saia



JOHNSON ELECTRIC

innovating motion

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Looking for a specialized switching solution?

Look no further.

In addition to the wide range of standard products shown in this catalog, we will be happy to working with you to meet your switching needs. If your application requires more than a standard product solution, please consider us early in your design process. Our product development team will be happy to discuss your specification, whether you need a special switch design or a complete value-added assembly. We specialize in developing switches for high-volume applications.

The images shown give some examples of our capabilities.








Table of typical applications & Saia switch types

In addition to the products shown in the Product Catalog pages, the Product Mapping table below shows a wide range of switch types for a selection of applications. Also, a switch may be customized to fulfill your specific requirements, please feel free to contact us.

Application & Switch Series	XC	X4	V4N	V4NC	XG	X3	390	340	G3
Cash machine	●		●	●					
Circuit Breaker	●	●	●	●	●	●			
Commercial Equipment	●	●	●	●	●	●	●	●	●
Copier & Printer	●		●	●	●				
Distribution	●	●	●	●	●	●	●	●	●
Doors & gates	●		●	●	●	●	●	●	
Floor cleaning machines			●	●					
Forklifts	●		●	●	●				
Home Appliances	●	●	●	●	●	●	●	●	●
HVAC	●	●	●	●	●	●	●	●	●
Industrial automation	●		●	●	●				
Industry general	●	●	●	●	●	●	●	●	●
Medical	●		●	●	●				
Postal	●		●	●					
Power tools			●	●					●
Safety and Security	●		●	●	●				●
Specialist vehicles	●		●	●	●	●			●
Telecom	●		●	●	●				
Vending / Gaming	●	●	●	●	●	●			●
Waterheaters/Showers	●		●	●	●		●	●	
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Snap-action Microswitches

Subminiature






	XC	X4	V4N	V4NC
Characteristics	■ wide range of forces and variants ■ long mechanical and electrical life ■ solder, PCB and faston terminals ■ compliant to glow wire test IEC 60335-1, 4. ed.	■ thermoplastic housing ■ long mechanical and electrical life ■ solder, PCB and faston terminals	■ sealed (IP67) ■ solder 2.8 mm faston and PCB terminals ■ pre-wired option	■ wide variety of levers ■ peg mounting option ■ pre-wired option ■ sealed (IP6K7) ■ solder and faston terminals ■ PCB terminals
Rating	250 VAC, 10 A max.	250 VAC, 12 A max.	250 VAC, 5 A	250 VAC, 5 A
Dimensions (mm)	19.9 × 9.5 × 6.4	19.9 × 9.7 × 6.4	20 × 10.3 × 6.4	20 × 10.3 × 6.4
Actuator	■ plunger ■ mushroom plunger ■ plain levers ■ simulated roller lever/ cam follower ■ roller levers	■ plunger ■ plain levers ■ cam follower lever ■ roller levers	■ plunger ■ plain levers ■ roller levers ■ simulated roller lever/ cam follower	■ plunger ■ plain levers ■ roller levers ■ simulated roller lever/
Approvals	ENEC, UL, cUL, CSA	UL, cUL, CSA, ENEC, CQC	UL, CSA, ENEC	none
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Miniature





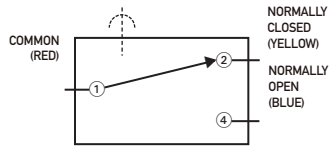


	XG	X3	390	340	G3
Characteristics	■ wide range of forces and ratings ■ long mechanical and electrical life ■ solder, faston and PCB terminals ■ compliant to glow wire test IEC 60335-1, 4. ed.	■ 8 mm creepage and clearance distance to the actuator ■ long mechanical and electrical life ■ solder, faston and PCB terminals	■ wiping contacts, leaf spring mechanism ■ rast 5 terminal option	■ wiping contacts, leaf spring mechanism ■ 3 mm contact gap option	■ low operating force, high current capacity ■ < 15 cn operating force option ■ > 3 mm contact gap, change-over mechanism option
Rating	250 VAC, 26 A max.	250 VAC, 21 A max.	250 VAC, 25 A max.	250 VAC, 16 A max.	up to 250 VAC, 18 A
Dimensions (mm)	27.8 × 15.9 × 10.3	27.8 × 15.9 × 10.3	28.8 × 15.9 × 10.1	28.8 × 15.9 × 10.1	28 × 15.9 × 10
Actuator	■ plunger ■ plain levers ■ roller levers ■ simulated roller levers	■ plunger ■ straight lever ■ simulated roller levers ■ roller levers	■ plunger ■ plain levers ■ roller levers ■ moulded lever	■ plunger ■ roller lever ■ plain levers ■ simulated roller lever ■ moulded lever	■ plunger ■ ramp plunger
Approvals	ENEC, UL, cUL, CSA	UL, cUL, CSA, ENEC, CQC	ENEC, UL, CSA	ENEC	ENEC, UL, CSA
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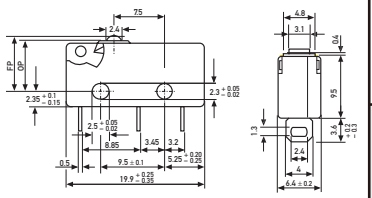
Thermoset plastic Microswitches



Circuit diagram



Dimension



XC

XC



Characteristics	▪ wide range of forces and variants ▪ long mechanical and electrical life ▪ solder, PCB and faston terminals ▪ compliant to glow wire requirements as to IEC 60335-1, 4. ed.
Rating	250 VAC, 10 A max.
Dimensions (mm)	19.9 × 9.5 × 6.4
Actuator	▪ Plunger ▪ mushroom plunger ▪ plain levers ▪ simulated roller lever/cam follower ▪ roller levers
Approvals	ENEC, UL, cUL, CSA

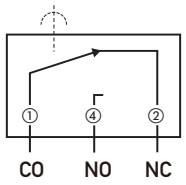
Preferred Range

Ordering Reference	Actuating Force (N)	(ozf)	Operating pos. (mm)	(in)	Terminal	Circuit	Actuator	Contacts	Electrical rating ENEC	UL/CSA
XCG3Z1	1,7	6,07	8,4	0,33	Solder	CO	Plunger	Ag	6(2) A	5 A
XCG3-J1Z1	0,6	2,14	10,2	0,40	Solder	CO	Plain lever	Ag	6(2) A	5 A
XCG3-S1Z1	0,7	2,49	15,6	0,61	Solder	CO	Roller lever	Ag	6(2) A	5 A
XCG5Z1	1,7	6,07	8,4	0,33	Faston 2,8 × 0,5 mm	CO	Plunger	Ag	6(2) A	5 A
XCG5-J1Z1	0,6	2,14	10,2	0,40	Faston 2,8 × 0,5 mm	CO	Plain lever	Ag	6(2) A	5 A
XCG5-S1Z1	0,7	2,49	15,6	0,61	Faston 2,8 × 0,5 mm	CO	Roller lever	Ag	6(2) A	5 A
XCG8-81Z1	1,7	6,07	8,4	0,33	PCB	CO	Plunger	Au	none	0,1 A/125 VAC
XCG8-81-J1Z1	0,6	2,14	10,2	0,40	PCB	CO	Plain lever	Au	none	0,1 A/125 VAC
XCG8-81-S1Z1	0,7	2,49	15,6	0,61	PCB	CO	Roller lever	Au	none	0,1 A/125 VAC
XCF3Z1	3	10,70	8,4	0,33	Solder	CO	Plunger	Ag	10(3) A	10,1 A
XCF3-J1Z1	1,05	3,74	10,2	0,40	Solder	CO	Plain lever	Ag	10(3) A	10,1 A
XCF3-S1Z1	1,1	3,92	15,6	0,61	Solder	CO	Roller lever	Ag	10(3) A	10,1 A
XCG3-U1Z1	1,7	6,07	9,9	0,39	Solder	CO	Mushroom plunger	Ag	6(2) A	5 A
XCG4-U1Z1	1,7	6,07	9,9	0,39	Faston 2,8 × 0,5 mm	CO	Mushroom plunger	Ag	6(2) A	5 A
XCG8-U1Z1	1,7	6,07	9,9	0,39	PCB	CO	Mushroom plunger	Ag	6(2) A	5 A

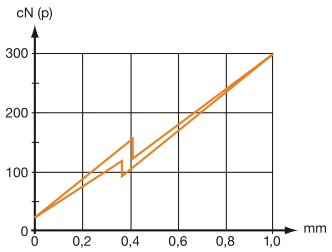
Specifications

Housing	Melamine-Formaldehyd, Thermosetting
Plunger	POM for T85, PBT for T125, PPS for T150
Mechanism	Snap-action system with stainless steel tension spring
Functions	Change-over, NO, NC
Contacts	Fine silver (Ag) or 10 µm Gold (Au), microprofile
Terminals	Solder, faston and various PCB terminals (side of housing or side of lid, as well as 1/10" o lin pitch)
Temperature range °C	Between –40°C and +85°C (special version up to 140°C)
Mechanical life	up to 5–10^7 cycles (sinusoidal actuation)
Protection	Enclosure IP40
Mounting	Side mounting through mounting holes
Actuators	Stainless steel, PA66-GF35
Contact Carrier	CuZn or CuSn

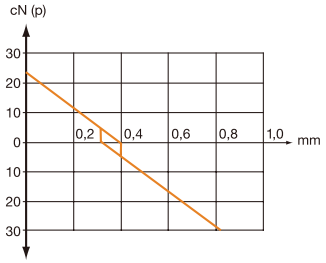
Circuit diagram



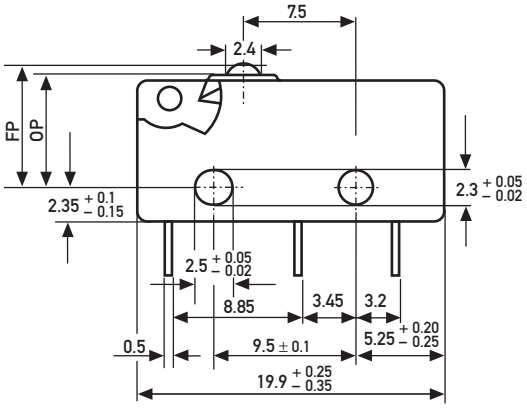
Actuating force/travel

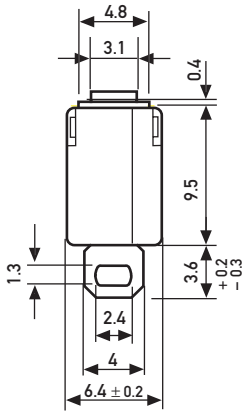


Contact force/travel



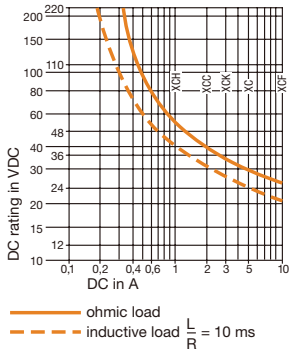
Dimensions





FP = Free Position
OP = Operating Position

Maximum DC rating



Recommended maximum electrical ratings

	Voltage (VAC)	Resistive load (A)	Motor load (A)	Approvals ENEC (A)		(VAC)	Approvals UL (A)	(VAC)	Motor load
XCF	250	10	3	10 (3)	1E4	250	10,1	125/250	¼ HP
XCG	250	6	2	6 (2)	5E4	250	5	250	-
XCK	250	5	3	5 (3)	1E4	250	5	250	-
XCC	250	3	1	3 (1)	5E4	250	2	250	-
XCH	250	1,5	0,3	1,5 (0,3)	5E4	250	1	250	-

Breaking capacities in the tables refer to Ag contacts.

