

**BAOSHENGDA**

Shenzhen Baoshengda Technology Co., Ltd.

# Custom Membrane Switch Brochure

Reliable HMI control panels for industrial, medical, automotive and electronic equipment applications.

**Since 1989**

Manufacturing experience

**ISO / IATF**

Certified quality system

**Custom**

Drawing-based development

# Custom Membrane Switch Manufacturing

Baoshengda manufactures custom membrane switches and membrane keypads for equipment manufacturers that need a thin, reliable and fully customized HMI control interface.

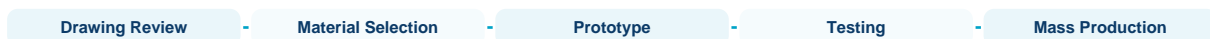
A membrane switch can integrate the graphic overlay, printed circuit, adhesive, tactile feedback, connector and sealing structure into one compact assembly. It is widely used in medical equipment, industrial control, automotive electronics, security systems, home appliances and electronic instruments.

Capability	What it means for your project
Drawing-based customization	Design based on drawings, samples, artwork, key layout, circuit requirements or application environment.
Integrated HMI module	Overlay, circuit, dome, adhesive, connector, backlight and sealing can be integrated into one assembly.
Application review	Engineering review for structure, material, bonding, tail exit, waterproofing and production feasibility.
Certified manufacturing support	ISO 9001, IATF 16949 and ISO 14001 certified system support.

## Core Product Options

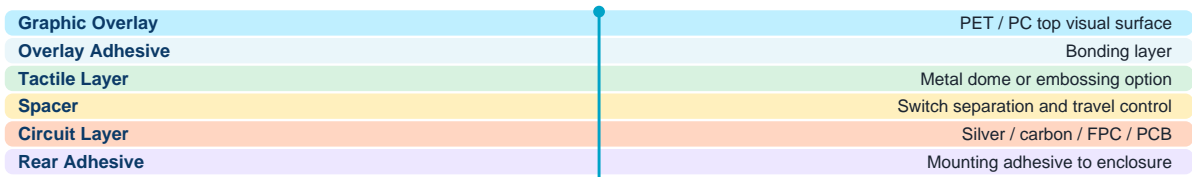
Option	Available configurations
Switch type	Tactile, non-tactile, embossed, flat key, metal dome switch
Overlay	PET, PC, PMMA, matte, glossy, textured, transparent window, dead-front effect
Circuit	Silver printed circuit, carbon printed circuit, FPC circuit or PCB integration
Backlighting	LED, LGF, EL, translucent window, dead-front or customized light design
Protection	Waterproof, dustproof and chemical-resistant structures available based on requirements

## Typical workflow



# Membrane Switch Structure

A membrane switch is built from multiple functional layers. The exact structure depends on the product size, key feel, circuit design, waterproof requirement, surface finish and assembly method.



Layer	Function
Graphic overlay	Top user interface. Printed with icons, logo, color blocks, windows and functional markings.
Overlay adhesive	Bonds the overlay to the switch structure. Adhesive is selected based on housing material and operating environment.
Tactile layer	Optional metal dome or embossing structure to create clear key feedback.
Spacer layer	Separates circuit layers and controls key travel, actuation behavior and insulation.
Circuit layer	Conductive layer for electrical function. Options include silver ink, carbon ink, FPC or PCB.
Rear adhesive	Mounting adhesive used to attach the membrane switch to the equipment enclosure or panel.
Connector / tail	Customized interface for the customer PCB or control board.

## Design note

For waterproof or outdoor products, tail exit direction, edge sealing, adhesive selection and housing fit should be reviewed at the early design stage.

# Technical Specifications

The following specifications are available based on project requirements. Final values depend on product structure, material selection, application environment and customer design requirements.

Item	Options / Description
Product type	Membrane switch, membrane keypad, graphic overlay, integrated HMI panel
Overlay material	PET, PC, PMMA or customized film materials
Circuit type	Silver printed circuit, carbon printed circuit, FPC circuit, PCB integration
Key type	Tactile, non-tactile, metal dome, embossed key, flat key
Surface finish	Matte, glossy, textured, anti-scratch, anti-glare, anti-fingerprint
Printing	Reverse screen printing, multi-color printing, transparent window printing
Backlighting	LED, LGF, EL, dead-front effect or customized lighting design
Waterproof design	Sealed structure and IP-rated design available based on project requirements
Adhesive	3M adhesive or customized industrial adhesive
Connector	ZIF tail, female connector, pin connector or customized interface
Applications	Medical equipment, industrial control, automotive electronics, instruments, security devices
Certification support	ISO 9001, IATF 16949, ISO 14001, RoHS / SGS material support where applicable

## Common Design Variants

- Tactile membrane switch with metal dome feedback
- Non-tactile flat membrane keypad for sealed control panels
- Backlit membrane switch with LED, LGF or dead-front display effect
- Waterproof membrane keypad for outdoor, medical or cleaning environments
- FPC membrane switch or PCB-integrated keypad for compact electronics

# Customization Options

Baoshengda supports customized membrane switch development for different equipment structures, user interfaces and application environments.

