

# Membrane Switch Design Guide

Using this 4 step guideline will help maximize the quality, reliability, and efficiency of the membrane switch. Cubbison Company is capable of providing custom membrane switch design assistance to meet all of your requirements.

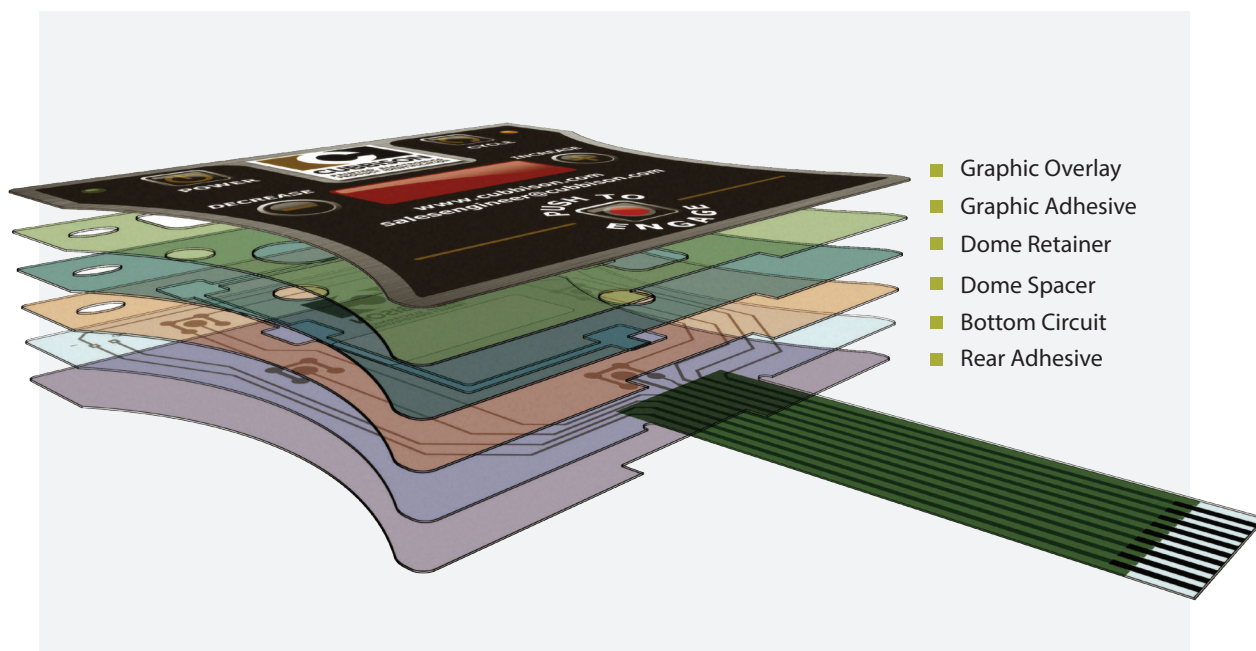
## STEP 1

### TYPES OF SWITCHES

In general terms there are two types of membrane switches, tactile, and non-tactile, and both of these can be constructed with or without a graphic overlay.

- Tactile Membrane Switches
- Non-Tactile Membrane Switches

### Membrane Layered Construction



## STEP 4

### CIRCUIT DESIGN

Circuitry is designed using either a common bus or a matrix configuration, or a combination of the two. The connection from the membrane switch to the PCB can be made one of three ways.

- A cable interconnect or tail that is terminated with bare contacts
- A plastic connector housing
- Solder tabs

The tail termination pitch can be 2.54mm, 1.27mm, 1.00mm, or 0.5mm. Metal tines are used for electrical connections.

### FINAL ITEMS TO CONSIDER

#### Backlighting Design Options

#### Shielding Options

#### Other Considerations

- Domes
- Venting
- NEMA Gasket
- Connectors
- Backer/Subpanel

## STEP 2

### CONSTRUCTION

A typical membrane switch construction consists of the following layers:

- Graphic Overlay
- Graphic Adhesive
- Dome Retainer
- Dome Spacer
- Bottom Circuit
- Rear Adhesive

## STEP 3

### THE GRAPHIC OVERLAY

Graphic Overlays are a critical component in membrane switches and touchscreens. They provide both protection and a surface for printing to generate a functional and user-friendly interface.

### ITEMS TO CONSIDER

#### ■ Cubbison Created Artwork

Cubbison employs a full service art department. We will work with you on designing and building a membrane switch custom for your application.

We can also help you select the best printing option available for your intended printed electronics application.

#### ■ Client Supplied Artwork

- Artwork Requirements
- Customer Supplied Information
- Acceptable Software Files

#### ■ Material Selection

#### ■ Color Matching

#### ■ Embossing

#### ■ Windows

#### ■ Texture

### CIRCUITRY