Operating Characteristics

Actuator	Reference	Actuating Force Maximum (N)	(ozf)	Release Force Minimum (N)	(ozf)	Free Position Maximum (mm)	(in)	Operating Position (mm)		(in)		Movement Differential Maximum (mm)	(in)	Total travelled position Maximum (mm)	(in)
Plunger	XCF..	3	10,70	0,5	1,78	8,8	0,34	8,4	+0,1 −0,3	0,33	+0,003 −0,011	0,1	0,003	7,7	0,303
	XCG..	1,7	6,07	0,3	1,07	8,8	0,34	8,4		0,33		0,1	0,003	7,7	0,303
	XCK..	1,2	4,28	0,2	0,71	8,8	0,34	8,4		0,33		0,1	0,003	7,7	0,303
	XCC..	0,6	2,14	0,1	0,36	8,8	0,34	8,4		0,33		0,1	0,003	7,7	0,303
	XCH..	0,35	1,24	0,07	0,24	8,8	0,34	8,4		0,33		0,1	0,003	7,7	0,303
Mushroom Plunger	XCF..-U1	3	10,70	0,5	1,78	10,3	0,41	9,9	+0,1 −0,3	0,39	+0,003 −0,011	0,1	0,003	9,2	0,36
	XCG..-U1	1,7	6,07	0,3	1,07	10,3	0,41	9,9		0,39		0,1	0,003	9,2	0,36
	XCK..-U1	1,2	4,28	0,2	0,71	10,3	0,41	9,9		0,39		0,1	0,003	9,2	0,36
	XCC..-U1	0,6	2,14	0,1	0,36	10,3	0,41	9,9		0,39		0,1	0,003	9,2	0,36
	XCH..-U1	0,35	1,24	0,07	0,24	10,3	0,41	9,9		0,39		0,1	0,003	9,2	0,36
-J1 Lever	XCF..	1,05	3,74	0,16	0,57	12,2	0,48	10,2 ± 1,0		0,401 ± 0,039		0,6	0,023	8,4	0,33
	XCG..	0,6	2,14	0,08	0,28	12,2	0,48	10,2 ± 0,9		0,401 ± 0,035		0,5	0,019	8,5	0,337
	XCK..	0,42	1,49	0,056	0,19	12,2	0,48	10,3 ± 0,9		0,405 ± 0,035		0,5	0,019	8,7	0,342
	XCC..	0,22	0,78	0,025	0,08	12,2	0,48	10,3 ± 0,9		0,404 ± 0,035		0,4	0,015	8,7	0,342
	XCH..	0,13	0,46	0,02	0,07	12,2	0,48	10,4 ± 0,9		0,409 ± 0,035		0,4	0,015	8,8	0,346
Width of lever 4.0 mm/0.16 in															
-L1 Lever	XCF..	1,1	3,92	0,17	0,6	17,6	0,69	15,6 ± 1,1		0,614 ± 0,043		0,6	0,023	14	0,551
	XCG..	0,7	2,49	0,09	0,32	17,6	0,69	15,6 ± 1,0		0,614 ± 0,039		0,5	0,019	14,1	0,555
	XCK..	0,43	1,53	0,058	0,2	17,6	0,69	15,7 ± 1,0		0,618 ± 0,039		0,4	0,015	14,3	0,562
	XCC..	0,23	0,82	0,026	0,09	17,6	0,69	15,7 ± 1,0		0,618 ± 0,039		0,4	0,015	14,3	0,562
	XCH..	0,14	0,49	0,021	0,07	17,6	0,69	15,8 ± 1,0		0,622 ± 0,039		0,4	0,015	14,4	0,566
Width of lever 4.0 mm/0.16 in															
-L6 Lever	XCF..	1,05		0,16		17,1		15,1 ± 1,1				0,6		13,3	
	XCG..	0,6		0,08		17,1		15,1 ± 1,0				0,5		13,4	
	XCK..	0,42		0,056		17,1		15,2 ± 1,0				0,5		13,6	
	XCC..	0,22		0,025		17,1		15,2 ± 1,0				0,4		13,6	
	XCH..	0,13		0,02		17,1		15,3 ± 1,0				0,4		13,7	
-L9 Lever	XCF..	1,05		0,16		13,7		11,7 ± 1,1				0,6		9,9	
	XCG..	0,6		0,08		13,7		11,7 ± 1,0				0,5		10,0	
	XCK..	0,42		0,056		13,7		11,8 ± 1,0				0,5		10,2	
	XCC..	0,22		0,025		13,7		11,8 ± 1,0				0,4		10,2	
	XCH..	0,13		0,02		13,7		11,9 ± 1,0				0,4		10,3	
-S1 Lever	XCF..	1,1	3,92	0,17	0,6	17,6	0,69	15,6 ± 1,2		0,614 ± 0,047		0,6	0,023	14,1	0,555
	XCG..	0,7	2,49	0,09	0,32	17,6	0,69	15,6 ± 1,1		0,614 ± 0,043		0,5	0,019	14,2	0,559
	XCK..	0,43	1,53	0,058	0,2	17,6	0,69	15,7 ± 1,1		0,618 ± 0,043		0,4	0,015	14,4	0,566
	XCC..	0,23	0,82	0,026	0,09	17,6	0,69	15,7 ± 1,1		0,618 ± 0,043		0,4	0,015	14,4	0,566
	XCH..	0,14	0,49	0,021	0,07	17,6	0,69	15,8 ± 1,1		0,622 ± 0,043		0,4	0,015	14,5	0,57
Width of roller 4.0 mm/0.16 in, for high temperature use -T1 lever															
-P5 Lever	XCF..	1,3	4,62	0,17	0,6	17,6	0,69	15,6 ± 1,1		0,614 ± 0,043		0,6	0,023	14	0,551
	XCG..	0,75	2,67	0,09	0,32	17,6	0,69	15,6 ± 1,0		0,614 ± 0,039		0,5	0,019	14,1	0,555
	XCK..	0,6	2,13	0,058	0,2	17,6	0,69	15,7 ± 1,0		0,618 ± 0,039		0,4	0,015	14,3	0,562
	XCC..	0,31	1,10	0,026	0,09	17,6	0,69	15,7 ± 1,1		0,618 ± 0,043		0,4	0,015	14,3	0,562
	XCH..	0,22	0,78	0,021	0,07	17,6	0,69	15,8 ± 1,0		0,622 ± 0,039		0,4	0,015	14,4	0,566
-P6 Lever	XCF..	1,05	3,74	0,16	0,57	14,3	0,56	12,5 ± 1,1		0,49 ± 0,043		0,6	0,023	10,6	0,417
	XCG..	0,6	2,13	0,08	0,28	14,3	0,56	12,5 ± 1,0		0,49 ± 0,039		0,5	0,019	10,7	0,421
	XCK..	0,42	1,49	0,056	0,21	14,3	0,56	12,6 ± 1,0		0,5 ± 0,039		0,5	0,015	10,8	0,425
	XCC..	0,22	0,78	0,025	0,11	14,3	0,56	12,6 ± 1,0		0,5 ± 0,039		0,4	0,015	10,8	0,425
	XCH..	0,13	0,46	0,02	0,07	14,3	0,56	12,7 ± 1,0		0,5 ± 0,039		0,4	0,015	10,9	0,429

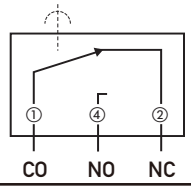
Ordering Reference

				Example: XCF	4	3	V	-81	-J1	Z1
Basic type	XCF	3 N	10,7 ozf							
	XCG	1,7 N	6,07 ozf							
	XCK	1,2 N	4,28 ozf							
	XCC	0,6 N	2,14 ozf							
	XCH	0,35 N	1,24 ozf							
Circuits		No symbol, change-over								
	4	Normally closed (NC)								
	5	Normally open (NO)								
Terminals	3	Solder								
	4	plug 2.8 × 0.5 mm DIN								
	5	plug 2.8 × 0.5 mm AMP								
	8	PCB, L = 4.5 mm								
	9	PCB, 1/10" pitch, L = 4.5 mm								
	10	PCB, formed to base								
	11	PCB, formed to lid								
	12	PCB, formed to base, 1/10" pitch								
	13	PCB, formed to lid, 1/10" pitch								
	14	PCB, L = 3.5 mm								
	15	PCB, 1/10" pitch, L = 3.5 mm								
Version		No symbol, Housing material MF, Europe up to 85° C, UL up to 90° C								
	V	(High temperature 125° C), Housing material MF / Plunger PBT, Europe up to 125° C, UL up to 130° C								
	W	(High temperature 140° C), Housing material MF / Plunger PPS, Europe up to 140° C, UL up to 150° C								
Contacts		No symbol, Ag (Ag)								
	-81	µ profile Au 10 µm								
Actuators		No symbol, plunger								
	-J1	Plain lever	18,0 mm (0.71 in)							
	-J2	Plain lever	25,0 mm (0.98 in)							
	-J5	Plain lever	40,0 mm (1.57 in)							
	-S1	Roller lever	16,0 mm (0.63 in)							
	-L1	Cam follower	16,0 mm (0.63 in)							
	-L6	Cam follower	18,0 mm (0.71 in)							
	-L9	Cam follower	18,5 mm (0.73 in)							
	-P5	Plastic lever	16,0 mm (0.63 in)							
	-P6	Plastic lever	18,0 mm (0.71 in)							
	-U1	Mushroom plunger								
	Other actuators on special request.									
Approvals		No symbol, ENEC								
	Z1	UL, CSA								

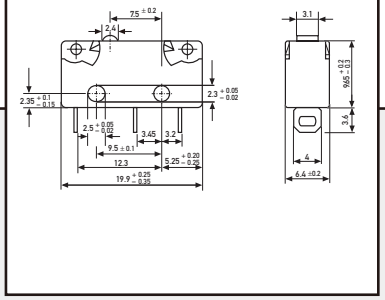
Thermoplastic Microswitches



Circuit diagram



Dimension



JOHNSON ELECTRIC
innovating motion

X4

X4

Characteristics	■ thermoplastic housing ■ long mechanical and electrical life ■ solder, PCB and faston terminals
Rating	250 VAC, 12 A max.
Dimensions (mm)	19.9 × 9.7 × 6.4
Actuator	■ plunger ■ plain levers ■ cam follower lever ■ roller levers
Approvals	UL, cUL, CSA, ENEC, CQC



Preferred Range

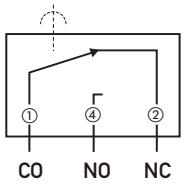
Ordering Reference	Actuating Force (N)	(ozf)	Operating pos. (mm)	Terminal	Circuit	Actuator	Contacts	Electrical rating ENEC	UL/CSA
X4F303K1AA	3,3	11,869	8,4	Solder	CO	Plunger	Ag	12 (6) A	12 A
X4F305K1AA	3,3	11,869	8,4	Faston	CO	Plunger	Ag	12 (6) A	12 A
X4G303K1BB	2	7,193	8,4	Solder	CO	Plunger	Ag	6 (3) A	6 A
X4G305K1BB	2	7,193	8,4	Faston	CO	Plunger	Ag	6 (3) A	6 A
X4C303K1CC	0,75	2,697	8,4	Solder	CO	Plunger	Ag	3 (2) A	3 A
X4C305K1CC	0,75	2,697	8,4	Faston	CO	Plunger	Ag	3 (2) A	3 A

X4

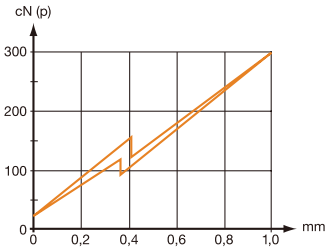
Specifications

Housing	Thermoplastic
Plunger	Thermoplastic
Mechanism	Snap-action system with stainless steel tension spring
Functions	Change-over, NO, NC,
Contacts	Fine silver (Ag), or 10 µm Gold (Au), microprofile
Terminals	Solder, faston, PCB, side-facing PCB and 'PCB terminals with 0.1" pitch
Temperature range °C	Between –40°C and +85°C
Mechanical life	10^6 cycles minimum
Protection	Enclosure – IP 40
Mounting	Side mounting or PCB
Actuators	Stainless steel, PA66–GF35
Contact carrier	CuZn or CuSn

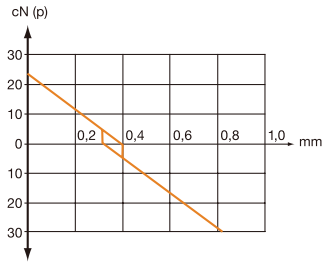
Circuit diagram



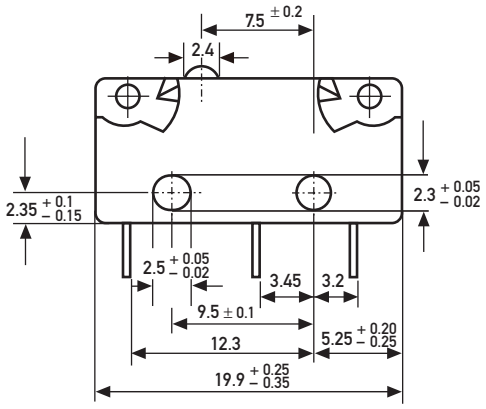
Actuating force/travel

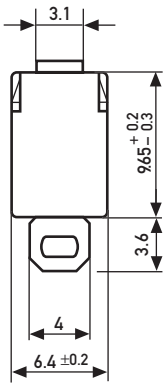


Contact force/travel

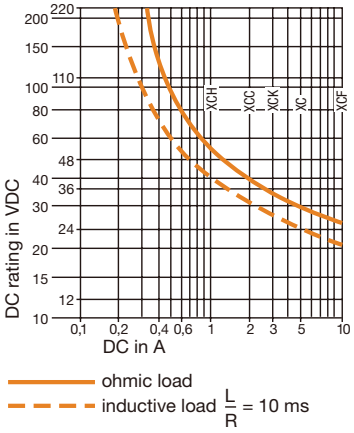


Dimensions





Maximum DC rating

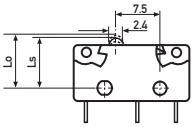
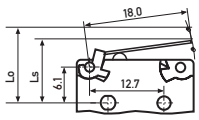
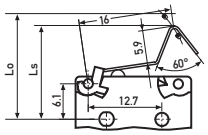
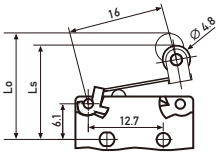


Recommended maximum electrical ratings

	Voltage (VAC)	Resistive load (A)	Motor load (A)	Approvals ENEC (A)		(VAC)	Approvals UL (A)	(VAC)
X4F	250	12	6	12 (6)	1E4	250	12	125/250
X4G	250	6	3	6 (3)	5E4	250	6	125/250
X4C	250	3	2	3 (2)	5E4	250	3	125/250

