

LIMIT SWITCHES SELECTION GUIDE

CLASSIC

STANDARD

SNAP-ACTION & SLOW-ACTION SWITCHES



Approx. body size (mm)

30x49x16

39x49x16

30x51x16

49x23x17

27x60x25

56x73x36

TYPE

STANDARD - WIRED (EN versions)

STANDARD - WIRED (US versions)

HIGH TEMPERATURE - WIRED (EN versions)

HORIZONTAL HOUSING - WIRED

ESSENTIAL

SCREW CONNECTIONS (fixed & adjustable versions)

SERIES

8387

8388

MP720

MP210/215-1
MP220/225-1

8380

8383

		STANDARD						
		STANDARD - WIRED (EN versions)	STANDARD - WIRED (US versions)	HIGH TEMPERATURE - WIRED (EN versions)	HORIZONTAL HOUSING - WIRED	ESSENTIAL	SCREW CONNECTIONS (fixed & adjustable versions)	
		8387	8388	MP720	MP210/215-1 MP220/225-1	8380	8383	
ELECTRICAL	Max. ratings	@ 250 V ~ @ 24/30 V ~ @ 250 V ~	10 A 10 A 0.8 A	10 A 10 A 0.8 A	6 A 6 A 0.8 A	15 A 15 A	6 A 6 A 0.5 A	10 A 10 A 0.6 A
	Assigned characteristics	AC15 DC13	A300 Q150	A300 Q150	A300 Q300	**	B300 R300	A300 Q150
	Dual-current version		1 mA → 5 A	1 mA → 5 A	**	**	1 mA → 5 A	
	Thermal rating	lthe	10 A	10 A	6 A	15 A	10 A	10 A
	Insulation voltage	Ui	500 V	500 V	250 V	250 V	250 V	500 V
	Impulse withstand voltage	Uimp	2.5 kV	2.5 kV	2.5 kV	**	2.5 kV	4 kV
	Snap Action / Slow Action		Snap	Snap	Slow	Snap	Snap	Snap
	Circuit diagram							
	Contact configuration (for 1 pole changeover/SPDT)		Form Zb (separated contacts)	Form Zb (separated contacts)	Form Za	Form Za or Form C	Form Za	Form Za
	SPST-NC / SPST-NO versions		✓	✓	✓	✓		
Multipole version						2 poles**		
Positive opening operation							**	
Housing material		Zamak	Zamak	Plastic	Plastic	Plastic	Zamak	
Protection against electric shock		Class I	Class I	Class II	Class II	Class II	Class I	
ENVIRONMENT	Degree of protection	Solid objects + water	IP66 IP67 IP69	IP66 IP67 IP69	IP67	IP67 IP68 (20 m)	IP65	IP66
		Mechanical impact	IK07	IK07	**	**	**	**
	Operating temperature		-40 °C +70 °C	-40 °C +70 °C	-40 °C +130 °C	-40 °C +130 °C	-30 °C +70 °C	-40 °C +70 °C
	Mud / salt / dust / ice environment		✓	✓				
	Explosive atmospheres							
Irradiated environment								
High pressure environment								
MECHANICAL	Min. Operating Force	Linear	10 N	10 N	4 N	6 N ; 12.5 N	10 N	1.5 → 15 N
		Rotary	0.15 Nm	0.15 Nm			0.07 Nm	0.2 Nm
	Total Travel	Linear	5 mm	5 mm	4.5 mm	3 → 11 mm	5 mm	6 → 11 mm
		Rotary	70°	70°	72°		60°	60°
	Min. Overtravel		3 mm 35°	3 mm 35°	2 mm* 30°	2 → 10 mm	3.5 mm 45°	3.5 → 5 mm 35°
	Min. Positive Overtravel		1 mm 10°	1 mm 10°	1 mm 12°	0.12 mm		
	Max. Differential Travel		0.7 ; 1.3 mm 9° ; 17°	0.7 ; 1.3 mm 9° ; 17°			0.5 mm 8°	0.8 → 2 mm 10°
	Operating position repeat accuracy		<0.05 (FT)	<0.05 (FT)				
	Mechanical life	(cycles)	10 M	10 M	10 M	10 M*	10 M	10 M
	Min. actuating speed		0.1 mm/s	0.1 mm/s	1 mm/s	**	0.01 mm/s	0.01 mm/s
	Operating device	Plunger	✓	✓	✓	✓	✓	✓
	For linear mvt	Plunger with roller	✓	✓	✓	✓	✓	✓
		Lever with roller						✓
		Adjustable lever with roller						✓
		Adjustable lever + idle-return roller						✓
For rotary mvt	Roller lever	✓	✓	✓		✓	✓	
Multi-direction	Flexible rod					✓	✓	
	Plunger with ball	✓	✓				✓	
Fixing means	Plain holes	Ø 4	Ø 4	Ø 5	Ø 4.5	Ø 4		
Non-adjustable	Tapped holes							
	Snap-in							
Adjustable	Elongated holes						6 x 21 mm	
	Threaded barrel	M12 x 0.75	M12 x 0.75	M12 x 1	M12 x 1	M16 x 1		
Connections	Screw					✓	✓	
Terminals	Solder					✓		
	Fast-on							
Pre-wired	Wires	**	**			**	**	
	Cable	✓	✓	✓	✓	**	**	
	Integral connector	✓	✓			✓		
Approvals	UL							
	CCC/EAC							
	CE/IECEx/ATEX							

