# Product Introduction for Membrane Switch

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# 1. General Description

The membrane switch is an operating system that integrates key functions, indicating components, and instrument panels. It consists of four parts: panel, upper circuit, isolation layer, and lower circuit. When the membrane switch is pressed, the contacts of the upper circuit deform downwards and make contact with the plates of the lower circuit. After releasing the finger, the contacts of the upper circuit rebound back, the circuit is disconnected, and the circuit triggers a signal. The membrane switch has a rigorous structure, beautiful appearance and good sealing performance. It has the characteristics of moisture resistance and long service life. It is widely used in electronic communications, electronic measuring instruments, industrial control, medical equipment, automobile industry, smart toys, household appliances and other fields.

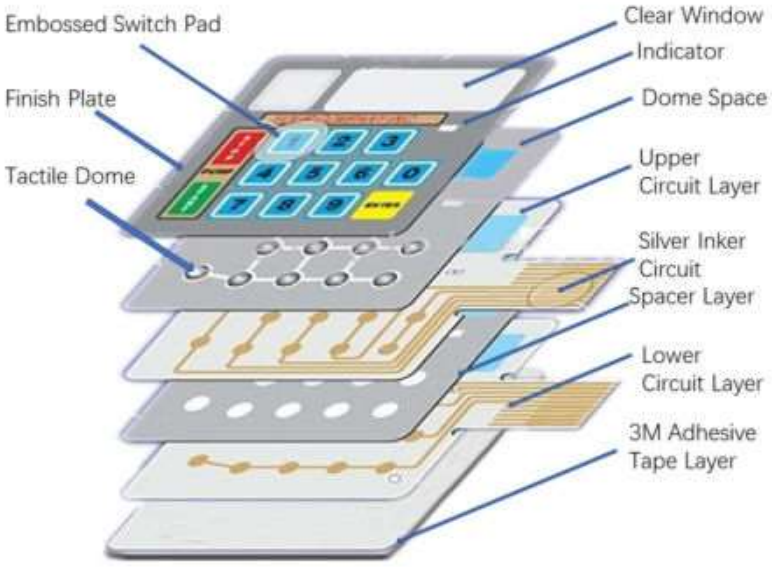


Figure 1.

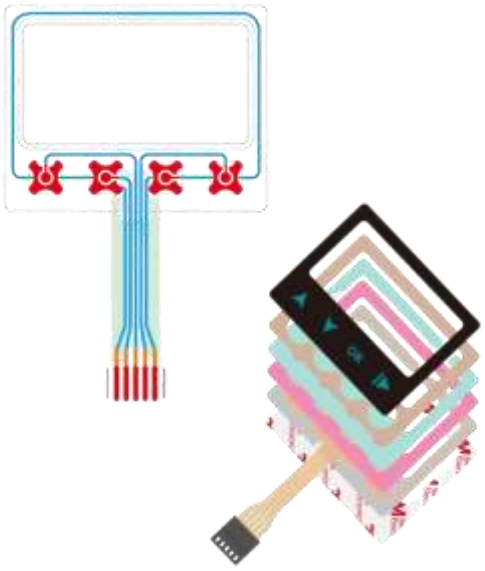

Figure 2.

# 2. Specifications / Special features:

## 2.1 Electronic features:

- Material: PC...PVC...PET...Acrylic
- Working voltage: ≤50VDC
- Working current: ≤100mA
- Contact resistance: 0.5 ~ 100Ω
- Insulation resistance: 100MΩ (100VDC)
- Bottom material pressure resistance: 250VRms(50~60Hz 1min)
- Contact bounce time: ≤6ms
- Operating force: 200 ~ 600N
- Insulation ink pressure resistance: 100VDC
- Circuit resistance: ≤100Ω

## 2.2 Mechanical properties:

- Lifetime: >100 million times
- Closed position: 0.1 ~ 0.4mm (non-tactile type), 0.4 ~ 1.0mm (tactile type)
- Actuation force: 15 ~ 750g
- Thickness: 0.05 ~ 0.2mm
- Minimum width: 0.3mm
- Minimum distance: 0.3mm

## 2.3 Environmental performance:

- Operating temperature: -30 - 80 ℃
- Storage temperature: -40 gr ∽ 85 ℃
- Operating humidity: +40℃ 90%~95% RH 240 hours

**Kindly reminder:**

Products can be customized, all parameters and performance need to be confirmed before ordering.

## 2.4 Construction of membrane switches:

- PET, PC, PMMA all kinds of effect panel
- Use of printed mesh、FPC、PCB
- Cooperate with customer's design and development

# 3. Membrane Type:

| Application | Description |
|---|---|
| Outdoor type | FPC/PCB circuit membrane switches are used in outdoor with high and low temperature resistant from -40~60°C, IP65~IP68 waterproof, dustproof, and UV-resistant. The lifetime of the membrane switch is more than 1 million times. Generally used in outdoor equipment such as earthquake monitors, charging station, and lawnmowers. |
| Capacitive type | It can penetrate more than 20mm of insulating materials and accurately detect effective finger touches, ensuring the sensitivity, stability, reliability, etc. of the product. It is also waterproof and has strong anti-interference capabilities, and can improve the overall appearance of the product. |
| LED Light type | Light guide type and LED side-lit membrane key switches. It emits uniform light and uses fewer LED lights. The buttons or characters can be operated and illuminated in places with insufficient light. The membrane switch is more ornamental as a whole, with a thickness of about 2mm, and is suitable for embedded fixation. |
| Silver Paste type | Waterproof, dustproof, UV-proof, with outdoor high and low temperature resistant from -40~80℃, more suitable for gold finger spacing of 2.54mm, good feel, stable performance, and cheap price. |
| Silicone Rubber type | The switch button layer is made of silicone, and the circuits can be PET silk screen printing silver paste & PCB & FPC circuits, and components such as LED lights and resistors can be patched. Silicone buttons have stable chemical reactions and non-burning. It is relatively resistant to biological aging, has a long life, has low surface tension, high and low temperature resistance, weather resistance, and good electrical insulation properties. It is suitable for some large-scale, high-temperature equipment and environments involving violent operations. |
| Medical type | Anti-bacterial, waterproof and dust-proof membrane switch. Anti-bacterial liquid is screen-printed on the surface of the membrane button. It is mainly used in medical equipment and has good anti-bacterial effect. |
| Metal dome type | The metal dome is used as the upper circuit button contact surface. The key life is more than one million times, good feel, uniform force, and it can still be used in high temperature environments normally. This product is mainly used for function keyboards of industrial control equipment. The button content, color, effects, etc. can be designed according to customers' needs. The panel is screen printed and has a beautiful appearance, with small resistance and long life. |
| Optical Bonding type | The display window is bonded to the transparent thickened PC or PMMA lens with OCA glue to increase the hardness of the transparent window and prevent the transparent window from sinking and the lens from producing Newton's rings. |