Breaking capacities in the tables refer to silver contacts

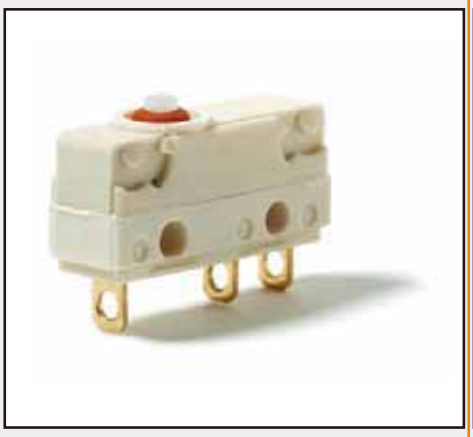
Operating Characteristics

Actuator		Reference	Actuating Force Maximum (N)	(ozf)	Release Force Minimum (N)	(ozf)	Free Position Maximum (mm)	(in)	Operating Position Maximum (mm)		(in)		Movement Differential Maximum (mm)	(in)	Full Overtravel Position (mm)	(in)
Plunger		X4F	3,3	11,869	0,55	1,978	8,8	0,35	8,4	+0,1 −0,3	0,33	+0,004 −0,01	0,2	0,008	7,7	0,3
		X4G	2,0	7,193	0,35	1,258	8,8	0,35	8,4		0,33		0,2	0,008	7,7	0,3
		X4C	0,75	2,697	0,13	0,467	8,8	0,35	8,4		0,33		0,2	0,008	7,7	0,3
J11 Lever		X4F	1,16	4,172	0,18	0,647	12,2	0,48	10,2 ±1.0		0,4 ±0,035		0,6	0,024	8,4	0,33
		X4G	0,7	2,517	0,094	0,338	12,2	0,48	10,2 ±0,9		0,4 ±0,039		0,5	0,02	8,5	0,33
		X4C	0,28	1,007	0,031	0,107	12,2	0,48	10,3 ±0,9		0,4 ±0,039		0,4	0,016	8,7	0,34
Width of lever 4.0 mm/0.16 in																
L11 Lever		X4F	1,21	4,352	0,19	0,683	17,6	0,69	15,6 ±1,1		0,61 ±0,043		0,6	0,024	14	0,55
		X4G	0,82	2,949	0,11	0,395	17,6	0,69	15,6 ±1,0		0,61 ±0,039		0,5	0,02	14,1	0,56
		X4C	0,29	1,043	0,033	0,118	17,6	0,69	15,7 ±1,0		0,61 ±0,039		0,4	0,016	14,3	0,56
Width of lever 4.0 mm/0.16 in																
S11 Lever		X4F	1,21	4,352	0,19	0,683	17,6	0,69	15,6 ±1,2		0,61 ±0,047		0,6	0,024	14,1	0,56
		X4G	0,82	2,949	0,11	0,395	17,6	0,69	15,6 ±1,1		0,61 ±0,043		0,5	0,02	14,2	0,56
		X4C	0,29	1,043	0,036	0,129	17,6	0,69	15,7 ±1,1		0,62 ±0,043		0,4	0,016	14,4	0,57
Width of roller 4.0 mm/0.16 in																

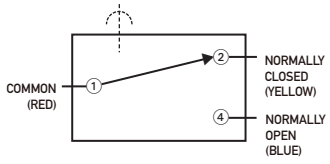
Ordering Reference

			Example: X4	F	3	03	K	1	A	A	J1	1
Basic type	X4											
Operating force	F	extra high force										
	G	high force										
	C	low force										
Circuits diagram	3	Change-over (CO)										
	4	Normally closed (NC) } with X4F and X4G not possible										
	5	Normally open (NO) } (except gold contacts)										
Terminals	03	Solder terminal										
	04	Faston terminal 2.8 × 0.5 mm DIN										
	05	Faston terminal 2.8 × 0.5 mm										
	08	PCB-terminal, length 4.5 mm										
	09	PCB-terminal, length 4.5 mm, (pitch 7.6)										
	10	PCB-terminal, formed to base										
	11	PCB-terminal, formed to lid										
	12	PCB-terminal, formed to base, (pitch 7.6)										
	13	PCB-terminal, formed to lid, (pitch 7.6)										
	14	PCB-terminal, length 3.5 mm										
	15	PCB-terminal, length 3.5 mm, (pitch 7.6)										
	21	Equidistant PCB-terminals, length 8.15 mm (pitch 7.5)										
	22	Equidistant PCB-terminals formed to base (pitch 7.5)										
	23	Equidistant PCB-terminals formed to lid (pitch 7.5)										
	24	Equidistant faston terminals 2.8 × 0.5 mm DIN (pitch 7.5)										
Body	K	Ultramid, for terminal types 03 to 15 only										
	N	Latamid, compliant to glow wire requirements as to IEC 60335-1, 4. ed., for terminal types 03 to 15 only										
	M	Ultramid, for equidistant terminal types 21 to 24 only										
	R	Ultramid, with moulded pegs, for equidistant terminal types 22 and 23 only										
Contacts material	1	Silver/Silver										
	8	Gold microprofile (Crosspoint) contacts										
	9	Gold-plated										
UL/C-UL ratings	A	12 A, 125/250 VAC										
	B	6 A, 125/250 VAC										
	C	3 A, 125/250 VAC										
	D	0.1 A, 125 VAC										
	N	no approvals										
EN/IEC ratings	A	12 (6) A, 250 V~ 1E4 T85 µ approved										
	B	6 (3) A, 250 V~ 5E4 T85 µ approved										
	C	3 (2) A, 250 V~ 5E4 T85 µ approved										
	F	10 (4) A, 250 V~ 1E4 T125 µ approved										
	L	1 A, 30 V = not approved										
	M	0.3 A, 30 V~ 1E4 not approved										
Type of actuators		No symbol, without lever										
	J1	Plain lever 18.0 mm (0.71 in)										
	L1	Cam follower 16.0 mm (0.63 in)										
	S1	Roller lever 16.0 mm (0.63 in)										
	Other actuators on special request											
Actuator position		No symbol, without lever										
	1	Lever above terminal 1										
	2	Lever above terminal 2										

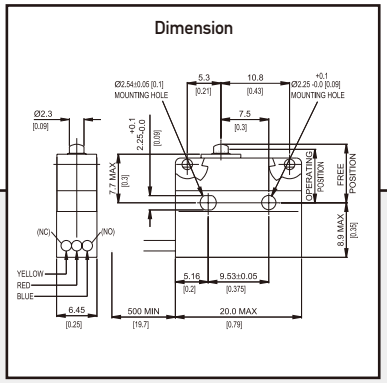
Sealed and unsealed Microswitches



Circuit diagram



Dimension



JOHNSON ELECTRIC
innovating motion

V4N

V4N



Characteristics	■ sealed (IP67) ■ solder, 2.8 mm faston and PCB terminals ■ pre-wired option
Rating	250 VAC, 5 A
Dimensions (mm)	20 × 10.3 × 6.4
Actuator	■ plunger ■ plain levers ■ roller levers ■ simulated roller lever/cam follower
Approvals	UL, CSA, ENEC

Preferred Range

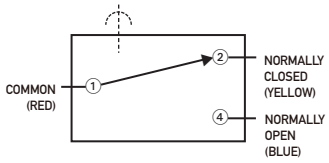
Ordering Reference	Actuating Force (N)	(ozf)	Sealing	Operating pos. (mm)	(in)	Terminal	Circuit	Actuator	Contacts	Electrical rating
V4NT7UL	1,40	5,0	IP40	8,40	0,33	Solder	CO	Plain plunger	Ag	250 VAC, 5 A
V4NST7UL	2,50	9,0	IP67	8,40	0,33	Solder	CO	Plain plunger	Ag	250 VAC, 5 A
V4NSUL	2,50	9,0	IP67	8,40	0,33	Pre-wired	CO	Plain plunger	Ag	250 VAC, 5 A
V4NT7Y1UL	0,50	1,8	IP40	10,7	0,42	Solder	CO	Straight lever	Ag	250 VAC, 5 A
V4NST7Y1UL	0,90	3,2	IP67	10,6	0,42	Solder	CO	Straight lever	Ag	250 VAC, 5 A
V4NSY1UL	0,90	3,2	IP67	10,6	0,42	Pre-wired	CO	Straight lever	Ag	250 VAC, 5 A
V4NT7YRUL	0,50	1,8	IP40	15,7	0,62	Solder	CO	Roller lever	Ag	250 VAC, 5 A
V4NST7YRUL	0,90	3,2	IP67	15,6	0,62	Solder	CO	Roller lever	Ag	250 VAC, 5 A
V4NSYRUL	0,90	3,2	IP67	15,6	0,62	Pre-wired	CO	Roller lever	Ag	250 VAC, 5 A

V4N

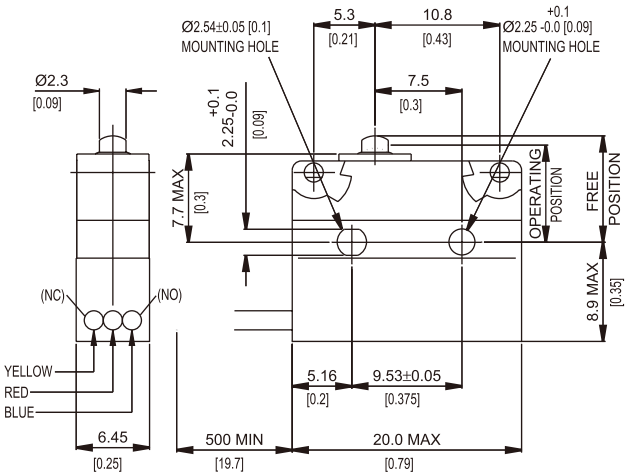
Specifications

Housing	Flame-retardant glass-fibre reinforced nylon
Plunger	Polyacetal (POM)
Mechanism	Snap-action coil spring mechanism with stainless steel spring
Functions	Change-over, normally closed or normally open
Contacts	Silver
Terminals	Gold flashed
Temperature range °C	–40°C to +85°C
Mechanical life	5×10^6 cycles minimum (impact free actuation) for the cowl 3×10^6
Protection	IP40 (V4N - enclosure), IP67 (V4NS - enclosure)
Mounting	Side mounting
Actuators	Plain lever, cam follower, Roller lever
Accessories	Insulating sheet - N04619, Clip-on terminal cover - TC102, Long overtravel actuator - QA4

Circuit diagram



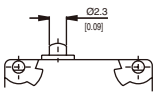
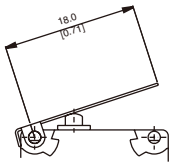
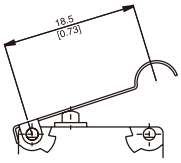
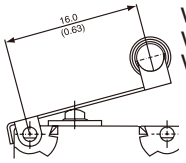
Dimensions



Recommended maximum electrical ratings

	Voltage (max)	Load (A)	Inductive load (A)	Approval
V4NT7UL/ V4NST7UL	250 VAC	5 (0.75 pf)		UL 1054/CSA 22.2 No. 55 - 6,000 operations - 65° C
	250 VAC	5	2	EN61058-1, T85, 10,000 operations
	0 - 15 VDC	5	3	General rating - 50,000 operations (85° C)
	15 - 30 VDC	5	3	General rating - 50,000 operations (85° C)
V4NSUL	250 VAC	3 (0.75 pf)		UL 1054/CSA 22.2 No. 55 - 6,000 operations - 65° C
	250 VAC	5	2	EN61058-1, T85, 10,000 operations
	0 - 15 VDC	3	3	General rating - 50,000 operations (85° C)
	15 - 30 VDC	3	3	General rating - 50,000 operations (85° C)

Operating Characteristics

Actuator	Reference	Actuating Force Maximum (N)	(ozf)	Release Force Minimum (N)	(ozf)	Free Position Maximum (mm)	(in)	Operating Position (mm)	(in)	Movement Differential Maximum (mm)	(in)
Plunger 	V4NT7UL	1,4	5,00	0,28	1,00	9,2	0,36	8,4 ± 0.3	0,33 ± 0.012	0,1	0,004
	V4NST7UL	2,5	9,00	0,30	1,00	9,2	0,36	8,4 ± 0.3	0,33 ± 0.012	0,1	0,004
	V4NSUL	2,5	9,00	0,3	1,00	9,2	0,36	8,4 ± 0.3	0,33 ± 0.012	0,1	0,004
Y1 lever 	V4NT7Y1UL	0,5	1,80	0,07	0,25	13,2	0,52	10,7 ± 1.0	0,42 ± 0.04	0,4	0,016
	V4NST7Y1UL	0,9	3,20	0,07	0,25	13,2	0,52	10,6 ± 1.2	0,42 ± 0.05	0,4	0,016
	V4NSY1UL	0,9	3,20	0,07	0,25	13,2	0,52	10,6 ± 1.2	0,42 ± 0.05	0,4	0,016
Width of lever 4.0 mm/0.16 in											
YC lever 	V4NT7YCUL	0,5	1,80	0,07	0,25	17,8	0,70	15,7 ± 1.0	0,62 ± 0.04	0,4	0,016
	V4NST7YCUL	0,9	3,20	0,07	0,25	17,8	0,70	15,6 ± 1.2	0,61 ± 0.05	0,4	0,016
	V4NSYCUL	0,9	3,20	0,07	0,25	17,8	0,70	15,6 ± 1.2	0,61 ± 0.05	0,4	0,016
Width of lever 4.0 mm/0.16 in											
YR lever 	V4NT7YRUL	0,5	1,80	0,07	0,25	17,8	0,70	15,7 ± 1.0	0,62 ± 0.04	0,4	0,016
	V4NST7YRUL	0,9	3,20	0,07	0,25	17,8	0,70	15,6 ± 1.2	0,61 ± 0.05	0,4	0,016
	V4NSYRUL	0,9	3,20	0,07	0,25	17,8	0,70	15,6 ± 1.2	0,61 ± 0.05	0,4	0,016
Width of lever 4.0 mm/0.16 in											

Over travel: Plunger can be depressed flush with housing. The housing should not be used as an end stop.

Ordering Reference

				Example: V4N	E	T6	C2	Y1	0	G	UL
Basic type	V4N										
Type of sealing / Overtravel		No symbol, unsealed, standard travel									
	E	Unsealed	with extended overtravel (0.5 mm)								
	S	Sealed IP67	standard travel								
	B	Sealed IP67	with extended overtravel (0.5 mm)								
Terminals		No symbol, pre-wired 500 mm with cable box K2 (V4NS/B only)									
	T6	Faston	2.03 × 0.5 × 6.6 long								
	T7	Solder	2.95 × 0.5 × 3.6 long								
	T8	PCB	0.8 × 0.5 × 4.0 long								
	T9	Faston	2.8 × 0.5 × 8.1 long								
	T81	Formed PCB	0.8 × 0.5 × 3.8 long								
	T82	Formed PCB	0.8 × 0.5 × 3.8 long								
	T83	Formed PCB	8.8 × 0.5 × Surface mount								
	T84	Short PCB	0.8 × 0.5 × 2.0 long								
	T85	Long PCB	0.8 × 0.5 × 6.85 long								
	T86	PCB	0.8 × 0.5 × 4.0 long (equi-spaced)								
	T11	Solder	2.95 × 0.5 × 3.6 long								
Circuit		No symbol, change-over									
	C2	Normally closed									
	C4	Normally open									
Actuators		No symbol, without lever									
	Y1	Plain lever	18.0 mm								
	Y2	Plain lever	25.0 mm								
	Y3	Plain lever	32.0 mm								
	YC	Cam follower lever	18.5 mm								
	YR	Roller lever	16.0 mm								
	PB	Push Button	(see specification PBA4/QA4)								
	QA	Push Button	(see specification PBA4/QA4)								
	Other actuators on special request										
Actuator Position		No symbol, without lever, or lever fitted at the end nearest to the Plunger									
	0	With lever fitted at end opposite to plunger									
Contact Material		No symbol, Fine silver									
	G	Gold plate on silver									
	X	Gold alloy on silver palladium crosspoint									
Approvals		No symbol, without approval									
	UL	UL, CSA and ENEC approval									
Special Features	/☐☐☐☐	Saia specialise in customer specific solutions. Additional product variants are available or can be provided. If your requirements cannot be satisfied from the options listed, please contact www.saia-burgess.com or your local SB outlet.									

