MICROSWITCHES SELECTION GUIDE

10/2019

		SUB-SUBMINIATURE				SUBMINIATURE					MINIATURE									SPECIAL				
	SNAP-ACTION SWITCHES																							
	Approx. body size (mm)	15x8x5	Ø 8x8	13x10x5	13x10x5	20x10x6	20x10x6	20x10x6	20x10x6	Ø 11x15	28x16x10	28x16x10	28x16x10	28x16x10	29x16x10	31x23x10	33x16x10	24x31x9	30x18x12	50x30x12	32x19x13	40x19x13	49x10x20	43x18x17
	SERIES	*V5S* **8320**	**83228 83229**	**83141**	*V5D* **83194**	*V4* **83170**	*V4D* **8327**	*V4S* **8318**	**83132 83133 83134**	**83151 83560**	*V3* **83161**	*V3D* **8326**	**83160**	**831607 832607**	**831606 SP3697**	*V3S* **83169**	*V3DS* **8329**	**83139**	**83137**	*PBX* **8324**	**83106 83109 83111/112**	**83154**	**83123**	**83118 83120**
	TYPE	**Sealed**	**Cylindric adjustable**	**High accuracy**	**Standard**	**Premium**	**Standard**	**Sealed**	**Double break**	**Hermetic Inox housing**	**Premium**	**Standard**	**Heavy duty**	**Positive break**	**High DC rating**	**Sealed**	**Sealed Compact**	**Sealed Double break**	**Ultra sensitive Rotary**	**Sealed Separated circuits**	**Double break**	**High DC rating**	**Sealed Rubber housing**	**High accuracy Sensitive**
ELECTRICAL	**Max. ratings** @ 250 V ∿	4 A	5 A	5 A	5 A	12 A	12 A	10 A	6 A	5 A	20 A	25 A	16 A	6 A	16 A	8 A	10 A	6 A	6 A	10 A	16 A	16 A	10 A	10 A
	@ 24V ⎓	4 A	5 A	5 A	5 A	10 A	10 A	10 A	6 A	7 A	16 A	16 A	16 A	6 A	16 A	8 A	10 A	6 A	6 A	10 A	16 A	16 A	10 A	10 A
	@ 250 V ⎓	0.2 A	0.2 A	0.15 A	0.15 A	0.3 A	0.2 A	0.3 A	0.5 A	0.3 A	0.8 A	0.2 A	0.8 A	0.5 A	5 A	0.3 A	0.5 A	0.5 A	0.4 A	0.8 A	0.6 A	5 A	0.3 A	0.3 A
	Dual-current version	1 mA → 4 A	1 mA → 5 A	1 mA → 1 A	1 mA → 5 A	1 mA → 5 A		1 mA → 6 A	1 mA → 5 A	1 mA → 1 A	1 mA → 5 A		**	10 mA → 6 A		1 mA → 5 A	1 mA → 3 A	1 mA → 5 A		1 mA → 10 A	10 mA → 5 A			
	Low current version						1 → 20 mA					1 → 20 mA							1 → 100 mA					
	Circuit diagram **Contact configuration** (for 1 pole changeover/SPDT)	Form C	Form C	Form C	Form C	Form C	Form C	Form C	Form Za	Form C	Form C	Form C	Form C	Form C	Form C	Form C	Form C	Form Za or Form C	Form C	Form Zb (separated contacts)	Form Za	Form Za	Form C	Form C
	SPST-NC / SPST-NO versions	✔			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	
	Multipole version								2 ; 3 poles (8331**)	2 poles								2 poles		**	2 → 6 poles (8332)	2 → 6 poles (8332)		
	Bistable version (maintained action)								Push/Pull											**	Push/Pull	Push/Pull		
	Positive opening operation													⊖						⊖				