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The features presented in this selection guide represent the extent of performance of each Limit switch 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".

SPECIAL

87x51x33	25x64x25	49x41x22	25x31x12	31x25x10	24x32x13	Ø 8 / Ø 12
SCREW CONNECTIONS (fixed & adjustable versions)	ROBUST	LOW PROFILE	MINIATURE	MINIATURE LOW DT HIGH TEMP	MINIATURE DOUBLE BREAK	CYLINDRIC ADJUSTABLE SUBMINIATURE
8384	83589	83731 83732 83733	83581	MP320-1	83139 SP4257	MP600
10 A 10 A 0.6 A A300 Q150	8 A 8 A 0.3 A B300 R300	10 A 10 A 0.3 A B300 R300	8 A 8 A 0.3 A B300 R300	8 A 8 A 0.5 A **	6 A 6 A 0.5 A B300 R300	0.1 A
10 A 500 V 4 kV Snap	1 mA → 5 A 10 A 250 V 2.5 kV Snap	12 A 250 V 2.5 kV Snap	1 mA → 5 A 10 A 250 V 2.5 kV Snap	** 6 A 250 V ** Snap	1 mA → 5 A 11 A 250 V 2.5 kV Snap	1 mA → 0.1 A 0.1 A 30 V 1.5 kV Slow
 Form Za	 Form C	 Form C	 Form C	 Form C	 Form Za or Form C	 Form C
	✓ 2 poles**	✓	✓ 2 poles**	✓	✓ 2 poles**	✓
						
Zamak	Plastic	Steel	Metal + Plastic	Plastic	Metal + Plastic	Nikel plated brass
Class I	Class II 	Class I	Class I Class II 	Class II 	Class I Class II 	Class II 
IP66	IP66 IP67 IP69	IP66 IP69	IP67 IP69	IP67	IP66 IP67	IP67
** -40 °C +70 °C	IK04/06 -40 °C +85 °C ✓	** -40 °C +70 °C	** -40 °C +105 °C	** -40 °C +170 °C*	** -40 °C +105 °C	** -55 °C +130 °C
					II2G  d	** **
1.5 → 15 N 0.2 Nm 6 → 11 mm 60° 3.5 → 5 mm 35° 1.5 → 2 mm 15° 0.8 → 2 mm 10°	10 N 4.5 mm 3.5 mm 0.2 mm	6 N ; 15 N 4 mm ; 6 mm 2.5 mm ; 4 mm 0.25 mm	5 N 4 mm ; 6 mm 2.5 mm ; 4 mm 1 mm	3.5 N 3 mm → 6 mm 2.5 mm → 5 mm 0.1 mm	3.5 N 4 mm ; 6 mm 2.5 mm ; 4 mm 1 mm	1.2 N ; 3 N 2 mm 0.5 mm → 1.7 mm*
10 M 0.01 mm/s	10 M 0.001 mm/s	1 M 0.01 mm/s	0.1 M 0.01 mm/s	10 M* **	0.1 M 0.01 mm/s	10 M* 0.1 mm/s
✓ ✓ ✓ ✓ ✓ ✓	✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓
Ø 5	✓		✓	Ø 3.1 ; Ø 3.5	✓	✓
✓	M16 x 1	M16 x 1	M10 x 0.75	M10 x 1	M10 x 0.75	M8 x 0.75 / M12 x 1
	** ✓	✓	✓ ✓	✓	✓ ✓	✓ ✓
 CE	 CE	 CE	 CE	 CE	 CE 	 CE

* Pending ** Consult us

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.