V4NC

V4NC

Characteristics	▪ wide variety of levers ▪ peg mounting option ▪ pre-wired option ▪ sealed (IP6K7) ▪ solder and faston terminals ▪ PCB terminals
Rating	250 VAC, 5 A
Dimensions (mm)	20 × 10.3 × 6,4
Actuator	▪ plunger ▪ plain levers ▪ roller levers ▪ simulated roller levers
Approvals	none



Preferred Range

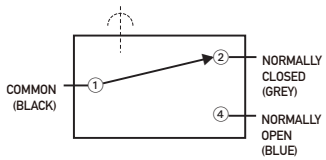
Ordering Reference	Actuating Force (N)	(ozf)	Sealing	Operating pos. (mm)	(in)	Terminal	Circuit	Actuator	Contacts	Electrical rating
V4NCT7	1,7	6,114	No symbol	8,40	0,331	Solder	CO	Plunger	Ag	250 VAC, 5 A
V4NCT7A1	0,8	2,877	No symbol	10,85	0,427	Solder	CO	Plain lever	Ag	250 VAC, 5 A
V4NCT7AR	0,8	2,877	No symbol	16,00	0,630	Solder	CO	Roller lever	Ag	250 VAC, 5 A
V4NCS	2,5	8,992	Sealed IP6K7	8,40	0,331	Cable 500 mm	CO	Plunger	Ag	250 VAC, 5 A
V4NCSA1	0,9	3,237	Sealed IP6K7	10,80	0,425	Cable 500 mm	CO	Plain lever	Ag	250 VAC, 5 A
V4NCSAR	0,9	3,237	Sealed IP6K7	15,90	0,626	Cable 500 mm	CO	Roller lever	Ag	250 VAC, 5 A

V4NC

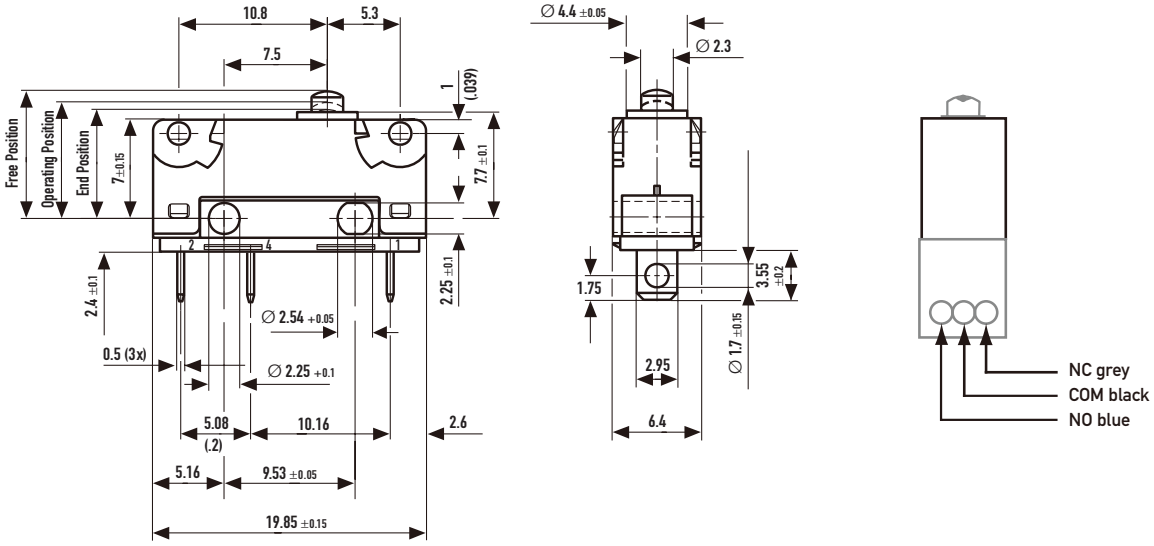
Specifications

Housing	Glass fibre reinforced Polyamide (PA 6.6)
Plunger	Polyacetal POM/(PA 4.6)
Mechanism	Snap-action coil spring mechanism with stainless steel spring
Functions	Change-over, normally closed or normally open
Contacts	Fine Silver, Gold plate on silver, Gold alloy on silver palladium (crosspoint)
Terminals	Gold flashed
Temperature range °C	–40°C to +85°C/120°C
Mechanical life	5×10^6 cycles minimum (impact free actuation) for the cowl 3×10^6
Protection	IP40, IP6K7 (depend on type), Flux-proof terminal entries (for all types)
Mounting	Side mounting (moulded mounting pegs on request)
Actuators	Plain lever, cam follower, roller lever, simulated roller (cam follower) lever
Accessories	Lug mounting frame, clip-on terminals cover, insulating sheet

Circuit diagram

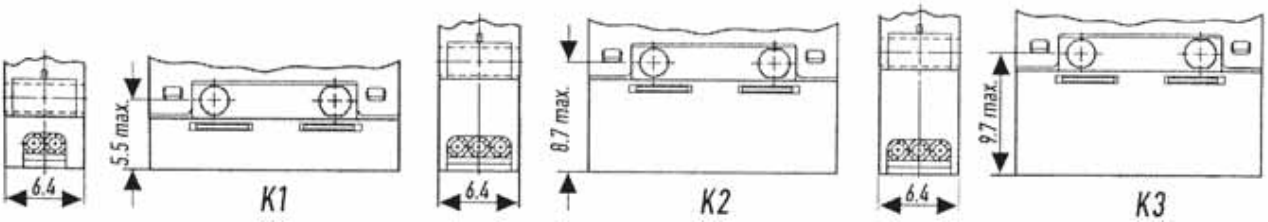


Dimensions



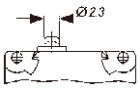
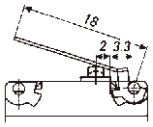
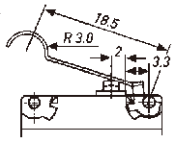
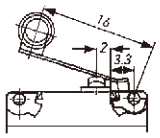
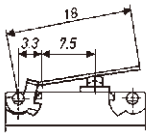
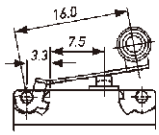
Prewired version with cable box

For type coding key please contact Saia



Standard cable FLRY 0.5 mm² with max. outside diameter 1.8 mm
Standard cable box is K2

Operating Characteristics

Actuator		Reference	Actuating Force Maximum (N)	(ozf)	Release Force Minimum (N)	(ozf)	Free Position Maximum (mm)	(in)	Operating Position (mm)	(in)	Movement Differential Maximum (mm)	(in)
Plunger		V4NC..	1,7	6,114	0,3	1,079	9,2	0,362	8,4 ± 0.3	0,331 ± 0.012	0,1	0,004
		V4NCE..	1,7	6,114	0,3	1,079	9,7	0,382	8,9 ± 0.3	0,35 ± 0.012	0,1	0,004
		V4NCS..	2,5	8,992	0,5	1,798	9,2	0,362	8,4 ± 0.3	0,331 ± 0.012	0,1	0,004
		V4NCSE..	2,5	8,992	0,5	1,798	9,7	0,382	8,9 ± 0.3	0,35 ± 0.012	0,1	0,004
A1 Lever		V4NC..	0,8	2,877	0,07	0,251	13,4	0,527	10,85 ± 1.3	0,427 ± 0.051	0,4	0,016
		V4NCE..	0,8	2,877	0,07	0,251	14,8	0,582	12,4 ± 1.3	0,488 ± 0.051	0,4	0,016
		V4NCS..	0,9	3,237	0,1	0,359	13,4	0,527	10,8 ± 1.3	0,425 ± 0.051	0,4	0,016
		V4NCSE..	0,9	3,237	0,1	0,359	14,8	0,582	12,4 ± 1.3	0,488 ± 0.051	0,4	0,016
	Width of lever 4.0mm/0.16 in											
AC Lever		V4NC..	0,8	2,877	0,07	0,251	16,1	0,634	13,5 ± 1.3	0,531 ± 0.051	0,4	0,016
		V4NCE..	0,8	2,877	0,07	0,251	17,6	0,693	15,1 ± 1.3	0,594 ± 0.051	0,4	0,016
		V4NCS..	0,9	3,237	0,1	0,359	16,1	0,634	13,4 ± 1.3	0,527 ± 0.051	0,4	0,016
		V4NCSE..	0,9	3,237	0,1	0,359	17,6	0,693	15,1 ± 1.3	0,594 ± 0.051	0,4	0,016
	Width of lever 4.0mm/0.16 in											
AR Lever		V4NC..	0,8	2,877	0,07	0,251	18,1	0,712	16 ± 1.2	0,63 ± 0.047	0,4	0,016
		V4NCE..	0,8	2,877	0,07	0,251	19,2	0,756	17,3 ± 1.2	0,681 ± 0.047	0,4	0,016
		V4NCS..	0,9	3,237	0,1	0,359	18,1	0,712	15,9 ± 1.2	0,626 ± 0.047	0,4	0,016
		V4NCSE..	0,9	3,237	0,1	0,359	19,2	0,756	17,3 ± 1.2	0,681 ± 0.047	0,4	0,016
	Width of lever 4.0mm/0.16 in											
A10 Lever		V4NC..	1,3	4,676	0,13	0,467	10,7	0,421	9,4 - ± 0,7	0,37 ± 0.027	0,2	0,008
		V4NCE..	1,3	4,676	0,13	0,467	11,5	0,453	10,2 ± 0,7	0,401 ± 0.027	0,2	0,008
		V4NCS..	1,8	6,474	0,2	0,719	10,7	0,421	9,3- ± 0,7	0,366 ± 0.027	0,2	0,008
		V4NCSE..	1,8	6,474	0,2	0,719	11,5	0,453	10,1 ± 0,7	0,397 ± 0.027	0,2	0,008
	Width of lever 4.0mm/0.16 in											
AR0 Lever		V4NC..	1,3	4,676	0,13	0,467	15,8	0,622	14,7 ± 0,6	0,579 ± 0.023	0,2	0,008
		V4NCE..	1,3	4,676	0,13	0,467	16,5	0,649	15,4 ± 0,6	0,606 ± 0.023	0,2	0,008
		V4NCS..	1,8	6,474	0,2	0,719	15,8	0,622	14,7 ± 0,6	0,579 ± 0.023	0,2	0,008
		V4NCSE..	1,8	6,474	0,2	0,719	16,5	0,649	15,4 ± 0,6	0,606 ± 0.023	0,2	0,008
	Width of lever 4.0mm/0.16 in											

Operating characteristics shown above are specified from mounting hole centres.

Over travel: Flush with case. (7,8 mm min) The case should not be used as an end stop.

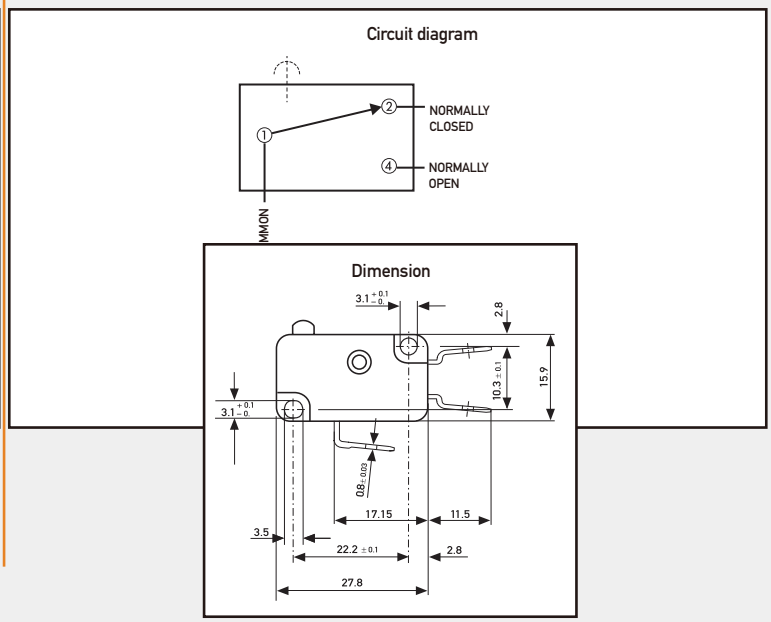
V4NC

Ordering Reference

				Example: V4NC	E	T7	C2	A1	0	G
Basic type	V4NC									
Actuating Force		No symbol, standard force								
Type of sealing		No symbol, unsealed, standard travel								
	E	Unsealed	with extended overtravel (0.5 mm)							
	S	Sealed IP6K7	standard travel							
	B	Sealed IP6K7	with extended overtravel (0.5 mm)							
Terminals		No symbol, pre-wired 500 mm with cable box (V4NCS/B only)								
	T7	Solder	2.95 × 0.5 × 3.55 long							
	T8	PCB	0.8 × 0.5 × 4,0 long							
	T9	Faston	2.8 × 0.5 × 9.5 long							
	T81	Formed PCB	0.8 × 0.5 × 3.8 long							
	T82	Formed PCB	0.8 × 0.5 × 3.8 long							
	T84	Short PCB	0.8 × 0.5 × 2.0 long							
	T85	Long PCB	0.8 × 0.5 × 6.85 long							
	T11	Welding/solder	2.95 × 0.5 × 3.55 long							
Circuit		No symbol, change-over								
	C2	Normally closed								
	C4	Normally open								
Actuators		No symbol, without lever								
	A1	Plain lever	18.0 mm							
	A2	Plain lever	25.0 mm							
	A3	Plain lever	32.0 mm							
	A7	Plain lever	60.0 mm							
	AC	Cam follower lever	18.5 mm (AC1)							
	AR	Roller lever	16.0 mm (AR1)							
	AP	Roller lever	17.9 mm (AR2)							
	PB	Push Button	(see specification PBA4/QA4)							
	QA	Push Button	(see specification PBA4/QA4)							
	Other actuators on special request									
Actuator Position		No symbol, without lever, or lever fitted at the end nearest to the Plunger								
	0	With lever fitted at end opposite to plunger								
Contact Material		No symbol, Ag								
	G	Gold plate on silver (GP								
	X	Gold alloy on silver palladium crosspoint (AUX)								
	Other contact materials on special request									
Special Features	/☐☐☐☐	Saia specialise in customer specific solutions. Additional product variants are available or can be provided. If your requirements cannot be satisfied from the options listed, please contact www.saia-burgess.com or your local SB outlet.								