	Electrical disconnection	μ	μ	μ	μ	μ	μ	μ	μ	μ	μ or Full	μ	μ or Full	μ	Full	μ	μ	μ	μ	Full	μ	μ	μ	μ
	Insulation voltage Ui	250 V	250 V	250 V	250 V	250 V	250 V	250 V	250 V	250 V	400 V	250 V	400 V	250 V	250 V	250 V	250 V	250 V	250 V	400 V	250 V	250 V	250 V	250 V
	Protection against electric shock (without additional protection)	Class I	Class I	Class I	Class I	Class I	Class I	Class I	Class I	Class I	Class I	Class I	Class I	Class I	Class I	Class I Class II** ▣	Class I	Class I Class II ▣	Class I	Class I	Class I	Class I	Class I Class II** ▣	Class I
ENVIRONMENT	**Degree of protection**	IP67 IP69	IP40	IP40	IP40	IP40	IP40	IP67 IP69	IP40	Hermetic Qk test 10-3 Pa.cm³/s	IP40	IP40	IP40	IP40	IP40	IP67 IP69	IP67	IP66 IP67	IP40	IP40 IP65 IP67	IP40	IP40	IP66 IP67 IP69	IP40
	Operating temperature	-40 °C +90 °C	-55 °C +140 °C	-55 °C +150 °C	-40 °C +110 °C	-40 °C +150 °C	-25 °C +150 °C	-40 °C +125 °C	-40 °C +150 °C	-55 °C +250 °C	-60 °C +150 °C	-50 °C +200 °C	-40 °C +150 °C	-40 °C +125 °C	-40 °C +125 °C	-40 °C +105 °C	-40 °C +85 °C	-40 °C +105 °C	-20 °C +125 °C	-50 °C +85 °C	-40 °C +125 °C	-40 °C +125 °C	-40 °C +85 °C	-40 °C +125 °C
	Explosive atmospheres									Ex**								II2G Ex d						
	Irradiated environment			☢**					☢**	☢**			☢	☢	☢									☢**
MECHANICAL	**Max. Operating Force**	1.5 N	1.7 N	2 N	1.4 N	0.6 → 2.2 N	1.5 N	2.5 N	1.6 N ; 2.6 N	5 → 47 N	0.15 → 5 N	0.25 → 4 N	1 → 5 N	4 N	5 N	4.5 N	0.5 → 4.5N	3 N;4.5 N	1.2 → 2 mN.m	4.5 N;6.5 N	0.45 → 7.5 N	4 N	7.5 N	0.35 → 2.7 N
	Min. Overtravel	2 mm	0.15;1.5 mm	0.1 mm	0.25 mm	0.5 mm	0.5 mm	0.6 mm	0.27 mm	0.08 mm	1.2 mm	1.1 mm	1.3 mm	1.3 mm	1 mm	1 mm	1 mm	0.25 mm	12°	3 mm	0.7 mm	0.7 mm	0.25 mm	0.2 → 0.8 mm
	Max. Differential Travel	0.06 mm ; 0.10 mm	0.12 mm ; 0.19 mm	0.06 mm	0.13 mm	0.08 mm 0.15 mm	0.15 mm	0.10 mm ; 0.15 mm	0.45 mm	0.05 mm	0.35 mm ; 0.8 mm	0.4 mm	0.3 mm ; 0.7 mm	0.3 mm	0.7 mm	0.07 mm ; 0.35 mm	0.5 mm	0.45 mm	14°	1.3 mm	0.7 mm	0.9 mm	0.2 mm	0.09 mm ; 0.7 mm
	Mechanical life (cycles)	1 M	2 M	2 M	10 M	30 M	0.1 M	2 M	10 M	0.2 M	50 M	1 M	10 M	10 M	1 M	5 M	1 M	10 M	10 M	10 M	10 M	10 M	2 M	5 M
	Min. actuating speed	0.001 mm/s	0.01 mm/s	0.01 mm/s	0.1 mm/s	0.001 mm/s	0.1 mm/s	0.01 mm/s	0.01 mm/s	0.01 mm/s	0.001 mm/s	0.1 → 3mm/s	0.1 mm/s	0.1 mm/s	0.1 mm/s	0.001 mm/s	0.1 → 3mm/s	0.01 mm/s	1°/s	0.5 mm/s	0.01 mm/s	0.01 mm/s	0.03 mm/s	0.01 mm/s
	Operating device	Plunger	Plunger	Plunger	Plunger	Plunger	Plunger	Plunger	Plunger	Plunger	Plunger	Plunger	Plunger	Plunger	Plunger	Plunger	Plunger	Plunger	Inox wire	Plunger	Plunger	Plunger	Plunger	Plunger
