02, ZCE026



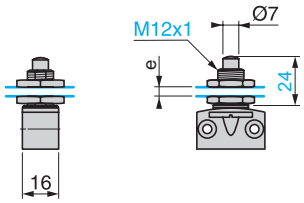
ZCE24



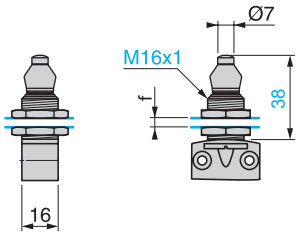
(1) 2 elongated fixing holes Ø 4.3 x 6.3 mm on 22 mm centres, 2 elongated fixing holes Ø 4.3 on 20 mm centres.
(2) 2 fixing holes Ø 4.2 mm, counterbored Ø 8 mm by 4 mm deep.
(3) External diameter of cable 6.4 mm.

Dimensions of heads *(continued)*

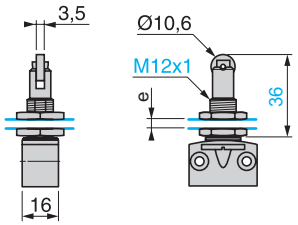
ZCEF0



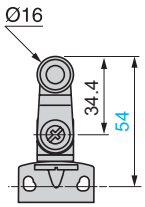
ZCEG1



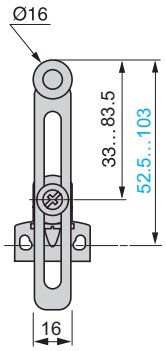
ZCEF2



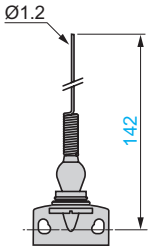
ZCE01 + ZCY15, ZCE01 + ZCY16 or ZCE01 + ZCY17



ZCE01 + ZCY45



ZCE06



e: 8 mm max., panel cut-out Ø 12.5 mm, fixing nut thickness 3.5 mm.
f: 8 mm max., panel cut-out Ø 16.5 mm, fixing nut thickness 3.5 mm.