Thermoset plastic Microswitches





XG

XG



Characteristics	■ wide range of forces and ratings ■ long mechanical and electrical life ■ solder, faston and PCB terminals ■ compliant to IEC 60335-1, 4. ed.
Rating	250 VAC, 26 A max.
Dimensions (mm)	27.8 × 15.9 × 10.3
Actuator	■ plunger ■ plain levers ■ roller levers ■ simulated roller levers
Approvals	ENEC, UL, cUL, CSA

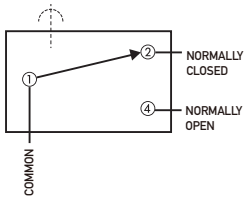
Preferred Range

Ordering Reference	Actuating Force (N)	(ozf)	Operating pos. (mm)	(in)	Terminal	Circuit	Actuator	Contacts	Electrical rating ENEC	UL/CSA
XGG2-88Z1	3,20	11,43	14,7	0,57	Faston	CO	Plunger	Ag / AgNi10	16(6) A	15 A
XGG2-88-J23Z1	1,40	5,03	14,9	0,59	Faston	CO	Plain lever	Ag / AgNi10	16(6) A	15 A
XGG2-88-J26Z1	0,91	3,27	14,5	0,57	Faston	CO	Plain lever	Ag / AgNi10	16(6) A	15 A
XGG2-88-J27Z1	0,65	2,34	13,7	0,54	Faston	CO	Plain lever	Ag / AgNi10	16(6) A	15 A
XGG2-88-S20Z1	3,20	11,43	20,2	0,79	Faston	CO	Roller lever	Ag / AgNi10	16(6) A	15 A
XGG2-88-S21Z1	1,55	5,57	20,1	0,79	Faston	CO	Roller lever	Ag / AgNi10	16(6) A	15 A
XGG3-88Z1	3,20	11,43	14,7	0,57	Solder	CO	Plunger	Ag / AgNi10	16(6) A	15 A
XGG6-88Z1	3,20	11,43	14,7	0,57	Faston	CO	Plunger	Ag / AgNi10	16(6) A	15 A
XGC2-88Z1	0,80	2,86	14,7	0,57	Faston	CO	Plunger	Ag / AgNi10	12(6) A	10 A
XGC2-88-J23Z1	0,35	1,26	15,0	0,59	Faston	CO	Plain lever	Ag / AgNi10	12(6) A	10 A
XGC2-88-S20Z1	0,80	2,86	20,2	0,79	Faston	CO	Roller lever	Ag / AgNi10	12(6) A	10 A
XGC6-88Z1	0,80	2,86	14,7	0,57	Faston	CO	Plunger	Ag / AgNi10	12(6) A	10 A
XGK2-88Z1	1,50	5,36	14,7	0,57	Faston	CO	Plunger	Ag / AgNi10	12(6) A	12 A
XGK2-88-J26Z1	0,43	1,55	14,7	0,57	Faston	CO	Plain lever	Ag / AgNi10	12(6) A	12 A
XGK2-88-S21Z1	0,71	2,55	20,2	0,80	Faston	CO	Roller lever	Ag / AgNi10	12(6) A	12 A
XGK3-88Z1	1,50	5,36	14,7	0,57	Solder	CO	Plunger	Ag / AgNi10	12(6) A	12 A
XGK6-88Z1	1,50	5,36	14,7	0,57	Faston	CO	Plunger	Ag / AgNi10	12(6) A	12 A
XGO2-88Z1	1,20	4,29	14,5	0,57	Faston	CO	Plunger	Ag / AgNi10	16(6) A	15 A
XGO2-88-J27Z1	0,25	0,90	13,6	0,54	Faston	CO	Plain lever	Ag / AgNi10	16(6) A	15 A
XGO2-88-S20Z1	1,20	4,29	20,1	0,79	Faston	CO	Roller lever	Ag / AgNi10	16(6) A	15 A
XGO6-88Z1	1,20	4,29	14,5	0,57	Faston	CO	Plunger	Ag / AgNi10	16(6) A	15 A

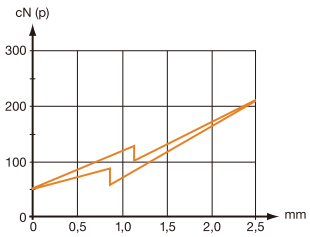
Specifications

Housing	Melamine-Formaldehyd. Thermosetting
Plunger	POM, PPS, MF depending on temperature/type
Mechanism	Snap-action, single pole beryllium bronze blade mechanisme with wiping contacts
Functions	Change-over, normally-closed (except XGG and XGK) or normally-open
Contacts	Fine silver (Ag), silver nickel (AgNi10), gold-plated (Au), silver cadmium oxide (AgCdO)
Terminals	Solder, faston, screw, PCB and side mounting PCB terminals. RAST 5 terminals (5.0 mm pitch)
Temperature range °C	-40° C to +150° C
Mechanical life	2,5 · 10^5 cycles minimum, 50 · 10^6 cycles maximum (Actuation: sinusoidal and maximum up to 80% of the overtravel)
Protection	Enclosure IP40
Mounting	Side mounting via mounting holes
Actuators	Stainless steel

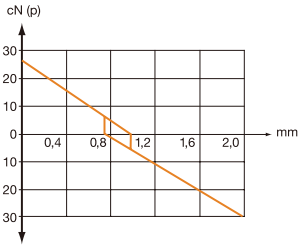
Circuit diagram



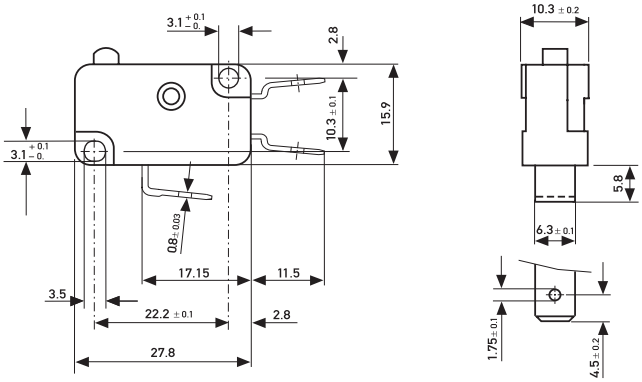
Actuating force/travel



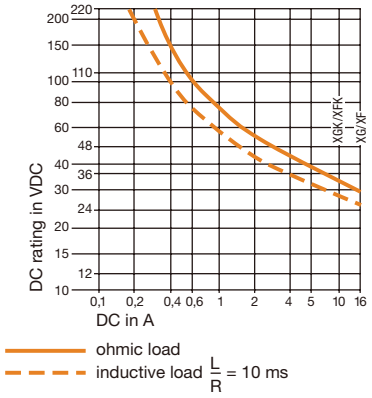
Contact force/travel



Dimensions



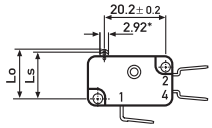
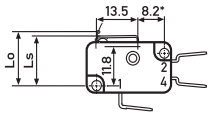
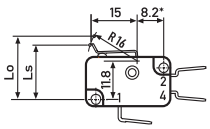
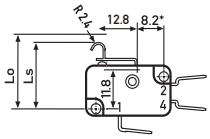
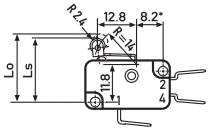
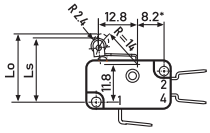
Maximum DC rating



Recommended maximum electrical ratings

	Voltage (VAC)	Approvals ENEC		UL	(VAC)		Voltage (VAC)	Approvals ENEC		UL	(VAC)
XGG..-88	250	16 (6)	5E4	15 A	125/250	XGT..-86	250	26 (10)	25E3	25A	125/250
XGA..-88	250	16 (6)	5E4	15 A	125/250	XGD..-86	250	22 (6)	5E4	21A	125/250
XGM..-88	250	16 (6)	5E4	15 A	125/250	XGA..-86	250	20 (8)	5E4	15A	125/250
XGO..-88	250	16 (6)	5E4	15 A	125/250	XGM..-86	250	20 (8)	5E4	15A	125/250
XGB..-88	250	12 (6)	5E4	12 A	125/250	XGO..-86	250	20 (8)	5E4	15A	125/250
XGC..-88	250	12 (6)	5E4	10 A	125/250	XGA..-86	400	10 (6)	5E4	–	–
XGH..-88	250	12 (6)	5E4	10 A	125/250	XGG..-86	400	10 (6)	5E4	–	–
XGK..-88	250	12 (6)	5E4	12 A	125/250	XGM..-86	400	10 (6)	5E4	–	–
XG....-88	400	3 (2)	5E4			XGO..-86	400	10 (6)	5E4	–	–

