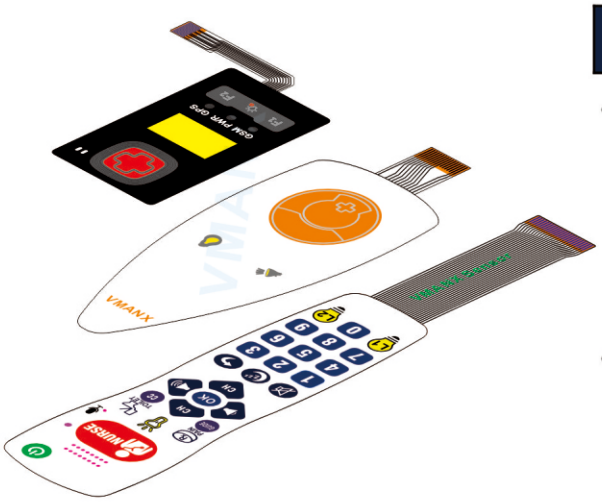
Medical-Grade Membrane Switch & Control Panel Specification Sheet



1. Company Profile

- VMANX is a high-tech enterprise specializing in the design and manufacturing of membrane sensors,printed electronics, and membrane switches. With 19 years of industry expertise, we provide global medical device and clinical communication platforms with highly reliable,high-cleanliness,and user-friendly human-machine interface (HMI) solutions.
- Our core products are widely used in nurse call systems, handheld call devices, medical control panels, and other applications. We are ISO 13485 certified, ensuring our products comply with the stringent standards required for medical equipment.

ISO13485

ISO9001

IATF 16949

2. Product Overview

▸ This specification describes a dedicated membrane switch/control panel for nurse call systems. It utilizes antimicrobial surface materials and precision circuit technology, designed specifically for high-frequency-use medical environments requiring easy cleaning and disinfection. It offers stable, long-lasting tactile feedback and visual guidance.

3. Technical Specifications

3.1 Materials & Construction

▸ **Front Layer**

- ▸ Antimicrobial polyester film (with antibacterial coating, resistant to common disinfectants such as alcohol and isopropyl alcohol).
- ▸ Or Medical-grade silicone (waterproof, slip-resistant, easy to clean, customizable soft-touch feel).

▸ **Circuit Layer**

- ▸ Flexible Printed Circuit (FPC) with high-precision silver or copper foil traces.
- ▸ Optional Light Guide Film (LGF) backlighting for uniform, low-power illumination, supporting multi-color LED indicators.

▸ **Key Mechanism**

- ▸ Metal dome (tactile, crisp feel, lifespan of 200k to 1 million cycles, customizable per client requirements).
- ▸ Silicone rubber keypad (quiet operation, soft tactile feel, can integrate backlighting).

▸ **Adhesive Layer**

- ▸ Medical-grade pressure-sensitive adhesive ensures long-term bonding without residue.

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For sales questions , contact: sales@vmanx.com

3.2 Electrical Characteristics

- Operating Voltage: ≤ 12V DC
- Contact Resistance: ≤ 100Ω
- Insulation Resistance: ≥ 100MΩ
- Travel: 0.1mm ~ 0.5mm (adjustable)
- Lifecycle: Mechanical key life 200k to 1 million cycles (customizable per client); Circuit layer ≥ 5 million cycles.

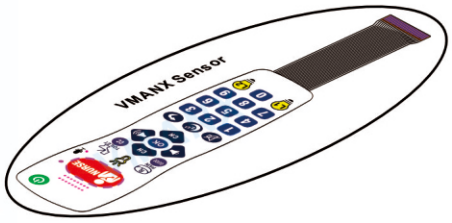
3.3 Environmental & Durability

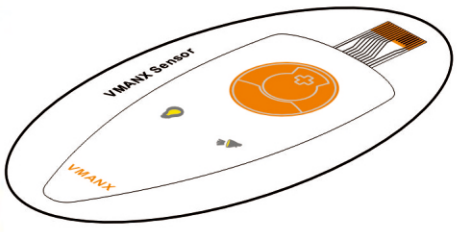
- Operating Temperature: -20°C to +70°C
- Ingress Protection Rating: IP54 (dust and splash resistant; silicone front panel can achieve IP67).
- Chemical Resistance: Resistant to medical disinfectants and cleaners.
- Abrasion Resistance: Surface hard-coating provides scratch resistance.

3.4 Customization Capabilities

- Graphics & Legends: High-resolution screen printing, digital printing, transparent windows, localized texturing.
- Backlighting Solutions: Single/Multi-color LEDs, independently controlled zones, adjustable brightness.
- Interface Types: Pin connectors, ZIF connectors, solder pads, etc.

4. Product Application Diagram





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