	Lateral actuation on plunger	✔	Ball (opt)			✔	✔	✔	Ball (opt)		✔	✔	✔	✔	✔	**	**				Ball (opt)	Ball (opt)		
	Auxiliary levers Hinged			✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔		✔
	(flat, bended, Flexible	✔		✔				✔		✔	✔	✔	✔		✔	✔					✔	✔		✔
	roller...) Adjustable			✔		✔		✔	✔		**					**		**			✔	✔		✔
	Telescopic plunger (option)		✔			✔	✔		See 8354	See 8377	✔	**	✔		✔	(SP4978/4988)		(SP4257)			See 83513/522	See 83513/522	See 8373	✔
	Fixing means Plain holes	Ø 3 (opt)		Ø 2.1	Ø 2.25	Ø 2.2	Ø 2.2 ; 2.35	Ø 2.2	Ø 2.1	Ø 3.2	Ø 3.1	Ø 3.1	Ø 3.2	Ø 3.2	Ø 3.2	Ø 3.1	Ø 3.1	Ø 2.2 ; Ø 3.1	Ø 3.2	Ø 4.1 M3	Ø 2.6 M3	Ø 2.6	Ø 3.2	Ø 4.2
	Tapped holes																							
	Pins	Ø 2.2				Ø 2.6	Ø 2.6	Ø 2.6																
	Threaded barrel		M5 x 0.5;M8 x 0.7			M6 x 0.75	M6 x 0.75		See 8354	See 8377	M10 ; M12	**	M10 ; M12	M10 x 0.75	M10 ; M12	See 83581		M10 x 0.75			(83537**)	(83537**)	See 8373	✔
	Others		Flush mount					Snap-in**													Snap-in			
	Connections Solder	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔				✔		✔	✔	**	✔
	Quick-connect				**	✔	✔	✔	✔		✔	✔	✔	✔	✔		✔		✔	✔	✔	✔		✔
	Printed board	✔			**	✔	✔	✔	✔		✔	✔	✔	✔	✔				✔	✔				
	Screw					**					✔	✔	✔	✔	✔				✔	✔	✔	✔		✔
	Wires	✔						✔		✔						✔	✔	✔		**				
	Cable							✔								✔	✔	✔		**			✔	
	Approvals ENEC /NF/CE/IECEx	CE	CE	CE	CE	NF CE	NF CE	NF CE	CE	CE	NF CE	NF CE	NF CE	CE	CE	CE	CE	CE Ex	CE	CE	CE	CE	CE	CE
	UL	c UL us	c UL us	**	c UL us	c UL us	c UL us	c UL us	c UL us		c UL us	c UL us	c UL us	c UL us	**	c UL us	c UL us	c UL us	c UL us	c UL us	c UL us	c UL us		c UL us
	CCC	CCC	**	**	CCC	CCC	CCC	CCC	CCC	CCC	CCC	CCC	CCC	CCC	CCC	CCC	CCC	CCC	CCC	CCC	CCC	CCC	CCC	CCC
	EAC	EAC	EAC	EAC	EAC	EAC	EAC	EAC	EAC	EAC	EAC	EAC	EAC	EAC	EAC	EAC	EAC	EAC	EAC	EAC	EAC	EAC	EAC	EAC

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* Pending ** Consult us

The features presented in this selection guide represent the extent of performance of each Microswitch Series. Not all combinations of characteristics are feasible at an individual product. Please refer to relevant product sheet or consult our customer service. For more information see also the «Basic technical concepts».

Note: data contained in product sheets dated 2016 and before may differ from the features shown in this selection guide. Update is in progress. Please contact us for confirmation.

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