Operating Characteristics

Actuator	Reference	Actuating Force Maximum (N)	(ozf)	Release Force Minimum (N)	(ozf)	Free Position Maximum (mm)	(in)	Operating Position (mm)		(in)		Movement Differential Maximum (mm)	(in)	Total travelled position (mm)	(in)
Plunger 	XGG..	3,2	11,43	0,4	1,43	15,75	0,62	14,7		0,57		0,35	0,013	13,2	0,519
	XGA..	3,2	11,43	0,6	2,14	15,75	0,62	14,7		0,57		0,15	0,006	13,2	0,519
	XGM..	2	7,14	0,5	1,79	15,6	0,61	14,5		0,57		0,35	0,013	13,7	0,539
	XGO..	1,2	4,29	0,1	0,36	15,6	0,61	14,5		0,57		0,35	0,013	13,7	0,539
	XGK..	1,5	5,36	0,2	0,71	15,75	0,62	14,7	+0,2	0,57	+0,007	0,35	0,013	13,2	0,519
	XGB..	1,5	5,36	0,3	1,07	15,75	0,62	14,7	−0,4	0,57	−0,015	0,15	0,006	13,2	0,519
	XGC..	0,8	2,86	0,1	0,36	15,75	0,62	14,7		0,57		0,15	0,006	13,2	0,519
	XGH..	0,45	1,61	0,05	0,18	15,6	0,61	14,5		0,57		0,35	0,013	13,7	0,539
	XGT	3,2	11,43	0,6	2,14	15,75	0,62	14,7		0,57		0,15	0,006	13,2	0,519
	XGD..	1,7	6,07	0,15	0,54	15,75	0,62	14,7		0,57		0,15	0,006	13,2	0,519
-J20 Lever 	XGG..	3,2	11,43	0,36	1,29	16,5	0,64	15,1 ± 0,5		0,59 ± 0,019		0,4	0,015	14	0,551
	XGA..	3,2	11,43	0,54	1,93	16,5	0,64	15,1 ± 0,5		0,59 ± 0,019		0,2	0,007	14	0,551
	XGM..	2	7,14	0,45	1,61	16,5	0,64	15 ± 0,5		0,59 ± 0,019		0,4	0,015	14,4	0,566
	XGO..	1,2	4,29	0,09	0,34	16,5	0,64	15 ± 0,5		0,59 ± 0,019		0,4	0,015	14,4	0,566
	XGK..	1,5	5,36	0,18	0,64	16,5	0,64	15,1 ± 0,5		0,59 ± 0,019		0,4	0,015	14	0,551
	XGB..	1,5	5,36	0,27	0,96	16,5	0,64	15,1 ± 0,5		0,59 ± 0,019		0,2	0,007	14	0,551
	XGC..	0,8	2,86	0,09	0,32	16,5	0,64	15,1 ± 0,5		0,59 ± 0,019		0,2	0,007	14	0,551
	XGH..	0,45	1,61	0,04	0,14	16,5	0,64	15 ± 0,5		0,59 ± 0,019		0,4	0,015	14,4	0,566
Width of lever 7 mm / 0,28 in – also available with width 4 mm / 0,16 in															
-M20 Lever 	XGG..	2,6	9,29	0,32	1,14	19,2	0,75	17,5 ± 0,7		0,68 ± 0,027		0,45	0,017	16,4	0,645
	XGA..	2,6	9,29	0,48	1,71	19,2	0,75	17,5 ± 0,7		0,68 ± 0,027		0,2	0,007	16,4	0,645
	XGM..	1,65	5,89	0,4	1,43	19,2	0,75	17,3 ± 0,7		0,68 ± 0,027		0,45	0,017	16,9	0,665
	XGO..	1	3,57	0,08	0,29	19,2	0,75	17,3 ± 0,7		0,68 ± 0,027		0,45	0,017	16,9	0,665
	XGK..	1,25	4,46	0,16	0,57	19,2	0,75	17,5 ± 0,7		0,68 ± 0,027		0,45	0,017	16,4	0,645
	XGB..	1,25	4,46	0,24	0,86	19,2	0,75	17,5 ± 0,7		0,68 ± 0,027		0,2	0,007	16,4	0,645
	XGC..	0,65	2,32	0,08	1,29	19,2	0,75	17,5 ± 0,7		0,68 ± 0,027		0,2	0,007	16,4	0,645
	XGH..	1,37	1,32	0,04	0,14	19,2	0,75	17,3 ± 0,7		0,68 ± 0,027		0,45	0,017	16,9	0,665
Width of lever 7 mm/0,28 in															
-L20 Lever 	XGG..	3,2	11,43	0,38	1,36	21,8	0,85	20,5 ± 0,6		0,81 ± 0,023		0,4	0,015	19,5	0,767
	XGA..	3,2	11,43	0,85	3,04	21,8	0,85	20,5 ± 0,6		0,81 ± 0,023		0,2	0,007	19,5	0,767
	XGM..	2	7,14	0,48	1,71	21,8	0,85	20,3 ± 0,6		0,8 ± 0,023		0,4	0,015	19,8	0,779
	XGO..	1,2	4,29	0,09	0,32	21,8	0,85	20,1 ± 0,6		0,79 ± 0,023		0,4	0,015	19,8	0,779
	XGK..	1,5	5,36	0,19	0,68	21,8	0,85	20,5 ± 0,6		0,81 ± 0,023		0,4	0,015	19,5	0,767
	XGB..	1,5	5,36	0,29	1,04	21,8	0,85	20,5 ± 0,6		0,81 ± 0,023		0,2	0,007	19,5	0,767
	XGC..	0,8	2,86	0,09	0,32	21,8	0,85	20,5 ± 0,6		0,81 ± 0,023		0,2	0,007	19,5	0,767
	XGH..	0,45	1,61	0,04	0,14	21,8	0,85	20,3 ± 0,6		0,8 ± 0,023		0,4	0,015	19,8	0,779
Width of lever 7 mm/0,28 in															
-S20 Lever 	XGG..	3,2	11,43	0,37	1,32	21,8	0,85	20,2 ± 0,7		0,79 ± 0,027		0,4	0,015	19,3	0,759
	XGA..	3,2	11,43	0,56	2	21,8	0,85	20,2 ± 0,7		0,79 ± 0,027		0,2	0,007	19,3	0,759
	XGM..	2	7,14	0,47	1,68	21,8	0,85	20,1 ± 0,7		0,79 ± 0,027		0,4	0,015	19,7	0,775
	XGO..	1,2	4,29	0,09	0,32	21,8	0,85	20,1 ± 0,7		0,79 ± 0,027		0,4	0,015	19,7	0,775
	XGK..	1,5	5,36	0,18	0,64	21,8	0,85	20,2 ± 0,7		0,79 ± 0,027		0,4	0,015	19,3	0,759
	XGB..	1,5	5,36	0,28	1	21,8	0,85	20,2 ± 0,7		0,79 ± 0,027		0,2	0,007	19,3	0,759
	XGC..	0,8	2,86	0,09	0,32	21,8	0,85	20,2 ± 0,7		0,79 ± 0,027		0,2	0,007	19,3	0,759
	XGH..	0,45	1,61	0,04	0,14	21,8	0,85	20,1 ± 0,7		0,79 ± 0,027		0,4	0,015	19,7	0,775
Width of roller 6,6 mm/0,26 in															
-T20 *Lever 	XGG..	3,2	11,43	0,37	1,32	21,8	0,85	20,2 ± 0,7		0,79 ± 0,027		0,4	0,015	19,3	0,759
	XGA..	3,2	11,43	0,56	2	21,8	0,85	20,2 ± 0,7		0,79 ± 0,027		0,2	0,007	19,3	0,759
	XGM..	2	7,14	0,05	1,68	21,8	0,85	20,1 ± 0,7		0,79 ± 0,027		0,4	0,015	19,7	0,775
	XGO..	1,2	4,29	0,09	0,32	21,8	0,85	20,1 ± 0,7		0,79 ± 0,027		0,4	0,015	19,7	0,775
	XGK..	1,5	5,36	0,18	0,64	21,8	0,85	20,2 ± 0,7		0,79 ± 0,027		0,4	0,015	19,3	0,759
	XGB..	1,5	5,36	0,28	1	21,8	0,85	20,2 ± 0,7		0,79 ± 0,027		0,2	0,007	19,3	0,759
	XGC..	0,8	2,86	0,09	0,32	21,8	0,85	20,2 ± 0,7		0,79 ± 0,027		0,2	0,007	19,3	0,759
	XGH..	0,45	1,61	0,04	0,14	21,8	0,85	20,1 ± 0,7		0,79 ± 0,027		0,4	0,015	19,7	0,775
Width of roller 6,6 mm/0,26 in															

[1] Lever distance 8.2 (0.32) for lever position –.20, lever position (-J20, L20, S20, M20)
Lever distance 14.0 (0.55) for lever position –.40, lever position (-J40, L40, S40, M40)

* For high temperature T125° C/T 150° C (ENEC, UL)

Ordering Reference

Example: XG | 4 | 2 | A | -88 | J20 | Z1

Basic type

XGG..	3,2 N	11,43 ozf
XGA..	3,2 N	11,43 ozf
XGM..	2,0 N	7,14 ozf
XGO..	1,2 N	4,29 ozf
XGK..	1,5 N	5,36 ozf
XGB..	1,5 N	5,36 ozf
XGC..	0,8 N	2,86 ozf
XGH..	0,45 N	1,61 ozf
XGD..	1,7 N	6.07 ozf
XGT..	3,2 N	11,43 ozf

Circuit

	No symbol, change-over
4	Normally closed (NC)
5	Normally open (NO)

Terminals

2	Faston	6,3 × 0,8
3	Solder	1,7 × 3,2
4	Faston	1× 2,8 × 0,5 DIN
5	Faston	1× 2,8 × 0,5
6	Faston	4,8 × 0,5
7	Screw	
8	Faston	1× 2,8 × 0,8 DIN
9	Faston	1× 2,8 × 0,8
10	Faston	4,8 × 0,8
11	Faston	2× 2,8 × 0,8
12	Short solder	∅ 2,3
13	Print bent (lid)	
14	Print bent (base)	
15	Rast 5	6,3 × 0,8
19	Short solder	∅ 1,7

Other types of terminals are available on request

Version

			Number of operations at rated load	
	ENEC	UL	Europe	UL
	No symbol, T85	T90	50.000	6.000
A	T85	T90	50.000	100.000
W	T150	T150	50.000	6.000
AW	T150	T150	50.000	100.000
B	T85	T90	10.000	6.000
V	T125	T130	50.000	6.000
AV	T125	T130	50.000	100.000
C	T85	T90	25.000	6.000

Contacts

-88	Ag / AgNi10
-81	Gold-plated 4 µm (Au) on Ag
-86	Ag / Ag CdO

Actuators

		No symbol, plunger	
J20 [1]	J40 [2]	Plain lever	13,5 mm
J22 [1]	J42 [2]	Plain lever	24,0 mm
J23 [1]	J43 [2]	Plain lever	27,8 mm
J27 [1]	J47 [2]	Plain lever	60,0 mm
M20 [1]	M40 [2]	Plain lever formed	14,7 mm
L20 [1]	L40 [2]	Cam follower	12,8 mm
L21 [1]	L41 [2]	Cam follower	26,2 mm
S20 [1]	S40 [2]	Roller lever	12,8 mm
T20 [1]	T40 [2]	Roller lever, 150°C version	12,8 mm

Other actuators available on request

[1] Lever distance 8.2 (0.32) for lever position –.20, lever position (-J20, L20, S20, M20)
[2] Lever distance 14.0 (0.55) for lever position –.40, lever position (-J40, L40, S40, M40)

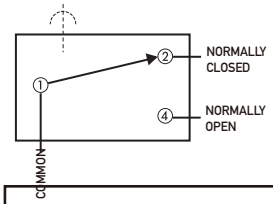
Approvals

	No symbol, ENEC
Z1	UL, CSA

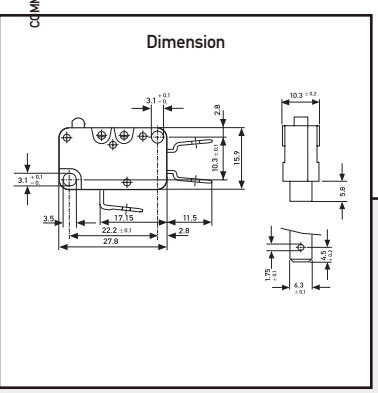
Thermoplastic Microswitches



Circuit diagram



Dimension



X3

Characteristics	■ 8 mm creepage and clearance distance to the actuator ■ long mechanical and electrical life ■ solder, faston and PCB terminal
Rating	250 VAC, 21 A max.
Dimensions (mm)	27,8 × 15,9 × 10,3
Actuator	■ plunger ■ straight lever ■ simulated roller levers ■ roller levers
Approvals	UL, cUL, CSA, ENEC, CQC



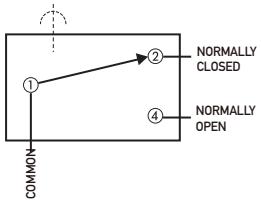
Preferred Range

Ordering Reference	Actuating Force (N)	(ozf)	Operating pos. (mm)	Terminal	Circuit	Actuator	Contacts	Electrical rating ENEC	UL/CSA
X3M302K2KA	1,60	5,72	14,7 +0.2/-0.4	Faston	CO	Plunger	Ag/AgNi10	16 (6) A	20.5 A
X3M302K2KAJ32	0,88	3,15	15 ± 1,0	Faston	CO	Plain lever	Ag/AgNi10	16 (6) A	20.5 A
X3M302K2KAJ62	0,57	2,04	14,8 ± 1,5	Faston	CO	Plain lever	Ag/AgNi10	16 (6) A	20.5 A
X3M302K2KAT02	2,00	7,15	20,2 ± 0,7	Faston	CO	Roller lever	Ag/AgNi10	16 (6) A	20.5 A
X3M303K2KA	1,60	5,72	14,7 +0.2/-0.4	Solder	CO	Plunger	Ag/AgNi10	16 (6) A	20.5 A
X3M306K2KA	1,60	5,72	14,7 +0.2/-0.4	Faston	CO	Plunger	Ag/AgNi10	16 (6) A	20.5 A
X3C302K2LB	0,80	2,86	14,7 +0.2/-0.4	Faston	CO	Plunger	Ag/AgNi10	10 (3) A	12 A
X3C302K2LBJ32	0,35	1,25	15 ± 1,0	Faston	CO	Plain lever	Ag/AgNi10	10 (3) A	12 A
X3C303K2LB	0,80	2,86	14,7 +0.2/-0.4	Solder	CO	Plunger	Ag/AgNi10	10 (3) A	12 A
X3C306K2LB	0,80	2,86	14,7 +0.2/-0.4	Faston	CO	Plunger	Ag/AgNi10	10 (3) A	12 A
X3L302K6DD	1,50	5,36	14,7 +0.2/-0.4	Faston	CO	Plunger	Ag/AgCdO	21 (8) A	21 A
X3L303K6DD	1,50	5,36	14,7 +0.2/-0.4	Solder	CO	Plunger	Ag/AgCdO	21 (8) A	21 A

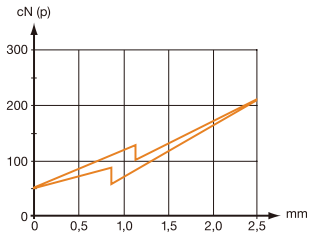
Specifications

Housing	Thermoplastic
Plunger	Thermoplastic
Mechanism	Snap-action, single pole beryllium bronze blade mechanism with wiping contacts
Contact carrier	Brass
Contacts	Fine silver (Ag), silver nickel (AgNi10), gold-plated (Au), silver cadmium oxide (AgCd0)
Terminals	Solder, Faston and RAST 5 terminals
Temperature range °C	Between –40°C and +125°C
Mechanical life	minimum cycles X3L: 10^5/ X3M: 10^4/ X3C: $2 \cdot 10^6$ (Actuation: sinusoidal and maximum up to 80% of the overtravel)
Protection	Enclosure IP40
Mounting	Side mounting via mounting holes
Actuators	Stainless steel (lever)

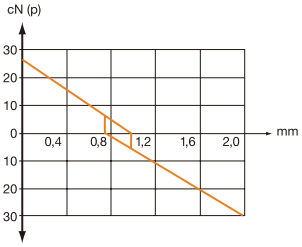
Circuit diagram



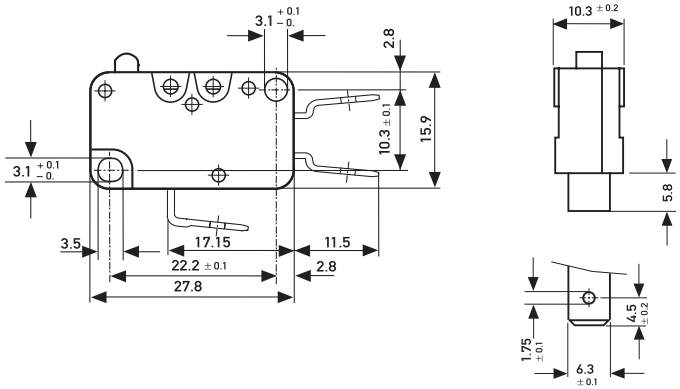
Actuating force/travel



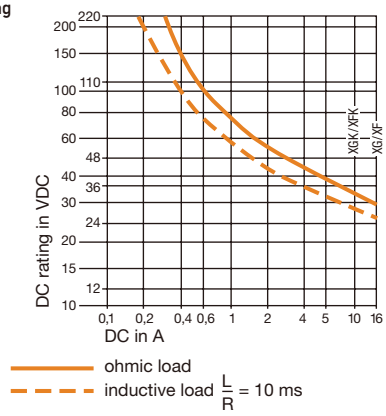
Contact force/travel



Dimensions



Maximum DC rating

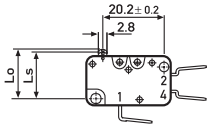
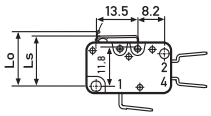
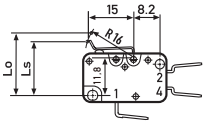
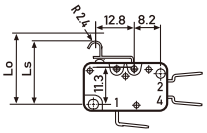
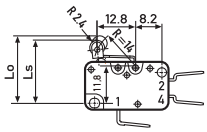