HARSH ENVIRONMENT



min. Ø 17x40



min. Ø 14x34



min. 100x30x30



Depending on type

AEROSPACE SEALED	AEROSPACE HERMETIC	EXPLOSIVE ATMOSPHERES	NUCLEAR
83777 83778	83770 83771	8399 Ex	8399 Nuc
4 A 4 A 0.15 A C300	4 A 4 A 0.3 A C300	1 A 3 A 4 mA 137 V \equiv C300	1 A 3 A 0.2 A 137 V \equiv C300
1 mA \rightarrow 1 A 4 A 250 V 2.5 kV Snap	1 mA \rightarrow 1 A 4 A 250 V 2.5 kV Snap	1 mA \rightarrow 1 A 3 A 250 V 2.5 kV Snap	1 mA \rightarrow 1 A 3 A 250 V 2.5 kV Snap
Form C	Form C	Form C	Form C
✓	✓	✓	✓
2 ; 3 poles	2 poles		2 poles
Aluminium	Inox steel	Aluminium ; Bronze or Inox steel	Aluminium ; Bronze or Inox steel
Class I	Class I	Class I	Class I
IP66 IP68 (4 m) IP69	IP66 IP68 (18 m) IP69	IP66 IP67 IP69	IP66 IP68 (18 m) IP69
** -55 °C +125 °C	** -55 °C +250 °C	** -40 °C +200 °C	** -55 °C +250 °C
✓	✓	✓	✓
		II2G diCT xGb	
60 N	max. 6 bar 12 \rightarrow 30 N	max. 6 bar 20 N 0.4 Nm	max. 6 bar 8 \rightarrow 30 N 1.1 Nm
4.4 mm ; 6.7 mm	1.3 \rightarrow 5.5 mm	5.5 mm 60°	2 \rightarrow 4 mm 80°
3.2 mm ; 5.5 mm	1 \rightarrow 5 mm	4 mm 40° \rightarrow 50°	0.5 \rightarrow 3 mm 70°
0.2 mm ; 0.5 mm	0.05 mm ; 0.15 mm	0.05 mm 2°	0.05 \rightarrow 1 mm 2°
0.05 M 0.01 mm/s	0.1 M 0.01 mm/s	0.1 M 0.01 mm/s	0.1 M
✓ ✓	✓ ✓	✓ ✓	✓ ✓ ✓
✓	✓	✓	✓
		Ø 3 - 3.5 - 4 M5	Ø 3 M5
M12 x 0.75 ; M16 x 1	M8/M12/M14 x 0.75		M12 x 0.75
✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓
** / EAC CE	EAC CE	CE	CE

DOOR & SEAT SWITCHES



35x38x11



29x40x15



32x43x17



Depending on type



17x27x12

ELECTRICAL PANEL DOORS	DOUBLE BREAK HEAVY DUTY	TRUCK DOORS	PASSENGER DETECTION	Extensive range
83523 83528	83513 83522	83576	839921**	83161 SP9603/SP9604 + variants
16 A 16 A 5 A A300 R300	16 A 16 A 5 A A300 Q300	10 A 10 A 0.3 A B300 R300	4 A 4 A 0.2 A C300 R300	25 A 16 A 5 A A300 Q300
1 mA \rightarrow 5 A 17 A 250 V 2.5 kV Snap	10 mA \rightarrow 5 A 17 A 250 V 2.5 kV Snap	1 mA \rightarrow 5 A 12 A 250 V 2.5 kV Snap	1 mA \rightarrow 4 A 5 A 250 V 2.5 kV Snap	1 mA \rightarrow 5 A 25 A 250 V 2.5 kV Snap
Form Za	Form Za	Form C	Form C	Form C
✓	✓	✓	✓	✓
2 ; 3 poles	2 ; 3 poles			2 poles**
Metal + Plastic	Metal + Plastic	Plastic	Plastic	Metal + Plastic
Class I	Class I	Class II (front side)	Class I Class II	Class I
IP40	IP40	IP40	IP67	IP40
** -40 °C +125 °C	** -40 °C +125 °C	IK04 -40 °C +70 °C	** -40 °C +85 °C	** -60 °C +200 °C
7.5 N \rightarrow 30 N	4 \rightarrow 12 N	10 N	3 \rightarrow 10 N	0.8 \rightarrow 5 N
6 mm	6 mm	10 \rightarrow 25 mm	3 mm	4 mm ; 6 mm
3 mm ; 3.5 mm	4.5 mm	8 \rightarrow 23 mm	2 mm	2.5 \rightarrow 4 mm 0.3 mm
1 mm	0.9 mm	1 mm	0.06 \rightarrow 0.20mm	0.4 \rightarrow 1.2 mm
10 M 0.01 mm/s	1 M	0.1 M	1 M	0.1 M
✓	✓	✓	✓	✓ ✓
				✓
Ø 3 M3	M3	28 x 14 cut - out	✓	✓
	M12 x 0.75		✓	M10 x 0.75
✓ ✓	✓ ✓	✓	✓ ✓	✓ ✓
US EAC CE	US EAC CE	** CE	CE	US EAC CE

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