

1. GENERAL

1. 1 Application : This specification is applied to MULTI WAY SWITCH for electronic equipment.
1. 2 Operating Temperature Range : -25°C ~ 70°C
1. 3 Storage Temperature Range : -40°C ~ 85°C. However, 96 hours maximum for continuous storage over a range -20°C ~ -40°C and a range 70°C ~ 85°C
1. 4 Test Condition : The standard test conditions shall be 5°C ~ 35°C in temperature, 45 ~ 85% RH and 860 ~ 1060mbar in atmospheric pressure.
Should any doubt arise in judgment, tests shall be conducted at 20 ±2°C, 65 ±5% RH and 860 ~ 1060mbar.

2. RATED VOLTAGE AND CURRENT

12V DC, 50mA MAX

3. ELECTRICAL PERFORMANCE

	PROPERTY	TEST CONDITION	PERFORMANCE
3. 1	Contact Resistance	1) Center Push Measurements shall be given at 12V DC, 50mA and with 500 ± 70gf static load.	100mΩ Max
		2) 4-Directional Measurements shall be given at 12V DC, 50mA and with 250 ± 50gf rotation torque.	
3. 2	Insulation Resistance	A voltage of 100V DC shall be applied for 1 minute after which measurements shall be made 1) Between Terminals	100MΩ Min
3. 3	Dielectric Strength	2) Between Terminal and Stem A voltage of 250V AC shall be applied for 1 minute Cut off current 2mA 1) Between Terminals 2) Between Terminal and Cover	Without arcing or breakdown. etc.

4. MECHANICAL PERFORMANCE

	PROPERTY	TEST CONDITION	PERFORMANCE
4. 1	Operating Force	1) Center Push Operating force shall be applied to the stem in axially, and then the maximum force until reaching the end shall be measured.	500 ± 70gf
		2) 4-Directional Operating force shall be applied to the stem, and then the maximum force until reaching the end shall be measured.	250 ± 50gf

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4. MECHANICAL PERFORMANCE

	PROPERTY	TEST CONDITION	PERFORMANCE
4. 2	Operating Travel	1) Center Push Operating force shall be applied to the stem in axially, and then the amount of movement until reaching the end shall be measured.	1. 0.2 ± 0.1mm
		2) 4-Directional Operating force shall be applied to the stem in perpendicularly, and then the amount of angle movement until reaching the end shall be measured.	4±2° : Operating Angle Stroke : 0.4 ± 0.1mm
4. 3	Operational Strength	1) Pushing and Pulling Directions A static load of 1kgf shall be applied to the stem in the pulling and pushing directions for 10 seconds.	The following specifications must be satisfied.
		2) Stem Operating Direction A static load of 1kgf shall be applied to the stem for 10 seconds with following method.	Contact Resistance : Item 3. 1 Insulation Resistance :
		3) Rotating Direction A static rotating torque of 1kgf shall be applied to the stem in the rotating directions for 10 seconds.	Item 3. 2 Dielectric Strength : Item 3. 3 Operating Force : Item 4. 1
4. 4	Terminal Strength	With the switch fixed a static load of 100gf shall be applied at the top of terminal lugs in any one direction for 3 seconds.	Without damage or obvious looseness of terminals. However, bends having no adverse effect upon electrical performance are allowable.

5. WEATHER PROOF

	PROPERTY	TEST CONDITION	PERFORMANCE
5. 1	Endurance Proof (with load)	The switch shall be operated with 5V DC, 1mA (resistance load) the test conditions are as follows. 1) Center Push Operating Times : 50,000 times Operating Force : 500gf ± 70gf Operating Speed : 60 ~ 100 times/minute 2) 4-Directional Operating Times : For each 50,000 times (4 directions) Operating Force : 250gf ± 50gf (at the top of stem) Operating Speed : 15 ~ 20 times/minute	The following specifications must be satisfied. Contact resistance : 100mΩ Max Insulation Resistance:100MΩ Min Dielectric Strength : Item 3. 3 Operating Force : +10%, -30% initial force.

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5. WEATHER PROOF

	PROPERTY	TEST CONDITION	PERFORMANCE
5. 2	Dry Heat Proof	The switch shall be stored at a temperature of $85 \pm 2^{\circ}\text{C}$ for 96 hours. Then the switch shall be maintained at standard atmospheric conditions for 1 hour, after which measurements shall be made within 1 hour.	<p>The following specifications must be satisfied.</p> <p>Contact Resistance : 100mΩ Max</p> <p>Insulation Resistance : 10MΩ Min</p> <p>Dielectric Strength : Item 3. 3</p> <p>Operating Force : Within $\pm 30\%$ of the initial specified value.</p>
5. 3	Cold Proof	The switch shall be stored at a temperature of $-40 \pm 3^{\circ}\text{C}$ for 96 hours. Then the switch shall be maintained at standard atmospheric conditions for 1 hour, after which measurements shall be made within 1 hour.	
5. 4	Damp Heat Proof	The switch shall be stored at a temperature of $60 \pm 2^{\circ}\text{C}$ and a relative humidity of 90 ~ 95% for 96 hours. Then the switch shall be maintained at standard atmospheric conditions for 1 hour, after which measurements shall be made within 1 hour. Moisture which has condensed on the switch is to be removed before initiation of the test.	
5. 5	Change of Temperature	The switch shall be subjected to 5 successive change of temperature cycles, each conditions are as follows. Then the switch shall be maintained at standard atmospheric conditions for 1 hour, after which within 1 hour.	
5. 6	Vibration	The switch shall be soldered on the P.W.B (single sided copper clad phenolic laminat=1. 6) and attach this to the testing table. Then the test shall be given within the following conditions. Frequency Range : 10 ~ 55 Hz Amplitude (total excursion) : 1. 5mm Frequency sweep : 10 ~ 55 ~ 10 Hz/min. Frequency method : The logarithm curve or straight approximation line Directions of Vibration : X, Y and Z axes Duration : 2 hours per axis (a total of 6 hours)	

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6. SOLDERING CONDITIONS

- 6. 1 This conditions is applied to manual soldering.
- 6. 2 Soldering Temperature = 310 °C Max
- 6. 3 Soldering Time = 2. 5sec Max

7. PRECAUTIONS

Do not attempt to wash the switches. They are not of air tight and water-proof design.

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