Recommended maximum electrical ratings

	Voltage (VAC)	Resistive load (A)	Motor load (A)	Approvals ENEC (A)		(VAC)	Approvals UL (A)	(VAC)	Motor load
X3M	250	16	6	16 (6)	5E4	250	20,5	250	1½ HP
							20,5	125	½ HP
X3C	250	10	3	10 (3)	5E4	250	12	250	½ HP
							12	125	⅛ HP
X3L	250	21	8	21 (8)	1E4	250	21	250	2 HP
							21	125	1 HP

Current breaking capacities in the tables refer to Ag/AgNi10 contacts with the exception of X3L Ag/AgCd0

Operating Characteristics

Actuator		Reference	Actuating Force Maximum (N)	(ozf)	Release Force Minimum (N)	(ozf)	Free Position Maximum (mm)	(in)	Operating Position (mm)		(in)		Movement Differential (mm)	(in)	Full overtravel position (mm)	(in)
Plunger		X3C3	0,8	2,877	0,05	0,179	15,75	0,62	14,7	+0,2 −0,4	0,578	+0,008 −0,006	0,25	0,009	13,2	0,52
		X3M3	1,6	5,755	0,2	0,719	15,75	0,62	14,7		0,578		0,25	0,009	13,2	0,52
J02 Lever		X3C3 ..	0,8	2,877	0,045	0,161	16,5	0,649	15,1 ± 0,5		0,59 ± 0.02		0,35	0,014	14	0,55
		X3M3..	2	7,193	0,18	0,647	16,5	0,649	15,1 ± 0,5		0,59 ± 0.02		0,35	0,014	14	0,55
Width of lever 7.0 mm/0.28 in – also available with width 4 mm/0,16 in																
M02 Lever		X3C3 ..	0,5	1,798	0,04	0,143	19,2	0,755	17,5 ± 0,7		0,69 ± 0.028		0,35	0,014	16,4	0,65
		X3M3..	1,65	5,934	0,16	0,575	19,2	0,755	17,5 ± 0,7		0,69 ± 0.028		0,35	0,014	16,4	0,65
Width of lever 7.0 mm/0.28 in																
L02 Lever		X3C3 ..	0,8	2,877	0,045	0,161	21,8	0,858	20,5 ± 0,6		0,81 ± 0.024		0,35	0,014	19,5	0,76
		X3M3..	2	7,193	0,19	0,683	21,8	0,858	20,5 ± 0,6		0,81 ± 0.024		0,3	0,011	19,5	0,76
Width of lever 7.0 mm/0.28 in																
T02 Lever		X3C3 ..	0,8	2,877	0,045	0,161	21,8	0,858	20,2 ± 0,7		0,79 ± 0.028		0,35	0,014	19,3	0,76
		X3M3..	2	7,193	0,19	0,683	21,8	0,858	20,2 ± 0,7		0,79 ± 0.028		0,35	0,014	19,3	0,76
Width of roller 6,6 mm/0.26 in																

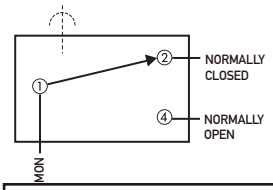
Ordering Reference

			Example: X3	M	3	02	K	2	A	A	J0	2	AA
Basic type	X3	Microswitch according to DIN 41635, Design A											
Operating force	M	Standard force 1											
	L	Standard force 2											
	C	Low force											
Circuit diagram	3	Change-over											
	4	Normally closed (NC)											
	5	Normally open (NO)											
Terminals	**02**	Plug terminal 6.3 × 0.8 mm											
	03	Solder terminal											
	06	Plug terminal 4.8 × 0.5 mm											
	10	Plug terminal 4.8 × 0.8 mm											
	12	Solder terminal, short											
	13	PCB-terminal, Formed to lid											
	14	PCB-terminal, Formed to base											
	15	Plug terminal RAST 5 6.3 × 0.8 mm											
	16	Plug terminal RAST 5 4.8 × 0.8 mm											
Body	K	PA66 GF25											
	N	Compliant to glow wire requirements as to IEC 60335-1, 4. ed.											
Contacts materials	2	Silver/AgNi10											
	6	AgCd0											
	8	Gold plated											
UL/C-UL ratings	A	20.5 A, 125/250 VAC 15 A, 125/250 VAC, 100'000 cy. 1½ HP, 250 VAC, ½ HP, 125 VAC											
	D	21 A, 125/250 VAC 2 HP, 250 VAC, 1 HP, 125 VAC											
	E	21 A, 125/250 VAC 15 A, 125/250 VAC, 100'000 cy. 2 HP, 250 VAC, 1 HP, 125 VAC											
	K	20.5 A, 125/250 VAC 1½ HP, 250 VAC, ½ HP, 125 VAC											
	L	12 A, 125/250 VAC ⅓ HP, 250 VAC, ⅛ HP, 125 VAC											
	M	6 A, 125/250 VAC ⅓ HP, 250 VAC, ⅛ HP, 125 VAC											
	N	No approvals											
	P	20.5 A, 125/250 VAC 1½ HP, 250 VAC, ½ HP, 125 VAC ¼ HP, 250 VDC, ½ HP, 125 VDC											
	Q	12 A, 125/250 VAC ⅓ HP, 250 VAC, ⅛ HP, 125 VAC ¼ A, 250 VDC, ½ A, 125 VDC											
	R	6 A, 125/250 VAC ⅓ HP, 250 VAC, ⅛ HP, 125 VAC ¼ A, 250 VDC, ½ A, 125 VDC											
EN/IEC ratings	A	16 (6) A, 250 V~ 5E4 T125 µ approved											
	B	10 (3) A, 250 V~ 5E4 T125 µ approved											
	C	6 (3) A, 250 V~ 5E4 T125 µ approved											
	D	21 (8) A, 250 V~ 1E4 T105 µ approved											
Type of actuator		No symbol, without lever											
	J0 to J9	Straight lever (width 7 mm)											
	L0 to L9	Simulated roller lever											
	M0 to M9	Customer specified lever (KV)											
	P0 to P9	Straight lever (width 4 mm)											
	T0 to T9	Roller lever											
	U0 to U9	Outside mounted lever											
Actuator position		No symbol, without lever											
	2	Rear lever											
	4	Front lever											
Customer version		No symbol, standard type											
	AA to YY	Specials for customers											

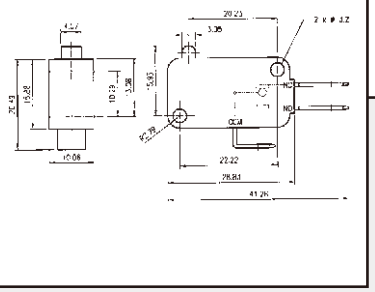
High rating and 3 mm contact gap Microswitches



Circuit diagram



Dimension



JOHNSON ELECTRIC
innovating motion

390

390



Characteristics	■ wiping contacts, leaf spring mechanisme ■ Rast 5 terminal option
Rating	250 VAC, 25 A max.
Dimensions	28.8 × 20.4 × 10.1
Actuator	■ plunger ■ plain levers ■ roller levers ■ moulded lever
Approvals	ENEC, UL, CSA

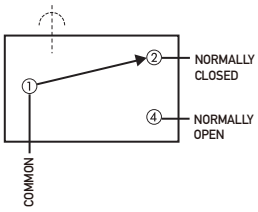
Popular Products

Ordering Reference	Actuating Force (g)	Operating pos. (mm)	Terminal	Contact Gap (mm)	Actuator	Contacts	Electrical rating ENEC	UL
393/40/120	120	14,4–15,17	6,35 × 0,8	1	Plunger	Ag	22 (4) A 250 VAC	22 A 1HP 125/250VAC
393/40/350	350	14,4–15,17	6,35 × 0,8	1	Plunger	Ag	20 (4) A 250 VAC	20 A 1HP 125/250 VAC

Specifications

Housing	Glass-filled flame retardant Nylon 6,6
Plunger	Glass-filled flame retardant Nylon 6,6
Mechanism	Snap action, single pole leaf spring mechanism
Functions	Change over, Normally open, Normally closed
Contacts	Silver
Terminals	Solder, Faston and Rast 5 terminals
Temperature range	-10°C to +85°C
Mechanical life	10^7 cycles minimum (impact-free actuation)
Protection	IP40 (enclosure)
Mounting	Side mounting
Actuators	Plunger, plain lever, roller lever

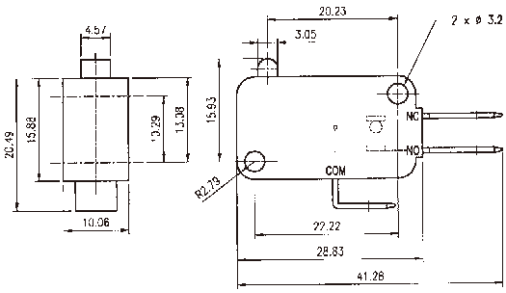
Circuit diagram



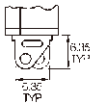
Miniature

390

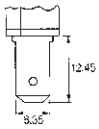
Dimensions



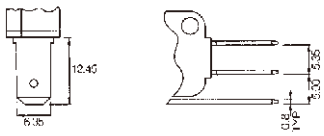
392
Solder



393
6,35 × 0,8
Fast on



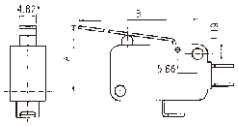
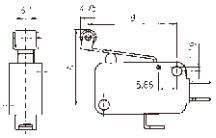
398
Rast 5
Fast on



Recommended maximum electrical ratings A3 shown below

Versions	ENEC	UL
120 g (only for NO/NC)	22 (4) A, 250 VAC, 50E3, T85	22 A 1HP 125/250 VAC T85
350 g (only for NO/NC)	25 (4) A, 250 VAC, 50E3, T85	22 A 1HP 125/250 VAC T85
CO	20 (4) A, 250 VAC, 10E3, T85	20A, 1HP 125/250 VAC

Operating Characteristics

Actuator		Reference	Actuating Force Maximum (g)	Release Force Minimum (g)	Free Position Maximum (mm)	Operating Position	Length (mm)	Movement Differential Maximum (mm)	Overtravel Minimum (mm)
Plunger		39-/40/120	120	40	15,93	14,4–15,17		0,25	1,32
		39-/120/350	350	100	15,93	14,4–15,17		0,25	1,32
Plain lever (Back position)		ZD0			16,99		22,56		
		ZD1			18,61		33,9		
		ZD2			25,8		84,43		
Roller lever		ZDS0			22,15		19,67		
		ZDS1			23,86		31,7		

Ordering Reference

			Example: 39	2/	40/	120	NO	ZD0
Basic type	39							
Terminal type	2	Solder						
	3	6,35 × 0,8 fast-on						
	8	6,35 × 0,8 Rast 5						
Contact gap	40	1 mm standard						
Operating force	120	120 g						
	350	350 g						
Circut		No symbol, change-over						
	NO	Normally open						
	NC	Normally closed						
Actuator		No symbol, plunger						
	ZD0	Plain lever 22,5 mm						
	ZD1	Plain lever 33,9 mm						
	ZD2	Plain lever 84,4 mm						
	ZDS0	Roller lever 19,67 mm						
	ZDS1	Roller lever 31,7 mm						

340

340



Characteristics	▪ wiping contacts, leaf spring mechanism ▪ 3 mm contact gap option
Rating	250 VAC, 16 A max.
Dimensions	28.8 × 20.4 × 10.1
Actuator	▪ plunger ▪ roller lever ▪ plain levers ▪ simulated roller lever ▪ moulded lever
Approvals	ENEC

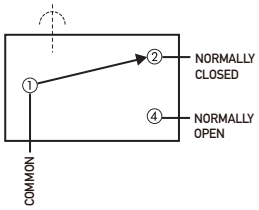
Popular Products

Ordering Reference	Actuating Force (g)	Operating pos. (mm)	Terminal	Contact Gap (mm)	Actuator	Contacts	Electrical rating ENEC	UL/CSA
343/40/75	75	14,4–15,17	6,35 × 0,8	1	Plunger	AgCd0	16,1 A, 250 VAC	10 A

Specifications

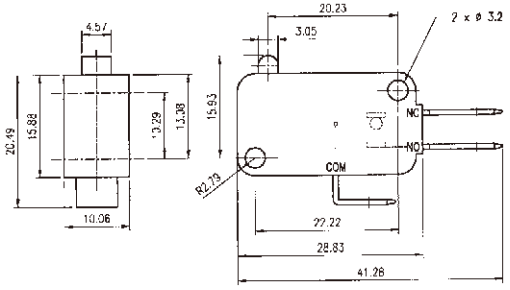
Housing	Glass-filled flame retardant Nylon 6,6
Plunger	Glass-filled flame retardant Nylon 6,6
Mechanism	Snap action, single pole leaf spring mechanism
Functions	Change-over, Normally open, Normally closed
Contacts	Silver
Terminals	Solder, Faston and Rast 5 terminals
Temperature range	-10°C to +85°C
Mechanical life	10^7 cycles minimum (3 mm gap 10^6) (impact-free actuation)
Protection	IP40 (enclosure)
Mounting	Side mounting
Actuators	Plunger, plain lever, roller lever