Category	Customization options
Graphic and appearance	Custom color, logo, icons, symbols, transparent windows, semi-transparent windows, dead-front effect, matte or glossy surface, selective embossing
Electrical and functional design	Tactile or non-tactile keys, metal dome design, printed circuit, FPC circuit, PCB integration, LED / LGF / EL backlighting, EMI shielding, connector and tail design
Mechanical and assembly design	Custom outline shape, different adhesive systems, tail exit direction, housing fit, edge sealing, gasket or sealing structure
Environmental requirements	Waterproof and dustproof design, chemical cleaning resistance, UV resistance, anti-scratch surface, high/low temperature support, outdoor protection

## Engineering Review Points

Review point	Why it matters
Application environment	Defines material, adhesive, sealing and surface protection strategy.
Housing surface	Affects adhesive selection and bonding reliability.
Key layout	Affects user operation, actuation force and tooling feasibility.
Tail direction	Affects installation, waterproofing and PCB connection.
Artwork and windows	Affects printing process, alignment and display readability.

# Application Scenarios

Custom membrane switches are used where equipment requires a compact, sealed and customized HMI control surface.

<b>Medical Equipment</b> Control panels, diagnostic devices, monitoring equipment and rehabilitation devices where easy cleaning, stable operation and sealed surface design are important.	<b>Industrial Control</b> Industrial controllers, automation equipment, instruments and machinery panels requiring durable operation and flexible interface design.
<b>Automotive Electronics</b> Vehicle control panels, interior switch modules, dashboard-related interfaces and electronic control systems.	<b>Security and Access Control</b> Access control devices, alarm systems, control terminals and outdoor security equipment.
<b>Home Appliances and Smart Devices</b> Home appliance panels, smart home controls and compact electronic products.	<b>Instrumentation and Test Equipment</b> Measuring instruments, test equipment and handheld devices requiring clear operation and customized appearance.

## Related Baoshengda Solutions

- Graphic overlays and film panels for industrial and medical interfaces
- FPC membrane switches for compact and flexible electronics
- Backlit membrane switches for night-use or low-light operation
- FSR pressure sensors for force sensing and tactile feedback integration

### Website

<https://www.baoshengda-tech.com/>

# Quality, Testing and Quotation Information

Quality control can be planned according to the customer's product requirements and application environment. For automotive, medical, outdoor or industrial projects, reliability requirements should be defined at the early design stage.

Quality / Testing support	Description
Appearance inspection	Surface, printing, window and color review
Dimensional inspection	Outline, tolerance, tail and connector review
Key function testing	Electrical continuity and key response verification
Key life testing	Durability evaluation based on project requirements
Adhesion and bonding review	Adhesive matching and mounting reliability review
Color and transparency inspection	Color consistency and display window inspection
Environmental evaluation	High/low temperature, humidity and salt spray testing where applicable
Compliance support	RoHS / SGS material support where applicable

## Information Needed for a Faster Quote

- 2D drawing or 3D structure file
- Artwork file, color requirements or Pantone code
- Product size and thickness requirements
- Circuit diagram or functional key layout
- Tactile or non-tactile key requirement
- Connector type and tail direction
- Backlight, waterproof or sealing requirements
- Application environment and estimated annual quantity

# Start Your Custom Membrane Switch Project

Send us your drawing, sample, artwork or application requirements. Baoshengda can help review the structure and develop a reliable membrane switch solution from prototype to mass production.

<b>Request a Quote</b> <a href="https://www.baoshengda-tech.com/request-quote/">https://www.baoshengda-tech.com/request-quote/</a>	<b>Main Website</b> <a href="https://www.baoshengda-tech.com/">https://www.baoshengda-tech.com/</a>
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## FAQ Summary

Question	Short answer
Can you make waterproof membrane switches?	Yes. Sealed structures and IP-rated designs are available based on project requirements.
Can the switch include backlighting?	Yes. LED, LGF, EL and dead-front light effects can be reviewed.
Can you make tactile keys?	Yes. Metal dome and tactile structures can be designed based on actuation requirements.
Can you support FPC or PCB integration?	Yes. Printed circuit, FPC circuit and PCB integration are available depending on the design.
What do you need to quote?	Drawing, artwork, key layout, connector, application environment, quantity and samples if available.

## Baoshengda

Shenzhen Baoshengda Technology Co., Ltd. | Custom membrane switches, graphic overlays, FSR sensors and functional film solutions.