Circuit diagram

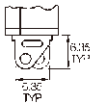


340

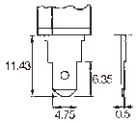
Dimensions



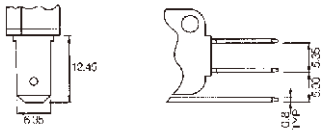
342
Solder



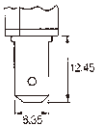
345
4,75 × 0,5
Fast on



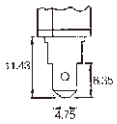
348
Rast 5
Fast on



343
6,35 × 0,8
Fast on



346
4,75 × 0,8
Fast on



Recommended maximum electrical ratings A3 sirown below

Versions	ENEC	UL / CSA	Motor load
75 g 3 mm Wide gap	*16,1 A, 250 VAC, 10 E3, T85 16(3) A, 250 VAC, 50 E3, T85	10 A 125/250 VAC N/a	¼ HP

* only for special versions
345 and 346 terminals 10 (4) A ENEC

Operating Characteristics

Actuator	Reference	Actuating Force Maximum (g)	Release Force Minimum (g)	Free Position Maximum (mm)	Operating Position	Length (mm)	Movement Differential Maximum (mm)	Overtravel Minimum (mm)
Plunger	34-/40/75	75	25	15,93	14,4–15,17		0,25	1,32
	34-/120/350	420	120	15,93	14,15–14,91		0,76	1,06
Plain lever (Back position)	ZD0			16,99		22,56		
	ZD1			18,61		33,9		
	ZD2			25,8		84,43		
Roller lever	ZDS0			22,15		19,67		
	ZDS1			23,86		31,7		

Ordering Reference

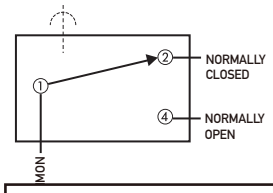
Example: 34 | 2 / | 40 / | 75 | NO | ZD0

Basic type	34		
Terminal type	2	solder	
	3	6,35 × 0,8 fast-on	
	5	4,75 × 0,5 fast-on	
	6	4,75 × 0,8 fast-on	
	8	6,35 × 0,8 Rast 5†	
Contact gap	40	1 mm standard	
	120	3 mm	
Operating force	75	75 g	
	350	420 g	(3 mm gap)
Circut		No symbol, change-over	
	NO	Normally open	
	NC	Normally closed	
Actuator		No symbol, plunger	
	ZD0	Plain lever	22,5 mm
	ZD1	Plain lever	33,9 mm
	ZD2	Plain lever	84,4 mm
	ZDS0	Roller lever	19,67 mm
	ZDS1	Roller lever	31,7 mm

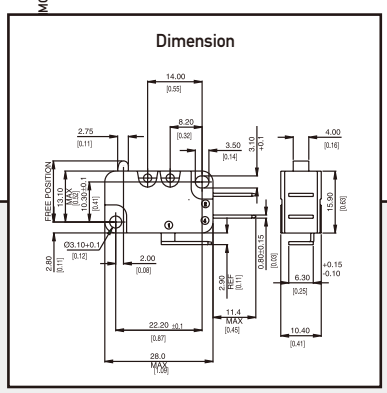
Low operating force Microswitches



Circuit diagram



Dimension



JOHNSON ELECTRIC
innovating motion

G3

Characteristics	■ low operating force, high current capacity ■ < 15 cn operating force option ■ > 3 mm contact gap, change-over mechanism option
Rating	Up to 250 VAC, 18 A
Dimensions (mm)	28 × 16 × 10
Actuator	■ plunger ■ ramp plunger
Approvals	ENEC, UL, CSA



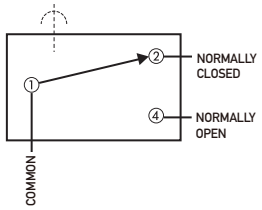
Preferred Range

Ordering Reference	Actuating Force (N)	(ozf)	Sealing	Operating pos. (mm)	(in)	Terminal	Circuit	Actuator	Contacts	Electrical rating
G3M1T1RULAU	0,15	0,54	IP40	14.7	0.57	Faston 6.3 × 0.8	CO	Ramp plunger	Gold plated	Up to 250 VAC, 7 A
G3M1T1PULAU	0,15	0,54	IP40	14.7	0.57	Faston 6.3 × 0.8	CO	Plain plunger	Gold plated	Up to 250 VAC, 7 A
G3M1T1RU-L	0,15	0,54	IP40	14.7	0.57	Faston 6.3 × 0.8	CO	Ramp plunger	Ag	Up to 250 VAC, 7 A
G3M1T1PUL	0,15	0,54	IP40	14.7	0.57	Faston 6.3 × 0.8	CO	Plain plunger	Ag	Up to 250 VAC, 7 A
G3M1T2RUL	0,15	0,54	IP40	14.7	0.57	Faston 4.8 × 0.8	CO	Ramp plunger	Ag	Up to 250 VAC, 7 A
G3M1T2PUL	0,15	0,54	IP40	14.7	0.57	Faston 4.8 × 0.8	CO	Plain plunger	Ag	Up to 250 VAC, 7 A
G3M1T3RUL	0,15	0,54	IP40	14.7	0.57	Faston 4.8 × 0.5	CO	Ramp plunger	Ag	Up to 250 VAC, 7 A
G3M1T3PUL	0,15	0,54	IP40	14.7	0.57	Faston 4.8 × 0.5	CO	Plain plunger	Ag	Up to 250 VAC, 7 A
G3M1T4RUL	0,15	0,54	IP40	14.7	0.57	Solder	CO	Ramp plunger	Ag	Up to 250 VAC, 7 A
G3M1T4PUL	0,15	0,54	IP40	14.7	0.57	Solder	CO	Plain plunger	Ag	Up to 250 VAC, 7 A
G3G4T1RUL	2,70	7,20	IP40	14.5	0.57	Faston 6,3 × 0,8	CO	Ramp plunger	> 3mm gap	Up to 250 VAC, 10 A
G3G4T1PUL	2,70	7,20	IP40	14.5	0.57	Faston 6,3 × 0,8	CO	Plain plunger	> 3mm gap	Up to 250 VAC, 10 A

Specifications

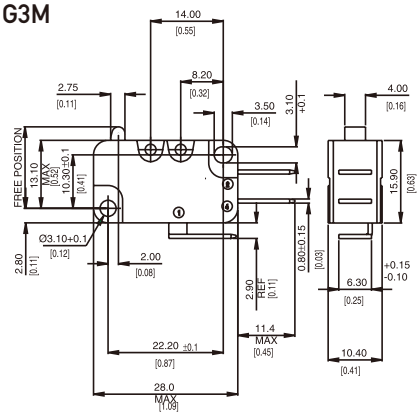
Housing	Flame retardant glass-filled nylon
Plunger	Flame retardant glass-filled nylon
Mechanism	Snap-action, single pole - beryllium copper trident spring
Functions	Change-over, Normally open, Normally closed
Contacts	Fixed - Silver cadmium oxide or gold plate on silver cadmium oxide, Moving - Silver or gold plate on silver
Terminals	6.3 mm (0.25 in), 4.8 mm (0.19 in) faston: NC (2), NO (4) - Brass, Common (1) - Brass, silver-plated Solder: Brass, silver-plated
Temperature range °C	-40°C to + 85°C
Mechanical life	10^6 to 10^7 cycles minimum (impact free actuation) - dependent on operating force
Protection	IP 40 (enclosure)
Mounting	Side mounting
Actuators	Plain plunger, Ramp plunger

Circuit diagram

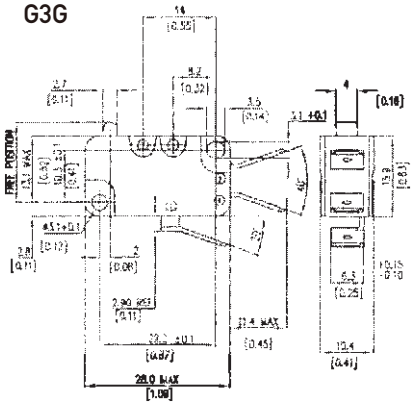


Dimensions

G3M



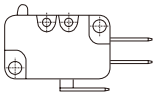
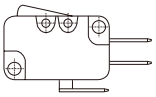
G3G



Recommended maximum electrical ratings

	Voltage (max)	Load (A)	Inductive load (A)	Approval
G3M1	250 VAC	7 (0.75 pf)		UL 1054/CSA 22.2 No. 55 - 6,000 operations
	250 VAC	6	2	EN61058-1, T85, 50,000 operations
G3M2	250 VAC	10.1 (0.75 pf)		UL 1054/CSA 22.2 No. 55 - 6,000 operations
	250 VAC	10	3	EN61058-1, T85, 50,000 operations
G3M3	250 VAC	15 (0.75 pf)		UL 1054/CSA 22.2 No. 55 - 6,000 operations
	250 VAC	16	4	EN61058-1, T85, 10,000 operations
G3M4	250 VAC	18 (0.75 pf)		UL 1054/CSA 22.2 No. 55 - 6,000 operations
	250 VAC	18	4	EN61058-1, T85, 10,000 operations
G3G4	250 VAC	10.1 (0.75 pf)		UL 1054/CSA 22.2 No. 55 - 6,000 operations
	250 VAC	10	3	EN61058-1, T85, 10,000 operations

Operating Characteristics

Actuator	Reference	Actuating Force Maximum (N)	(ozf)	Release Force Minimum (N)	(ozf)	Free Position Maximum (mm)	(in)	Operating Position (mm)	(in)		Movement Differential (mm)	(in)	Over travel Maximum
Plain plunger 	G3M1..P	0,15	0,54	0,005	0,02	15,9	0,625	14,7 ± 0.3	0,57	+0,01 −0,001	0,2	0,008	*
	G3M2..P	0,70	2,52	0,200	0,72	15,9	0,625	14,7 ± 0.3	0,57		0,2	0,008	
	G3M3..P	1,10	3.96	0,300	1,08	15,9	0,625	14,7 ± 0.3	0,57		0,2	0,008	
	G3M4..P	1,70	6,11	0,500	1,80	15,9	0,625	14,7 ± 0.3	0,57		0,2	0,008	
	G3G4..P	2,70	7,20	0,200	0,72	15,9	0,625	14,5 ± 0.3	0,57		0,5	0,020	
Ramp plunger 	G3M1..R	0,15	0,54	0,005	0,02	15,9	0,625	14,7 ± 0.3	0,57	+0,01 −0,001	0,2	0,008	*
	G3M2..R	0,70	2,52	0,200	0,72	15,9	0,625	14,7 ± 0.3	0,57		0,2	0,008	
	G3M3..R	1,10	3,96	0,300	1,08	15,9	0,625	14,7 ± 0.3	0,57		0,2	0,008	
	G3M4..R	1,70	6,11	0,500	1,80	15,9	0,625	14,7 ± 0.3	0,57		0,2	0,008	
	G3G4..R	2,70	7,20	0,200	0,72	15,9	0,625	14,5 ± 0.3	0,57		0,5	0,020	

* Plunger can be depressed flush with housing. The housing should not be used as an end stop.

Ordering Reference

			Example: G3	M	1	T1	P	C2	UL	AU
Basic type	G3									
Contact gap	M	Microgap								
	G	> 3 mm gap								
Actuating Characteristic	1	0,15								
	2	0,70								
	3	1,10								
	4	1,70 Microgap 2,70 > 3 mm gap								
Terminals	T1	Faston 6.3 × 0.8								
	T2	Faston 4.8 × 0.8								
	T3	Faston 4.8 × 0.5 (microgap only)								
	T4	Solder								
	Note:	Microgap - parallel terminals; > 3 mm gap - flared terminals								
Actuators	P	Plain plunger								
	R	Ramp plunger								
Circuit		No symbol, change-over								
	C2	Normally closed								
	C4	Normally open								
Approvals		No symbol, ENEC								
	UL	UL and CSA								
Contacts		No symbol, silver, silver cadminum oxide								
	AU	Gold plated silver, gold plated silver cadmium oxide								

Table of preferred products

Snap-action Microswitches	Type	Preferred Products	Preferred Products	Page
Subminiature	XC	XCG3Z1 XCG3-J1Z1 XCG3-S1Z1 XCG5Z1 XCG5-J1Z1 XCG5-S1Z1 XCG8Z1 XCG8-81Z1	XCG8-81-J1Z1 XCG8-81-S1Z1 XCF3Z1 XCF3-J1Z1 XCF3-S1Z1 XCG3-U1Z1 XCG4-U1Z1 XCG8-U1Z1	18
	X4	X4F303K1AA X4F305K1AA X4G303K1BB	X4G305K1BB X4C303K1CC X4C305K1CC	23
	V4N	V4NT7UL V4NST7UL V4NSUL V4NT7Y1UL V4NST7Y1UL	V4NSY1UL V4NT7YRUL V4NST7YRUL V4NSYRUL	28
	V4NC	V4NCT7 V4NCT7A1 V4NCT7AR	V4NCS V4NCSA1 V4NCSAR	32
Miniature	XG	XGG2-88Z1 XGG2-88-J23Z1 XGG2-88-J26Z1 XGG2-88-J27Z1 XGG2-88-S20Z1 XGG2-88-S21Z1 XGG3-88Z1 XGG6-88Z1 XGC2-88Z1 XGC2-88-J23Z1 XGC2-88-S20Z1 XGC6-88Z1	XGK2-88Z1 XGK2-88-J26Z1 XGK2-88-S21Z1 XGK3-88Z1 XGK6-88Z1 XGO2-88Z1 XGO2-88-J27Z1 XGO2-88-S20Z1 XGO6-88Z1	37
	X3	X3M302K2KA X3M302K2KAJ32 X3M302K2KAJ62 X3M302K2KAT02 X3M303K2KA X3M306K2KA	X3C302K2LB X3C302K2LBJ32 X3C303K2LB X3C306K2LB X3L302K6DD X3L303K6DD	42
	390	393/40/120 393/40/350		47
	340	343/40/75 343/120/350		50
	G3	G3M1T1RULAU G3M1T1PULAU G3M1T1RUL G3M1T1PUL G3M1T2RUL G3M1T2PUL	G3M1T3RUL G3M1T3PUL G3M1T4RUL G3M1T4PUL G3G4T1RUL G3G4T1PUL	54